

HI 901 • HI 902

# Multiparameter Wine Analysis Titration Systems



Designed to Measure:

**pH • Free and Total SO<sub>2</sub> • Reducing Sugars • Total Acidity • Volatile Acidity  
General Alcohol • Ammonium • Potassium • Fluoride • Nitrogen**



ISO 9001:2000  
CERTIFIED

**HANNA**<sup>®</sup>  
instruments  
With Great Products, Come Great Results™  
[www.hannainst.com](http://www.hannainst.com)

# Multiparameter Wine Analysis Titration Systems



## HI 901 and HI 902 Automatic Titrators Feature:

- 320 x 240 pixel LCD w/backlight.
- Precise dosing system (accuracy under 0.1% of burette volume).
- Support up to 100 titration methods (standard and user defined).
- Clip Lock™ — change burettes quickly with auto burette recognition
- Dynamic/Linear dosing feature.
- Fixed end point potential or pH.
- Equivalence point detection (first derivative and second derivative).
- The results are displayed directly in the selected units.
- Titration graph can be displayed on-screen & saved.
- User customized reports can be printed, saved on floppy disk or transferred to PC via RS232 interface.
- Reminders for titrant age and standardization expiration.
- Self diagnostic features for peripheral devices including pump, valve, burette and stirrer.

## Clip-Lock™ Exchangeable Burette System

**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.

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.



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## Keep an accurate record of analyses!

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 analyses directly from the titrator using a standard parallel printer.
- An external monitor and keyboard can be attached for added versatility.
- RS 485 port for future expansion.



- J. pH Electrode
- K. Stirrer Propeller
- L. Stirrer Stand
- M. Numeric Keys
- N. Function Keys
- O. Help Key
- P. Arrow Keys
- Q. Option Keys
- R. 320 x 240 Pixel Graphic LCD



Log precision pH or mV measurements

Record up to 100 reports



Incorporate HANNA 900 series titrators into any GLP data management program



### A Complete Analysis

These instruments perform a complete analysis comprising 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.

## Program View Store Print

with HANNA PC Connectivity



### 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.

# Multiparameter Wine Analysis Titration Systems

SPECIFICATIONS	mV	pH	Temperature
Range	-2000.0 to 2000.0 mV	-2.000 to 20.000 pH	-5.0 to 105.0°C/23 to 221°F
Resolution	0.1 mV	0.1/0.01/0.001 pH	0.1°C/0.1°F
Accuracy	±0.1 mV (@25°C/77°F)	±0.001 pH (@25°C/77°F)	±0.1°C/±0.2°F (excluding probe error)
Burette Sizes	5, 10, and 25 mL		
Burette Resolution	1/40000		
Display Resolution	0.001 mL		
Dosing Accuracy	±0.1% of full burette volume		
Display	Graphic LCD, 320 x 240 pixel LCD		
Languages	English, Italian, Portuguese		
Methods	10 standard and 90 user-defined methods		
Burette Auto-Detection	Burette size is automatically recognized when inserted into the unit		
Programmable Stirrer	Propeller type, 100-2500 RPM, automatically held within 10% of the set value, resolution 100 rpm		
Flow Rate	User-selectable from 0.1 mL/min to 2 burette-volumes/min		
pH/mV Measurement	Titrators will also perform direct pH and mV measurements		
Temperature Compensation	pH measurements are automatically temperature compensated		
pH Calibration	Manual or automatic at 1-5 points with 4 buffer sets or custom buffers		
Potentiometric Titrations	Acid-Base (pH or mV-Mode), Redox, Precipitation, Complexometric, Non-Aqueous, Ion-Selective, Argentometric (in mV-mode only)		
HI 901 Titration Methods	Fixed mV or pH end-point detection & first equivalency point detection (with the 1st or 2nd derivatives)		
HI 902 Titration Methods	Fixed mV or pH end-point detection & multiple equivalency point detection (with the 1st or 2nd derivatives); back titration		
Measurement Units	User specified expression of concentration units to suit specific calculation requirements		
Real Time & Stored Graphs	mV-Volume or pH-Volume titration curve, 1st derivative curve or 2nd derivative curve, in pH-mode or mV-mode; pH/mV values versus time-data-logging results		
Data Storage:	Up to 100 complete titration and pH/mV logging complete reports		
Disk Drive:	Built-in 3.5" floppy disk drive allows storage and transfer of configurations, preprogrammed methods, custom methods, titration reports and bitmap graph files		
Peripherals	Connections for VGA display, PC-keyboard, parallel printer, RS 232 interface, interface for future expansion		
GLP Conformity	Instrumentation data storage and printing capabilities		
Operating Environment	10 to 40°C (50 to 104°F), up to 95% RH		
Storage Environment	-20 to 70°C (-4 to 158°F), up to 95% RH		
Dimensions	Width x Depth x Height = 390 x 350 x 380 mm (15.3 x 13.8 x 14.9 in)		
Weight	approx. 10 kg (22 lb.) with one pump and stirrer assembly		

## Preprogrammed Methods Include:

Name	Dosing Type	Endpoint Mode	Calculation
NaOH Titrant Concentration	Dynamic	mV equivalency, 1st derivative	Titrant concentration by weight
Titrateable Acidity with Initial pH Measurement	Dynamic	Endpoint titration	Sample concentration by volume
I <sub>2</sub> Titrant Concentration	Dynamic	mV equivalency, 1st derivative	Titrant concentration by weight
Free & Total SO <sub>2</sub> Titrations	Dynamic	mV equivalency, 1st derivative	Sample concentration by volume

## ORDERING INFORMATION

**HI 901** is supplied with (1) 25 mL burette, (1) burette driver, overhead stirrer, glass body pH electrode, temperature probe, power adapter, electrode holder, and instructions.

**HI 902** is supplied with (1) 25 mL burette, (2) burette drivers, overhead stirrer, glass body pH electrode, temperature probe, power adapter, electrode holder, and instructions.

For more information or for a distributor near you: **888.815.6422** • [wine-brew@hannainst.com](mailto:wine-brew@hannainst.com)

Authorized Distributor

