

HI903 Karl Fischer Volumetric Titrator

for Moisture Determination



Measures 100 ppm to 100% water content

- **Precision titrant delivery system**
 - 40,000 step piston dosing pump
 - Accurate to 0.1%
 - Delivers as little as 0.125 μL of titrant
 - Precision ground, 5 mL glass burette with PTFE plunger, PTFE burette tubing, and polyurethane tube jacketing (thermally insulating, light blocking)
 - Glass anti-diffusion dispensing tip
 - Clip-Lock™ exchangeable burette system enables users to exchange reagent burettes in a matter of seconds
- **Sealed solvent system**
 - Change to fresh solvent in a matter of seconds without opening the titration vessel
 - Minimizes exposure to ambient humidity which reduces titrant consumption and saves time
 - PTFE solvent tubing is resistant to harsh KF solvents and titrants
- **Beaker top**
 - Chemically-resistant reaction vessel cap and fittings
 - Quick-remove sample port plug with replaceable silicone rubber septum for sample introduction
- **Anti-diffusion burette tip**
 - Delivers titrant in high turbulence zone, ensuring rapid reaction
 - Prevents unwanted diffusion of titrant into solvent
- **Built-in stirrer**
 - Automatic, integrated magnetic stirrer adjustable from 200-2000 RPM
 - Optical feedback for automatic speed control
- **Rechargeable indicating desiccant**
 - Prevents the ingress of ambient humidity into the sealed solvent system while maintaining full titrator functionality
 - Minimizes changes to titrant titre
 - Indicates when adsorption capacity is depleted
 - Regenerated at 150°C
- **PTFE bottle cap**
 - Caps fit any GL45-threaded bottle
 - Chemically-resistant caps and fittings
 - Removable desiccant cartridges



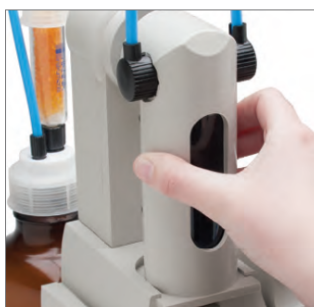
Adaptable, High Accuracy Moisture Determination

The HI903 Karl Fischer Volumetric Titrator for moisture analysis is an extension of Hanna's highly successful potentiometric titrator platform. The HI903 combines an ultra-high precision titrant delivery system with optically-regulated magnetic stirring, sophisticated endpoint determination, dynamic dosing and background drift correction algorithms.

The result is an extremely adaptable titrator capable of titrating with superior accuracy and precision, even for samples with low moisture content. The HI903 dispenses the titrant, detects the endpoint and performs all necessary calculations automatically.

The HI903 comes equipped with a solvent-handling system to reduce cell conditioning time and can be connected directly to a laboratory analytical balance via RS232 serial interface.

The HI903's powerful software and intuitive menus are easily navigated on the large, color LCD display, making it simple to view results. Choose from included methods or develop a custom method for almost any application or sample type. Methods (standard or user) and reports can be transferred between titrator and PC via USB interface by using the Hanna PC software. Software updates can be performed using a USB flash drive.



Clip-Lock™ Exchangeable Burette System

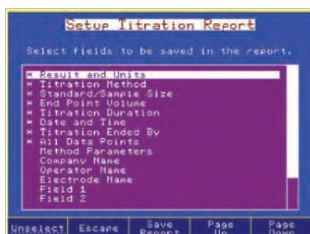
With Clip-Lock™, it only takes a couple of seconds to exchange the reagent burettes to perform a titration with a different titrant.

The Clip-Lock™ exchangeable burette system prevents cross contamination while reducing loss of time and reagents. Simply slide out the burettes, detach the aspiration tube from the titrant bottle, and detach the dispensing tube from the sample cell for quick exchanges.

- **Titrant database**
 - Stores standardization information for up to 20 titrants
 - Standardization reminders
- **Supports up to 100 titration methods (standard and user defined)**
- **Dynamic dosing with optional pre-dispensing**
 - For faster titration without sacrificing accuracy
- **Results displayed directly in the selected units**
- **Titration graph can be displayed on-screen and saved as a bitmap**
- **Multi-language support**
- **USB flash drive input**
 - Transfer methods, reports and graphs to a PC or other HI903 titration system
 - Field upgradable software
- **Incorporates into any GLP data management program:**
 - Easily record all necessary GLP information with every sample, including company and operator name, date, time, electrode ID codes and standardization information
- **Compatible with most major brands of Karl Fischer reagents**
- **Proper mixing of titrant and analyte**
 - Digital, magnetic stirring system with optical feedback
 - Conical titration cell to facilitate mixing over a wide volume range
 - Upward dispensing of titrant to ensure rapid reaction
- **Flexible, accurate detection of the titration endpoint**
 - Dual platinum pin electrode for bivalent indication
 - Signal averaging reduces noise
 - Selectable endpoint criteria: fixed mV persistence, relative drift stop or absolute drift stop
- **Balance interface**
 - Automatically acquire sample mass via serial RS232 interface
- **Easy to operate**
 - User friendly interface
 - Context-sensitive help screens
 - Self-diagnostic features for external components including dosing pump, burette and stirrer
- **Ideal for applications such as food and beverage, pharmaceuticals, nutraceuticals, cosmetics and chemical and petrochemical manufacturing**

Versatile Data Management

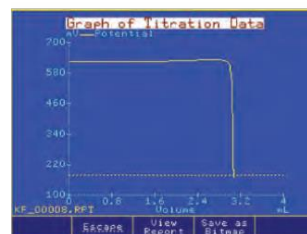
- HI900 Series titration systems can be easily incorporated into any existing GLP data management program.
 - Easily record all necessary GLP information with every sample, such as sample identification, company and operator name, date, time, electrode ID codes and calibration information
- Data can be transferred to a PC using the Hanna HI900PC software application
- The USB port allows for the easy transfer of methods, reports and software upgrades via a USB flash drive
- 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



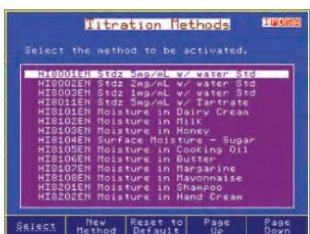
- Customizable reports
 - Titration reports are fully customizable



- Titration reports
 - Titration results can be viewed on-screen or transferred to a USB storage device



- Titration graphs
 - Titration graphs can be viewed on-screen or saved as images and transferred along with titration report



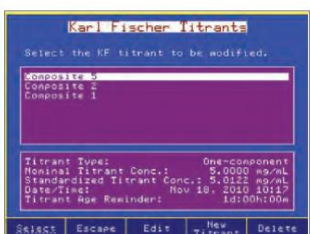
- Methods
 - The HI903 comes with a standard method pack



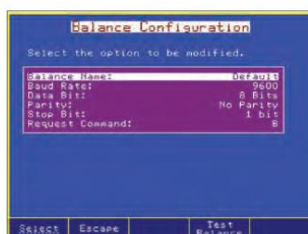
- Standby
 - The HI903 keeps the solvent dry between samples and corrects for water entering the cell (drift rate)



- Results
 - Titration results are displayed with links to average results or a user-customized report



- Titrant database
 - The HI903 stores standardization information for up to 20 titrants and displays a reminder when standardization is due



- Fully configurable balance interface
 - Enter sample size automatically from any laboratory analytical balance with RS232 serial output



- Fully customizable titration methods
 - Customize methods for any application

Specifications	HI903	
Titration	Range	100 ppm to 100%
	Resolution	1 ppm to 0.0001%
	Result Units	%, ppm, mg/g, µg/g, mg, µg, mg/mL, µg/mL, mg/pc, µg/pc
	Sample Type	liquid or solid
Determination	Pre-Titration Conditioning	automatic
	Background Drift Correction	automatic or user-selectable value
	Endpoint Criteria	fixed mV persistence, relative drift stop or absolute drift stop
	Dosing	dynamic with optional pre-dispensing rate
	Result Statistic	mean, standard deviation
Clip Lock™ Exchangeable Burette System	Dosing Pump Resolution	1/40000 of the burette volume (0.125 µL per dose) with 5 mL burette
	Dosing Pump Accuracy	±0.1% of full burette volume
	Syringe	5 mL precision ground glass with PTFE plunger
	Valve	motor-driven 3-way, PTFE liquid contact material
	Tubing	PTFE with light block and thermal jacketing
	Dispensing Tip	glass, fixed position, anti-diffusing
	Titration Vessel	conical with operation volume between 50-150 mL
	Solvent Handling System	sealed system, integrated diaphragm air pump
Electrode	Type	HI76320 dual platinum pin, polarization electrode
	Connection	BNC
	Polarization Current	1, 2, 5, 10, 15, 20, 30 or 40 µA
	Voltage Range	2 mV to 1000 mV
	Voltage Resolution	0.1 mV
Stirrer	Accuracy (@25°C/77°F)	±0.1 %
	Type	magnetic, optically regulated, digital stirrer
	Speed	200-2000 rpm
Peripheral Devices	Resolution	100 rpm
	PC	easily view, transfer, print or delete methods and reports via HI900PC application
	USB Flash Drive	easily upgrade software or transfer methods and reports between devices using a USB drive
	Laboratory Analytical Balance	RS232 to connect any laboratory balance
	Printer	print directly from the HI903 to a printer via parallel port
Additional Specifications	Monitor	instrument status and titrations can be viewed on a larger screen using any VGA-compatible external monitor
	Keyboard	alphanumeric text can be entered using an optional PS/2 keyboard
	Graphic Display	5.7" (320 x 240 pixel) color LCD
	Titration Methods	up to 100 (standard and user) methods
	Data Storage	up to 100 complete titration reports and drift rate reports can be stored
	GLP Conformity	Good Laboratory Practice and instrument data storage and printing
	Languages	English, Portuguese, Spanish, and French
	Enclosure Material	ABS plastic and steel
	Keypad	polycarbonate
	Power	100-240 VAC "-01" models, US plug (type A) "-02" models, European plug (type C)
	Operating Environment	10 to 40°C, up to 95% RH
Storage Environment	-20 to 70°C, up to 95% RH	
Dimensions	390 x 350 x 380 mm (15.3 x 13.8 x 14.9")	
Weight	approximately 10 kg (22 lbs.)	
Ordering Information	HI903-01 and HI903-02 are supplied with HI76320 dual platinum pin electrode, dosing pump, 5 mL burette assembly with tubing, air pump assembly with tubing, beaker and bottle top assemblies and all fittings, desiccant cartridges (4) with indicating desiccant, stir bar, waste bottle, calibration key, USB cable, power cable, HI900PC application, USB flash drive, quality certificate, ISO 8655 burette compliance report and instruction manual binder.	

Titration solutions and reagents begin on page 5.42; See accessories on page 5.44