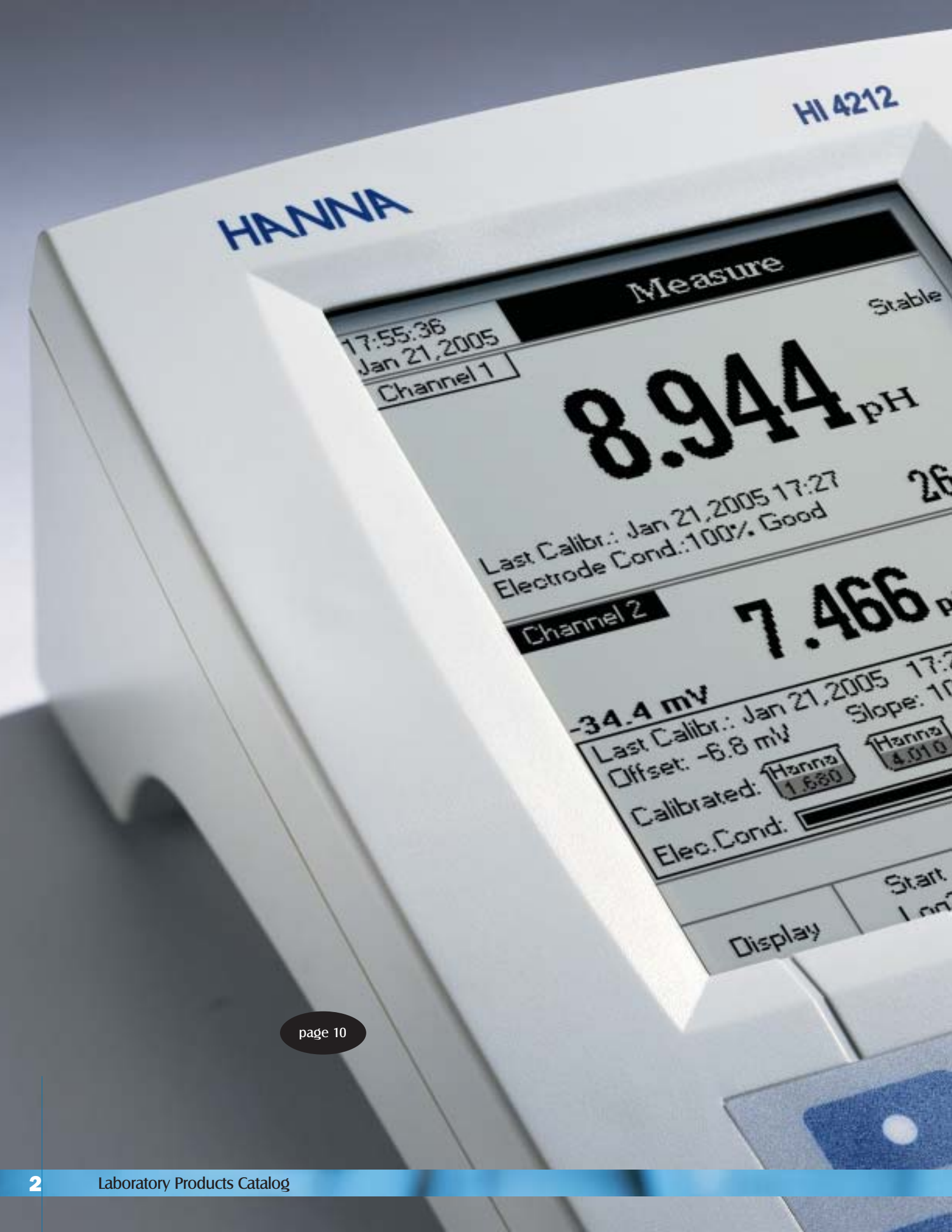

HANNA
HI 4212
Measure
Stable
17:55:36
Jan 21,2005
Channel 1
8.944 pH
Last Calibr.: Jan 21,2005 17:27
Electrode Cond.:100%. Good
Channel 2
7.466
-34.4 mV
Last Calibr.: Jan 21,2005
Offset: -6.8 mV
Slope:
Calibrated:
Hanna 1.680
Hanna 4.010
Elec.Cond:
Display
Start

page 10

HI 901 • HI 902

Automatic Titrators

With Clip-Lock™, it only takes a couple seconds to exchange the reagent burettes to perform a different titration.

With conventional titrators, there is the risk of cross contamination of titrants when exchanging reagents. Reconfiguring the titrator for different sample methods also consumes time and reagents. Each method may need different reagents and care must be used when purging and cleaning the burette. To avoid these problems, Hanna provides the Clip-Lock™ exchangeable burette system to prevent cross contamination while reducing loss of time and reagents.

1 **Slide the burette back from the pump assembly.**

2 **Slide the new burette into place.**

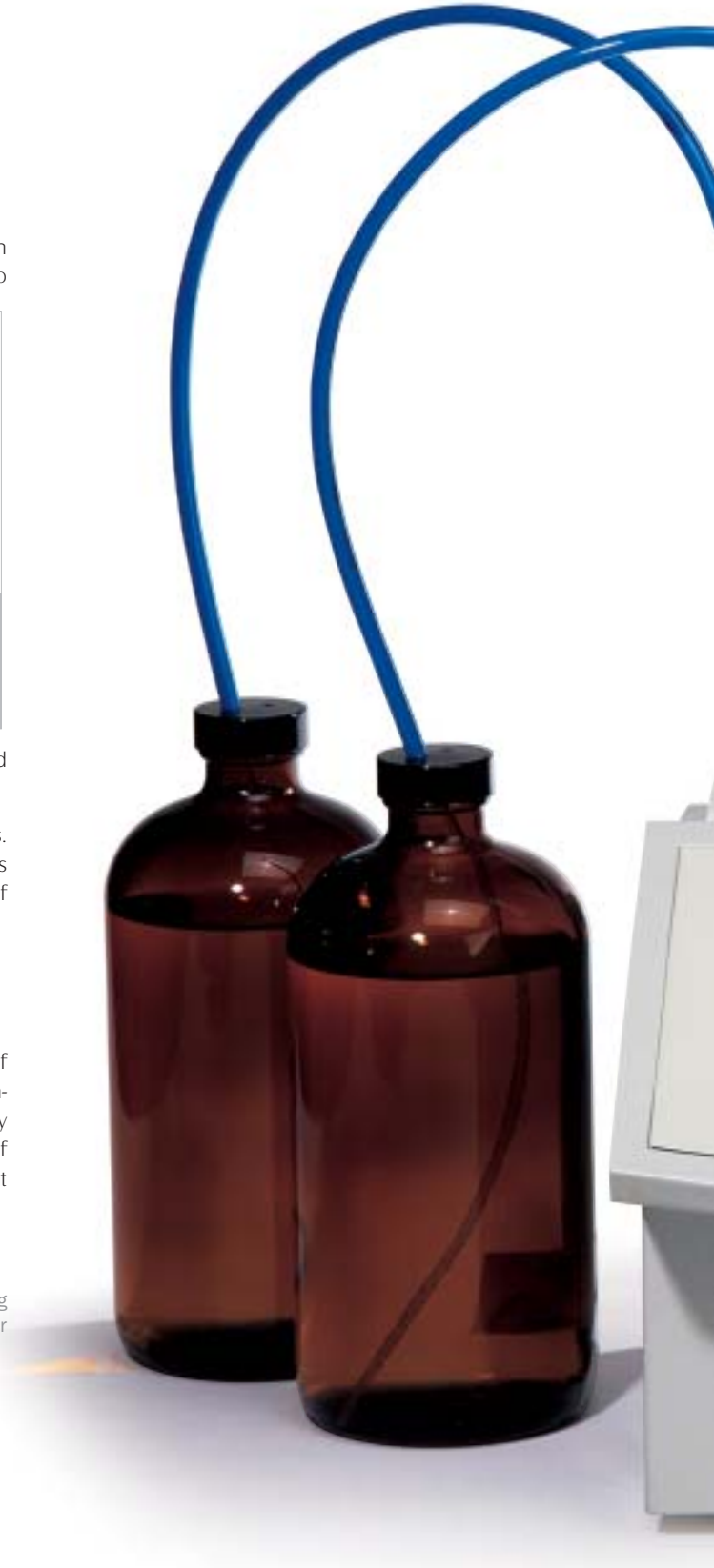
Having several prepared burettes on hand will make the Hanna **900 series** the fastest and most versatile titration systems available. Interrupting an important cycle of analysis due to a malfunctioning burette is a thing of the past. With the Hanna Clip-Lock™ system you can simply substitute the burette and complete all your tests with the same titrant!

Hanna's burettes feature a threaded screw connection to prevent leakage problems. Burettes are available in 5 mL, 10 mL & 25 mL sizes. Keep extra HANNA **900 series** burettes on hand for quick substitutions without changing the titrant! The burette is made of chemically resistant material to ensure many years of trouble-free operation.

Automatic Burette Volume Recognition

The automatic burette volume recognition feature of the Clip-Lock™ system makes exchanging titrants convenient, safe and rapid. Hanna's solution to automatically recognize the burette size eliminates the problem of manually re-entering titrant concentrations used in different various applications.

The HI 901 and HI 902 advanced titrators can be equipped with one or two burette dosing pumps. Only one pump can be active at a time. This option allows the user to set either pump active.

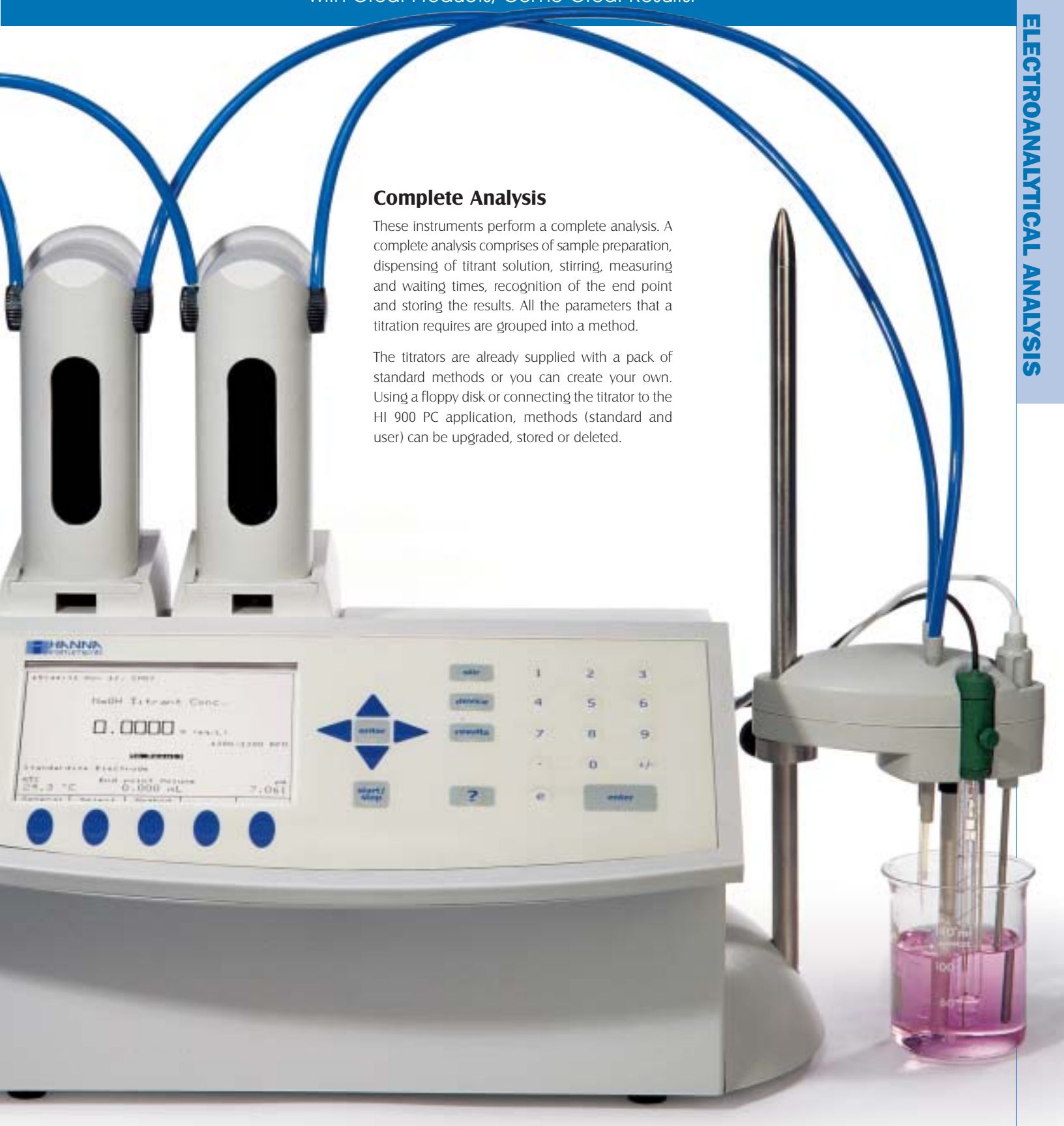


- Daily or periodic electrode standardization reminder.
- Total and Low titrant volume alert screen lets users know when it's time to add supplementary titrant to the glass titrant bottle, or when the available titrant volume has decreased to under 100 mL.
- Titrant age reminder screen allows a programmable reminder to display when it is time to verify the titrant concentration or to change the titrant due to concentration confidence loss.

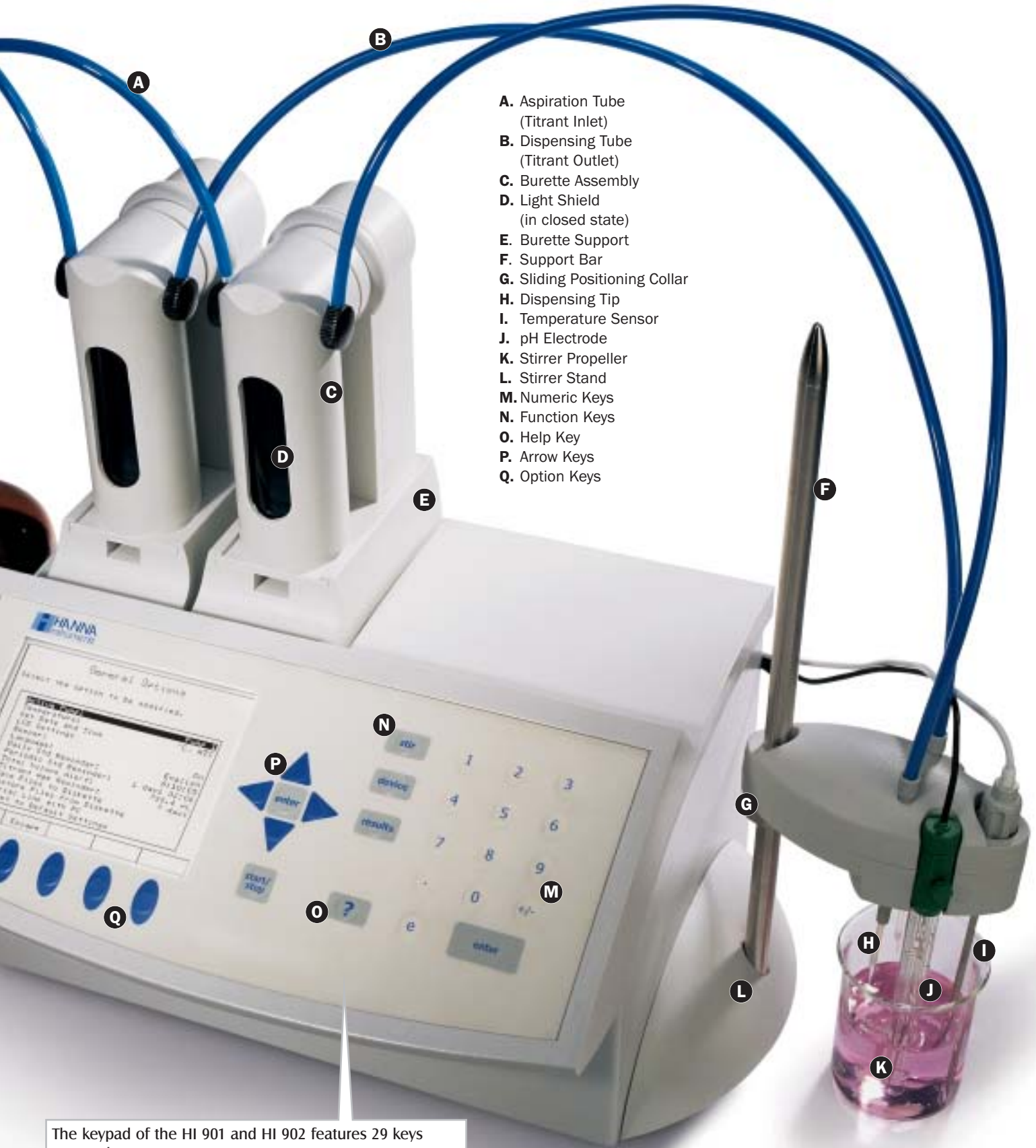
Complete Analysis

These instruments perform a complete analysis. A complete analysis comprises of sample preparation, dispensing of titrant solution, stirring, measuring and waiting times, recognition of the end point and storing the results. All the parameters that a titration requires are grouped into a method.

The titrators are already supplied with a pack of standard methods or you can create your own. Using a floppy disk or connecting the titrator to the HI 900 PC application, methods (standard and user) can be upgraded, stored or deleted.



- High resolution glass burettes feature rugged ABS protection while the tubing and burette cylinder are fully light shielded.
- Precise single or dual burette systems for multiple titrations with automatic burette volume recognition (5, 10, & 25 mL).
- Splashproof soft-touch keyboard with on-line help button.



A. Aspiration Tube (Titrant Inlet)
B. Dispensing Tube (Titrant Outlet)
C. Burette Assembly
D. Light Shield (in closed state)
E. Burette Support
F. Support Bar
G. Sliding Positioning Collar
H. Dispensing Tip
I. Temperature Sensor
J. pH Electrode
K. Stirrer Propeller
L. Stirrer Stand
M. Numeric Keys
N. Function Keys
O. Help Key
P. Arrow Keys
Q. Option Keys

The keypad of the HI 901 and HI 902 features 29 keys grouped in 4 categories:
Option Keys, Arrow Keys, Function/Help Keys and Numeric Keys.

Keep an accurate record of analysis!

Hanna's 900 Series titration systems are easily incorporated into any existing GLP data management program:

- Users can easily record all necessary GLP information with every sample including sample identification, company and operator name, date, time, electrode ID codes and calibration information.
- Data can also be transferred using an integral floppy disk drive for communication with a PC or even other titration systems. Special memory cards are not required.
- All test results can be transferred directly to a PC.
- Users can print reports of analysis directly from the titrator using a standard parallel printer.
- An external monitor and keyboard can be attached for added versatility.
- An RS 485 port is included for future expansion.

✓ **PC connectivity**

The **HI 900 series** titrators can be connected to a computer in conjunction with HANNA software.

✓ **VGA Display connectivity**

The information shown on the titrator display can be viewed on a standard VGA display via a 15-pin socket.

✓ **Printer connectivity**

The **HI 900 series** titrators accept a variety of parallel printers for printing of data.

✓ **PC keyboard connectivity**

An external PC compatible keyboard can be connected in addition to the instruments keypad.

Log precision pH or mV measurements

Record up to 100 reports

Incorporate Hanna 900 series titrators into any GLP data management program

Basic single channel display

Channel 1 GLP display

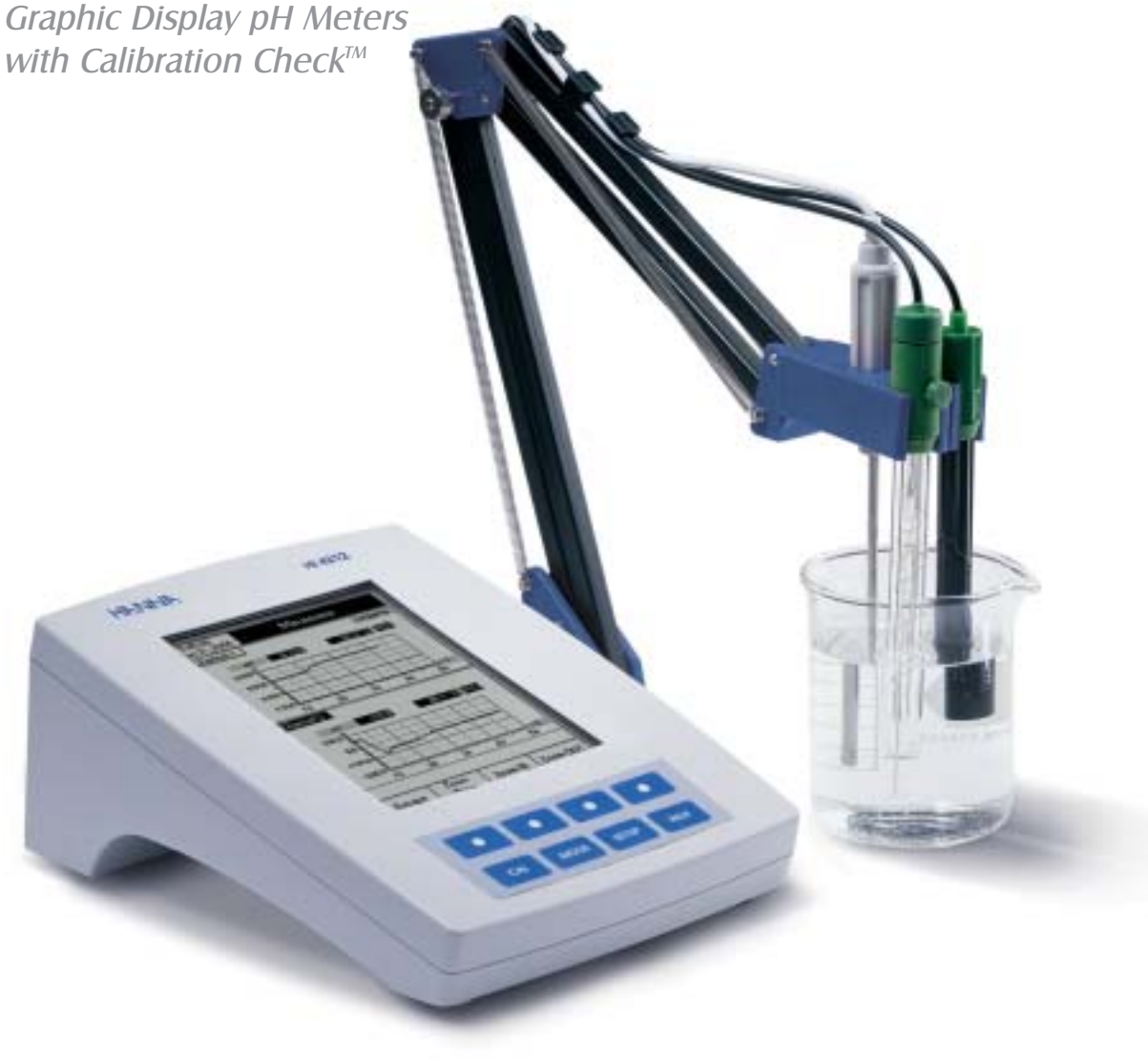
Dual-channel basic display

Ch 1 basic with Ch 2 GLP display

Log report display

HI 4211 • HI 4212

Graphic Display pH Meters with Calibration Check™

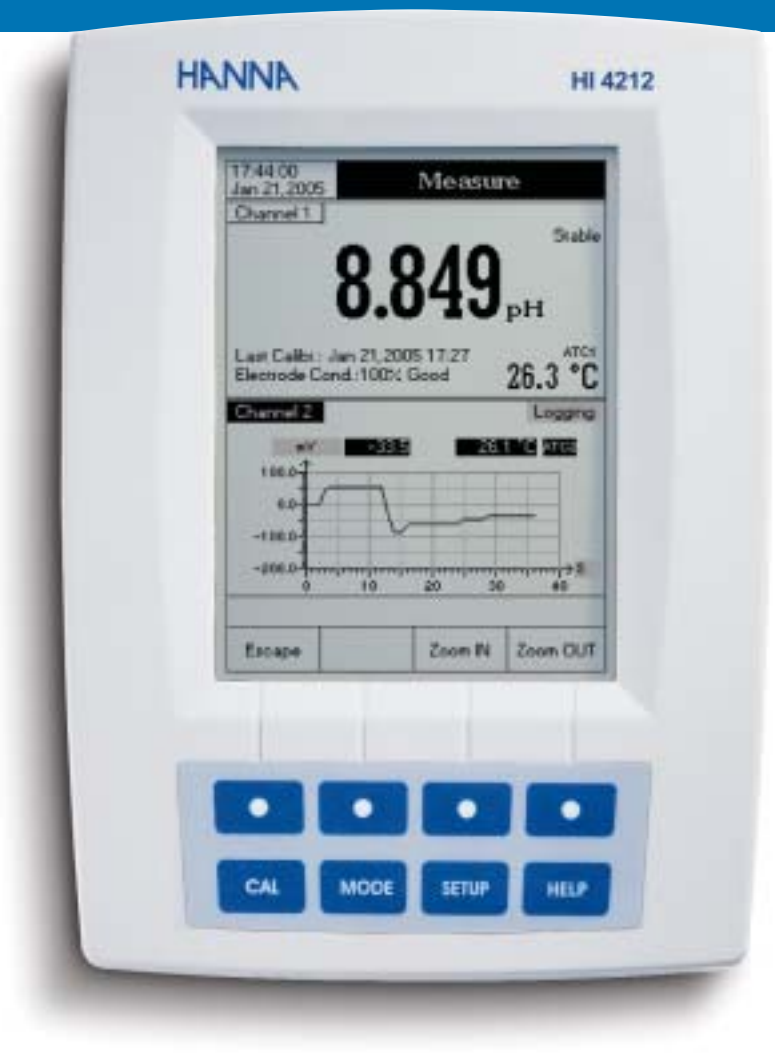


• Backlit, dot matrix display • Electrode Diagnostics • Automatic Data-logging

HI 4211 & **HI 4212** are single and dual-channel Calibration Check™ pH meters with a backlit, dot matrix display. These instruments perform electrode diagnostics to ensure that the electrode used is always in optimal condition. As part of the Calibration Check™ feature, if the measurement is outside of the calibration range, users are warned with a graphic message. In order to always perform a calibration that is as close as possible to the measurement range, the user has the flexibility to choose up to 5 calibration points with standard or custom buffers.

The dual-channel **HI 4212** provides simultaneous graphing and logging of each independent channel on the screen. These meters can display extensive GLP data, concurrent measurement readout and logged graphed data, calibration data with used buffer values and expiration date and definition of the ionic strength constant value (ISE measurement only). **HI 4211** and **HI 4212** also provide on-screen feature related help: at the touch of a button users can access current content related guidelines and procedures in 4 different languages.

The two measurement channels of the **HI 4212** are galvanically isolated to eliminate noise and instability. In ISE mode these instruments provide the user with a choice of several incremental methods. Communication is via opto-isolated USB and RS232 ports.



Features

- HANNA's Exclusive Calibration Check™
- Large, dot-matrix LCD with backlight
- Simultaneous dual graph display and real-time logging
- Opto-isolated USB and RS232
- GLP data
- Calibration data (buffer values, expiration date)
- Date and time
- Multi-language interface
- ID number
- Manual or automatic temperature compensation
- Temperature measure unit (degree K, °C, °F)
- Relative mV scale
- Incremental ISE methods
- Auto End Point mode
- Data logging
- Acoustic signal Alarm

ORDERING INFORMATION

HI 4211 and **HI 4212** are supplied with power adapter and instructions.

HI 4211-01 and **HI 4212-01** are supplied with HI 1131B pH electrode, HI 7669/2W temperature probe, power adapter, pH 4 and pH 7 buffer solutions, electrode refilling solution, HI 76404N electrode holder, magnetic stirrer and instructions.

ACCESSORIES

HI 1131B
Refillable pH electrode with BNC connector and 1 m (3.3') cable

HI 7669/2W
Temperature probe

HI 76404N
Electrode holder

HI 6016
pH 1.677 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 77400P
pH 4 & 7 buffer Sachets, 20 mL, 5 pcs each

HI 92000
Windows® compatible software

HI 920010
9-pin serial cable for PC

HI 180H/U
Magnetic stirrer

SPECIFICATIONS

	HI 4211 (Single Channel)	**HI 4212** (Dual Channel)
pH Range	-2.00 to 20.00 pH; -2.000 to 20.000 pH	
pH Accuracy (@20°C)	±0.1 pH; ±0.01 pH; ±0.002 pH ±1 LSD	
pH Resolution	0.1 pH; 0.01 pH; 0.001 pH	
mV Range	±2000 mV	
mV Accuracy (@20°C)	±0.2 mV ±1 LSD	
mV Resolution	0.1 mV	
Selective Ions Range	-	1×10^{-6} to 9.99×10^{10} concentration
Selective Ions Accuracy (@20°C)	-	±0.5% (monovalent ions); ±1% (divalent ions); ±1.5% (trivalent ions)
Selective Ions Resolution	-	1; 0.1; 0.01; 0.001 concentration
°C Range	-20.0 to 120.0°C	
°C Accuracy (@20°C)	±0.2°C	
°C Resolution	0.1°C	
Relative mV Offset Range	±2000 mV	
Input Channel	1	2
Calibration Check	Status of electrode condition and response time; Status of the buffer solutions during calibration	
pH Calibration	Automatic up to 5 points with 8 memorized values (pH 1.68, 3.00, 4.01, 6.86, 7.01, 9.18, 10.01, 12.45) + 5 custom buffers	
ISE Calibration	Automatic, up to 5 points	
Temperature Comp.	Manual (MTC) or Automatic (ATC) temperature compensation from -20.0 to 120.0°C (-4 to 248°F)	
pH Electrode	**HI 1131B** glass body, double junction, refillable, BNC connector, 1 m (3.3') cable (optional)	
Temperature Probe	**HI 7669/2W** stainless steel probe, 1 m (3.3') cable (optional)	
Log-on-demand	5000 samples	
Automatic Data Logging	5000 samples	
PC Connection	Opto-isolated USB and RS232	
Languages	English, Italian, Spanish, French	
Input Impedance	10^{12} ohm	
Power	12 VDC adapter (included)	
Environment	0 to 50°C (32 to 122°F) max. 95% RH	
Dimensions	159 x 230 x 93 mm (6.3 x 9.1 x 3.7")	
Weight	800 g (1.8 lb.)	

Sample Printed Reports

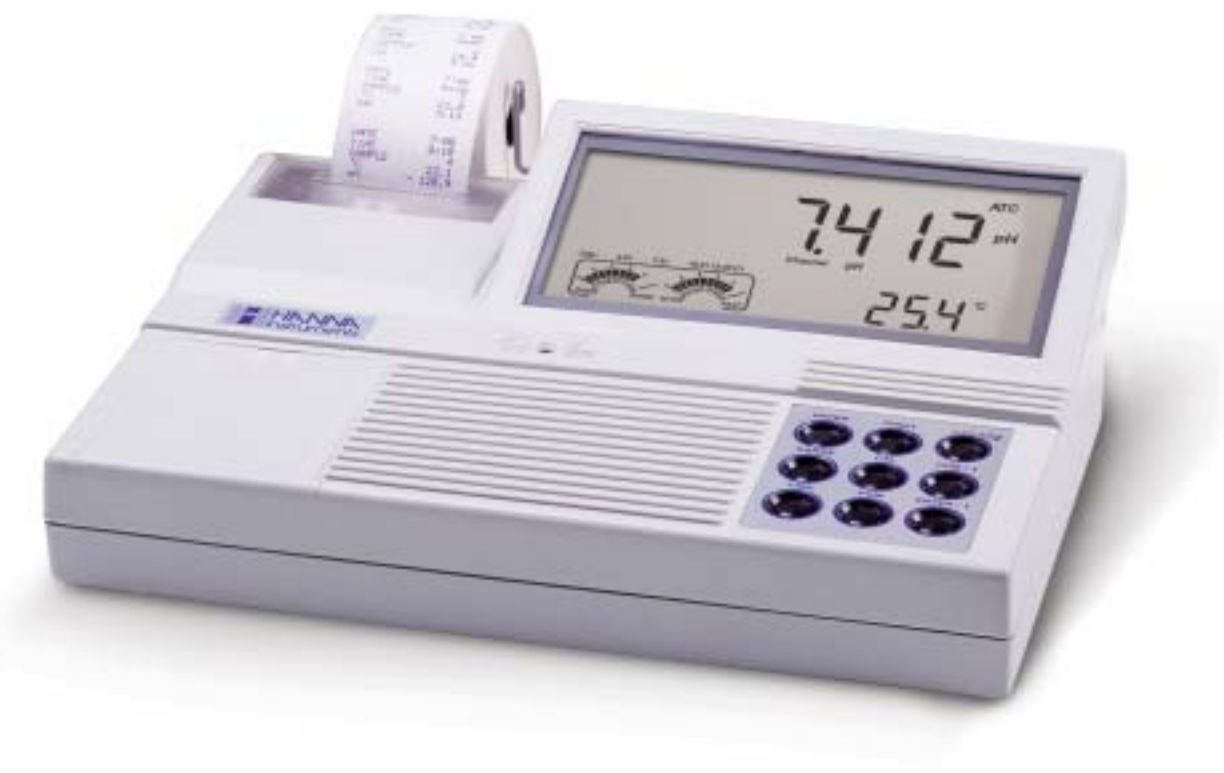
```
SETUP REPORT
Instr ID      0003
Cal required
after:  7 day(s)
One Cal Point
              Pri
Custom Buffer
pH            8.000
pH            3.000
Date    2005/01/20
Time      17:36:11
Printer         OFF
Language        ENG
Beep            OFF
Baud Rate      9600
Comm Prefix      16
ALARM HIGH LIMIT
pH            12.00
mV              no
Rel mV          no
ALARM LOW LIMIT
pH              no
mV              no
Rel mV          no
Temperature     °C
AUTO-LOG:
Interval    000:30
START Conditions:
 btn=button
STOP Conditions:
Durations:  03:00
```

```
    GLP pH
Instr ID      0003
Date    2005/01/10
Time      15:05:50
Cal required
after: -4 day(s)
Offset        4.3mV
Slope        100.6%
Cal Buffers:
pH              7.01
pH              4.01
pH             10.01
Old Buffer:
pH              1.68
Old Buffer:
pH             12.45
```

```
START AUTOLOG
Instr ID      0003
Lot             L07
Date    2005/01/28
Time      17:39:34
Interval    000:30
Slope        100.6%
Offset        4.3mV

Sample No        1
Time      17:39:34
pH             7.07
mV              0.1
°C             24.6

Sample No        2
Time      17:40:04
pH             7.07
mV              0.1
°C             24.6

Sample No        3
Time      17:40:34
pH            12.44
mV           -345.7
°C             25.4

STOP AUTOLOG
Date    2005/01/28
Time      17:40:46
```

HI 120 Series

Calibration Check™ and Auto Data-logging



• Large Display • Electrode Diagnostics • Automatic Data-logging

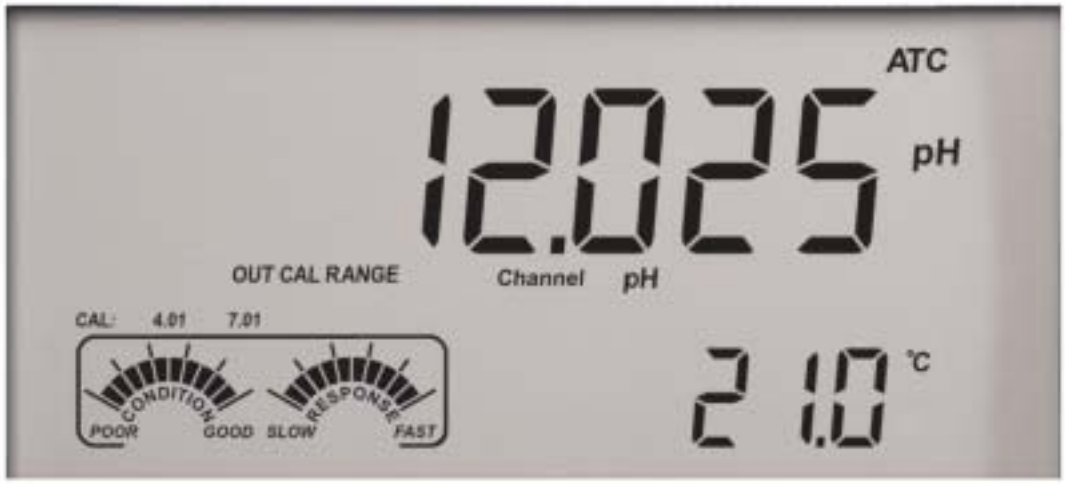
HI 120 series Calibration Check™ pH meters feature electrode response and condition monitoring, as well as wrong or contaminated buffer calibration solution. These meters use HANNA's "P" series of electrodes which allow the instrument to recognize the type of electrode used in order to optimize the calibration. 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. Calibration can be performed up to 5 points with 7 memorized buffers and 2 custom buffers. The buffer(s) used during calibration are displayed on the LCD even when in measurement mode.

The **HI 120 series** of pH meters also features a very large custom LCD which can be read from up to 15' away and at different viewing angles. For models **HI 121** and **HI 123** that have dual inputs to measure both pH and ISE the LCD displays the channel used and the readout in the relative range.

Models **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 make a print-out of detailed information for GLP, log-on-demand, auto-logging, instrument set-up and report set-up data.

All models feature an extended pH range from -2.000 to 16.000 and a relative mV range. For reporting purposes, Log-on-demand of 500 samples (models **HI 120** and **HI 122**) and 1000 samples (models **HI 121** and **HI 123**), automatic data logging of 100 samples (models **HI 120** and **HI 122**) or 2000 samples (models **HI 121** and **HI 123**) and opto-isolated RS232 serial port.

HI 120 Series Display Samples



pH channel on display with out of calibration range warning - LCD shown actual size

Good Laboratory Practice calibration on display

ISE channel basic display

Calibration on display with "clean electrode" warning

pH channel on display with calibration points on display

pH channel on display showing Calibration Check™ graphs and reading on "HOLD"

pH channel on display showing auto logging mode and logging interval

SPECIFICATIONS	HI 120	HI 121	HI 122	HI 123
pH Range	-2.00 to 16.00; -2.000 to 16.000 pH			
pH Accuracy (@20°C)	±0.01; ±0.002 pH			
pH Resolution	0.01; 0.001 pH			
mV Range	±999.9 mV			
mV Accuracy (@20°C)	±0.2 mV (699.9 mV); ±0.5 (999.9 mV); ±1 (2000 mV)			
mV Resolution	0.1; 1			
Selective Ions Range	-	0.001 to 19999 ppm	-	0.001 to 19999 ppm
Selective Ions Accuracy (@20°C)	-	±0.5% F.S.	-	±0.5% F.S.
Selective Ions Resolution	-	0.001; 0.01; 0.1; 1 ppm	-	0.001; 0.01; 0.1; 1 ppm
°C Range	-20.0 to 120.0°C			
°C Accuracy (@20°C)	±0.4°C			
°C Resolution	0.1°C			
BNC Inputs	1 for pH	1 for pH; 1 for ISE	1 for pH	1 for pH; 1 for ISE
Calibration Check	Status of electrode condition and response time; Status of the buffer solutions during calibration			
pH Calibration	Automatic up to 5 points with 7 memorized values (pH 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 memorized values (0.1, 1, 10, 100, 1000 ppm) HI 121 & HI 123 only			
Relative mV Offset	±2000 mV			
Temperature Comp.	Manual (MTC) or Automatic (ATC) temperature compensation from -20.0 to 120.0°C (-4 to 248°F)			
pH electrode	**HI 1131P**, glass body, refillable, BNC + pin connectors, 1 m (3.3') cable (included)			
Temperature probe	**HI 7662** stainless steel probe, 1 m (3.3') cable (included)			
Log-on-demand	500 samples	1000 samples	500 samples	1000 samples
Automatic Data Logging	100 samples	2000 samples	100 samples	2000 samples
Built-in Printer	No	No	Yes	Yes
PC Connection	Opto-isolated RS232			
Input impedance	10^{12} ohm			
Power Supply	12 VDC adapter (included)			
Environment	0 to 50°C (32 to 122°F) max. 95% RH			
Dimensions	280 x 203 x 84 mm (11.0 x 8.0 x 3.3")			
Weight	1.8 kg (4.0 lb.)			

ORDERING INFORMATION

HI 120, **HI 121**, **HI 122** & **HI 123** are supplied with HI 1131P pH electrode with BNC connector and 1 m cable, HI 7662 temperature probe, pH 4 and 7 buffer solutions, 12 VDC power adapter and instructions

ACCESSORIES

All electrodes 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
Temperature probe

HI 76405
Electrode holder

HI 6016
pH 1.677 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 77400P
Cal. kit (pH 4 & 7, 20 mL, 5 pcs ea.)

HI 70300L
Storage solution, 500 mL

HI 92000
Windows® compatible software

HI 920010
Serial connection cable for PC

ORDERING INFORMATION

HI 110, **HI 111**, **HI 112** & **HI 113** are supplied with HI 1131B pH electrode, HI 7669/2W temperature probe, pH 4 and 7 calibration solution (20 mL each), electrolyte solution, electrode holder, 12 VDC adapter and instructions

ACCESSORIES

HI 1131B
Refillable pH electrode with BNC connector & 1 m (3.3') cable

HI 7669/2W
Temperature probe

HI 76404
Electrode holder

HI 7004L
pH 4.01 buffer solution, 500 mL

HI 7007L
pH 7.01 buffer solution, 500 mL

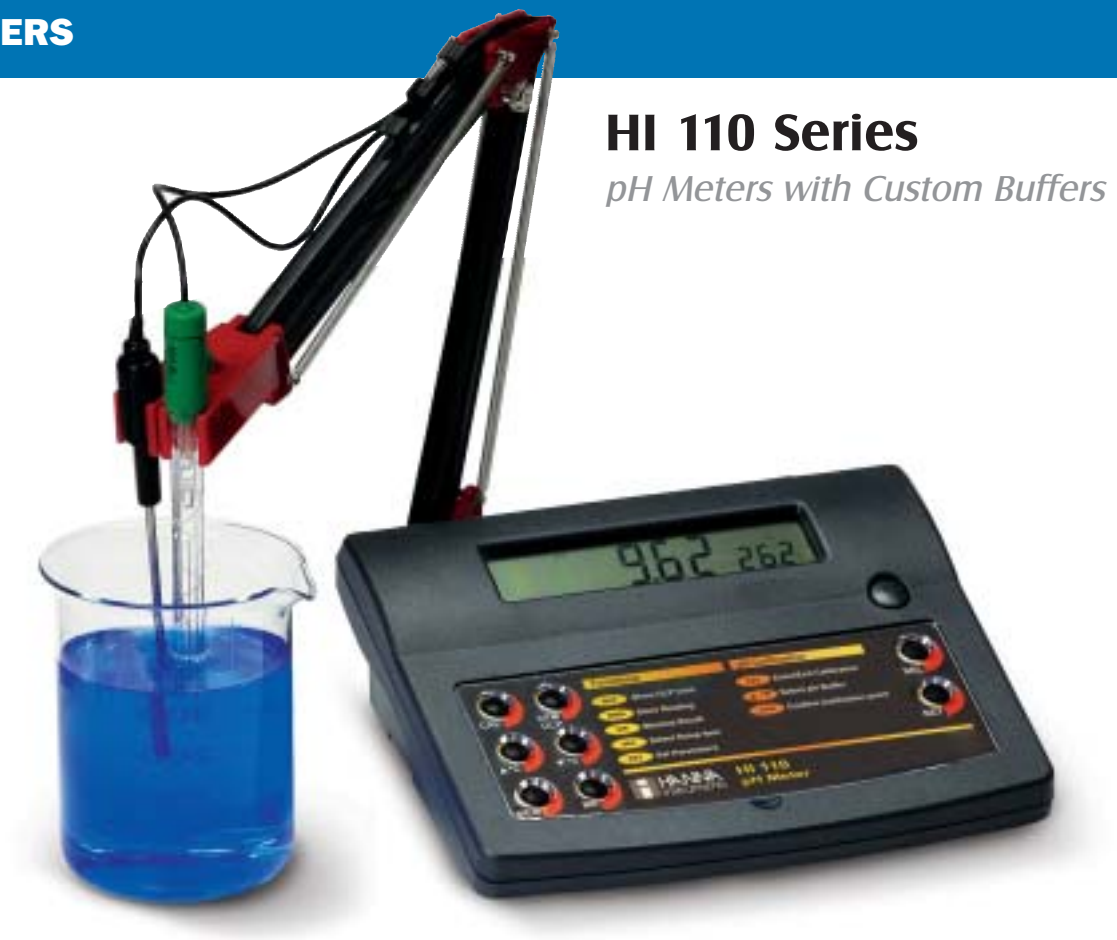
HI 7010L
pH 10.01 buffer solution, 500 mL

HI 77400P
Cal. kit (pH 4 & 7, 20 mL, 5 pcs ea.)

HI 70300L
Storage solution, 500 mL

HI 92000
Windows® compatible software

HI 920010
Serial cable for PC connection



HI 110 Series

pH Meters with Custom Buffers

• Up to 3 Point Calibration • Custom Buffers • GLP Functions

This series of instruments features automatic calibration up to 3 points, using 5 (models **HI 110** and **HI 111**) or 7 (models **HI 112** and **HI 113**) memorized pH buffers. For added flexibility, these instruments can also be calibrated using 2 additional pH buffers that are user selectable (custom buffers). This feature is particularly useful in applications that require the pH calibration to be very closed to the actual measurement.

Additional features common to all models are the extended pH (from –2 to 16 pH) and temperature (from –9.9 to 120 degrees Celsius) range, the opto-isolated RS 232 connection, GLP functions, automatic temperature compensation. Models **HI 111** and **HI 113** also offer a mV range for ISE measurements, and a relative mV scale.

SPECIFICATIONS	HI 110	HI 111	HI 112	HI 113
pH Range	-2.00 to 16.00 pH	-2.00 to 16.00 pH	-2.00 to 16.00 pH	-2.00 to 16.00 pH
	-	-	-2.000 to 16.000 pH	-2.000 to 16.000 pH
pH Accuracy (@20°C)	±0.01 pH	±0.01 pH	±0.01 pH; ±0.002 pH	±0.01 pH; ±0.002 pH
pH Resolution	0.01 pH	0.01 pH	0.01 pH; 0.001 pH	0.01 pH; 0.001 pH
mV Range	-	±699.9 (ISE); ±2000 mV	-	±699.9 (ISE); ±2000 mV
mV Accuracy (@20°C)	-	±0.2 mV; ±1 mV	-	±0.5 mV; ±1 mV
mV Resolution	-	0.1 mV; 1 mV	-	0.1 mV; 1 mV
°C Range	-9.9 to 120.0°C	-9.9 to 120.0°C	-9.9 to 120.0°C	-9.9 to 120.0°C
°C Accuracy (@20°C)	±0.4°C	±0.4°C	±0.4°C	±0.4°C
°C Resolution	0.1°C	0.1°C	0.1°C	0.1°C
Relative mV Offset	-	±2000 mV	-	±2000 mV
pH Calibration	Automatic, up to 3 points with 5 memorized values (pH 4.01, 6.86, 7.01, 9.18, 10.01) + 2 custom buffers		Automatic, up to 5 points with 7 memorized values (pH 1.68, 4.01, 6.86, 7.01, 9.18, 10.01, 12.45) + 2 custom buffers	
Temperature Compensation	Automatic (with **HI 7669/2W** probe) or manual from -9.9 to 120°C			
pH Electrode	**HI 1131B** glass body, double junction, refillable, BNC connector, 1 m (3.3') cable (included)			
Temperature Probe	**HI 7669/2W** stainless steel probe, 1 m (3.3') cable (included)			
Input Impedance	10^{12} ohm			
PC Connection	Opto-isolated RS232			
Power Supply	12 VDC adapter (included)			
Environment	0 to 50 (32 to 122°F) max. 95% RH			
Dimensions	240 x 182 x 74 mm (9.4 x 7.2 x 2.9")			
Weight	1.1 kg (2.4 lb.)			

ORDERING INFORMATION

HI 255 is supplied with HI 1131B pH electrode, HI 76310 EC/TDS probe, HI 7662 temperature probe, HI 76404 electrode holder, pH 4 and 7 calibration solution (20 mL each), electrolyte solution, 12 VDC adapter and instructions

ACCESSORIES

HI 1131B
Refillable pH electrode with BNC connector

HI 76310
4-ring platinum sensor conductivity probe

HI 7662
Temperature probe

HI 76404
Electrode holder

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 77400P
Cal. kit (pH 4 & 7, 20 mL, 5 pcs ea.)

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

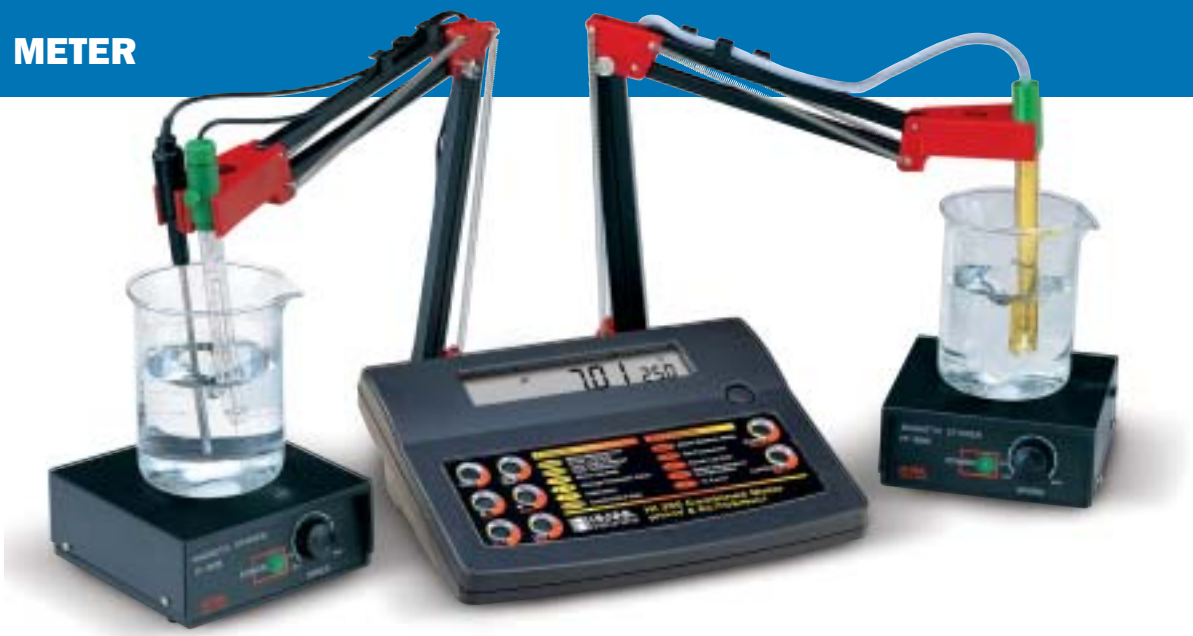
HI 7037L
NaCl calibration solution, 500 mL

HI 70300L
Storage solution, 500 mL

HI 7071L
Electrolyte solution (30 mL, 4 pcs)

HI 920010
Serial cable for PC connection

HI 92000
Windows® compatible software



HI 255

pH and Conductivity Meter

pH and conductivity circuits are electrically separated, so that the two probes do not need to be simultaneously immersed in the same solution. The conductivity probe does not interfere with pH measurements and the response of the pH electrode is immediately stable.

• ATC • GLP Features • Log up to 200 Samples

HI 255 performs analysis of pH, ORP, conductivity, TDS, NaCl percentage and temperature. Calibration of pH is automatic 1, 2 or 3 points, with 5 memorized buffers. Calibration of conductivity is also automatic at 1 point with 5 memorized buffers. Conductivity measurements are performed from 0 to 500 mS with a single probe and with no need to change the cell constant. Measurements in the conductivity range can be compensated to reference temperature of 20 or 25 degrees Celsius. All measurements are automatically compensated for changes of temperature.

This instrument also features an opto-isolated RS 232 connection, GLP features and logging of up to 200 samples.

SPECIFICATIONS	HI 255
pH/ORP Range	-2.00 to 16.00 pH; -2.000 to 16.000 pH; ±699.9 mV; ±2000 mV
pH/ORP Accuracy (@20°C)	±0.01 pH; ±0.002 pH; ±0.2 mV (±699.9 mV); ±1 mV (±2000 mV)
pH/ORP Resolution	0.01 pH; 0.001 pH; 0.1 mV (±699.9 mV); 1 mv (±2000 mV)
EC Range *(autoranging)*	0.00 to 29.99 µS/cm; 30.0 to 299.9 µS/cm; 300 to 2999 µS/cm; 3.00 to 29.99 mS/cm; 30.0 to 200.0 mS/cm; up to 500.0 mS/cm actual conductivity (without ATC)
EC Accuracy (@20°C)	±1% of reading ±(0.05 µS/cm or 1 digit, whichever greater)
EC Resolution	0.01 µS/cm; 0.1 µS/cm; 1 µS/cm; 0.01 mS/cm; 0.1 mS/cm
TDS Range *(autoranging)*	0.00 to 14.99 ppm (mg/L); 15.0 to 149.9 ppm (mg/L); 150 to 1499 ppm (mg/L) 1.50 to 14.99 ppt (g/L); 15.0 to 100.0 ppt (g/L) up to 400.0 g/L actual TDS (without ATC)
TDS Accuracy (@20°C)	±1% of reading ± (0.03 ppm or 1 digit, whichever greater)
TDS Resolution	0.01 ppm (mg/L); 0.1 ppm (mg/L); 1 ppm (mg/L); 0.01 ppt (g/L); 0.1 ppt (g/L)
NaCl Range	0.0 to 400.0% NaCl
NaCl Accuracy (@20°C)	±1% of reading
NaCl Resolution	0.1% NaCl
°C Range	-10 to 120.0°C (pH); 0.0 to 60.0°C (EC)
°C Accuracy (@20°C)	±0.4°C
°C Resolution	0.1°C
Relative mV Offset	±2000 mV
pH Calibration	Automatic at 1, 2 or 3 points with 5 memorized buffers (pH 4.01, 6.86, 7.01, 9.18, 10.01)
EC Calibration	Automatic at 1 point with 6 memorized buffers (84.0, 1413 µS/cm, 5.00, 12.88, 80.0, 111.8 mS/cm)
NaCl Calibration	Automatic at 1 point with **HI 7037L** buffer (optional)
Temperature Compensation	Automatic or manual from -10.0 to 120.0°C (14 to 284°F for pH); 0.0 to 60.0°C (32 to 140°F) for EC*
Temperature Coefficient	0.00 to 6.00%/°C (for EC and TDS only); Default value is 1.90%/°C
TDS Conversion Factor	Selectable from 0.40 to 0.80 (default value is 0.50)
Computer Interface	Opto-isolated RS-232
Data Logging	200 samples
Input Imperdance	10^{12} Ohm
pH Electrode	**HI 1131B** glass body, double junction, refillable, BNC connector, 1 m (3.3') cable (included)
EC probe	**HI 76310** 4-ring, platinum sensor conductivity probe
Temperature probe	**HI 7662** temperature Probe
Power	12 VDC adapter (included)
Environment	0 to 50°C (32 to 122°F); max. 95% RH
Dimensions/Weight	240 x 182 x 74 mm (9.4 x 7.2 x 2.9")/1.1 Kg (2.4 lb.)

* Can be disabled to measure actual EC and TDS values

HI 9026

Cal-Check™ pH Meter

HI 98160

Auto End-point pH Meter

• Backlit, Dual-level LCD • Automatic Calibration • Waterproof

HI 9026 is a pH/ORP meter with Calibration Check™ that displays the condition of the pH electrode on the bar graph on the LCD. Users can choose between 7 memorized buffer values for the 2 points of calibration, and for added flexibility, it is possible to manually enter 2 custom buffers. This meter also features a Calibration time out, which is user selectable, from 1 to 14 days from the time of calibration. Upon expiration, the user will be reminded with a blinking message on the LCD.

The portable **HI 98160** has an auto end-point feature: on users' demand, the meter switches automatically into the HOLD mode when the reading is stabilized. With **HI 98160** calibration is automatic and can be performed at 1 or 2 points with 7 memorized pH buffer values. For added flexibility, **HI 98160** can also be calibrated by using 2 custom buffers, which are user selectable. Additional features of this meter include a backlit LCD, logging up to 500 measurements that include pH, temperature date and time and an RS 232 port.

SPECIFICATIONS	HI 9026	HI 98160
pH Range	-2.00 to 16.00 pH	-4.00 to 19.99 pH
pH Accuracy (@20°C)	±0.01 pH	±0.01 pH
pH Resolution	0.01 pH	0.01 pH
mV Range	±699.9 mV; ±1999 mV	±600.0 mV; ±2000 mV
mV Accuracy (@20°C)	±0.2 mV; ±1 mV	±0.2 mV; ±1 mV
mV Resolution	0.1 mV; 1 mV	0.1 mV (±400 mV); 0.2 mV (±400 to ±600 mV); ±2 mV (outside)
Temperature Range	-20.0 to 120.0°C/-4.0 to 248.0°F	
Temperature Accuracy (@20°C)	±0.4°C/±0.8°F	0.2°C (0 to 70°C); ±1°C (outside)
Temperature Resolution	0.1°C/0.1°F	0.1°C (-10 to 120°C); 1°C (<-10°C)
Calibration Check	Check of the electrode status condition during calibration	-
pH Calibration	Automatic 1 or 2 points with 7 memorized values (pH 1.68, 4.01, 6.86, 7.01, 9.18, 10.01, 12.45) + 2 custom buffers	Automatic, 1 or 2 points with 8 memorized buffer values (pH 1.68, 3.00, 4.01, 6.86, 7.01, 9.18, 10.01, 12.45)
mV Calibration	-	Automatic, 2 points at 0, 350 mV, or 3 points at 0, 350, 1900 mV
Temperature Comp.	Automatic or Manual from -20 to 120°C (-4 to 248°F)	
pH electrode	**HI 1230B** Ultem™ body, double junction, gel filled, BNC + 1 m (3.3') cable (included)	**HI 1230B/C** double junction, BNC connector with protective sleeve (included)
Temperature probe	**HI 7662** + 1 m (3.3') cable (included)	
PC connection	-	Through RS232 port using **HI 92011** (optional) conn. cable
Input impedance	10^{12} ohm	
Battery Type/Life	4 x 1.5V AA/ Approx. 500 hours without backlight. Auto off after 20 min. of non-use (can be disabled)	4 x 1.5V AA/ Approx. 300 hours without backlight. 12 VDC input
Environment	0 to 50°C (32 to 122°F) max. 100% RH	
Dimensions	196 x 80 x 60 mm (7.7 x 31 x 2.4")	
Weight	500 g (1.1 lb.)	

ORDERING INFORMATION

HI 9026 is supplied complete with HI 1230B pH electrode, HI 7662 temperature probe, pH 4 & pH 7 buffer sachets (20 mL ea.) 100 mL plastic beaker, batteries, rugged carrying case and instructions.

HI 98160 is supplied complete with HI 1230B/C pH electrode, HI 7662 temperature probe, pH 4 and pH 7 buffer sachets, electrode cleaning solution, batteries, rugged carrying case and instructions.

ACCESSORIES

HI 1230B
pH electrode, gel filled, Ultem® body, BNC connector, 1m cable (for HI 9026)

HI 3230B
ORP electrode, gel filled, Ultem® body, BNC connector, 1m cable (for HI 9026)

HI 1230B/C
pH electrode, gel filled, Ultem® body, BNC connector, 1m cable with protective sleeve (for HI 98160)

HI 3131B
ORP electrode with platinum sensor BNC connector, 1m (3.3') cable (for HI 98160)

HI 7662
Temperature probe

HI 76405
Electrode holder

HI 7001L
pH 1.68 buffer solution, 500 mL

HI 7004L
pH 4.01 buffer solution, 500 mL

HI 7006L
pH 6.86 buffer solution, 500 mL

HI 7007L
pH 7.01 buffer solution, 500 mL

HI 7009L
pH 9.18 buffer solution, 500 mL

HI 7010L
pH 10.01 buffer solution, 500 mL

HI 70300L
Storage solution, 500 mL

HI 7061L
Cleaning solution for general use, 500 mL

HI 7073L
Protein cleaning solution, 500 mL

HI 7074L
Inorganic substance cleaning solution, 500 mL

HI 7077L
Oil & Fat cleaning solution, 500 mL

HI 92000
Windows® compatible software

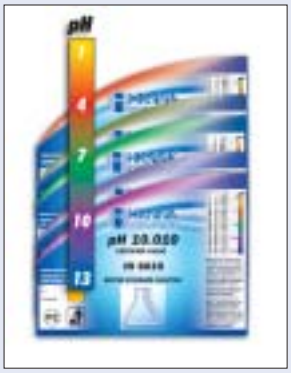
HI 92011
Serial cable for PC connection

HI 8427
pH and ORP electrode simulator

HI 931001
pH and ORP electrode simulator

Solutions manufactured to the needs of a busy laboratory

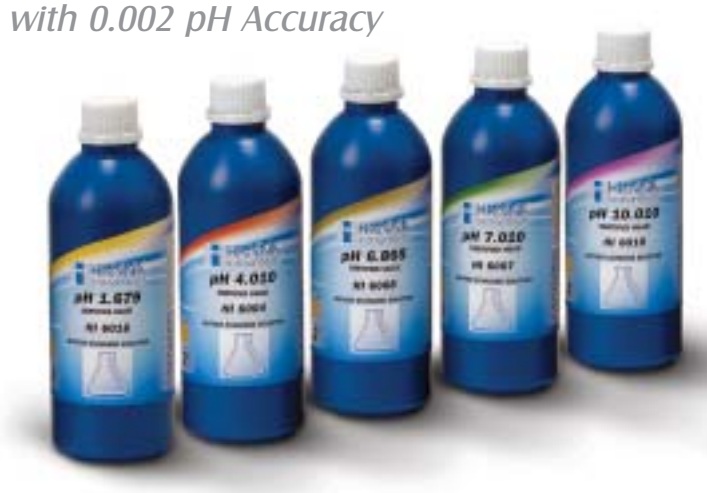
It is difficult to exaggerate the importance of buffer and maintenance solutions. Expensive equipment is often utilized well below its full capabilities due to lack of proper maintenance of sensors. With Hanna solutions, this is no longer a problem. All solutions are prepared with carefully weighed chemicals of the highest grade following International Laboratory Practice guidelines. Due to the sheer volume of solutions produced, the quantity of chemicals used provides a much better resolution than if small volumes were prepared by a laboratory technician.



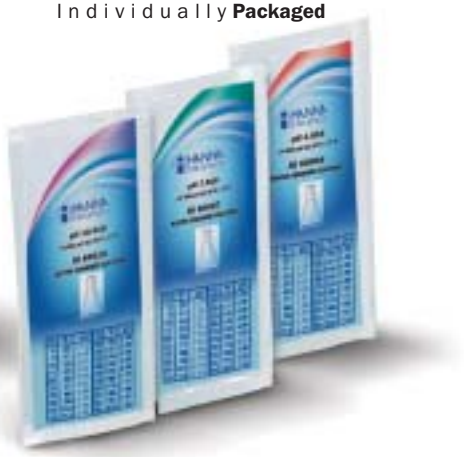
Certificates of Analysis are available.

pH Buffer Solutions

with 0.002 pH Accuracy



Individually **Packaged**



0.002 pH Accuracy

BOTTLES

pH Value @25°C	Code	Package
1.000	HI 6001	1 x 500 mL
1.000	HI 6001-01	1 x 1 L
1.679	HI 6016	1 x 500 mL
1.679	HI 6016-01	1 x 1 L
2.000	HI 6002	1 x 500 mL
2.000	HI 6002-01	1 x 1 L
3.000	HI 6003	1 x 500 mL
3.000	HI 6003-01	1 x 1 L
3.788	HI 6037	1 x 500 mL
3.788	HI 6037-01	1 x 1 L
4.010	HI 6004	1 x 500 mL
4.010	HI 6004-01	1 x 1 L
4.630	HI 6046	1 x 500 mL
4.630	HI 6046-01	1 x 1 L
5.000	HI 6005	1 x 500 mL
5.000	HI 6005-01	1 x 1 L
6.000	HI 6006	1 x 500 mL
6.000	HI 6006-01	1 x 1 L
6.862	HI 6068	1 x 500 mL
6.862	HI 6068-01	1 x 1 L
7.010	HI 6007	1 x 500 mL
7.010	HI 6007-01	1 x 1 L
7.413	HI 6074	1 x 500 mL
7.413	HI 6074-01	1 x 1 L
8.000	HI 6008	1 x 500 mL
8.000	HI 6008-01	1 x 1 L
9.000	HI 6009	1 x 500 mL
9.000	HI 6009-01	1 x 1 L
9.177	HI 6091	1 x 500 mL
9.177	HI 6091-01	1 x 1 L
10.010	HI 6010	1 x 500 mL
10.010	HI 6010-01	1 x 1 L
11.000	HI 6011	1 x 500 mL
11.000	HI 6011-01	1 x 1 L
12.000	HI 6012	1 x 500 mL
12.000	HI 6012-01	1 x 1 L
12.450	HI 6124	1 x 500 mL
12.450	HI 6124-01	1 x 1 L
13.000	HI 6013	1 x 500 mL
13.000	HI 6013-01	1 x 1 L

SACHETS

pH Value @25°C	Code	Package
1.000	HI 60001-01	10 x 20 mL
1.000	HI 60001-02	25 x 20 mL
1.679	HI 60016-01	10 x 20 mL
1.679	HI 60016-02	25 x 20 mL
2.000	HI 60002-01	10 x 20 mL
2.000	HI 60002-02	25 x 20 mL
3.000	HI 60003-01	10 x 20 mL
3.000	HI 60003-02	25 x 20 mL
3.788	HI 60037-01	10 x 20 mL
3.788	HI 60037-02	25 x 20 mL
4.010	HI 60004-01	10 x 20 mL
4.010	HI 60004-02	25 x 20 mL
4.630	HI 60046-01	10 x 20 mL
4.630	HI 60046-02	25 x 20 mL
5.000	HI 60005-01	10 x 20 mL
5.000	HI 60005-02	25 x 20 mL
6.000	HI 60006-01	10 x 20 mL
6.000	HI 60006-02	25 x 20 mL
6.862	HI 60068-01	10 x 20 mL
6.862	HI 60068-02	25 x 20 mL
7.010	HI 60007-01	10 x 20 mL
7.010	HI 60007-02	25 x 20 mL
7.413	HI 60074-01	10 x 20 mL
7.413	HI 60074-02	25 x 20 mL
8.000	HI 60008-01	10 x 20 mL
8.000	HI 60008-02	25 x 20 mL
9.000	HI 60009-01	10 x 20 mL
9.000	HI 60009-02	25 x 20 mL
9.177	HI 60091-01	10 x 20 mL
9.177	HI 60091-02	25 x 20 mL
10.010	HI 60010-01	10 x 20 mL
10.010	HI 60010-02	25 x 20 mL
11.000	HI 60011-01	10 x 20 mL
11.000	HI 60011-02	25 x 20 mL
12.000	HI 60012-01	10 x 20 mL
12.000	HI 60012-02	25 x 20 mL
12.450	HI 60124-01	10 x 20 mL
12.450	HI 60124-02	25 x 20 mL
13.000	HI 60013-01	10 x 20 mL
13.000	HI 60013-02	25 x 20 mL