HANNA instruments

HI904

Karl Fischer Coulometric Titrator

Measures 1 ppm to 5% water content

- Precision dosing system by generator electrode
  - 400 mA pulsed current
  - Available with or without a diaphragm
- Molecular sieve desiccant
  - Prevents the ingress of ambient humidity into the sealed solvent system while maintaining full titrator functionality
  - Regenerated at 300°C
- Sealed cell
  - Generator electrode
  - Dual pin bivoltammetric platinum sensing electrode
  - Molecular sieve desiccant cartridge
  - Replaceable septum for liquid sampling port
  - Accessory port
- Built-in stirrer
  - Automatic, integrated magnetic stirrer adjustable from 200-2000 RPM
  - Optical feedback for automatic speed control
- Sealed solvent system
  - Change to fresh reagent in a matter of seconds without opening titration vessel
  - Minimizes exposure to ambient humidity
  - PTFE tubing is resistant to harsh KF chemicals
  - Sealed tube holder to collect PTFE tube after exchanging reagent
- PTFE bottle cap
  - Caps fit any GL45-threaded bottle
  - Chemically-resistant caps and fittings
  - Removable desiccant cartridges

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Adaptable, High Accuracy Moisture Determination

The HI904 Karl Fischer Coulometric Titrator for moisture analysis is an extension of Hanna's highly successful titrator platform. The HI904 combines an ultra-high electrolytically generated iodine dynamic dosing system with optically-regulated magnetic stirring, sophisticated endpoint determination, and background drift correction algorithms.

The result is an extremely adaptable titrator capable of titrating with superior accuracy and precision for samples with low moisture content. The HI904 applies a pulsed DC current for titrant generation, detects the endpoint and performs all necessary calculations automatically.

The HI904 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 HI904'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.

- Fritted (Diaphragm) Generator
  - Anode/anolyte and cathode/catholyte separated by glass diaphragm
  - Prevents anode-generated iodine from being reduced to iodide at the cathode
  - Ideal for extremely low water content, high accuracy demand, nitrogenous compounds and easily reduced samples

- Fritless (No Diaphragm) Generator
  - Uses one easy-to-replace Karl Fischer reagent
  - Lower and more stable drift rates
  - Easier cleaning of generator cell

- Supports up to 100 methods (standard and user-defined)
- Results displayed directly in the selected units
- Titration graph can be displayed on-screen and saved as an image to be transferred to a PC or printed
- USB flash drive input
  - Transfer methods, reports and graphs to a PC or other 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
- Proper mixing of reagent and sample
  - Digital, magnetic stirring system with optical feedback
  - Adjustable stirring speed to facilitate mixing
- Flexible, accurate detection of the titration endpoint
  - Dual, platinum pin polarization electrode for bivoltammetric detection of endpoint
- Multi-language support
- Balance interface
  - Automatically acquire sample mass via RS232 serial interface
- Easy to operate
  - User-friendly interface
  - Contextual help screens

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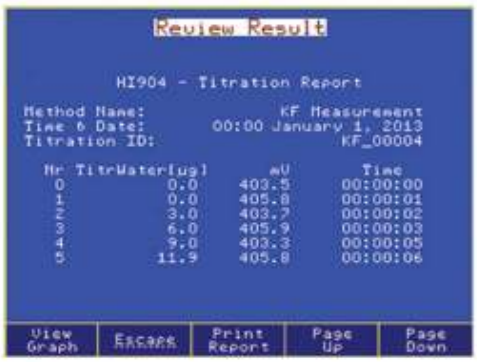
Versatile Data Management

- 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 Hanna HI900PC software
- 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

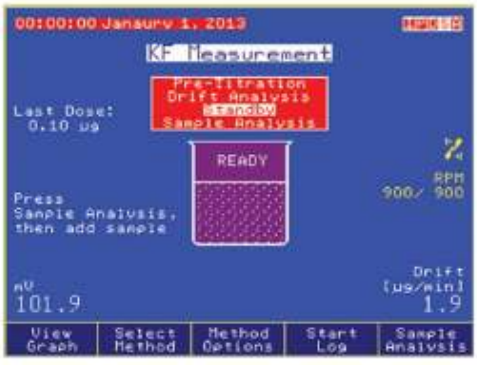
- Customizable general options
  - Titration general options can be configured to user requirements



- 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

- Sample analysis
  - Interface displays real-time monitoring of water content and results



- Standby
  - The HI904 keeps the solvent dry between samples and monitors the drift rate

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

- Sample addition
  - The HI904 recommends a sample size based on expected results

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

- Fully customizable titration methods
  - Customize methods for any application

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Specifications		HI904
Titration	Range	1 ppm to 5%
	Resolution	0.1ppm to 0.0001%
	Result Units	%, ppm, ppt, mg/g, µg/g, mg, µg, mg/mL, µg/mL, mg Br/100g, g Br/100g, mg Br, g Br
	Sample Type	liquid or solid (external dissolution / extraction)
	Titration Vessel	operating volume between 100 - 200 mL
	Reagent Handling System	sealed system with integrated diaphragm air pump and beaker adapter
Generator Electrode	Configuration	diaphragm or diaphragm-less
	Current Control	automatic or fixed (400 mA)
	Electrode Type Detection	automatic
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
	Result Statistic	mean, standard deviation
Detector Electrode	Type / Connection	dual platinum pin, polarization electrode / BNC connector
	Polarization Current	1, 2, 5, or 10 µA
	Voltage Range	2 mV to 1100 mV
	Voltage Resolution	0.1 mV
	Accuracy (@25°C/77°F)	±0.1%
Peripheral Devices	PC	easily view, transfer, print or delete methods and reports via HI900 PC application
	USB Flash Drive	easily upgrade software or transfer methods and reports between devices using a USB drive
	Laboratory Analytical Balance	RS232 to connect a laboratory analytical balance
	Printer	print directly from the HI904 to a parallel port printer
	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
Additional Specifications	Graphic Display	5.7" (320 x 240 pixel) color LCD
	Titration Methods	up to 100 (standard and user methods)
	Data Storage	up to 100 (titration and drift rate reports)
	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 - 40°C, up to 95% RH
	Storage Environment	-20 to 70°C, up to 95% RH
	Dimensions / Weight	390 x 350 x 380 mm (15.3 x 13.8 x 14.9"); approximately 10 kg (22 lbs.)
Ordering Information	**HI904D-01** and **HI904D-02** are supplied with diaphragm, **HI904-01** and **HI904-02** are supplied without diaphragm **All Models Include:** dual platinum pin electrode, air pump assembly, titration vessel assembly (glass vessel, accessory port stopper, sample port cap and septum, stir bar, desiccant, desiccant cartridge, fittings), vessel support with adapter, pump locking screw with plastic head, reagent bottle assembly (bottle cap, desiccant, desiccant cartridge, fittings, tubing (silicone and PTFE)), water bottle assembly (waste bottle, bottle cap, desiccant, desiccant cartridge, fittings, tubing (silicone and PTFE)), calibration key, reagent exchange adapter, accessory holder assembly, joint grease, Karl Fischer generator electrode (removable generator electrode cable), USB cable, USB storage device, HI900 PC application software, power adapter, quality certificate and instruction manual binder.	

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