

HI 901 and HI 902: Quick and Accurate Analysis



HI 901 and HI 902 are the new automatic titrators from HANNA instruments® to enhance the wide range of products dedicated to quick and accurate laboratory analysis. Each is provided with many features for routine titrations. HI 901 and HI 902 perform acid-base, potentiometric and amperometric titrations. The versatile HI 901 and HI 902 offer a total of 100 methods: 89 of these can be customized. When turned on, the instruments run an accurate unit check and they are ready for the first titration of the day. The display shows the chosen method, correlated information, and also shows the controls for possible parameter adjustment, and quick and simple burette maintenance.

The titration curve is shown on the large display; this feature is useful when new methods are tested or when a procedure needs to be optimized. At the end of the titration, all data, including the graph, are automatically stored in the memory and can be downloaded through the instrument's floppy drive. Burette maintenance is very simple and completely automatic: the user can decide to purge it or to wash it and can select how many washings to perform. Thanks to the new Clip Lock™ system for burette replacement, changing from one titrant to another will be very easy!

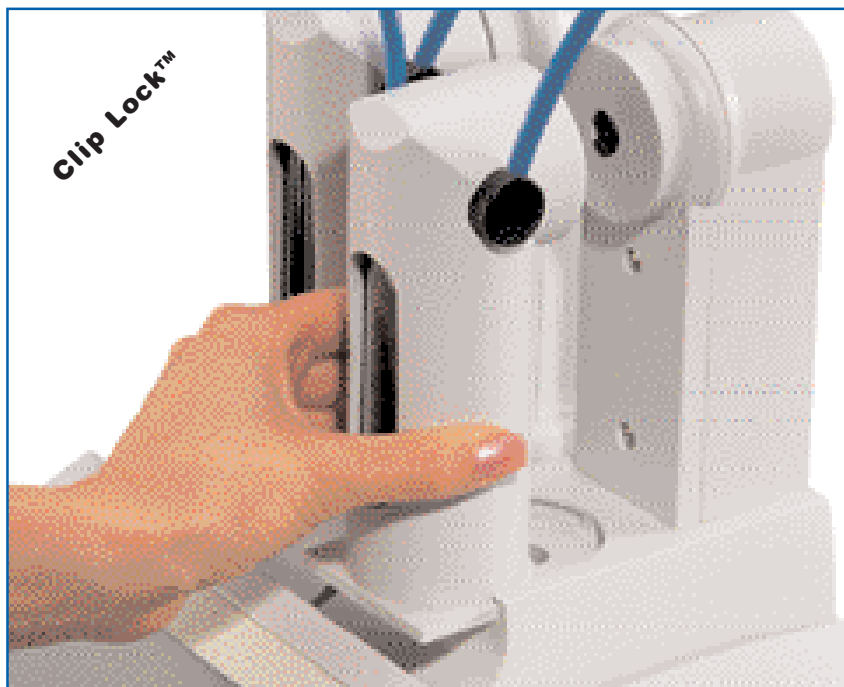
Both HI 901 and HI 902 can drive two pumps, but HI 902 is a more advanced system.

In fact, while HI 901 can drive the two pumps separately, HI 902 can drive them concurrently and then perform back titrations.

Finally, HI 902 can perform more complex titrations, thanks to the possibility to determine more than one equivalent point.



HI 901 and HI 902: A Burette for Each Analysis



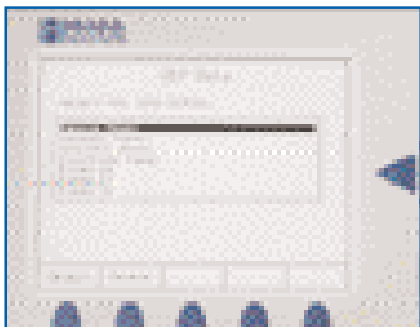
Often, preliminary titration operations are very long and fastidious. The burette needs to be adjusted for correct dosing, which makes waiting times longer as more titrants are needed.

Now, thanks to the new **HANNA** instruments' titrators, HI 901 and HI 902, this won't be a problem anymore. **HANNA** instruments' exclusive Clip Lock™ system allows users to change the burette in two simple and quick operations, passing from one titrant to another without any problem, because the titrator automatically recognizes the volume of the inserted burette.



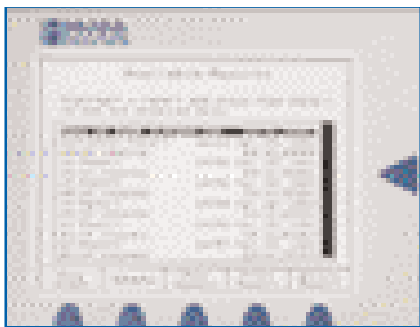
HI 901 and HI 902: A Complete Workstation

With these new titrators, users can connect pH or ORP electrodes as well as create a complete workstation with a PC, monitor, keyboard, and printer.

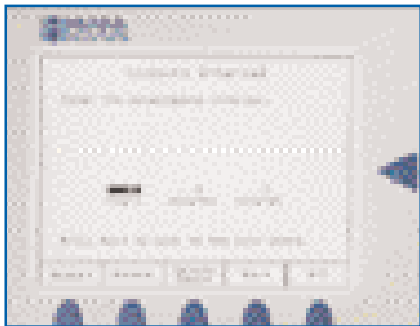


GLP

HI 901 and HI 902 comply with GLP specifications, providing valid support for analysis.



The user can record up to 100 reports of analysis, complete with titration curve graph.



With HI 901 and HI 902, a calibration "time-out" can be set and the user can be advised when the pH electrode needs to be calibrated.

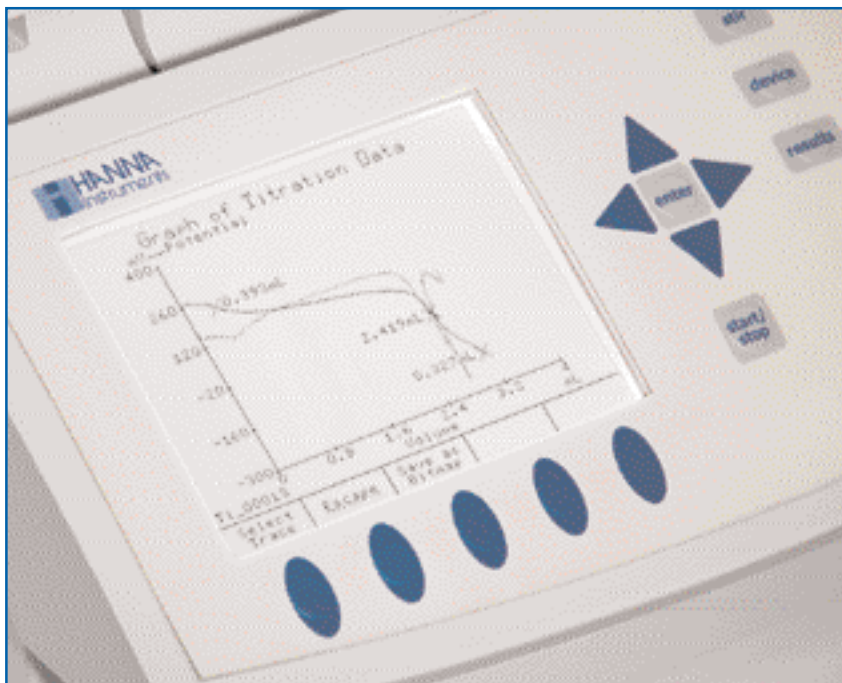


All the GLP information of each analyzed sample can be stored, including the ID number, date and time of analysis, electrode ID code and last calibration data. All data can be downloaded to a PC using a floppy disc or through

direct connection with the serial cable supplied with the titrator. The device is equipped with an RS485 serial port.



HI 901 and HI 902: All the Information on the Graphical Display

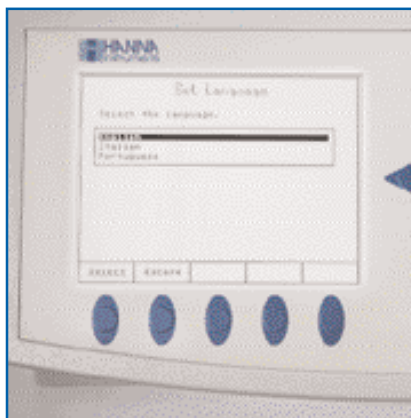


Thanks to the large liquid crystal display, the instrument's status can be viewed at any time. According to the selected menu, features like language, display brightness, resolution, pH electrode calibration, date and hour can be selected. During analysis, the titration curve can be shown in real time, together with the stored data. In the main screen, date, hour, temperature, (if temperature probe is connected) and warning messages, such as a necessary pH electrode calibration, can be displayed.



Floppy Disc Drive

With the floppy disc drive, the analysis data can be downloaded to a PC and the standard methods created by the user can be saved.



Specific Menus

The user is guided by specific menus showing all the active functions.

On Line Help

By pressing the "?" button, all the information concerning the active functions are displayed: even non technical personnel can use HANNA instruments' titrator.



HI 901 and HI 902: The Complete System

- A. Aspiration Tube
- B. Dispensing Tube
- C. Burette Assembly
- D. Light Shield
- E. Burette Support
- F. Support Bar
- G. Electrode Holder Screw
- H. Dispensing Tip
- I. Temperature Sensor
- J. pH Electrode
- K. Stirrer Propeller
- L. Sliding Positioning Collar
- M. Numeric Keys
- N. Function Keys
- O. Help Key
- P. Arrows Keys
- Q. Option Keys



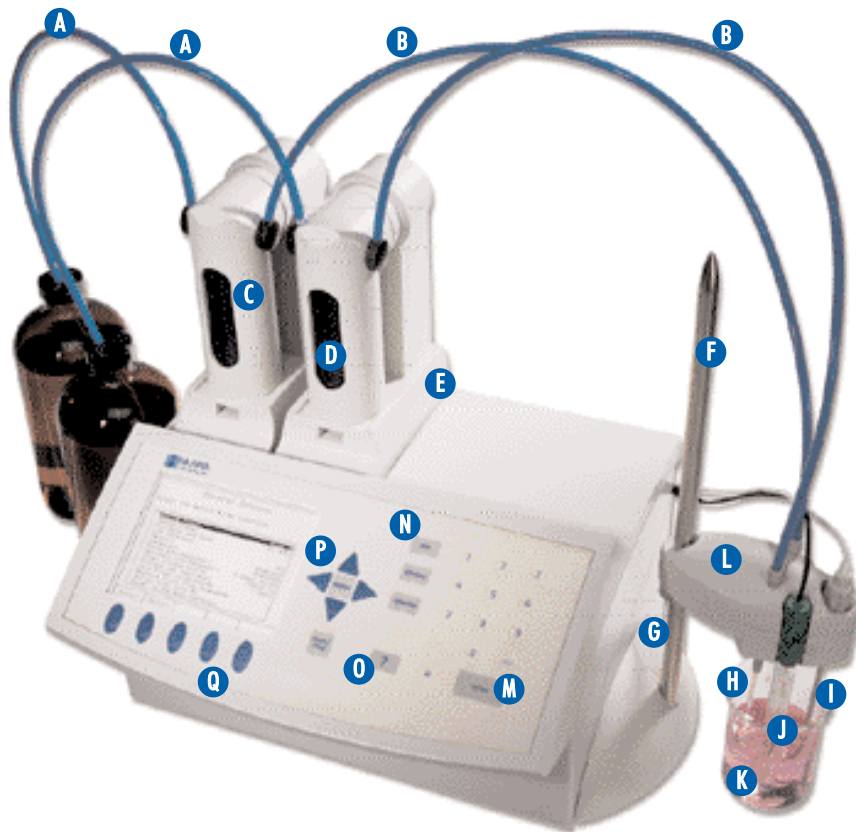
Burettes

Many burettes can be bought and used for a specific reagent: this way the titrant replacement is very quick.



Stirrer

The optional stirrer ensures an effective mixing with a selectable speed from 100 to 2500 rpm.



Accessories

HI 900100	Dosing Pump	HI 1048B	pH electrode for wine applications, refillable, with anular Teflon® junction, glass body, BNC connector, 1 m (3.3') cable	
HI 900105	5 mL Burette	FC 200B	pH electrode for diary products, with non-toxic material body, conic tip, open junction, BNC connector, 1 m (3.3') cable	
HI 900110	10 mL Burette		HI 6004	pH 4 millesimal calibration solution, 500 mL bottle
HI 900125	25 mL Burette			HI 6007
HI 900150	50 mL Burette	HI 6010	pH 10 millesimal calibration solution, 500 mL bottle	
HI 900301	Propeller stirrer with sliding positioning collar		HI 70300L	Electrode storage solution, 500 mL bottle
HI 900310	Magnetic stirrer with sliding positioning collar			HI 1083B
HI 900920	Temperature probe			
HI 900930	RS232 cable for PC connection			
HI 900900	Windows® compatible software			
HI 900270	Aspiration tube			
HI 900280	Dosing tube			
HI 1131B	pH Electrode, refillable, glass body, single junction, BNC, 1 m (3.3') cable			

For a complete range of electrodes, see section E. For the complete range of calibration solutions, see section F.



Specifications

HI 901 / HI 902

Range	-2000.0 to 2000.0 mV / -2.000 to 20.000 pH / -5.0 to 105.0 °C
Accuracy	±0.1 mV / ±0.001 pH / ±0.1 °C
Resolution	0.1 mV / 0.1/0.01/0.001 pH / 0.1 °C
Burette Capacity	5 mL (±5 µl), 10 mL (±10 µl), 25 mL (±25 µl) and 50 mL (±50 µl) with 0.001 mL display resolution
Burette Resolution	1/40000
Dosing Accuracy	0.1% of full burette volume
Display	graphic LCD 120 x 90 mm (4.7 x 3.5"); 320 x 240 pixel resolution
Language	English, Italian and Portuguese
Methods	100 (11 standards, 89 user-defined)
Burette Auto-Detection	burette size is automatically recognized when inserted into the unit
Programmable Stirrer	propeller type, 100 - 2500 RPM with 100 rpm resolution
Flow Rate	user-selectable from 0.1 mL/min to 2x vol.burette/min
Temperature Compensation	pH measurements are automatically temperature compensated
pH Calibration	manual or automatic, at 1 - 5 points with 4 buffer sets for custom buffers
Potentiometric Titrations	Acid/Base (pH or mV mode), Redox, Precipitation, Complexometric, non aqueous, ion-selective, argentometric (in mV mode only)
Titration Methods	fixed mV or pH end-point detection and first equivalency point detection (with the first or second derivatives of the titration curve)
Real Time Data	mV/volume or pH/volume titration curve, graph of first or second derivatives
Data Storage	up to 100 complete titrations and pH/mV logging complete reports
Disk Drive	Built-in 3.5" floppy disc drive
Peripherals	connections for VGA display, PC-keyboard, parallel printer, RS232 interface
Power Supply	115 Vac or 230 Vac, 50/60 Hz, fuse-protected
Power Draw	40 VA max.
Operating Environment	10 to 40°C (50 to 104°F); RH max 95%
Dimensions	390 x 350 x 380 mm (15.3 x 13.8 x 14.9")
Weight	approx. 10 kg (22 lb.) with one pump

Programmed Methods

Description	HI 901	HI 902
NaOH Concentration	•	•
HCl Concentration	•	•
Na ₂ S ₂ O ₃ Concentration	•	•
Water Alkalinity	•	•
Water Acidity	•	•
Neutralization with H ₂ SO ₄	•	
Neutralization with NaOH	•	
FAS Concentration		
Fe ³⁺ (NH ₄) ₂ (SO ₄) ₂	•	•
Reducing Sugars*		•
H ₃ PO ₄ Content**		•
Self Diagnostic Function 1	•	•
Self Diagnostic Function 2	•	•
Electrode Calibration	•	•

* Back Titration

** Titration with several end-points

Ordering Information

HI 901 and HI 902 are supplied complete with dosing pump, 25 mL burette, aspiration and dosing tubes, sliding positioning collar, temperature sensor, burette assembly key, start-up and PC connection software, RS232 PC connection cable, power supply cable, instruction manual and quality certificate.

HI 902 is also supplied with software for back titration and for titrations with several end-points.

HI 901 and HI 902 are available with 2 power alternatives:

-01: 115 Vac power supply

-02: 230 Vac power supply