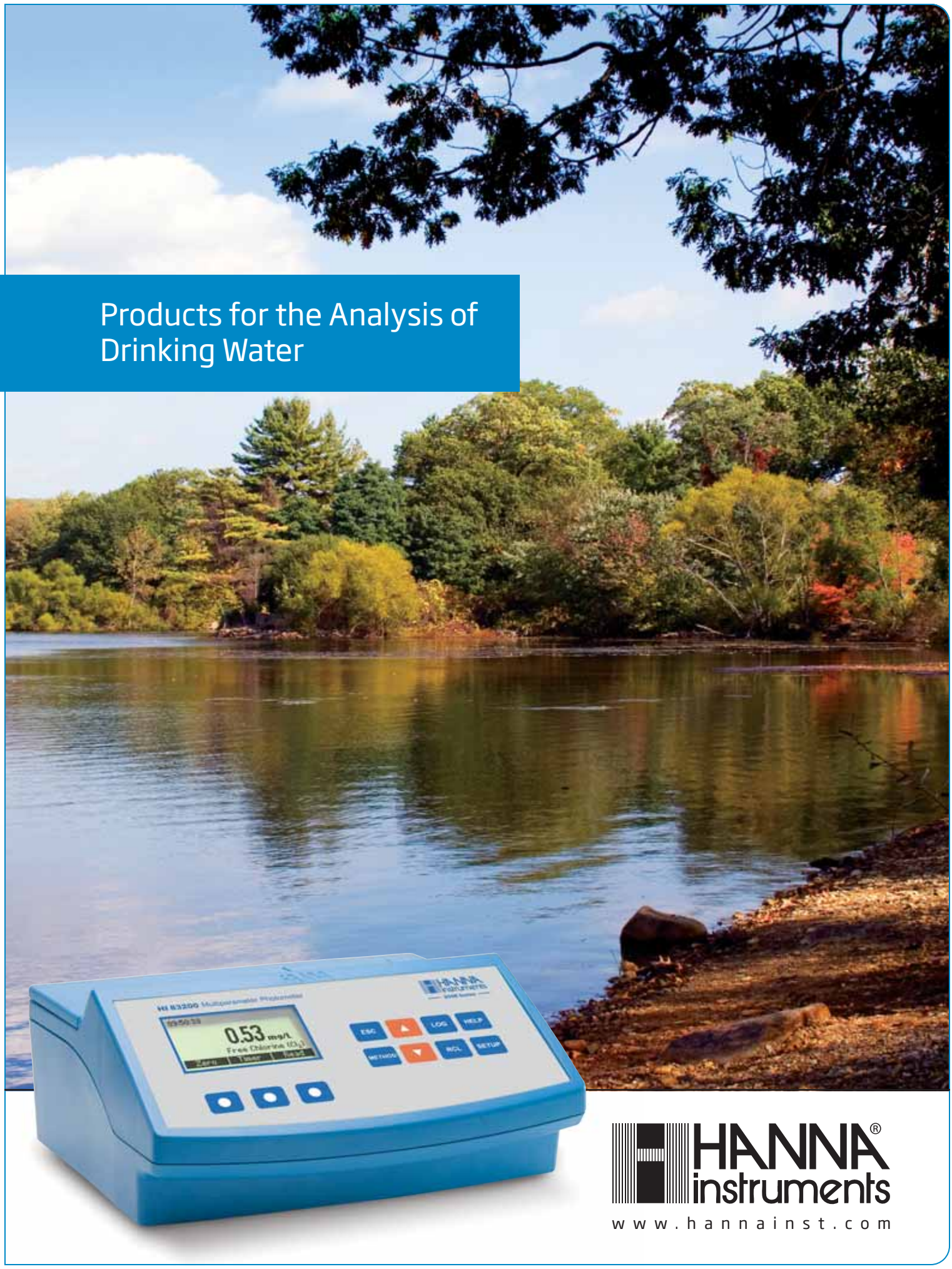
Products for the Analysis of Drinking Water



HANNA® instruments

www.hannainst.com

HANNA is **Dedicated** to the testing and monitoring of drinking water, our most precious resource.

Contents

Water sector professionals **choose** HANNA as part of their drinking water monitoring strategy because of our **performance**, **quality** and **value**.

Instruments built to comply with **EPA accepted** test methods for reporting Turbidity and Chlorine

Turbidity and Chlorine Meters

- HI 83414 features 4 ranges:
  Ratio Turbidity; Non-Ratio Turbidity;
  Free Chlorine; Total Chlorine
- HI 88703 features 2 ranges:
  Ratio Turbidity; Non-Ratio Turbidity
- Meets USEPA requirements
- CAL CHECK™ for HI 83414
- 2, 3, 4 or 5 point turbidity calibration
- Backlit LCD
- On-screen tutorial modes
- Log and recall up to 200 measurements
- Contextual help menus
- Auto shut-off
- Automatic range selection
- Good Laboratory Practice capabilities
- Features USB PC connection

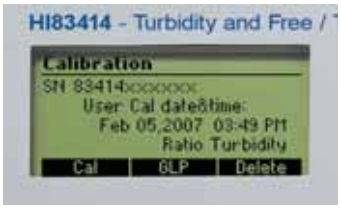
Built for Accuracy

The HI 83414 tests both of the most important parameters of drinking water: turbidity and free/total chlorine. The HI 88703 measures turbidity only and is especially designed for dedicated stations that require a single parameter.

The HI 83414 and HI 88703 meet and exceed the requirements of USEPA and Standard Methods and provide reliable and accurate readings on low turbidity values.

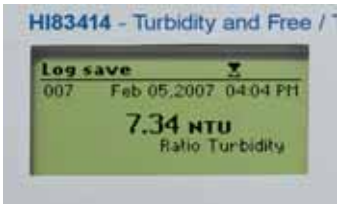
Turbidity measurements can be made in the 0.00 to 40.0 NTU (Nephelometric Turbidity Units) range when non ratio method is used or 0.00 to 4000 NTU range when ratio measurements are used. The instrument has an EPA compliance reading mode which rounds the reading to meet EPA reporting requirements.

A choice of normal measurement, continuous measurement or signal averaging measurement can be selected depending upon your SOP. Two, three, four or five-point calibration can be performed by using the supplied (<0.1, 15, 100, 750 and 2000 NTU) standards. When user prepared standards are used, the calibration points can be modified.



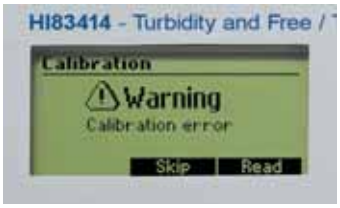
GLP

Built in complete GLP information.

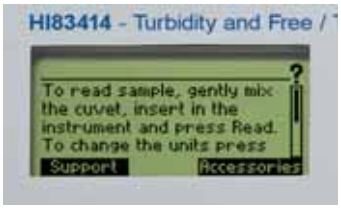


Log and Recall

Store up to 200 records.

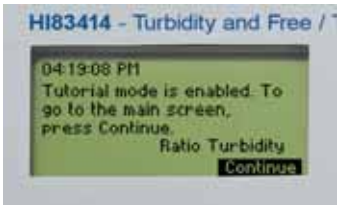


Calibration Error Messages



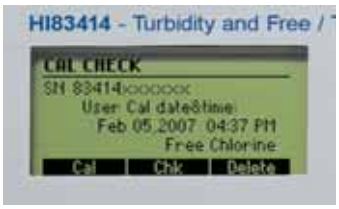
Help Mode

Both meters offer interactive contextual help to assist users during measurements.



Tutorial Mode

Provides additional information to help users during measurements.



CAL CHECK™

CAL CHECK™ allows users to check instrument calibration against a NIST traceable standard before making a set of measurements. With the same standard, the instrument could be re-calibrated if necessary.

Turbidity in Potable Waters

Turbidity is one of the most important parameters used to determine the quality of drinking water. Public water suppliers are required to treat their water to remove turbidity. Adequately treated surface water does not usually present a turbidity problem. The World Health Organization indicates 5 FTU as the reference turbidity value of water for trade. This value has been established based on the aesthetic characteristics of water. From a hygienic point of view, 1 FTU is the recommended value. Turbidity is an indicator and will not give results for a specific pollutant. It will, however, provide information on the degree of overall contamination.

TURBIDITY SPECIFICATIONS

Range–Non Ratio Mode	0.00 to 9.99; 10.0 to 40.0 NTU
Resolution–Non Ratio Mode	0.01; 0.1 NTU
Range–Ratio Mode	0.00 to 9.99; 10.0 to 99.9; 100 to 4000 NTU
Resolution–Ratio Mode	0.01; 0.1; 1 NTU
Accuracy	±2% of reading plus 0.02 NTU ±5% of reading above 1000 NTU
Repeatability	±1% of reading or 0.02 NTU whichever is greater
Stray Light	< 0.02 NTU
Light Detector	Silicon photocell
Method	Adaptation of the USEPA Method 108.1 and Standard Method 2130 B.
Measuring Mode	Normal, Average, Continuous
Turbidity Standards	<0.1, 15, 100, 750 and 2000 NTU

FREE AND TOTAL CHLORINE SPECIFICATIONS - HI 83414 ONLY

Range	Free Cl_2: 0.00 to 5.00 mg/L; Total Cl_2: 0.00 to 5.00 mg/L
Resolution	0.01 mg/L from 0.00 to 3.50 mg/L; 0.10 above 3.50 mg/L
Accuracy	±0.02 mg/L @ 1.00 mg/L
Detector	Silicon photocell with 525 nm narrow band interference filters
Method	Adaptation of the USEPA Method 330.5 and Standard Method 4500-Cl G.
Standards	1 mg/L free chlorine, 1 mg/L total chlorine

ORDERING INFORMATION

HI 88703-01 (115 V) and **HI 88703-02** (230 V) are supplied with (5) sample cuvettes and caps, calibration cuvettes, silicone oil (HI 93703-58), cuvette cleaning cloth, power cord and instructions.

HI 83414-01 (115 V) and **HI 83414-02** (230 V) are supplied with (5) sample cuvettes and caps, calibration cuvettes for turbidity meter and colorimeter (HI 83414-11), silicone oil (HI 93703-58), cuvette cleaning cloth, scissors, power cord and instructions.

SOLUTIONS

HI 93414-11 CAL CHECK™ Calibration set for Free & Total Chlorine
HI 93701-01 Reagents for 100 Free Chlorine tests
HI 93701-03 Reagents for 300 Free Chlorine tests
HI 93711-01 Reagents for 100 Total Chlorine tests
HI 93711-03 Reagents for 300 Total Chlorine tests
HI 88703-11 Calibration set for turbidity meter (<0.1, 15, 100, 750 and 2000 NTU)
HI 93703-50 Cuvette cleaning solution, 250 mL

ACCESSORIES

HI 93703-58 Silicone oil, 15 mL
HI 731318 Cuvette cleaning cloth (4)
HI 731331 Glass cuvettes (4)
HI 731335N Caps for cuvettes (4)
HI 740234 Lamp for EPA turbidity meter
HI 92000 Windows® compatible software
HI 920013 USB cable for PC connection

Instruments built to comply with **USEPA accepted** methodology for reporting Turbidity and Chlorine

Turbidity and Chlorine Meters

Turbidity and Free/Total Chlorine Meters

The HI 93414 measures two of the most important parameters of drinking water: turbidity and free and total chlorine while the HI 98703 measures turbidity only.

Both meters are EPA compliant and feature 3 turbidity measurement ranges: 0.00 to 9.99 NTU, 10.0 to 99.9 NTU, and 100 to 1000 NTU.

Reliable performance of the HI 93414 is validated using HANNA's exclusive CAL CHECK™ system and ready-made, NIST traceable chlorine standards.

Computer Compatible

With our HI 92000 Windows® compatible application software, users can sort and filter all collected test data using different criteria such as specific sampling location, parameter, date and time intervals or fixed range to filter measured values. The data can be plotted in a graph, exported to other common Windows® applications or printed for reporting purposes.

- Tungsten light source–EPA compliant turbidity measurement
- High accuracy at low ranges
- Exclusive chlorine CAL CHECK™ calibration validation (HI 93414 only)
- Log up to 200 readings
- User replaceable light source
- 2, 3 or 4 point turbidity calibration
- USB and RS232 PC connectivity
- Backlit LCD
- GLP capability
- User friendly display with guidance codes
- Auto shut-off
- Battery percentage on display
- Continuous current time on display

A **Revolution** in Organized Data Management

FastTracker™
A new revolution in organized data management

Fast Tracker™ Tag Identification System (T.I.S.)

HANNA's exclusive Fast Tracker™ – Tag Identification System simplifies test logging while retaining the management versatility users need to search, filter and export data. The system, ideal for on-site spot checks, helps verify that samples have truly been taken at pre-established locations during safety audits and inspections.

Fast Tracker™ is easy to install and operate. Just install the iButton® tags near the sample sites. These meters identify and authenticate logged data by storing the iButton® serial number, time and date stamp by simply touching the iButton® with the matching connector on the instruments. The number of tags that can be installed is unlimited and each tag has a unique identification code.

It is easy to add new tags later on to increase an already existing database.

Turbidity Testing

Water clarity is paramount when producing water for human consumption. Turbidity, an optical property, is a measure of the cloudiness of water. Turbidity causes light to be scattered and absorbed rather than transmitted. The measurement of turbidity is used to indicate water quality and filtration effectiveness. Increases in suspended and colloidal matter increase turbidity. These levels are often associated with higher levels of disease-causing microorganisms such as viruses, parasites and some bacteria that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches. Although microbiological testing is also done, turbidity measurements are used with regularity to detect changes immediately. EPA regulations require filter effluent values of 0.3 NTU (Nephelometric Turbidity Units) in at least 95 percent of measurements taken each month with a maximum level of 1 NTU.

TURBIDITY SPECIFICATIONS

Range	0.00 to 9.99; 10.0 to 99.9 and 100 to 1000 NTU
Range Selection	Automatic
Resolution	0.01 NTU from 0.00 to 9.99 NTU; 0.1 NTU from 10.0 to 99.9 NTU; 1 NTU from 100 to 1000 NTU
Accuracy	±2% of reading plus 0.02 NTU
Repeatability	±1% of reading or 0.02 NTU, whichever is greater
Stray Light	< 0.02 NTU
Light Detector	Silicon photocell
Light Source	Tungsten filament lamp
Method	Ratio Nephelometric Method (90°), ratio of scattered and transmitted light; Adaptation of the USEPA Method 180.1 and Standard Method 2130 B.
Measuring mode	Normal, Average, Continuous
Turbidity Standards	<0.1, 15, 100 and 750 NTU
Calibration	Two, three or four-point calibration

FREE AND TOTAL CHLORINE SPECIFICATIONS – HI 93414 only

Range	Free Cl_2 0.00 to 5.00 mg/L; Total Cl_2 0.00 to 5.00 mg/L
Resolution	0.01 mg/L from 0.00 to 3.50 mg/L; 0.10 above 3.50 mg/L
Accuracy	±0.02 mg/L @ 1.00 mg/L
Typical EMC Deviation	±0.02 mg/L
Detector	Silicon photocell with 525 nm narrow band interference filter
Method	Adaptation of the USEPA Method 330.5 and Standard Method 4500-Cl G. The reaction between chlorine and DPD reagent causes a pink tint in the sample.
Standards	1 mg/L free chlorine, 1 mg/L total chlorine
Calibration	One-point calibration

ORDERING INFORMATION

HI 93414-01 (115V) and **HI 93414-02** (230V) are supplied with (5) sample cuvettes and caps, calibration cuvettes for turbidity meter, calibration cuvettes for colorimeter, silicone oil, cuvette cleaning cloth, scissors, (4) 1.5V AA batteries, AC adapter, instruction manual and rugged carrying case.

HI 98703-01 (115V) and **HI 98703-02** (230V) are supplied with (5) sample cuvettes and caps, HI 98703-11 calibration cuvettes, HI 93703-58 silicone oil, cuvette cleaning cloth, (4) 1.5V AA batteries, AC adapter, instruction manual and rugged carrying case.

SOLUTIONS

HI 93414-11 CAL CHECK™ Calibration set for Free & Total Chlorine
HI 93701-01 Reagents for 100 Free Chlorine tests
HI 93701-03 Reagents for 300 Free Chlorine tests
HI 93711-01 Reagents for 100 Total Chlorine tests
HI 93711-03 Reagents for 300 Total Chlorine tests
HI 98703-11 Turbidity standards kit
HI 93703-50 Cuvette cleaning solution, 250 mL

ACCESSORIES

HI 920005 iButton® Tag holders with tags (5)
HI 98703-58 Silicone oil (15 mL)
HI 93703-60 Caps for cuvettes (4)
HI 731318 Cuvette cleaning cloth (4)
HI 731331 Glass cuvettes (4)
HI 92000 Windows® compatible software
HI 920011 5 to 9 pin RS232 connection cable
HI 920013 USB cable for PC connection

The HI 88713 is a high accuracy meter designed for low turbidity. This instrument exceeds the requirements of ISO 7027 standard

The HI 98713 ISO Portable Turbidity meter meets and exceeds the requirements of the ISO 7027 for water quality.

ISO Turbidity Meters

- 2, 3 or 4 point calibration
- USB PC connectivity
- GLP capability
- Normal, average and continuous measuring modes
- Log up to 200 records
- Graphic, backlit display
- User friendly display with guidance codes

SPECIFICATIONS		HI 88713	HI 98713
Range	FNU Mode	0.00 to 9.99; 10.0 to 99.9; 100 to 1000 FNU	FTU Mode: 0.00 to 9.99 FTU; 10.0 to 99.9 FTU 100 to 1000 FTU
	FAU Mode	10.0 to 99.9; 100 to 4000 FAU	
	NTU Ratio Mode	0.00 to 9.99; 10.0 to 99.9; 100 to 4000 NTU	
	NTU Non-Ratio Mode	0.00 to 9.99; 10.0 to 99.9; 100 to 1000 NTU	
Range Selection		Automatic	Automatic
Resolution	FNU Mode	0.01; 0.1; 1 FNU	0.01 FTU from 0.00 to 9.99 FTU 0.1 FTU from 10.0 to 99.9 FTU 1 FTU from 100 to 1000 FTU
	FAU Mode	0.1; 1 FAU	
	NTU Ratio Mode	0.01; 0.1; 1 NTU	
	NTU Non-Ratio Mode	0.01; 0.1; 1 NTU	
Accuracy	FNU Mode	±2% of reading plus stray light	±2% of reading plus 0.1 FTU
	FAU Mode	±10% of reading	
	NTU Ratio Mode	±2% of reading plus stray light / ±5% of reading above 1000 NTU	
	NTU Non-Ratio Mode	±2% of reading plus stray light	
Repeatability		±1% of reading or stray light, whichever is greater	±1% of reading or 0.1 FTU, whichever is greater
Stray Light		< 0.1 NTU	< 0.1 FTU
Light Detector / Light Source		Silicon photocell / IR LED	Silicon photocell / 860 nm IR LED
Method		ISO 7027 Method	Adaptation of ISO 7027, ratio method with 90° and 180° detector.
Turbidity Standards		<0.1, 15, 100, 750 FNU and 2000 NTU	<0.1, 15, 100 and 750 FTU

ORDERING INFORMATION

HI 88713-01 (115V) and **HI 88713-02** (230V) are supplied with (6) sample cuvettes and caps, calibration cuvettes, silicone oil, cuvette cleaning cloth, power adapter and instructions.

HI 98713-01 (115V) and **HI 98713-02** (230V) are supplied with (5) sample cuvettes and caps, HI 98713-11 calibration cuvettes, HI 93703-58 silicone oil, cuvette cleaning cloth, (4) batteries, AC adapter, instruction manual and rugged carrying case.

SOLUTIONS

HI 88713-11	HI 88713 turbidity meter calibration set (<0.1, 15, 100, 750 FNU and 2000 NTU)
HI 98713-11	HI 98713 turbidity standards kit
HI 93703-50	Cuvette cleaning solution, 250 mL

ACCESSORIES

HI 920005	HI 98713 Tag holders with tags (5)
HI 98703-58	Silicone oil, 15 mL
HI 93703-60	Caps for cuvettes (4)
HI 731318	Cuvette cleaning cloth (4)
HI 731331	Glass cuvettes (4)
HI 92000	Windows® compatible software
HI 920011	HI 98713 5 to 9 pin RS232 connection cable
HI 920013	USB cable for PC connection

{ Simultaneous **Dual Graph** Display }

Research Grade pH, ISE and ORP Meter

Tailored to your Application

HANNA's new research grade laboratory pH/mV/ISE benchtop meter features a 240 x 320 dot-matrix color display with on-screen help, dual-channels, simultaneous graphing, language selection and custom configuration.

- Exclusive Calibration Check™ for pH
- 240 x 320 color display
- Simultaneous dual graph display and real-time logging
- USB and RS232 for computer compatibility
- Multi-language interface
- Logging, graphing and GLP capabilities
- Manual or automatic temperature compensation
- Relative mV scale
- Small footprint
- Dual inputs for pH, ISE or mV modes

Extend your Parameter Measurement with Ion Selective Electrodes

Chloride (Titration) *

Chloride is a common non-toxic material present in small amounts in drinking water and produces a detectable salty taste at the aesthetic objective level of 250 mg/L (limit referred to the EPA MCL (maximum contaminant level). Measured levels are normally under 20 mg/L (ppm). The EPA's National secondary drinking water standard for chloride is set at 250 mg/L (ppm).

Standard Methods 4500-Cl-D Potentiometric Method is approved by EPA for regulatory use. This is a potentiometric titration that can be manually made using a burette, or automated using the HI 901 titrator. Refer to your individual SOP for specifics.

HI 4107 chloride ISE or **HI 4115** silver ISE (or half cells with HI 5315 reference)
HI 70448: 0.02 M $AgNO_3$ standard
HI 7072 electrode refilling solution
HI 4222 research grade meter or **HI 901** titrator
HI 180 stirrer with magnetic stir bars.
Other suggestions:
Insulation under beaker
Volumetric pipettes for sample transfer

Fluoride (Direct) *

Fluoride is a water additive which promotes strong teeth. Many public water systems add low levels of fluoride to promote better dental health. However, erosion of natural deposits and discharge from fertilizer and aluminum factories can have a detrimental health effect. The US EPA has set 4 mg/L (ppm) for MCL (maximum contaminant level). It is also listed as a secondary standard at 2 mg/L (ppm).

Standard Methods 4500-F-C is an approved method for fluoride determination using an ion selective electrode.

HI 4010 fluoride ISE and HI 5315 sleeve style reference electrode or HI 4110 combination electrode (consult your SOP).
HI 4010-02 (100 ppm fluoride standard)
HI 4010-00 (TISAB includes CDTA for interferent suppression)
HI 7075 electrolyte solution with KNO_3 and KCl (4) 30 mL bottles
HI 4222research grade meter
HI 180 magnetic stirrer

Nitrate (Direct) *

The EPA set the MCL (maximum contaminant level) for Nitrates in drinking water at 10 mg/L (ppm). Toxic release from human and livestock waste and feedlots are potential sources that can adversely affect drinking water. Nitrate in drinking water can be determined using a direct measurement technique using a nitrate ion selective electrode and suitable meter. The method follows *Standard Methods 4500-NO2 B.*

HI 4113 or **4013** and **HI 5315**
HI 4013-06 (interferent suppressant ISA)
HI 4013-02 is 100 ppm standard
HI 7078 fill solution
HI 4222 research grade meter
HI 180 magnetic stirrer

{ * Use meter with pH electrodes or ISE's to comply with **EPA accepted** methodology for pH, Chloride, Fluoride and Nitrate }

SPECIFICATIONS		HI 4222
pH	Range	-2.0 to 20.0; -2.00 to 20.00; -2.000 to 20.000 pH
	Resolution	0.1 pH; 0.01 pH; 0.001 pH
	Accuracy	±0.1 pH; ±0.01 pH; ±0.002 pH
mV	Range	±2000 mV
	Resolution	0.1 mV
	Accuracy	±0.2 mV
ISE	Range	1×10^{-7} to 9.99×10^{10} concentration ±0.2 mV
	Resolution	1; 0.1; 0.01 concentration
	Accuracy	±0.5% (monovalent ions); ±1% (divalent ions)
Temperature	Range	-20.0 to 120°C; -4.0 to 248.0°F; 253.15 to 393.15K
	Resolution	0.1°C; 0.1°F; 0.1K
	Accuracy	±0.2°C; ±0.4°F; ±0.2K
Calibration	pH	Automatic, up to 5 point calibration, 8 standard buffers available (1.68, 3.00, 4.01, 6.86, 7.01,9.18, 10.01, 12.45), and 5 custom buffers
	ISE	Automatic, up to 5 point calibration, 5 fixed standard solutions available for each measurement unit, and 5 user defined standards
	Temperature	3 points

ORDERING INFORMATION

HI 4222-01 (115V) and **HI 4222-02** (230V) are supplied with glass body pH electrode, temperature probe, power adapter, pH 4 and pH 7 buffer solutions, electrode refilling solution, electrode holder and instructions.

SOLUTIONS

HI 5004	pH 4.01 buffer solution, 500 mL
HI 5007	pH 7.01 buffer solution, 500 mL
HI 5010	pH 10.01 buffer solution, 500 mL
HI 54710	pH 4.01, pH 7.01 and pH 10.01 buffer solution, 500 mL ea.
HI 70300L	Electrode storage solution, 500 mL
HI 7061L	Electrode cleaning solution, 500 mL

HI 50XX buffers are technical buffers with ±.01 accuracy and are provided with certificate

ACCESSORIES

HI 76404N	Electrode holder
HI 92000	Windows® compatible software
HI 920010	RS232 cable for PC connection
HI 920013	USB cable for PC connection

Backlit
Multi-level Display

Calibration Check™ pH Meter

- Exclusive Calibration Check™
- Electrode condition monitoring
- Backlit, multi-level LCD with on-screen guide
- Up to 7 standard and 2 custom calibration buffers
- User-selectable calibration timeout reminder
- Measures in °C or °F
- Waterproof
- Rechargeable batteries
- BEPS (Battery Error Prevention System)

Accurate and Versatile

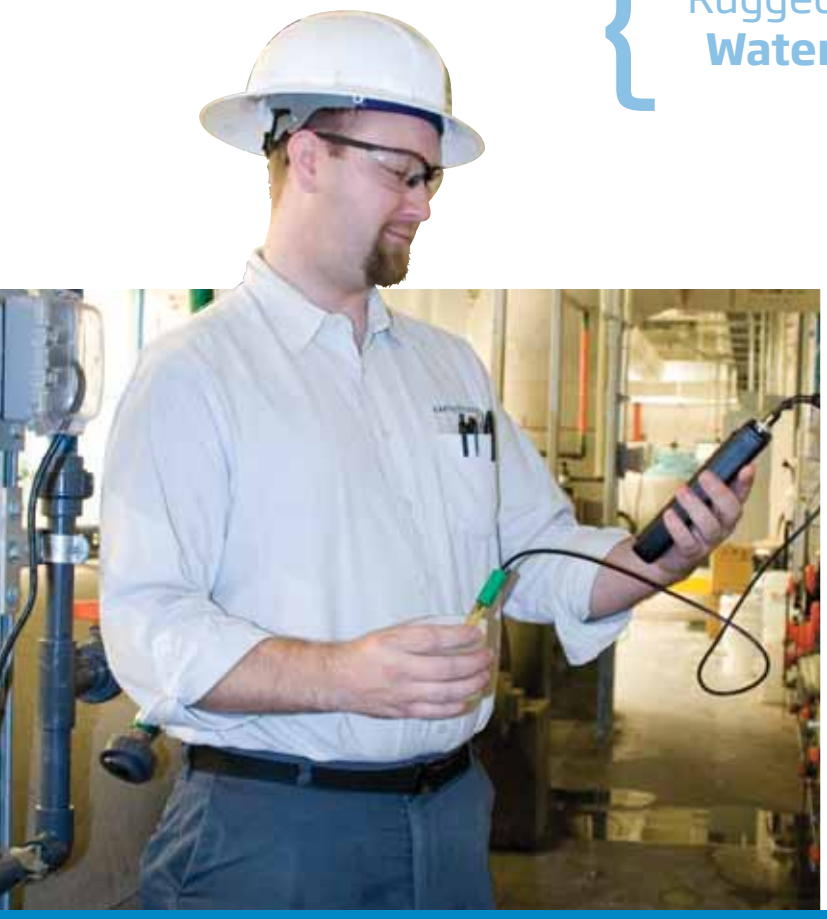
The HI 9126 is ideal for on-site spot checks. It's sleek, portable casing and large LCD with backlight works with the operator to achieve fast and accurate results in a variety of testing locations, such as tight sampling places, even in low-light.

The HI 9126 features HANNA's exclusive Calibration Check™ technology. Calibration Check™ monitors the pH bulb and reference junction of the electrode every time the instrument is calibrated. In the event of a dirty pH bulb, Calibration Check™ prompts the user that additional cleaning may be needed.

The multi level LCD can display the primary measurement and temperature simultaneously to save time at location sites.

The HI 9126 can be used for ORP measurements in the mV range with 0.1 mV resolution.

{ Rugged, **Waterproof** Casing }



Water sector professionals choose HANNA **products as part of their drinking water monitoring strategy because of our performance, quality and value.**

SPECIFICATIONS		HI 9126
Range	pH	-2.00 to 16.00 pH
	mV	±699.9 mV; ±1999 mV
	Temperature	-20.0 to 120.0°C / -4.0°F to 248.0°F
Resolution	pH	0.01 pH
	mV	0.1 mV; 1 mV
	Temperature	0.1°C / 0.1 °F
Accuracy (@20°C)	pH	±0.01 pH
	mV	±0.2 mV; ±1 mV
	Temperature	±0.4°C / ±0.8°F

HI 9125 pH/mV/temperature and HI 9124 pH/temperature portable meters are available without backlight and Calibration Check™.

ORDERING INFORMATION

HI 9126-01 (115V) and **HI 9126-02** (230V) are supplied with HI 1230B combination double-junction, gel-filled pH electrode, HI 7662 stainless steel temperature probe with 1 m (3.3") cable, pH 4 & pH 7 buffer solutions (20 mL sachets), 100 mL plastic beaker, (4) 1.2 AAA rechargeable batteries (inside the instrument), power adapter, instruction manual and rugged carrying case.

ELECTRODES

HI 3230B ORP electrode, gel filled, PEI body, with platinum sensor, BNC connector, 1 m (3.3') cable

SOLUTIONS

HI 70004P pH 4.01 buffer solution, (25) 20 mL sachets
HI 70007P pH 7.01 buffer solution, (25) 20 mL sachets
HI 70010P pH 10.01 buffer solution, (25) 20 mL sachets
HI 70300L Electrode storage solution, 500 mL
HI 7061L Electrode cleaning solution, 500 mL

Waterproof and Streamlined

Pocket Sized pH Meters

AISI 316 stainless steel probe measures both the primary measurement and temperature

- Extended pH and temperature ranges
- Multi-level display
- Operates on rechargeable batteries
- Low battery detection
- Sensor Check™ electrode status determination (HI 991003)
- Automatic temperature compensation for pH readings
- Automatic 1 or 2 point calibration within 2 memorized buffer sets (standard or NIST)
- Auto shut-off
- Waterproof
- Completely redesigned with a smaller body and base cable connection
- Calibration guides on display
- "HOLD" button to freeze readings on display for recording purposes
- Combination AISI 316 stainless steel probes included
- Stability indicator

Waterproof Portables – Completely Redesigned and Smaller than Ever!

Redesigned to be smaller and easier to operate, the probe connection is located on the base for easy handling and operation.

Both meters measure pH and temperature while the HI 991003 adds pH-mV and ORP.

The HI 991003 is equipped with HANNA's unique Sensor Check™ feature that allows the user to determine the electrode status at any time.

Both the HI 1296D and HI 1297D electrodes feature a built-in temperature sensor for automatic temperature compensation (pH). These AISI 316 stainless steel electrodes contain a mini pre-amplifier to render measurements impervious to noise and electrical interferences.

The secondary standard guidelines for water systems set by the EPA states pH should be maintained between 6.5 and 8.5 to control corrosion and avoid aesthetic or cosmetic concerns. pH is considered a critical variable for determining treatment options in public water systems operation. Many factors affect pH measurements. Temperature measurement and correction and the number of calibrated pH standards will improve the quality of the pH measurement. The pH probe together with instrumentation should be calibrated at a multiple standard calibration points in standardized buffer solution prior to analysis. Standard method 4500-H+-B.

HANNA manufactures it's own pH electrodes, meters, buffers and temperature probes.

SPECIFICATIONS		HI 991001	HI 991003
Range	pH	-2.00 to 16.00 pH	
	mV	–	±825 mV (pH-mV); ±1999 mV (ORP)
	Temperature	-5.0 to 105.0°C / 23.0°F to 221.0°F	
Resolution	pH	0.01 pH	
	mV	–	1 mV
	Temperature	0.01°C/0.1°F	
Accuracy (@20°C)	pH	±0.02 pH	
	mV	–	±2 mV
	Temperature	±0.5°C up to 60°C; ±1°C outside ±1°F up to 140°F; ±2°F outside	
Sensor Check™		–	Yes

ELECTRODES

HI 1296D	Combination pre-amplified pH/temp. probe, DIN connector and 1 m (3.3') cable.
HI 1297D	Combination pre-amplified pH/ORP/temp. probe, DIN connector and 1 m (3.3') cable

SOLUTIONS

HI 7004M	pH 4.01 buffer solution, 250 mL
HI 7007M	pH 7.01 buffer solution, 250 mL
HI 7010M	pH 10.01 buffer solution, 250 mL
HI 70300M	Electrode storage solution, 250 mL
HI 7061M	Electrode cleaning solution, 250 mL
HI 7020M	ORP test solution @200-275 mV, 250 mL

ACCESSORIES

HI 76405	Electrode holder

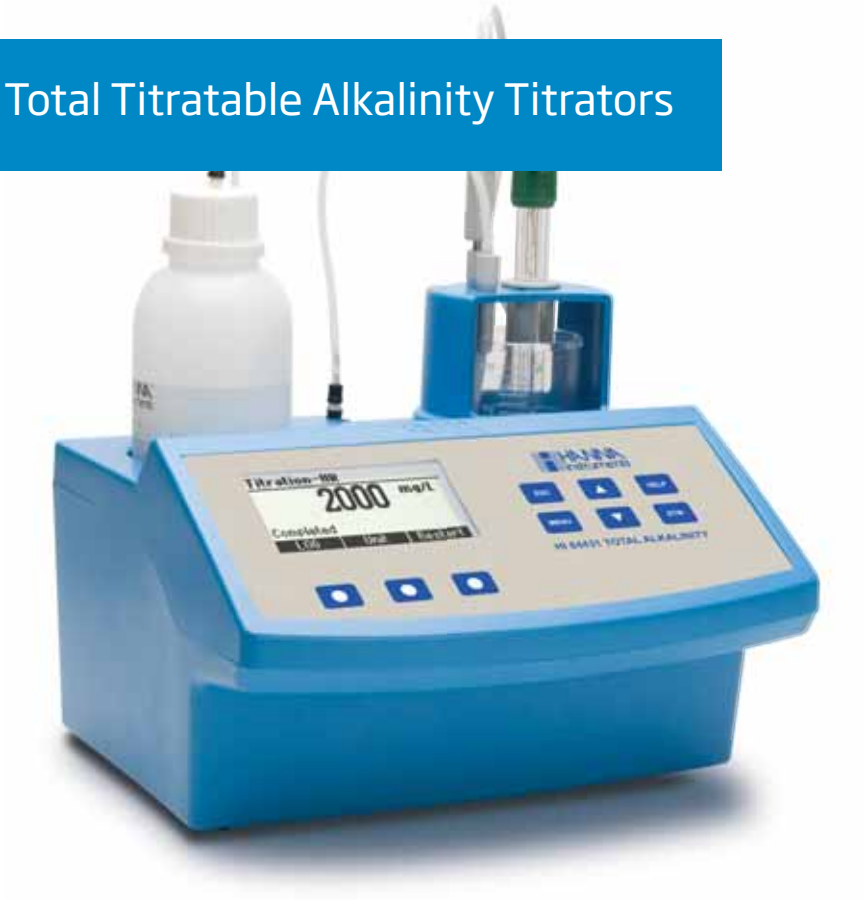
ORDERING INFORMATION

HI 991001-01 (115V) and **HI 991001-02** (230V) are supplied with HI 1296D pH/temperature probe with DIN connector and 1 m (3.3') cable, calibration & cleaning solution sachets, (3) 1.2V AAA Ni-MH batteries, 12 Vdc power adapter and instructions.

HI 991003-01 (115V) and **HI 991003-02** (230V) are supplied with HI 1297D pH/ORP/temperature probe with DIN connector and 1 m (3.3') cable, calibration & cleaning solution sachets, (3) 1.2V AAA Ni-MH batteries, 12 Vdc power adapter and instructions.

{ Titrator, pH Meter, pH Electrode and Magnetic Stirrer in **one compact unit**! }

Total Titratable Alkalinity Titrators



- User-friendly interface
- Dedicated HELP key
- Simple to operate
- Log on demand up to 100 samples
  (50 for pH measurement; 50 for titration results)
- GLP feature, to view last calibration data for pH electrode and pump
- 1, 2 or 3 point calibration
- pH temperature compensation

Total Titratable Very Low Alkalinity Measurement

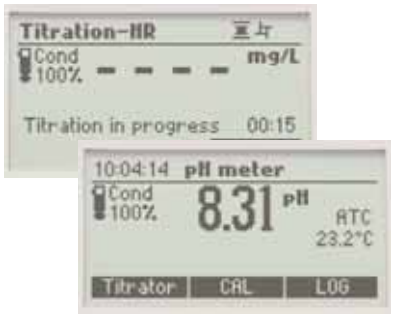
The HI 84442 is a dedicated mini titrator and pH meter designed for very low levels of alkalinity displayed as 5.0 to 20.00 mg/L (ppm) as $CaCO_3$ or 0.1 to 0.4 meq/L as $CaCO_3$. It utilizes an electrometric titration with a pH electrode to determine the total titratable alkalinity in water. As titrant is slowly added to the sample solution the pH and temperature are carefully monitored. The software analyzes the resulting pH curve and determines the volume of titrant required to reach the endpoint of 4.5 pH (known as bromcresol green alkalinity).

The dispensed titrant volume is used to automatically calculate the water alkalinity, which can be displayed in mg/L $CaCO_3$ or meq/L. Titrations are conducted using the reagent HI 84442-50.

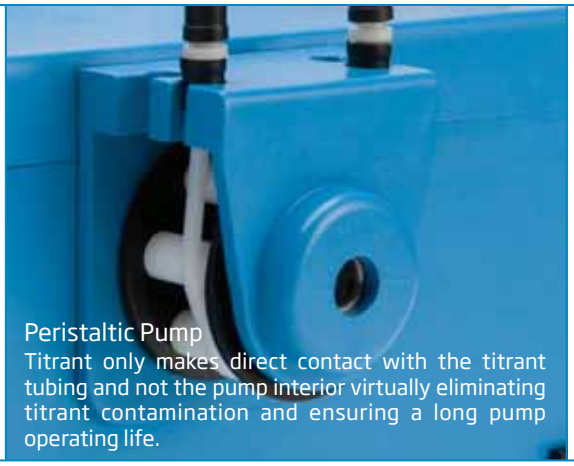
Total Titratable Low to High Alkalinity Measurement

The HI 84431 is a dedicated mini titrator and pH meter designed for low to high levels of alkalinity. It utilizes an electrometric titration with a pH electrode to determine the total titratable alkalinity in water. Titrant is slowly added to the sample solution the pH and temperature are carefully monitored. The software analyzes the resulting pH curve and determines the volume of titrant required to reach the endpoint. The user can choose either 8.3 pH (known as phenolphthalein alkalinity) or 4.5 pH (known as bromcresol green alkalinity as endpoints).

The dispensed titrant volume is used to automatically calculate the water alkalinity, which can be displayed in mg/L $CaCO_3$ or meq/L. Titrations are conducted using the low range reagent HI 84431-50 (10 to 500 mg/L as $CaCO_3$) or the high range reagent HI84431-51 (400 to 4000 mg/L as $CaCO_3$).



These titrators feature a pH meter which also displays the electrode condition on the LCD.



Peristaltic Pump
Titrant only makes direct contact with the titrant tubing and not the pump interior virtually eliminating titrant contamination and ensuring a long pump operating life.

SPECIFICATIONS		HI 84431 Total Titratable Alkalinity	HI 84442 Total Titratable Alkalinity
Range	Total Titratable Alkalinity (Low/Very Low Range)	mg/L : 10.0 - 500.0 mg/L as $CaCO_3$ meq/L : 0.2 - 10.0 meq/L	mg/L : 5.0 - 20.00 mg/L as $CaCO_3$ meq/L : 0.10 - 0.40 meq/L
	Total Titratable Alkalinity (High Range)	mg/L : 400 - 4000 mg/L as $CaCO_3$ meq/L : 8 - 80 meq/L	
	pH	-2.0 to 16.0 pH / -2.00 to 16.00 pH	
	Temperature	-20.0 to 120.0 °C (-4.0 to 248.0 °F)	
Resolution	Total Titratable Alkalinity (Low/Very Low Range)	0.01 mg/L; 0.01 meq/L	
	Total Titratable Alkalinity (High Range)	1 mg/L; 1 meq/L	
	pH	0.1 pH / 0.01 pH	
	Temperature	0.1 °C	
Accuracy	Titratable Alkalinity/Acidity (Low Range)	5% of reading	
	Titratable Alkalinity/Acidity (High Range)	3-10 mg/L	
	pH	± 0.01 pH	
	Temperature	±0.4 °C (without probe error)	
Titration Method		Acid-base titration (total alkalinity)	
Titration Principle		End point titration: 4.5 pH / 8.3 pH	End point titration: 4.5 pH
Pump Volume		0.5 mL/min	
Stirring Speed		600 rpm	

ORDERING INFORMATION

HI 84431-01 (115V) and **HI 84431-02** (230V) are supplied with HI 84431-50 titrant solution low range (100 mL), HI 84431-51 titrant high range (100 mL) and HI 84431-55M pump calibration solution (230 mL).

HI 84442-01 (115V) and **HI 84442-02** (230V) are supplied with HI 84442-50 titrant solution (100 mL), and HI 84442-55 pump calibration solution (230 mL).

All meters are supplied with:

HI 1131B pH electrode, HI 7071 filling solution (30 mL), HI 7662-M temperature probe, HI 7061 cleaning solution, HI 7004M pH 4.01 buffer solution (230 mL), HI 70083M pH 8.30 buffer solution (230 mL), HI 7010M pH 10.01 buffer solution (230 mL), 100 mL beakers (2), tube set with dispensing tip, medium stir bars (2), 12 Vdc power adapter, instructions and quick reference guide.

HI 84431 ACCESSORIES

HI 84431-50	Titrant solution for low range, 100 mL
HI 84431-51	Titrant solution for high range, 100 mL
HI 84431-55M	Pump calibration solution, 230 mL
HI 84431-70	Reagents kit for low and high range (about 150 titrations)
HI 84431-71	Reagents kit for low range (about 150 titrations)
HI 84431-72	Reagents kit for high range (about 150 titrations)

HI 84442 ACCESSORIES

HI 84442-50	Titrant solution, 100 mL
HI 84442-55	Pump calibration solution, 230 mL

ACCESSORIES

HI 70483M	Tube set with cap for titrant bottle and tip
HI 731319	Stir bars, 25 x 7 mm (10)
HI 731342	2000 µL pipette for automatic dosage
HI 731352	Tips for 2000 µL graduated pipette (4)
HI 731341	Pipette for automatic dosage 1000 µL
HI 731351	Tips for 1000 µL graduated pipette (25)

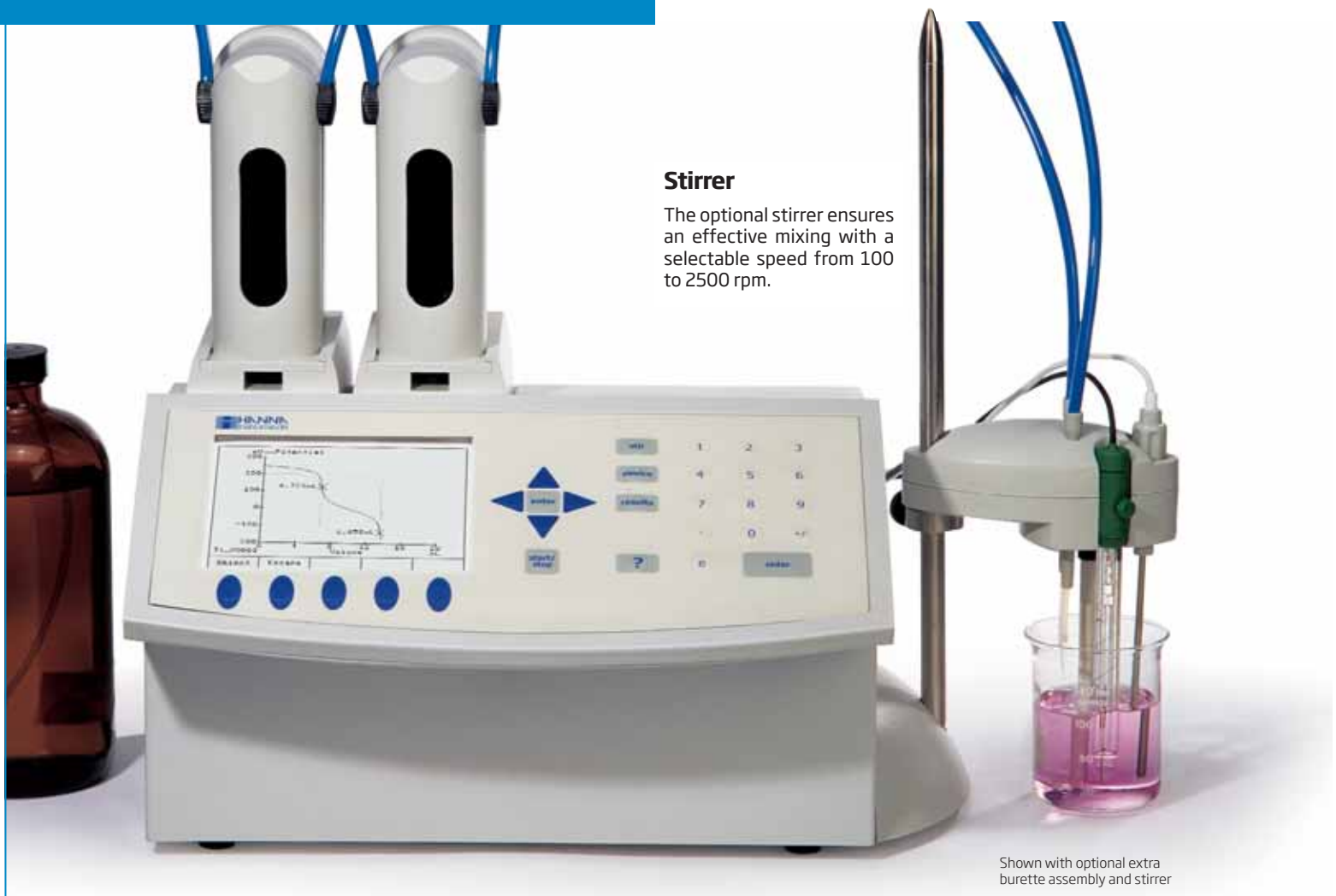
The titration of water for alkalinity determines it's ability to resist pH change, mostly due to the bicarbonate/carbonate buffer but also measures the contributions from hydroxide, phosphates, borate and organic acid salts.

A low alkalinity level indicates that the water is susceptible to pH changes. While a high alkalinity level indicates that the water will be able to resist pH changes.

Alkalinity can also be used to determine the corrosive capacity of water and water hardness. EPA Method 310.1 or Standard Methods 2320B.

{ Suitable for titrations of alkalinity, chloride or calcium hardness using EPA accepted methods. }

Automatic Titration Systems



Stirrer

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

Shown with optional extra burette assembly and stirrer

Versatile Multiparameter Titrators

The HI 901 and HI 902 are full size analytical titrators flexible enough to meet all drinking water standards that require titration including alkalinity, hardness and chloride. It may also be used for pH measurements. Endpoints may be chosen as fixed mV or pH or stoichiometrically using first equivalency point detection (with the first or second derivative of titration curve). Ultimate flexibility permits automation of an existing SOP with user defined titrant concentrations and standardizations.

Both HI 901 and HI 902 can drive two pumps, with the HI 902 incorporating a more advanced system. While the HI 901 can drive the two pumps separately, HI 902 can also drive them concurrently and perform back titrations. HI 902 can perform more complex functions with the ability to determine more than one equivalence point.

A Complete Analysis

These instruments perform a complete analysis and all the parameters that a titration requires can be grouped into a method. The titrators are already supplied with a set of standard methods or you can create your own.

With HANNA's Clip-Lock™ Exchangeable Burette System

To avoid conventional titrator problems such as cross contamination of titrants when exchanging reagents and reconfiguring the titrator for different sample methods HANNA introduces the Clip-Lock™ exchangeable burette system. Burettes simply slide out for quick exchanges and detaching the aspiration and dispensing tubes from the titrant bottles is easy.

Having several prepared burettes on hand will make the HANNA 900 series the fastest and most versatile titration systems available.

HANNA's burettes feature a threaded screw connection to prevent leakage and are made of chemically resistant material to ensure many years of trouble-free operation.

- Clip Lock™ quick burette change
- Automatic Burette Volume Recognition
- 320 x 240 pixel LCD w/backlight
- Precise dosing system (accuracy under 0.1% of burette volume)
- Supports up to 10,000 titration methods (standard and user defined)
- Dynamic/Linear dosing feature
- Fixed endpoint potential or pH
- Equivalence point detection (first and second derivative)
- The results are displayed directly in the selected units
- Titration graph can be displayed on-screen and saved
- User customized reports can be printed, saved to floppy disk or transferred to PC via RS232
- Reminders for titrant age and standardization expiration
- Self diagnostic features for peripheral devices including pump, valve, burette and stirrer

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/268.2 to 378.2 K
Resolution	0.1 mV	0.1/0.01/0.001 pH	0.1°C/0.1°F/0.1K
Accuracy	±0.1 mV (@25°C/77°F)	±0.001 pH (@25°C/77°F)	±0.1°C/±0.2°F/±0.1K (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		
Methods	Up to 10,000 methods (standard and user-defined)		
Flow Rate	User-selectable from 0.1 mL/min to 2 x burette volumes/min		
pH/mV Measurement	Titrators can also perform direct pH and mV measurements		
Temperature Compensation	Manual or automatic (ATC)		
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 endpoint 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-datalogging 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 input, interface for future expansion		
GLP Conformity	Instrumentation data storage and printing capabilities		

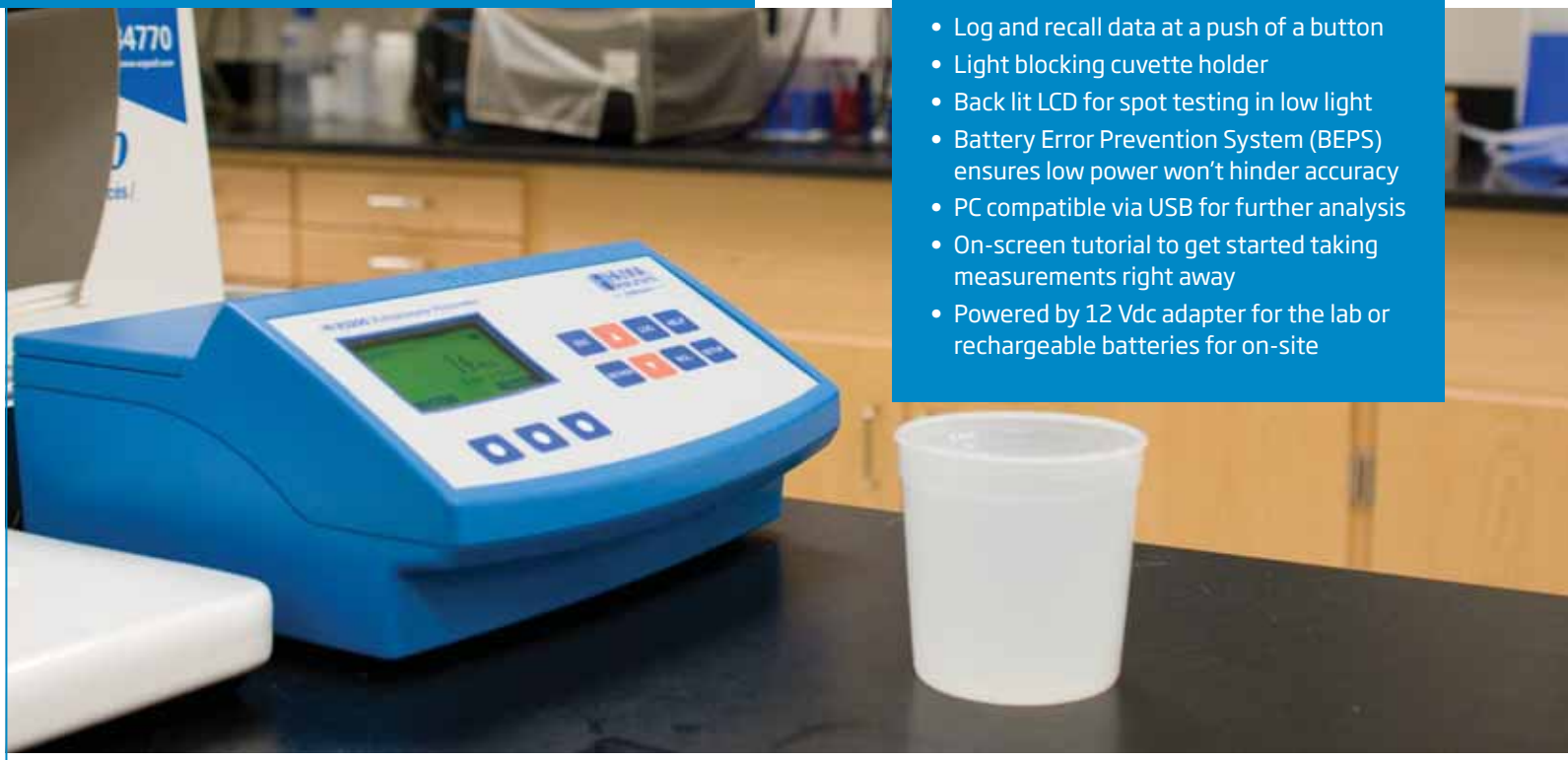
ORDERING INFORMATION

HI 901-01 (115V) and **HI 901-02 (230V)** is supplied with (1) 25 mL glass burette, (1) burette driver assembly, power adapter and instructions.

HI 902-01 (115V) and **HI 902-02 (230V)** back titration and multiple endpoint titrators are supplied with (1) 25 mL glass burette, (1) burette driver assembly, power adapter and instructions.

Measures **over 20** Drinking Water Parameters **in-house** or **on-site**

Multiparameter Photometer



- Log and recall data at a push of a button
- Light blocking cuvette holder
- Back lit LCD for spot testing in low light
- Battery Error Prevention System (BEPS) ensures low power won't hinder accuracy
- PC compatible via USB for further analysis
- On-screen tutorial to get started taking measurements right away
- Powered by 12 Vdc adapter for the lab or rechargeable batteries for on-site

Ideal for In-house Quality Control

HI 83200 is a multiparameter bench photometer for drinking water analysis. Log individual chemistry analysis from a remote test site and download and create individual quality reports using Hanna's Windows® compatible software and a PC connection cable. Perfect for quality testing to ensure your process is in check.

The HI 83200 can be used remotely utilizing it's rechargeable batteries or in the lab with the included 12 Vdc adapter.

Save Time and Valuable Benchtop Space

At 235 x 200 x 110 mm (9.20 x 7.87 x 4.33"), the HI 83200 easily fits onto even the busiest benchtop. Since this instrument measures over 20 drinking water parameters, you'll have access to weekly measurements to ensure process control.

On-site, Right Now

When battery operated, the HI 83200 becomes a versatile portable laboratory. Often a well water analysis only involves microbacteriology sampling, but dissolved minerals may be present in the water also (including naturally occurring fluoride ions). The HI 83200 allows the freedom to perform on site tests for many of these ions and provide a complete report of findings.

Perfect for **quality testing** to ensure your process is in check.

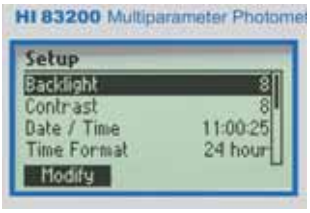
Cuvette Holder with Door

The HI 83200's cuvette cover aids in stopping stray light from effecting measurements.

Drinking Water Parameters

Alkalinity	Chlorine	Color	Fluoride	Manganese	Ozone	Silica
Aluminum	Chlorine Dioxide	Copper	Iron	Nitrate	pH	Silver
Calcium	Chromium	DO	Magnesium	Nitrite	Phosphate	Zinc

Measures 45 parameters in all!

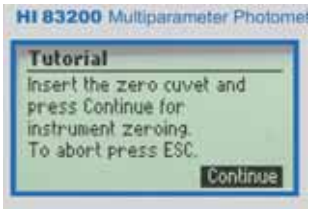


Setup Button

Change preferences via the setup button.

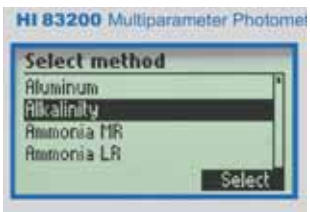
HELP Button

Screen specific help at the touch of a button.



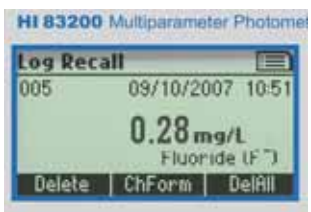
On-screen Tutorial

With the tutorial function enabled, short guides relating to current operation are displayed.



Method Selection

Easily select parameters via the Method button.



Save and Recall Logged Data at the Touch of a Button

Simply touching the LOG button users can save readings into memory. Pressing the RCL button brings back logged information for viewing on-screen. Logged information can be transferred to a PC using the HI 92000 Windows® compatible software for further study or printing formal reports.

Monthly Delivery Program for Reagents

Individually Packaged, HANNA Reagents Delivered When You Need Them.

When you take advantage of our Monthly Reagent Delivery Program, HANNA can automatically ship your required reagents to your lab every month! Best of all, you'll receive your reagents at a discounted rate depending on your payment schedule. Plan your payments annually, semi-annually or quarterly to ensure you'll never be without reagents for critical drinking water quality tests.

Contact your local HANNA sales representative to take the hassle out of ordering reagents and have quality reagents delivered to your lab on time every month.

HI 83200 Reagent List

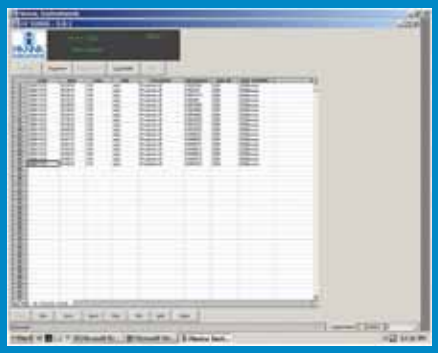
TEST	REAGENT ORDERING CODE
Aluminum	HI 93712-01
Alkalinity	HI 93755-01
Calcium	HI 937521-01**
Chlorine Dioxide	HI 93738-01
Chlorine*, Free	HI 93701-01
Chlorine*, Total	HI 93711-01
Chromium VI LR	HI 93749-01
Color	–
Copper LR	HI 95747-01
Cyanide	HI 93714-01

TEST	REAGENT ORDERING CODE
Fluoride	HI 93729-01
Hardness (calcium)	HI 93720-01
Hardness (magnesium)	HI 93719-01
Iron LR	HI 93746-01**
Magnesium	HI 937520-01**
Manganese LR	HI 93748-01**
Nitrate	HI 93728-01
Nitrite HR	HI 93708-01
Nitrite LR	HI 93707-01
Oxygen, Dissolved (DO)	HI 93732-01

TEST	REAGENT ORDERING CODE
Ozone	HI 93757-01
pH	HI 93710-01
Phosphate LR	HI 93713-01
Phosphorus	HI 93706-01
Potassium HR	HI 93750-01
Potassium MR	HI 93750-01
Potassium LR	HI 93750-01
Silica	HI 93705-01
Silver	HI 93737-01**
Zinc	HI 93731-01

All reagents with -01 final code are for 100 tests unless noted otherwise. * For Chlorine, liquid reagents are available. ** Reagents for 50 tests

Some reagents are available for 300 tests, contact your local HANNA sales office for more information



Data Management

Data can be managed using the HI 92000 Windows® compatible software.

SPECIFICATIONS

Light Source	4 tungsten lamps with narrow band interference filters at 420/525/575/610 nm
Light Detector	4 Silicon photocells

TEST	RANGE	TEST	RANGE	TEST	RANGE
Aluminum	0.00 to 1.00 mg/L	**Fluoride**	0.00 to 2.00 mg/L	**pH**	6.5 to 8.5 pH
Alkalinity	0 to 500 mg/L	**Iron LR**	0 to 400 µg/L	**Phosphate LR**	0.00 to 2.50 mg/L
Calcium	0 to 400 mg/L	**Magnesium**	0 to 150 mg/L	**Phosphorus**	0.0 to 15.0 mg/L
Chlorine Dioxide	0.00 to 2.00 mg/L	**Manganese LR**	0 to 300 µg/L	**Potassium MR**	10 to 100 mg/L
Chlorine*, Free	0.00 to 2.50 mg/L	**Nitrate**	0.0 to 30.0 mg/L	**Silica**	0.00 to 2.00 mg/L
Chlorine*, Total	0.00 to 3.50 mg/L	**Nitrite HR**	0 to 150 mg/L	**Silver**	0.000 to 1.000 mg/L
Chromium VI LR	0 to 300 µg/L	**Nitrite LR**	0.00 to 0.35 mg/L	**Zinc**	0.00 to 3.00 mg/L
Color	0 to 500 PCU	**Oxygen, Dissolved (DO)**	0.0 to 10.0 mg/L		
Copper LR	0 to 1000 µg/L	**Ozone**	0.00 to 2.00 mg/L		

ORDERING INFORMATION

HI 83200-01 (115V) and **HI 83200-02** (230V) are supplied with (4) sample cuvettes, sample preparation kit, cuvette cleaning cloth, scissors, 12 Vdc adapter and instructions.

HI 83200C-01 (115V) and **HI 83200C-02** (230V) are supplied with a rugged carrying case, (4) sample cuvettes, sample preparation kit, cuvette cleaning cloth, scissors, 12 Vdc adapter and instructions.

ACCESSORIES

HI 93703-50 Cuvette cleaning solution, 230 mL
HI 721310 9V battery (10)
HI 731318 Cuvette cleaning cloths (4)
HI 731321 Glass cuvettes (4)
HI 731325N New caps for cuvette (4)
HI 740034 Caps for 100 mL beaker (6)
HI 740036 100 mL plastic beakers (6)
HI 740038 60 mL glass bottle and stopper
HI 740142 1 mL graduated syringe
HI 740143 1 mL graduated syringes (6)
HI 740144 Pipette tips (6)
HI 740157 Plastic pipettes (20)
HI 740220 25 mL glass cylinders with cap (2)
HI 740223 170 mL plastic beaker
HI 740224 170 mL plastic beakers (12)
HI 740225 60 mL graduated syringe
HI 740226 5 mL graduated syringe
HI 740227 Filter assembly
HI 740228 Filter discs (25)
HI 740229 100 mL Polypropylene cylinder
HI 740230 Demineralized water, 230 mL
HI 92000 Windows® Compatible Software
HI 920010 PC connection cable
HI 93703-54 Dried resin, 100 g
HI 93703-55 Activated Carbon (50)

{ Perfect for **On-Site** Tests }

Free and Total Chlorine Photometer

- CAL CHECK™ validation
- Log up to 99 records
- RS232 PC compatible
- Perfect for on-site tests
- Expandable with iButton® TAGs
- Auto shut-off
- Powered by a single 9V battery

Shown with optional TAGs

Portable Kit for Routine Spot Analysis

The HI 96711 measures free and total chlorine with quick traceability of each measured sample.

The sample traceability system allows users to collect and manage data in a very simple and error free way. All measurements can be quickly organized by time or by sample. The check function allows the user to validate the good performance of the instrument at any time.

The HI 96711 can log up to 99 measurements in internal memory. Logs can be transferred to a PC via HANNA's HI 92000 software (optional) for permanent records and verification.

CAL CHECK™ Calibration Validation

With HANNA's exclusive CAL CHECK™ validation function users are able to verify the performance of the instrument at any time. Taking just a few short steps, the validation procedure is user friendly and ensures that the meter is properly calibrated.

Peace of mind.

A **Revolution** in Organized Data Management

SPECIFICATIONS		HI 96711
Range	Free Chlorine	0.00 to 5.00 mg/L
	Total Chlorine	0.00 to 5.00 mg/L
Resolution		0.01 mg/L 0.00 to 3.50 mg/L; 0.10 mg/L above 3.50 mg/L
Precision		±0.02 mg/L to 1.00 mg/L
Light Source		Tungsten lamp with narrow band interference filter 525 nm
Light Detector		Silicon photocell
Method		Adaptation of USEPA 330.5 Method and Standard Methods 4500-Cl G

ORDERING INFORMATION

HI 96711 is supplied with (2) sample cuvettes with caps, (10) reagent powder packets, (4) batteries and instructions.

HI 96711C is supplied with (2) sample cuvettes with caps, (3) CAL CHECK™ cuvettes, (10) reagent powder packets, cuvette cleaning cloth, (4) batteries, scissors and instructions in a hard carrying case.

SOLUTIONS

HI 93703-50 Cuvette cleaning solution, 250 mL

REAGENTS

HI 93701-01 Reagents for 100 tests (Free Chlorine)
HI 93701-03 Reagents for 300 tests (Free Chlorine)
HI 93711-01 Reagents for 100 tests (Total Chlorine)
HI 93711-03 Reagents for 300 tests (Total Chlorine)
HI 95701-11 CAL CHECK™ standard cuvettes for Free Chlorine
HI 95711-11 CAL CHECK™ standard cuvettes for Total Chlorine

ACCESSORIES

HI 920005 iButton® TAGs (5)
HI 92000 Software for PC connection, Windows® compatible
HI 920011 Serial cable for PC connection
HI 731318 Cuvette cleaning cloth (4)
HI 731331 Measuring cuvettes (4)
HI 731335 Cuvette caps (4)

Fast Tracker™ Tag Identification System (T.I.S.)

HANNA's exclusive Fast Tracker™ – Tag Identification System simplifies test logging while retaining the management versatility users need to search, filter and export data. The system, ideal for on-site spot checks, helps verify that samples have truly been taken at pre-established locations during safety audits and inspections.

{ Water-resistant }

Single Parameter Photometers

- Large, dual-level LCD
- Water-resistant
- Accuracy verification
- User calibration
- Certified calibration & verification standards
- Secondary standards for calibration and verification
- Custom ranges
- Long battery life
- Auto shut-off

Photometers Designed for Both Laboratory and Field Use

HANNA's of single parameter photometers for drinking water applications feature water resistance, a large dual-level LCD, an advanced optical system and HANNA's exclusive CAL CHECK™ validation function. With the powerful CAL CHECK™ validation function, users are able to validate performance of the instrument at any time.

The instrument is water resistant and the light source and filter units are protected from dust or dirt by a transparent cup. This makes the instrument ideal for field applications. Display messages aid the user in routine operation. The meter has an auto-shut off feature that will turn off the instrument after 10 minutes of non use in measurement mode or after 1 hour if left in calibration mode.

These meters also use an exclusive positive-locking system to ensure that the cuvette is in the same position every time it is placed into the measurement cell. It is designed to fit a cuvette with a larger opening making it easier to add both sample and reagents. The cuvette is made from special optical glass to obtain best results.

HI 731318

HI 731331

GENERAL SPECIFICATIONS

Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing
Power Supply	(1) 9V battery
Auto-off	After 10 minutes of non-use in measuring mode After 1 hour of non-use in calibration mode with last reading reminder

SOLUTIONS

HI 93703-50	Cuvette cleaning solution, 250 mL

ACCESSORIES

HI 731318	Cuvette cleaning cloth (4)
HI 731331	Measuring cuvettes (4)
HI 731335	Cuvette caps (4)

Free/Total Chlorine Photometer

The HI 96724 meter measures the free and total chlorine (Cl_2) content in water samples in the 0.00 to 5.00 mg/L (ppm) range. The method is an adaptation of the USEPA Method 330.5 for wastewater and Standard Method 4500-Cl G for drinking water.

SPECIFICATIONS		HI 96724
Range	Free Cl_2	0.00 to 5.00 mg/L
	Total Cl_2	0.00 to 5.00 mg/L
Resolution		0.01 mg/L (0.10 mg/L over 3.50 mg/L)
Precision		±0.03 mg/L to 1.00 mg/L
Light Source		Tungsten lamp
Light Detector		Silicon photocell with narrow band interference filter @ 525 nm
Method		Adaptation of the USEPA method 330.5 and Standard Method 4500-Cl G.

ORDERING INFORMATION

HI 96724 is supplied with (2) sample cuvettes with caps, 9V battery and instructions.

HI 96724C is supplied with CAL CHECK™ standard cuvettes, (2) sample cuvettes with caps, 9V battery, cuvette cleaning cloth, scissors and instructions in a hard carrying case.

REAGENTS AND STANDARDS

HI 93701-T*	Liquid reagents for 300 tests of Total Chlorine
HI 93701-F	Liquid reagents for 300 tests of Free Chlorine
HI 93711-D3	DPD liquid reagent for 600 tests of Total Chlorine
HI 95724-11	CAL CHECK™ standard cuvettes (1 set)

Anionic Detergents Photometer

Detergents are produced in large quantities and are widely used in many applications. Due to their common use, detergents are introduced into the water supply through domestic and industrial drains.

SPECIFICATIONS	HI 96769
Range	0.00 to 3.50 mg/L (as LAS, Linear Alkylbenzene Sulfonate)
Resolution	0.01 mg/L
Precision	±0.04 mg/L @ 1.00 mg/L
Light Source	Tungsten lamp
Light Detector	Silicon photocell with narrow band interference filter @ 610 nm
Method	Adaptation of the USEPA method 425.1 for drinking waters, surface waters, domestic and industrial wastes and Standard Methods, 20th edition, 5540C, Anionic Surfactants by MBAS.

ORDERING INFORMATION

HI 96769 is supplied with (2) sample cuvettes with caps, 9V battery and instructions.

HI 96769C is supplied with CAL CHECK™ standard cuvettes, (2) sample cuvettes with caps, (1) long glass vial (25 mL) with cap, (3) plastic pipettes, 9V battery, cuvette cleaning cloth and instruction manual in a hard carrying case.

REAGENTS AND STANDARDS

HI 95769-01	Reagent kit for 40 tests
HI 95769-11	CAL CHECK™ Standard Cuvettes (1 set)

HANNA **photometers are available as a KIT**

Just choose the "C" version

HI 96715C kit version shown.

Copper, Low Range Photometer

The HI 96747 measures the free dissolved Copper (Cu) content in water samples in the 0.000 to 1.500 mg/L (ppm) range.

SPECIFICATIONS	HI 96747
Range	0.000 to 1.500 mg/L
Resolution	0.001 mg/L for measurement; 0.01 mg/L for calibration and validation
Precision	±0.015 mg/L to 0.750 mg/L
Light Source	Tungsten lamp
Light Detector	Silicon photocell with narrow band interference filter @ 560 nm
Method	Bicinchoninate method.

ORDERING INFORMATION

HI 96747 is supplied with (2) sample cuvettes with caps, 9V battery and instructions.

HI 96747C is supplied with CAL CHECK™ standard cuvettes and reagents, (2) sample cuvettes with caps, 9V battery, cuvette cleaning cloth, scissors and instructions in a hard carrying case.

REAGENTS AND STANDARDS

HI 95747-11	CAL CHECK™ Standard Cuvettes (1 set)
HI 95747-01	Reagents for 100 tests
HI 95747-03	Reagents for 300 tests

Fluoride, Low Range Photometer

A high concentration of fluoride can be harmful, so its presence needs to be monitored. HANNA offers the HI 96729, including an automatic 2000 µL automatic pipette.

One of the most important interfering elements for fluoride is chlorine, present in some applications such as drinking waters. HANNA suggests using the HI 93703-53 liquid reagent with dropper to remove chlorine interference. This reagent is very quick and practical to use, just add a drop to every 2 mg/L (ppm) of chlorine to eliminate its interference.

SPECIFICATIONS	HI 96729
Range	0.00 to 2.00 mg/L (ppm)
Resolution	0.01 mg/L (ppm)
Precision	±0.03 mg/L to 1.00 mg/L (ppm)
Light Source	Tungsten lamp
Light Detector	Silicon photocell with narrow band interference filter @ 575nm
Method	Adaptation of the USEPA method 340.1 and Standard Methods for the Examination of Water and Wastewater, 20th edition, SPANDS method.

ORDERING INFORMATION

HI 96729 is supplied with (2) sample cuvettes with caps, 9V battery and instructions.

HI 96729C is supplied with CAL CHECK™ standard cuvettes, (2) sample cuvettes with caps, (1) 2000 µL automatic pipette with cap, (1) pipette tip, 9V battery, cuvette cleaning cloth and instruction manual in a hard carrying case.

REAGENTS AND STANDARDS

HI 95729-11 CAL CHECK™ Standard Cuvettes (1 set)
HI 93703-53 Chlorine remover
HI 93729-01 Reagents for 100 tests
HI 93729-03 Reagents for 300 tests

Nitrite, Low Range Photometer

The HI 96707 meter measures the Nitrogen-Nitrite (NO_2^--N) content in the 0.000 to 0.600 mg/L (ppm) range, in drinking, surface and saline water samples and in domestic and industrial wastes. The method is an adaptation of an EPA approved method.

SPECIFICATIONS	HI 96707
Range	0.000 to 0.600 mg/L (ppm) (as NO_2^--N)
Resolution	0.001 mg/L (ppm)
Precision	±0.001 mg/L to 0.100 mg/L (ppm)
Light Source	Tungsten lamp
Light Detector	Silicon photocell with narrow band interference filter @ 525 nm
Method	Adaptation of an USEPA approved method 354.1.

ORDERING INFORMATION

HI 96707 is supplied with (2) sample cuvettes with caps, 9V battery and instructions.

HI 96707C is supplied with CAL CHECK™ standard cuvettes, (2) sample cuvets with caps, 9V battery, cuvette cleaning cloth, scissors and instruction manual in a hard carrying case.

REAGENTS AND STANDARDS

HI 95707-11 CAL CHECK™ Standard Cuvettes (1 set)
HI 93707-01 Reagents for 100 tests
HI 93707-03 Reagents for 300 tests

Silica Photometer

The HI 96770 meter measures the molybdate reactive silica (SiO_2) content in water samples in the 0 to 200 mg/L (ppm) range. The method is an adaptation of the USEPA METHOD 370.1 for drinking, surface and saline waters, domestic and industrial wastes and Standard Method 4500-SiO_2 C.

SPECIFICATIONS	HI 96770
Range	0 to 200 mg/L (ppm) (SiO_2)
Resolution	1 mg/L (ppm)
Precision	±5 mg/L @ 100 mg/L (ppm)
Light Source	Light Emitting Diode
Light Detector	Silicon photocell with narrow band interference filter @ 466 nm
Method	Adaptation of the USEPA METHOD 370.1 for drinking, surface and saline waters, domestic and industrial wastes and Standard Method 4500-SiO_2 C.

ORDERING INFORMATION

HI 96770 is supplied with (2) sample cuvettes with caps, 9V battery and instructions.

HI 96770C is supplied with CAL CHECK™ standard cuvets, (2) sample cuvettes with caps, 9V battery, cuvette cleaning cloth, scissors and instruction manual in a hard carrying case.

REAGENTS AND STANDARDS

HI 96770-11 CAL CHECK™ Standard Cuvettes (1 set)
HI 96770-01 Reagents for 100 high range tests
HI 96770-03 Reagents for 300 high range tests

{ Speedsafe™ }

Magnetic Stirrers

- **Safety with Speedsafe™**
  Speedsafe limits the maximum speed to 1000 rpm even if the load is suddenly removed.
- **Chemical Resistance**
  The ABS housing of the HI 180 resists most harmful chemicals in the lab.
- **Compact Size**
  The compact size of these stirrers allows users to maximize bench space for efficiency and safety.

Advanced Features and Stainless Steel Cover

HI 301N and HI 311N are heavy-duty stirrers that offer dual range precision. HI 310N can stir up to 2.5 liters (0.66 gallons) of liquid and HI 311N can stir up to 5.0 liters (1.3 gallons).

Similar to the "ZOOM" function of a microscope, these stirrers allow access to two separate stirring ranges. In each range, the speed can be fine tuned for exacting accuracy.

In addition, the HI 311N also has an automatic feedback feature. The motor is electronically controlled to maintain the chosen speed as the load changes. If the viscosity or level (fluid weight) increases or decreases, the circuitry will adjust the output power to keep the speed constant.

SPECIFICATIONS		HI 311N	HI 301N	HI 180
Maximum Stirring Capacity		5 liters	2.5 liters	1 liter
Speed Range	Low	100 to 500 rpm		100 rpm
	High	100 to 800/1000 rpm		1000 rpm
Auto-Feedback		Standard	–	
Power Supply		110/115 Vac or 230/240 Vac, 50/60 Hz		
Installation Category		II		
Cover Material		AISI 316 stainless steel		ABS plastic

Compact Size and ABS plastic Cover

HANNA HI 180 series are compact, lightweight stirrers with a rounded, dynamic design.

Available in nine colors, light yellow, light sea-green, light blue, yellow, green, dark blue, red, grey and ivory, several HI 180 stirrers can be placed on a laboratory bench with their colors helping to identify the different samples.

ORDERING INFORMATION

HI 301N and **HI 311N** are supplied with magnetic stir bar and instructions

HI 301N-1 Magnetic stirrer, stainless steel cover, 110/115 Vac
HI 301N-2 Magnetic stirrer, stainless steel cover, 220/240 Vac
HI 311N-1 Magnetic stirrer, stainless steel cover, 110/115 Vac
HI 311N-2 Magnetic stirrer, stainless steel cover, 220/240 Vac

HI 180 series are supplied complete with micro stir bar and instructions.

HI 180 A-1 Light yellow mini-stirrer, 110/115 Vac
HI 180 A-2 Light yellow mini-stirrer, 220/240 Vac

Other colors are available, just replace the letter **A** with one of the following letters: **B** Light sea-green, **C** Light blue, **D** Yellow, **E** Green, **F** Blue, **G** Red, **H** Grey, **I** Ivory

ACCESSORIES

HI 731320 Magnetic stir bar (10) for HI 311N and HI 301N
HI 731319 Magnetic stir bar (10) for HI 180 series

{ ±0.3°C **Accuracy** and **CAL CHECK™** }

Temperature Monitor

- Magnetic backing
- Food grade stainless steel thermistor probe on 1 m (3.3') cable
- Fast response
- CAL CHECK™ verification
- Low battery warning
- Small and lightweight

Perfect for Refrigerator and Incubator Monitoring

Water testing laboratories require constant monitoring of refrigerators and incubators for compliance to standard operations. The Hanna HI 147 Checkfridge™ C is the ideal thermometer when you need accurate, reliable internal temperature readings while monitoring from outside. The HI 147 temperature monitor has a magnetic backing that provides flexibility and ease of location for convenient relocation if required. The device incorporates a unique CAL CHECK™ feature which allows the user to calibrate the thermometer internally. A low battery warning "ERR" message completes HI 147's rich features.

SPECIFICATIONS	HI 147-00 Checkfridge™ C	HI 147-01 Checkfridge™ F
Range	-50.0 to 150.0°C	-58.0 to 302.0°F
Resolution	0.1°C	0.1°F (-58.0 to 199.9°F) 1°F (200 to 302°F)
Accuracy	±0.3°C (-20 to 90°C); ±0.5°C (outside)	±0.6°F (-4 to 194°F); ±1°F (outside)
Calibration Check	manual, through switch	
Probe	stainless steel, general purpose; 40 x DIA 5 mm (1.6 x DIA 0.2"); 1 m (3.3') cable	
Battery Type / Life	(1) 1.5V AAA / approx. 3 years of use	

ORDERING INFORMATION

HI 147-00 (Checkfridge™ C) is supplied complete with battery and instructions

HI 147-01 (Checkfridge™ F) is supplied complete with battery and instructions

pH and ORP Electrodes

BNC Connector

PARAMETER	pH	pH	ORP
CODE	**HI 1230B**	**HI 1131B**	**HI 3230B**
Description	Combination pH Electrode	Refillable, combination pH Electrode	Refillable, combination pH Electrode
Reference	Double, Ag/AgCl	Single, Ag/AgCl	Single, Ag/AgCl
Junction / Flow Rate	Ceramic, single / 15-20 µL/hr	Ceramic, single / 15-20 µL/hr	Ceramic, single / 15-20 µL/hr
Electrolyte	Gel	KCL 3.5M + AgCl	Gel
Max Pressure	2 bar	0.1 bar	2 bar
Range	pH: 0 to 13 Temp: 0 to 80°C (32 to 176°F)	pH: 0 to 13 Temp: -5 to 100°C (23 to 212°F)	ORP: 0±2000 mV Temp: 0 to 80°C (32 to 176°F)
Tip / Shape	Spheric (7.5 mm DIA)	Spheric (9.5 mm DIA)	Platinum Pin
Body Material	PES (polyethersulfone)	Glass	PES (polyethersulfone)
Cable	1 m coaxial (3.3')	1 m coaxial (3.3')	1 m coaxial (3.3')
Connector	BNC	BNC	BNC

{ Electrodes **Designed** and **Manufactured** by HANNA }

pH and ORP Solutions

pH Technical Solutions (±0.01 pH) for Each Point of the pH Scale.

These solutions are dedicated to those applications that require extremely accurate (±0.01 pH accuracy) pH monitoring.

HANNA Combo Kits

Use our combination kits for easy ordering.

ORP Standard Solutions

ORP standard solutions allows users to test the precision of ORP electrodes. For example, by immersing the electrode in HI 7020 solution, readings should fall within the 200 to 275 mV range (@20°C/68°F).

If the reading is outside the indicated interval, clean and condition your ORP electrode in HANNA pretreatment solution. Use HI 7092 for oxidizing or HI 7091 for reducing pretreatment.

pH Technical Solutions

BOTTLES		
Code	**pH Value @25°C**	**Package**
HI 5004	4.01	(1) 500 mL
HI 5004-01	4.01	(1) 1 L
HI 5007	7.01	(1) 500 mL
HI 5007-01	7.01	(1) 1 L
HI 5010	10.01	(1) 500 mL
HI 5010-01	10.01	(1) 1 L

SACHETS		
Code	**pH Value @25°C**	**Package**
HI 50004-01	4.01	(10) 20 mL
HI 50004-02	4.01	(25) 20 mL
HI 50007-01	7.01	(10) 20 mL
HI 50007-02	7.01	(25) 20 mL
HI 50010-01	10.01	(10) 20 mL
HI 50010-02	10.01	(25) 20 mL

Combination pH Buffer Kits

Code	Solutions (pH Value @25°C)	Bottle
HI 54710	pH 4.01, pH 7.01, pH 10.01	(3) 500 mL
HI 54710-10	pH 4.01, pH 7.01, pH 10.01, HI 70300L	(4) 500 mL
HI 54710-11	pH 4.01, pH 7.01, pH 10.01, HI 70300L, HI 7061L	(5) 500 mL
HI 54710-12	pH 4.01, pH 7.01, pH 10.01, HI 70300L, HI 7061L, HI 7071L	(6) 500 mL
HI 54710-13	pH 4.01, pH 7.01, pH 10.01, HI 70300L, HI 7061L, HI 7072L	(6) 500 mL

ORP Test and Pretreatment Solutions

Code	Description	Package
HI 7020L	ORP Test Solution at 200/275 mV (@20°C)	500 mL bottle
HI 7020M	ORP Test Solution at 200/275 mV (@20°C)	250 mL bottle
HI 7021L	ORP Test Solution at 240 mV (@20°C)	500 mL bottle
HI 7021M	ORP Test Solution at 240 mV (@20°C)	250 mL bottle
HI 7022L	ORP Test Solution at 470 mV (@20°C)	500 mL bottle
HI 7022M	ORP Test Solution at 470 mV (@20°C)	250 mL bottle
HI 7091L	Reducing Pretreatment Solution	500 mL bottle
HI 7091M	Reducing Pretreatment Solution	250 mL bottle
HI 7092L	Oxidizing Pretreatment Solution	500 mL bottle
HI 7092M	Oxidizing Pretreatment Solution	250 mL bottle

pH and ORP Solutions

pH and ORP Electrode Refill Solutions

The electrolyte level in refillable electrodes should be checked before performing any measurement. If the level is low, refill with the proper electrolyte solution to ensure the correct electrode performance.

Electrode Storage Solutions for pH Electrodes

To minimize junction clogging and ensure fast response time, always keep the glass bulb and the junction of your pH electrode moist. Store the electrode with a few drops of HI 70300 storage or pH 7 buffer solution in the protective cap.

General Cleaning

Clean the liquid junction of your electrodes once a day or at least once a week to prevent junction clogging and to maintain accuracy. Immerse the electrode in the proper cleaning solution for at least 15-20 minutes.

pH and ORP Electrode Refill Solutions

Code	Description	Package
HI 7071	Electrolyte Solution, 3.5M KCl + AgCl	(4) 30 mL bottle
HI 7071L	Electrolyte Solution, 3.5M KCl + AgCl	500 mL bottle

Storage Solutions for pH Electrodes

Code	Description	Package
HI 70300L	Electrode Storage Solution	500 mL bottle
HI 70300M	Electrode Storage Solution	250 mL bottle

pH Electrode Cleaning Solutions for General Use

Code	Application	Package
HI 70000P	Rinsing	(25) 20 mL sachet
HI 7061L	General Purpose	500 mL bottle
HI 7061M	General Purpose	250 mL bottle

Practical, Safe and
Ready to Use Solutions

ISE Electrodes

PARAMETER	CHLORIDE		FLUORIDE		NITRATE		SILVER/SULFIDE	
CODE	**HI 4007**	**HI 4107**	**HI 4010**	**HI 4110**	**HI 4013**	**HI 4113**	**HI 4015**	**HI 4115**
Type	Solid-state; Half-cell	Solid-state; Combination	Solid-state; Half-cell	Solid-state; Combination	Polymer Membrane; Half-cell	Polymer Membrane; Combination	Solid-state; Half-cell	Solid-state; Combination
Measurement Range	1M to 5X 10^{-5}M 35000 to 1.8 ppm		1M to 1X 10^{-6}M Sat. to 0.02 ppm		1.0M to 1X 10^{-5}M 6200 to .62 ppm		Ag^+ 1.0M to 1X 10^{-6}M 107900 to 0.11 ppm $S^=$ 1.0M to 1X 10^{-7}M 32100 to 0.003 ppm	
Optimum pH Range	2 to 11		5 to 8		3.0 to 8		Ag^+ 2 to 8 $S^=$ 12 to 14	
Temperature Range	0 to 80°C		0 to 80°C		0 to 40°C		0 to 80°C	
Approximate Slope	-57		-56		-56		-56 Ag^+ / -28 $S^=$	
Body O.D.	12 mm		12 mm		12 mm		12 mm	
Insertion Length	120 mm		120 mm		120 mm		120 mm	
Body Material	Epoxy	PEI	Epoxy	PEI/Epoxy	PVC	PEI/PVC	Epoxy	PEI
Cable	1 m coaxial		1 m coaxial		1 m coaxial		1 m coaxial	
Connector	BNC		BNC		BNC		BNC	
Fill Solution*	HI 7072		HI 7075		HI 7082		HI 7072	

*not included

Solid State Electrodes are available as both single half-cells or as combination electrodes complete with reference electrode. These electrodes incorporate a solid sensing surface made of compressed silver halides, or solid crystalline material. HANNA's offering includes sensors for the determination of chloride, fluoride and silver ions. Solid body construction is rugged for long life.

Liquid Membrane Electrodes are available as single half-cells or as combination electrodes complete with reference electrode. The sensing surfaces of these electrodes are comprised of a homogeneous polymer matrix containing organic ion-exchangers selective for the determined ion. These sensors incorporate easily replaceable membrane modules and are available for measurements of nitrate.

Combination Electrodes include a sensor and reference electrode in a single electrode body. Our combination ion selective electrodes provide the same selectivity and response as our ISE half-cells, but include our superior double junction reference into the same electrode body. Combination solid state electrodes have a built in solid state sensor and quick refillable reference electrode. Our liquid membrane and fluoride combination electrodes have replaceable module construction and the HANNA double junction reference stability.

ISE Solutions

HANNA ISE Standards

CODE	Description	Size
HI 4010-01	0.1 M fluoride std.	500 mL
HI 4010-02	100 ppm fluoride std.	500 mL
HI 4010-03	1000 ppm fluoride std.	500 mL
HI 4010-10	10 ppm fluoride std. premixed with TISAB II	500 mL
HI 4010-11	1 ppm fluoride std. premixed with TISAB II	500 mL
HI 4010-12	2 ppm fluoride std. premixed with TISAB II	500 mL
HI 4010-30	(4) 1 ppm, (4) 10 ppm fluoride std. with (4) TISAB II	500 mL
HI 4013-01	0.1 M nitrate std.	500 mL
HI 4013-02	100 ppm nitrate std.	500 mL
HI 4013-03	1000 ppm nitrate std.	500 mL

Ionic Strength Adjusters (ISA)

HANNA Ionic Strength Adjusters (ISA) are formulated to provide a constant ionic strength in sample and standards alike, thus permitting concentration rather than activity measurements to be made. In some cases ISA's adjust pH and eliminate matrix effects.

Code	Description	Size
HI 4010-00	TISAB II (for fluoride)	500 mL
HI 4010-06	TISAB III concentrate (for fluoride)	500 mL
HI 4013-06	Nitrate interferent suppressant ISA	500 mL

HANNA Silver-free Reference Fill Solutions Specifically for ISE Electrodes

Recommended for our Combination ISE Electrodes and the HANNA HI 5315 reference electrode. Reference electrodes should be topped off daily with the correct filling solution for optimum measurement performance. These solutions are silver free to eliminate silver precipitates found with standard electrolytes.

Code	Description	Size
HI 7072	Electrolyte solution, 1 M KNO_3	(4) 30 mL bottles
HI 7075	Electrolyte solution with KNO_3 and KCl	(4) 30 mL bottles
HI 7078	Electrolyte solution, $(NH_4)_2SO_4$	(4) 30 mL bottles
HI 7082	Electrolyte solution, 3.5M KCl	(4) 30 mL bottles

HANNA Accessories

HANNA ISE replacement parts and accessories keep your measurements fast and accurate.

Code	Description
HI 4000-50	Liquid membrane sensor handle
HI 4000-70	Halide polishing strip
HI 4110-51	Fluoride module for combination electrode
HI 4013-53	Nitrate module 3 pack for half-cell
HI 4113-53	Nitrate module 3 pack for combination
HI 740155P	Capillary pipettes (20)

PARAMETER	REFERENCE
CODE	**HI 5315**
Temperature Range	0 to 80°C
Approximate Slope	N/A
Body O.D.	12 mm
Insertion Length	120 mm
Body Material	PEI
Cable	1 m coaxial
Connector	Banana

Reference Electrodes are used to provide a stable voltage and electrolytic contact to permit a voltage gradient to be measured across a measurement membrane such as an ISE. HANNA has designed an easy to use, double junction, quick fill, sleeve style reference electrode with a cone style junction to work with the ion selective electrode family of sensors.

The HI 5315 is a silver/silver chloride electrode half-cell with a permanent gel filled internal cell. The outer fill solution is easily replaceable and serves as a buffer zone between the internal chloride ion containing gel and the sample solution. HANNA offers a complete line of silver-free fill solutions to optimize your ion measurement. A fast responding liquid junction, excellent reproducibility and ease of use will mark this reference as your "best" in the lab.

Worldwide Contacts

Africa

Egypt
HANNA instruments® Egypt Ltd.
P: (02) 2758683 / 6717098
F: (02) 2758683
E: egypt@hannainst.com

Mauritius
HANNA instruments® Mauritius Ltd.
P: (230) 508.1555
F: (230) 208.6386
E: mauritius@hannainst.com

Morocco
HANNA instruments® Morocco S.a.r.l.
P: +212 (0)28 23 35 30
+212 (0)28 23 35 06
F: +212 (0)28 23 35 17
E: morocco@hannainst.com

South Africa
HANNA instruments® (Pty) Ltd
P: (011) 615.6076
F: (011) 615.8582
E: southafrica@hannainst.com

African countries not listed above
HANNAService Srl
P: +39 0444 411649
F: +39 0444 611736
E: africa@hannainst.com

Americas

Argentina
HANNA instruments® Argentina s.a.
P: (11) 4308.1905 / 4308.4807
F: (11) 4308.1904
E: argentina@hannainst.com

Brazil
HANNA instruments® Brasil Importação e Exportação LTDA
P: 55 11 6672-3008
F: 55 11 6672-3695
E: brazil@hannainst.com

Canada
HANNA instruments® Canada Inc.
P: (450) 629.1444
F: (450) 629.3335
E: canada@hannainst.com

Chile
HANNA instruments® Equipos Ltda.
P: (2) 2361400
F: (2) 2364009
E: chile@hannainst.com

Mexico
HANNA S.A. de C.V.
P: +52 (55) 5649 1185
F: +52 (55) 5649 1186
E: mexico@hannainst.com

United States
HANNA instruments® USA
P: (800) 426-6287
F: (401) 762-5064
E: unitedstates@hannainst.com

Asia

China
Beijing HANNA instruments®
P: (10) 88570068
F: (10) 88570060
E: china@hannainst.com

India
HANNA instruments® (India) Pvt. Ltd.
P: 91-22-2756 6435
F: 91-22-2756 6436
E: india@hannainst.com

Indonesia
PT. HANNA instruments® Indotama
P: 62 (021) 4525106
F: 62 (021) 458 4294242942
E: indonesia@hannainst.com

Japan
HANNA instruments® Japan Co. Ltd
P: (03) 5205.3216
F: (03) 5205.3217
E: japan@hannainst.com

Korea
HANNA Korea
P: 0502-013-2580
F: 0502-013-2581
E: korea@hannainst.com

Malaysia
HANNA instruments® (M) Sdn Berhad
P: (603) 5638.9940
F: (603) 5638.9829
E: malaysia@hannainst.com

Singapore
HANNA instruments® (S) Pte. Ltd
P: (65) 6296.7118
F: (65) 6291.6906
E: singapore@hannainst.com

Taiwan
HANNA Trading Taiwan Pte. Ltd.
P: 886.2.2552.2041
F: 886.2.2552.2046
E: taiwan@hannainst.com

Thailand
HANNA instruments® (Thailand) Ltd
P: (662) 619.0708.11
F: (662) 619.0061
E: thailand@hannainst.com

Vietnam
HANNA instruments® Vietnam
P: (84.8) 9105478/ 79/ 80
F: (84.8) 9105477
E: vietnam@hannainst.com

Europe

Belgium
HANNA instruments® BVBA
P: (03) 710.9340
F: (03) 710.9359
E: belgium@hannainst.com

France
HANNA instruments® France
P: (03) 8876.9188
F: (03) 8876.5880
E: france@hannainst.com

Germany
HANNA instruments® Deutschland GmbH
P: (07851) 9129-0
F: (07851) 9129-99
E: germany@hannainst.com

Greece
HANNA instruments® Hellas Ltd.
P: (210) 823.5192
F: (210) 884.0210
E: greece@hannainst.com

Hungary
HANNA instruments® Service
P: (0036) 62.461.514
E: hanna@hih.hu
E: hungary@hannainst.com

Italy
HANNA Italia Srl
P: 049.9070211
F: 049.9070504
E: italy@hannainst.com

The Netherlands
HANNA instruments® BV
P: (31) 30.28.96.842
F: (31) 30.26.71.427
E: netherlands@hannainst.com

Poland
HANNA instruments® Poland
P: (89) 539.0961
F: (89) 539.0963
E: poland@hannainst.com

Portugal
HANNA instruments® Portugal
P: (252) 248670
F: (252) 248679
E: portugal@hannainst.com

Romania
HANNA instruments® Romania srl
P: 0040 264.599.459
F: 0040 264.598.740
E: romania@hannainst.com

Spain
HANNA instruments® S.L.
P: (902) 420.100 / 420.103 (SAT)
F: (902) 420.101
E: spain@hannainst.com

United Kingdom
HANNA instruments® Ltd
P: (01525) 850.855
F: (01525) 853.668
E: unitedkingdom@hannainst.com

Oceania

Australia
HANNA instruments® Pty Ltd
P: (03) 9769.0666
F: (03) 9769.0699
E: australia@hannainst.com

HANNA® instruments

www.hannainst.com

CAT DRINKINGWATERINC 1.0 PRINTED IN USA