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HI98494

Multiparameter Bluetooth® pH/EC/OPDO® Meter

pH, ORP, EC, TDS, Resistivity, Salinity, Seawater σ , Dissolved Oxygen, Atmospheric Pressure and Temperature

- **Bluetooth connectivity**
 - Retrieve data logs with Hanna Lab app for either sending by e-mail or download to a smart device for review
- **Waterproof**
 - IP67 rated waterproof, rugged enclosure for meter, IP68 for probe
- **Digital probe**
 - Digital probe with built-in temperature sensor and three ports for pH (ORP), EC and optical DO sensors
 - Color coded, field replaceable sensors
 - Auto-sensor recognition
 - Stainless steel, weighted protective guard

See page 7.28



Multiparameter Guide

	(B) Benchtop, (P) Portable	pH	ORP	ISE	EC	TDS	Resistivity	Salinity	Temperature	Ammonium	Chloride	Nitrate	Seawater σ	Turbidity	Dissolved Oxygen	Atmospheric Pressure	Bluetooth®	GPS	Fast Tracker™	Logging	Page	
HI5522	B	•	•	•	•	•	•	•	•											•	7.4	
HI5521	B	•	•		•	•	•	•	•												•	7.10
HI9829	P	•	•		•	•	•	•	•	•	•	•	•	•	•	•		• ¹	•	•	•	7.14
HI98494	P	•	•		•	•	•	•	•				•	•	•	•	•				•	7.28
HI98194	P	•	•		•	•	•	•	•				•	•	•	•					•	7.34
HI98195	P	•	•		•	•	•	•	•				•	•	•	•					•	7.38
HI981954	P	•	•		•	•	•	•	•				•	•	•	•					•	7.42
HI98196	P	•	•		•	•	•	•	•				•	•	•	•					•	7.46
HI991300	P	•			•	•	•	•	•													7.50
HI991301	P	•			•	•	•	•	•													7.50
HI9814	P	•			•	•	•	•	•													7.52
HI9813-51	P	•			•	•	•	•	•													7.54
HI9813-61	P	•			•	•	•	•	•													7.54
HI9810-61	P	•			•	•	•	•	•													7.56
HI9811-51	P	•			•	•	•	•	•													7.56
HI9812-51	P	•			•	•	•	•	•													7.56

¹ Select Models



HI9829

GPS Multiparameter Meters

pH/ORP/ISE, EC/TDS/Resistivity/Salinity/Seawater σ , Turbidity, DO, Temperature and Atmospheric Pressure

The HI9829 is a waterproof portable logging multiparameter meter that monitors up to 14 different water quality parameters.

The microprocessor based multi-sensor probe allows for the measurement of key parameters including pH, ORP, conductivity, dissolved oxygen, turbidity, ammonium, chloride, nitrate, and temperature. The probe transmits readings digitally with options to log data while disconnected from the meter. An optional GPS provides location tracking of measurements. The complete system is simple to setup and easy to use. The HI9829 is highly customizable and supplied with all necessary accessories, packaged in a durable carrying case.

See page 7.14



HI981954

Multiparameter Waterproof Meter

pH, ORP, EC, TDS, Resistivity, Salinity, Seawater σ and Temperature

The HI981954 is a waterproof portable logging multiparameter meter that monitors up to 9 different water quality parameters. Its multi-sensor probe allows for the measurement of key parameters including pH, ORP, conductivity, and temperature. The probe transmits readings digitally to the meter, where data points can be displayed and logged. The complete system is simple to setup and easy to use.

See page 7.42

Research Grade Meter

pH/ORP/ISE and EC/TDS/Resistivity/Salinity and Temperature



The HI5522 is an advanced research grade benchtop pH/ORP/ISE and EC/TDS/Salinity/Resistivity meter that is completely customizable with a large color LCD, capacitive touch keys, and USB port for computer connectivity.

The HI5522 is a two-channel meter that allows for simultaneous measure of pH, ORP, or ISE on one channel and EC, TDS, Salinity, or Resistivity on the other. Channel one has a BNC connection for use with the expansive line of pH, ORP, and ISE electrodes that Hanna Instruments offers. The meter is supplied with the HI1131B glass body, double junction, combination pH electrode that operates over a wide temperature range from 0 to 100°C. All readings are automatically compensated for temperature variations with the separate HI7662-T temperature probe or from the built in temperature sensor of the conductivity probe on Channel Two. The HI5522 is supplied with the

HI76312 four-ring conductivity probe that operates over a wide range from 0.000 $\mu\text{S}/\text{cm}$ to 1000.0 mS/cm^* . The meter can be set to auto-ranging in which the meter chooses the appropriate conductivity range from seven ranges or fixed range in which the meter will only display reading in $\mu\text{S}/\text{cm}$ or mS/cm . All readings are automatically compensated for temperature variations with a built in temperature sensor. The temperature correction coefficient is adjustable from 0.00 to 10.00 %/°C.

As a pH meter the HI5522 can be calibrated up to five points with a choice of eight pre-programmed buffers or five custom buffers. The HI5522 features Hanna's exclusive CAL Check™ to alert the user of potential problems during the pH calibration process. Indicators displayed during calibration include "Electrode Dirty/Broken" and "Buffer Contaminated." The overall probe condition based on the offset

and slope characteristic of the electrode is displayed as a percentage after calibration is complete.

In ISE mode the HI5522 can be calibrated up to five points with a choice of five fixed standards or five user defined in any concentration unit. The calibration data including date, time, standards used and slope can be viewed at any time along with the current measurement by selecting the Good Laboratory Practice (GLP) display option.

As an EC/TDS/Salinity/Resistivity meter the HI5522 can be calibrated up to four points with a choice of six pre-programmed conductivity standards or user defined custom standards. Resistivity, TDS, Practical Salinity (PSU) and Natural Seawater Scale are calibrated through conductivity. The % NaCl is calibrated to single point with the HI7037 salinity standard. The calibration data including date, time, and

standards used, offset and cell factor can be accessed at any time along with the current measurement by selecting the Good Laboratory Practice (GLP) display option.

For the measurement of high purity water used in pharmaceutical manufacturing, the HI5522 is programmed with the three stages of the USP <645> method. Once a stage is met a report is generated and can be saved. Up to 200 reports can be stored and transferred to a Windows® compatible computer using the supplied USB cable and software.

Three selectable logging modes are available: automatic, manual and AutoHold logging. Up to 100,000 data points can be recorded in 100 lots with 50,000 records max/lot on each channel and exported to a computer for data review and storage.

Customizable User Interface

The user interface of the HI5522 allows the user to show measurements in various modes: basic measurement with or without GLP information, real-time graphing, and logging data. Calibration stability criteria can be adjusted from fast, moderate, and accurate. Programmable alarm limits can be set to inside or outside allowable limits.

Color Graphic LCD

The HI5522 features a color graphic LCD with on-screen help, graphic, and custom color configurations. The display allows for real-time graphing and the use of virtual keys provide for an intuitive user interface.

Capacitive Touch

The HI5522 features sensitive capacitive touch buttons for accurate keystrokes when navigating menus and screens. There are four dedicated keys that are used for routine operations including calibration and switching measurement modes and four virtual keys that change based upon use. The capacitive touch technology ensures the buttons never get clogged with sample residue.

Four Ring Conductivity Probe

All readings are performed with the HI76312 four-ring conductivity probe that has a built in temperature sensor for automatic temperature correction. The four rings are made with platinum and the body of the electrode is made of Polyetherimide (PEI) plastic that is resistant to many harsh chemicals. The four-ring design allows for this probe to be used over a wide range of measurements.

Choice of Calibration

Automatic buffer recognition, semiautomatic, and direct manual entry pH calibration options are available for calibrating up to five points, from a selection of eight standard buffers and up to five custom buffers. For the conductivity channel the calibration can be set to automatic standard recognition or user entry along with a choice of single or multi-point. Calibration can be performed up to four points when multi-point is selected.

CAL Check™

CAL Check alerts users to potential problems during the calibration of the pH electrode. Indicators include "Electrode Dirty/Broken," "Buffer Contaminated," electrode response time and the overall probe condition as a percentage that is based on the offset and slope characteristics.

GLP Data

HI5522 includes a GLP Feature that allows users to view calibration data and calibration expiration information at the touch of a key. Calibration data include date, time, standards used for calibration.

ISE Measurement with Choice of Concentration Units

The HI5522 allows for calibration and readings in choice of concentration units. The choices of concentration units include ppt, g/L, mg/mL, ppm, mg/L, µg/L, ppb, µg/L, mg/mL, M, mol/L, mmol/L, %w/v and a user-defined unit.

ISE Measurement with Incremental Methods

The known addition, known subtraction, analyte addition, and analyte subtraction incremental methods are pre-programmed into the HI5522. Simply follow the on screen guided procedure and the meter will perform the calculation automatically allowing for a higher level of accuracy to be obtained as compared to a direct ISE measurement.

Data Logging

Three selectable logging modes are available on the HI5522: automatic, manual, and AutoHold logging. Automatic and manual logs up to 100 lots with 50,000 records max/lot, with up to 100,000 total data points. Automatic logging features the option to save data according to sampling period and interval.

Data Transfer

Data can be transferred to a PC with USB cable and HI92000 software (both sold separately).

Contextual Help

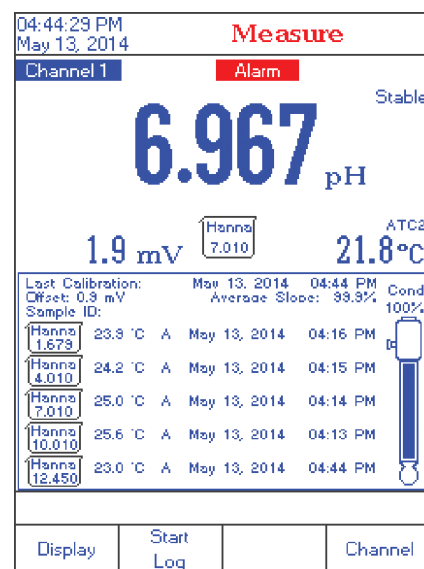
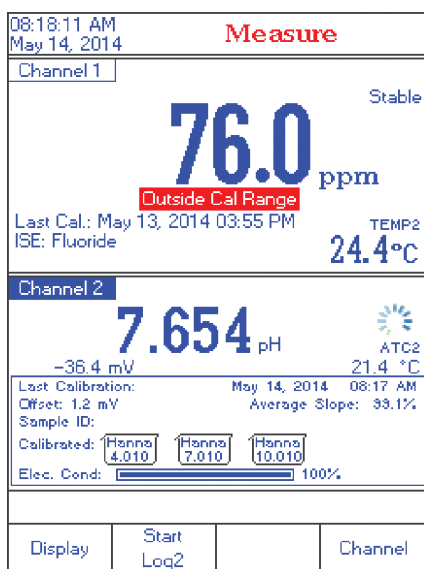
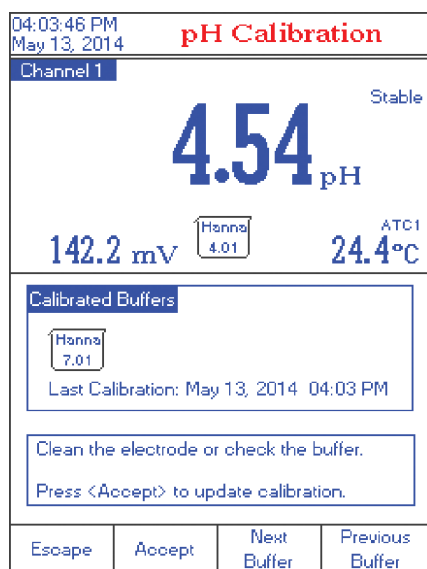
Contextual help is always available through a dedicated "HELP" key. Clear tutorial messages and directions are available on-screen to quickly and easily guide users through setup and calibration. The help information displayed is relative to the setting/option being viewed.

pH and EC Features

pH CAL Check™

Proper calibration of the pH electrode system is critical in order to achieve reliable results. Hanna's exclusive CAL Check system includes several features to help users reach that goal.

- Each time a pH calibration is performed, the instrument compares the new calibration with the previous one. When this comparison indicates a significant difference, the message alerts the user to either clean the electrode, check the buffer or both.
- When measurements are taken too far from the calibration points, the instrument will warn the user with a message on the LCD.
- The condition of the pH electrode after calibration is shown on the display, as well as the date and time.
- To avoid taking readings with old calibrations, the instrument automatically reminds the user when the calibration has expired.

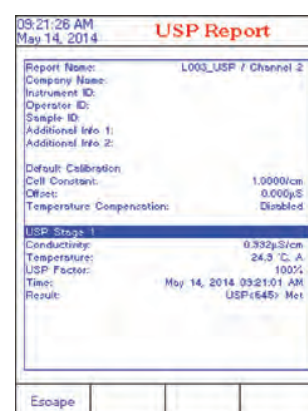
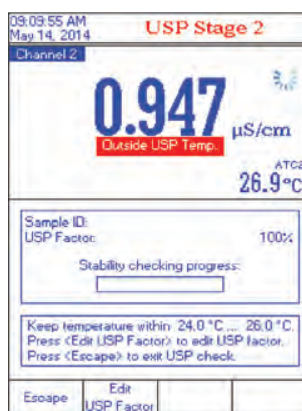
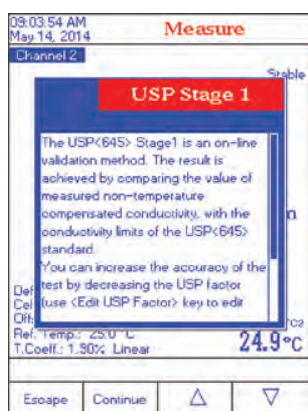


EC USP Mode

Hanna's HI5522 and HI5521 together with EC probes can be used for conductivity measurements required to prepare water for injection (WFI) according to USP <645>.

The instruments give clear instructions on how to perform each stage and automatically check that the temperature, conductivity and stability are within USP limits.

Comprehensive results are shown on a single screen at the end of the test. Up to 200 reports can be saved for future recall.



ISE Features

ISE Incremental Methods

Ion concentration determinations with ISEs can be made faster and easier using the streamlined incremental methods.

Incremental methods involve adding a standard to a sample or sample to a standard and detecting the mV change that occurs due to the addition, and this difference determines the concentration. Historically the user would use mathematical equations to determine the ion concentration of the sample; the HI5522, sample concentrations are calculated automatically and then logged into an ISE method report; up to 200 reports can be saved for future recall. The entire process can be repeated on multiple samples without reentering sets of parameters. Reports can be printed using HI92000 PC software.

Incremental method techniques can reduce errors from variables such as temperature, viscosity, pH or ionic strength. The electrodes remain immersed throughout the process, thus reducing measurement time as well as eliminating sample carry over and its associated errors.

Known Addition, Known Subtraction, Analyte Addition, and Analyte Subtraction methods are standard method choices provided by the HI5522.

08:05:39 AM May 14, 2014		Known Subtraction	
Channel 1		14.8 mV	Stable TEMP1 22.4 °C
First Step First Reading			
Manual Edit			
Sample Vol.	100.000	mL	
ISA Vol.	2.000	mL	
Std. Vol.	10.000	mL	
Std. Conc.	100	ppm	
Stoich. Factor	1.0		
then press <Continue>.			
Escape	Edit	Next	Previous

First Step

The first step in performing an incremental method analysis is to enter the required parameters including sample, ISA and standard volumes, as well as standard concentration and stoichiometric factor.

When repeating the analysis on another sample, the parameters do not need to be reentered.

08:09:43 AM May 14, 2014		Known Addition	
Channel 1		10.5 mV	Stable TEMP1 21.7 °C
First Step First Reading			
Second Step Second Reading			
Sample Volume:	100.000	mL	
ISA Buffer Vol. :	2.000	mL	
Reagent Volume:	2.000	mL	
Reagent Conc.:	1000	ppm	
Press <Read> to memorize the current reading and to pass to the next method step.			
Escape	Read		

Sequence of Readings

Once the variables are entered, the user is guided step-by-step through the measurement process.

The initial mV measurement is made before the addition; next is the addition, followed by the second mV measurement.

08:11:14 AM May 14, 2014		ISE Results	
Channel 1		35.9 ppm	
Sample ID:			
Calculated Slope:	100.1 %		
Reading 1:	10.5 mV		
Reading 2:	-0.4 mV		
Sample Volume:	100.000	mL	
Reagent Volume:	2.000	mL	
ISA Volume:	2.000	mL	
Reagent Conc.:	1000	ppm	
Press <Direct Measure> to return in main measurement panel. Press <Save> to log the current results.			
Direct Measure	Save	Edit	Start KA

Results

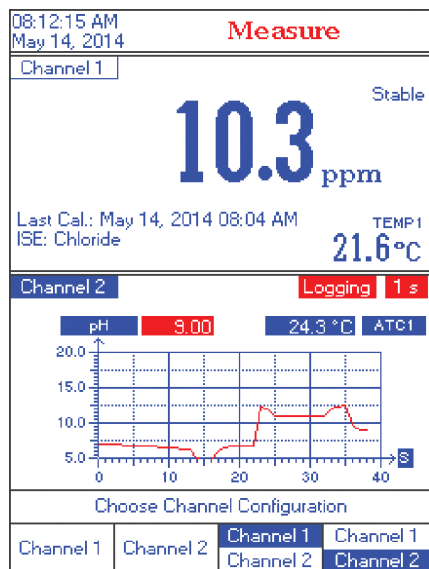
The results are automatically calculated and shown together with all the parameters used.

At this time, results can be saved into an ISE Methods Report and printed using the HI92000 PC software.

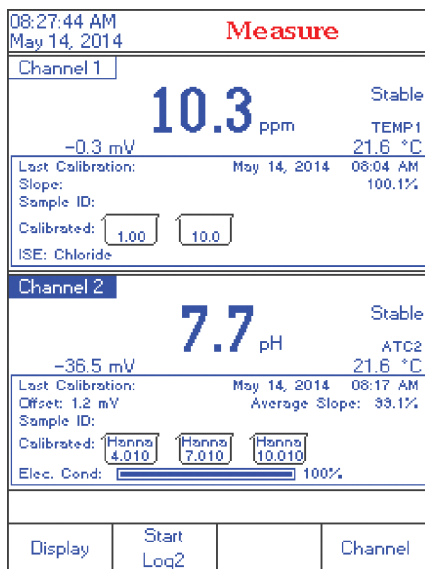


- Low Profile
 - HI5522 features a low profile with an ideal viewing angle

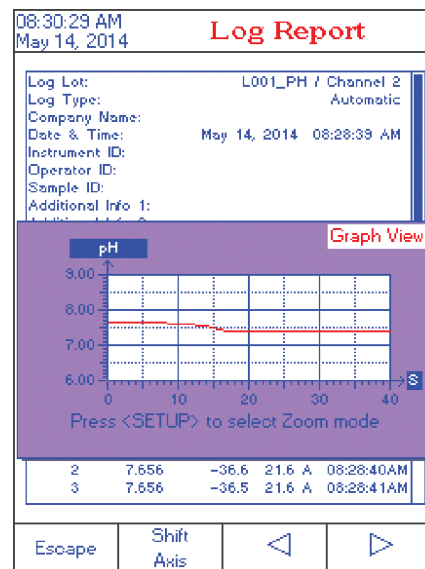
Additional Features by Screen



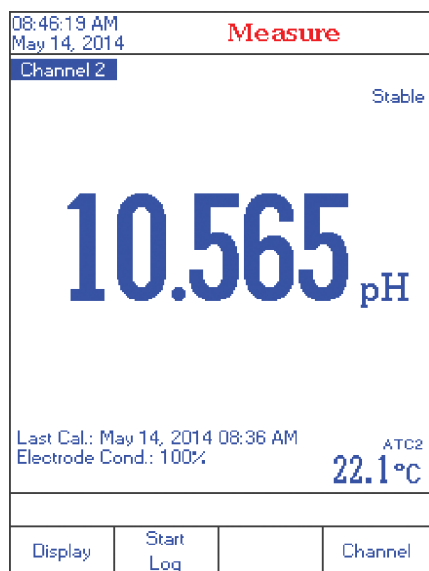
Channel Configuration



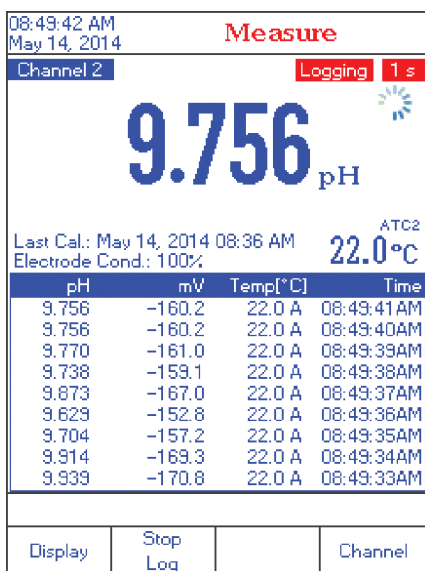
Good Laboratory Practices



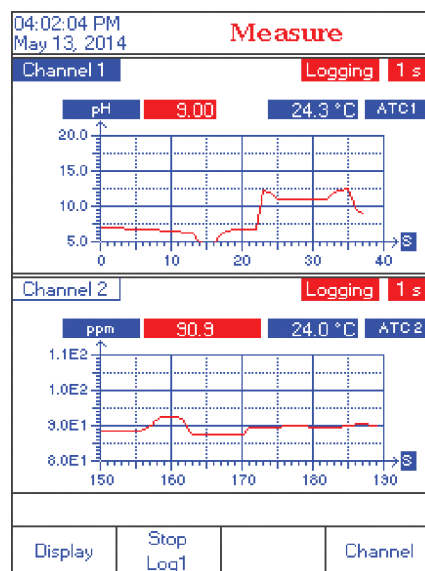
Log Recall



Basic Display



Real-Time Logging



Simultaneous Dual-Channel Graphing



Dual Channels

The two measurement channels of the HI5522 are galvanically isolated to eliminate noise and instability.

In ISE mode, this instrument provides a choice of several incremental methods. Communication is via opto-isolated USB.

Specifications	HI5522	
pH	Range	-2.0 to 20.0 pH; -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 ±1 LSD
	Calibration	automatic, up to five-point calibration, eight standard buffers available (1.68, 3.00, 4.01, 6.86, 7.01, 9.18, 10.01, 12.45), and five custom buffers
	Temperature Compensation	automatic or manual from -20.0 to 120.0°C/-4.0 to 248.0°F/253.15 to 393.15K
mV	Range	±2000 mV
	Resolution	0.1 mV
	Accuracy	±0.2 mV ±1 LSD
ISE	Range	1 x 10 ⁻⁶ to 9.99 x 10 ¹⁰ concentration
	Resolution	1; 0.1; 0.01; 0.001 concentration
	Accuracy	±0.5% (monovalent ions); ±1% (divalent ions)
	Calibration	automatic, up to five-point calibration, seven fixed standard solutions available for each measurement unit, and five user defined standards
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 (without probe)
EC	Range	0.000 to 9.999 μS/cm; 10.00 to 99.99 μS/cm; 100.0 to 999.9 μS/cm; 1.000 to 9.999 mS/cm; 10.00 to 99.99 mS/cm; 100.0 to 1000.0 mS/cm absolute EC*
	Resolution	0.001 μS/cm; 0.01 μS/cm; 0.1 μS/cm; 0.001 mS/cm; 0.01 mS/cm; 0.1 mS/cm
	Accuracy	±1% of reading (±0.01 μS/cm)
	Cell Constant	0.0500 to 200.00
	Cell Type	4-pole cell
	Calibration	automatic standard recognition, user standard single point / multi-point calibration
	Calibration Reminder	yes
	Temperature Coefficient	0.00 to 10.00 %/°C
	Temperature Compensation	disabled, linear and non-linear (natural water)
	Reference Temperature	5.0 to 30.0°C
	Profiles	up to 10, 5 each channel
	USP Compliant	yes
TDS	Range	0.000 to 9.999 ppm; 10.00 to 99.99 ppm; 100.0 to 999.9 ppm; 1.000 to 9.999 ppt; 10.00 to 99.99 ppt; 100.0 to 400.0 ppt actual TDS* (with 1.00 factor)
	Resolution	0.001 ppm; 0.01 ppm; 0.1 ppm; 0.001 ppt; 0.01 ppt; 0.1 ppt
	Accuracy	±1% of reading (±0.01 ppm)
Resistivity	Range	1.0 to 99.9 Ω•cm; 100 to 999 Ω•cm; 1.00 to 9.99 kΩ•cm; 10.0 to 99.9 kΩ•cm; 100 to 999 kΩ•cm; 1.00 to 9.99 MΩ•cm; 10.0 to 100.0 MΩ•cm
	Resolution	0.1 Ω•cm; 1 Ω•cm; 0.01 kΩ•cm; 0.1 kΩ•cm; 1 kΩ•cm; 0.01 MΩ•cm; 0.1 MΩ•cm
	Accuracy	±2% of reading (±1 Ω•cm)
Salinity	Range	practical scale: 0.00 to 42.00 psu; natural sea water scale: 0.00 to 80.00 ppt; percent scale: 0.0 to 400.0%
	Resolution	0.01 for practical scale/natural sea water scale; 0.1% for percent scale
	Accuracy	±1% of reading
	Calibration	percent scale – one-point (with HI7037 standard); all others through EC
Additional Specifications	pH Electrode	HI1131B glass body pH electrode with BNC connector and 1 m (3.3') cable (included)
	EC Probe	HI76312 platinum, four-ring EC/TDS probe with and 1 m (3.3') cable (included)
	Temperature Probe	HI7662-W stainless steel temperature probe with 1 m (3.3') cable (included)
	Input Channel(s)	1 pH/ORP/ISE + 1 EC
	GLP	cell constant, reference temperature/coefficient, calibration points, cal time stamp, probe offset for conductivity
	Logging	record: Up to 100 lots, 50,000 records max/lot / maximum 100,000 data points/channel; interval: 14 selectable between 1 second and 180 minutes; type: automatic, manual, AutoHOLD; additional: 200 records USP; 200 records incremental methods
	PC Connection	USB
	Power Supply	12 VDC adapter (included)
	Environment	0 to 50°C (32 to 122°F; 273 to 323K) RH max 95% non-condensing
Dimensions / Weight	160 x 231 x 94 mm (6.3 x 9.1 x 3.7") / 1.2 kg (2.64 lbs.)	
Ordering Information	HI5522-01 (115V) and HI5522-02 (230V) are supplied with HI1131B pH electrode, HI76312 EC/TDS probe, HI7662-W temperature probe, pH 4.01 buffer solution sachet (2), pH 7.01 buffer solution sachet (2), pH 10.01 buffer solution sachet (2), 1413 μS/cm conductivity standard sachet (2), 12880 μS/cm conductivity standard sachet (2), HI700601 electrode cleaning solution sachet (2), HI7082 3.5M KCl electrolyte solution (30 mL), HI76404W electrode holder, 12 VDC adapter, capillary dropper pipette, quality certificate, quick start guide and instruction manual.	

Research Grade Meter

pH/ORP and EC/TDS/Resistivity/Salinity
and Temperature



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As a pH meter the HI5521 can be calibrated up to five points with a choice of eight pre-programmed buffers or five custom buffers. The HI5521 features Hanna's exclusive CAL Check™ to alert the user of potential problems during the pH calibration process. Indicators displayed during calibration include "Electrode Dirty/Broken" and

"Buffer Contaminated." The overall probe condition based on the offset and slope characteristic of the electrode is displayed as a percentage after calibration is complete. The calibration data including date, time, buffers used, offset and slope can be accessed at any time along with the current measurement by selecting the Good Laboratory Practice (GLP) display option.

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Choice of Calibration

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GLP Data

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Contextual Help

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Dual Channels

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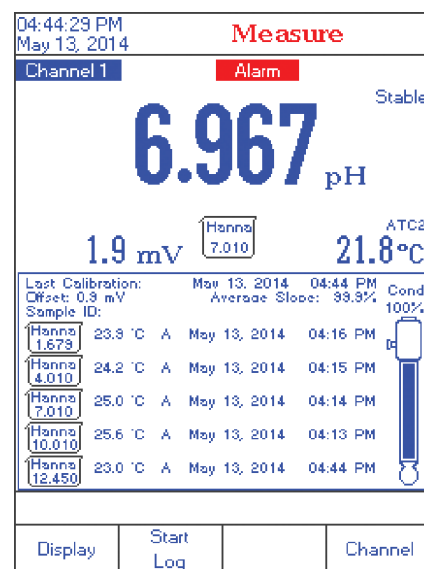
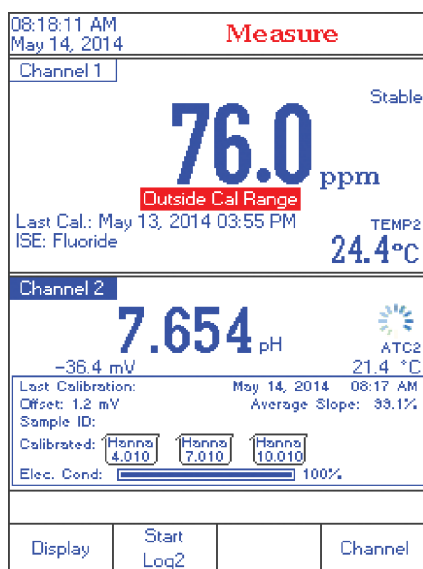
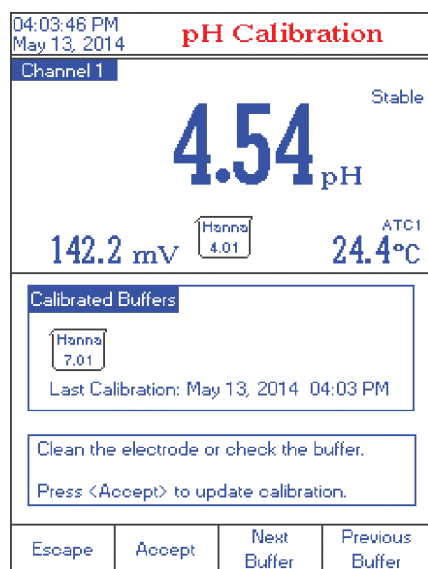
Communication is via opto-isolated USB.

pH and EC Features

pH CAL Check™

Proper calibration of the pH electrode system is critical in order to achieve reliable results. Hanna's exclusive CAL Check system includes several features to help users reach that goal.

- Each time a pH calibration is performed, the instrument compares the new calibration with the previous one. When this comparison indicates a significant difference, the message alerts the user to either clean the electrode, check the buffer or both.
- When measurements are taken too far from the calibration points, the instrument will warn the user with a message on the LCD.
- The condition of the pH electrode after calibration is shown on the display, as well as the date and time.
- To avoid taking readings with old calibrations, the instrument automatically reminds the user when the calibration has expired.

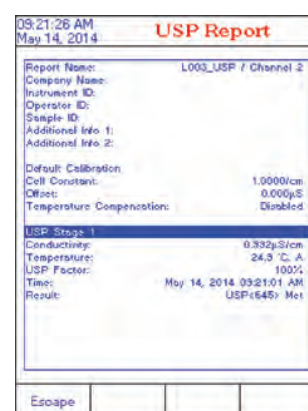
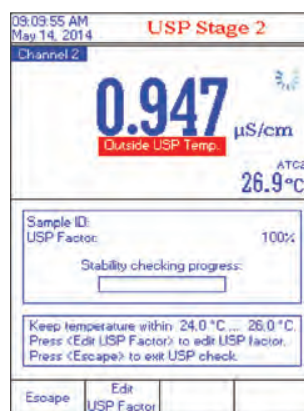


EC USP Mode

Hanna's HI5522 and HI5521 together with EC probes can be used for conductivity measurements required to prepare water for injection (WFI) according to USP <645>.

The instruments give clear instructions on how to perform each stage and automatically check that the temperature, conductivity and stability are within USP limits.

Comprehensive results are shown on a single screen at the end of the test. Up to 200 reports can be saved for future recall.



Specifications

HI5521

pH	Range	-2.0 to 20.0 pH; -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 ±1 LSD
	Calibration	automatic, up to five-point calibration, eight standard buffers available (1.68, 3.00, 4.01, 6.86, 7.01, 9.18, 10.01, 12.45), and five custom buffers
	Temperature Compensation	automatic or manual from -20.0 to 120.0°C/-4.0 to 248.0°F/253.15 to 393.15K
mV	Range	±2000 mV
	Resolution	0.1 mV
	Accuracy	±0.2 mV ±1 LSD
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 (without probe)
EC	Range	0.000 to 9.999 µS/cm; 10.00 to 99.99 µS/cm; 100.0 to 999.9 µS/cm; 1.000 to 9.999 mS/cm; 10.00 to 99.99 mS/cm; 100.0 to 1000.0 mS/cm absolute EC*
	Resolution	0.001 µS/cm; 0.01 µS/cm; 0.1 µS/cm; 0.001 mS/cm; 0.01 mS/cm; 0.1 mS/cm
	Accuracy	±1% of reading (±0.01 µS/cm)
	Cell Constant	0.0500 to 200.00
	Cell Type	4-pole cell
	Calibration	automatic standard recognition, user standard single point / multi-point calibration
	Calibration Reminder	yes
	Temperature Coefficient	0.00 to 10.00 %/°C
	Temperature Compensation	disabled, linear and non-linear (natural water)
	Reference Temperature	5.0 to 30.0°C
	Profiles	up to 10, 5 each channel
USP Compliant	yes	
TDS	Range	0.000 to 9.999 ppm; 10.00 to 99.99 ppm; 100.0 to 999.9 ppm; 1.000 to 9.999 ppt; 10.00 to 99.99 ppt; 100.0 to 400.0 ppt actual TDS* (with 1.00 factor)
	Resolution	0.001 ppm; 0.01 ppm; 0.1 ppm; 0.001 ppt; 0.01 ppt; 0.1 ppt
	Accuracy	±1% of reading (±0.01 ppm)
Resistivity	Range	1.0 to 99.9 Ω•cm; 100 to 999 Ω•cm; 1.00 to 9.99 kΩ•cm; 10.0 to 99.9 kΩ•cm; 100 to 999 kΩ•cm; 1.00 to 9.99 MΩ•cm; 10.0 to 100.0 MΩ•cm
	Resolution	0.1 Ω•cm; 1 Ω•cm; 0.01 kΩ•cm; 0.1 kΩ•cm; 1 kΩ•cm; 0.01 MΩ•cm; 0.1 MΩ•cm
	Accuracy	±2% of reading (±1 Ω•cm)
Salinity	Range	practical scale: 0.00 to 42.00 psu; natural sea water scale: 0.00 to 80.00 ppt; percent scale: 0.0 to 400.0%
	Resolution	0.01 for practical scale/natural sea water scale; 0.1% for percent scale
	Accuracy	±1% of reading
	Calibration	percent scale—one-point (with HI7037 standard); all others through EC
Additional Specifications	pH Electrode	HI1131B glass body pH electrode with BNC connector and 1 m (3.3') cable (included)
	EC Probe	HI76312 platinum, four-ring EC/TDS probe with and 1 m (3.3') cable (included)
	Temperature Probe	HI7662-W stainless steel temperature probe with 1 m (3.3') cable (included)
	Input Channel(s)	1 pH/ORP + 1 EC
	GLP	cell constant, reference temperature/coefficient, calibration points, cal time stamp, probe offset for conductivity
	Logging	record : Up to 100 lots, 50,000 records max/lot / maximum 100,000 data points/channel; interval : 14 selectable between 1 second and 180 minutes; type : automatic, manual, AutoHOLD;
	PC Connection	USB
	Power Supply	12 VDC adapter (included)
	Environment	0 to 50°C (32 to 122°F; 273 to 323K) RH max 95% non-condensing
Dimensions / Weight	160 x 231 x 94 mm (6.3 x 9.1 x 3.7") / 1.2 kg (2.64 lbs.)	
Ordering Information	HI5521-01 (115V) and HI5521-02 (230V) are supplied with HI1131B pH electrode, HI76312 EC/TDS probe, HI7662-W temperature probe, pH 4.01 buffer solution sachet (2), pH 7.01 buffer solution sachet (4), pH 10.01 buffer solution sachet (2), HI700601 electrode cleaning solution sachet (2), HI7082 3.5M KCl electrolyte solution (30 mL), HI76404W electrode holder, 12 VDC adapter, capillary dropper pipette, quality certificate, quick start guide and instruction manual.	

(*) Absolute conductivity (or TDS) is the conductivity (or TDS) value without temperature compensation.

HI9829

GPS Multiparameter Meters

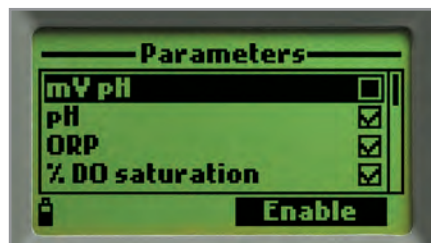
*pH/ORP/ISE, EC/TDS/Resistivity/
Salinity/Seawater σ , Turbidity, DO,
Temperature and Atmospheric
Pressure*

- **Logging**
 - Logging from probe or meter
- **Fast Tracker**
 - Tag Identification System
- **Sensor Check™**
 - Auto-recognition of all sensors
- **GLP features**
 - Meets Good Laboratory Practices
- **Connectivity**
 - PC compatible via USB
- **Help feature**
 - On-screen user guides
- **Backlight**
 - Backlit, graphic LCD display
- **Waterproof**
 - Waterproof casing



Waterproof Protection

The meter is enclosed in an IP67 rated waterproof casing and can withstand immersion in water at a depth of 1 m for up to 30 minutes. The probe features an IP68 rating for continuous immersion in water.



Backlit Dot Matrix LCD Display

The HI9829 features a backlit graphic LCD with on-screen help and the capability to display up to twelve parameters simultaneously. The graphic display allows for the use of virtual keys to provide for an intuitive user interface.

Intuitive Keypad

The fitted rubber keypad has dedicated keys for power, backlight, up/down arrows, help and alphanumeric characters. The meter also features two virtual soft keys that navigate the user through the configuration of each parameter, meter setup, and logging of data. The interface is intuitive for any user's level of experience.



Auto-sensor Recognition

The probe and meter automatically recognize the sensors that are connected. Any ports not used on the probe will not have the parameter displayed or be configurable.

Automatic Temperature Compensation

Integrated temperature sensor allows for automatic temperature compensation of pH, conductivity, and dissolved oxygen measurements.

Automatic Barometric Pressure Compensation

The meter features a built-in barometer with user-selectable units for dissolved oxygen pressure compensation.



Quick Calibration

Quick Calibration provides a speedy, single point calibration for pH, conductivity, and dissolved oxygen. Standard calibration options are available including pH up to three points, conductivity at one point and dissolved oxygen up to two points.

Dedicated Help Key

Contextual help is always available through a dedicated "HELP" key. Clear tutorial messages and directions are available on-screen to quickly and easily guide users through setup and calibration. The help information displayed is relative to the setting/option being viewed.

GLP Data

HI9829 includes a GLP feature that allows users to view calibration data and calibration expiration information at the touch of a key. Calibration data includes date, time, buffers/standards used for calibration, and slope characteristics.

Data Logging

The HI9829 allows users to store up to 44,000 continuous or log-on-demand samples with logging intervals from one second to three hours.



Graphing Capability

Trend graphing with sample date and time stamp may be viewed on the display or transferred to a PC.

PC Connectivity

Logged data can be transferred to a Windows compatible PC with the included HI7698291 USB adapter and HI929829 software.

Long Battery Life

The display of the meter has a battery icon indicator to show the remaining power. The meter is supplied with four 1.5V "C" NiMH rechargeable batteries that provide up to 140 hours of battery life*

* Without GPS or turbidity measurements



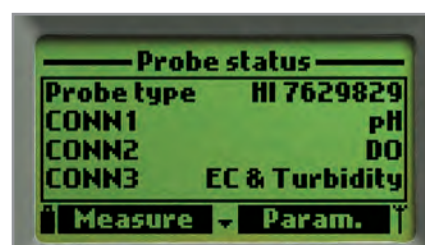
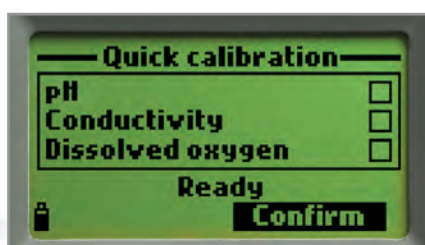
Rugged Custom Carrying Case

The HI9829 meter, probe, and all accessories are supplied in a rugged carrying case designed to provide years of use. The inside compartment of the carrying case is thermoformed to securely hold and protect all of the components.



HI7698297 Quick Release Flow Cell (optional)

The HI7698297 is an optional quick release flow cell designed for low flow sampling of environmental groundwater. The flow cell features a threaded collar for the HI9829 probe and two quick release fittings for inlet and outlet flow. The HI7698297 includes a wall mount kit for continuous monitoring option.



- **Field Ready**

- For field calibration, our quick calibration solution allows standardization of pH and conductivity with one calibration solution.

- **Quick Calibration**

- Simply screw the calibration beaker filled with HI9828-25 solution onto the probe, select "Quick calibration" from the menu and press OK. Individual calibration may also be performed using multiple calibration points.

- **Auto-sensor Recognition**

- In this example, the HI9829 is identifying a pH, dissolved oxygen and EC/turbidity sensor.

Probes

The use of Hanna's microprocessor-based multiparameter intelligent probes with HI9829 will provide reliable data collection that can lead to an improved scientific understanding of the interconnections between natural, chemical and geological processes and manmade pollution to effectively evaluate applications for waste discharge permits, remediate contaminated sites and to protect or restore biological resources.

Reliable temperature measurements are a critical parameter of aquatic system monitoring. Temperature and temperature changes due to water releases can affect the ability of water to hold oxygen as well as the ability of organisms to resist certain pollutants. The intelligent probes incorporate an accurate thermistor that changes predictably with temperature changes. Accurate temperature reading in degrees Celsius, Fahrenheit and kelvin are displayed and utilized by other detectors for temperature correction.

The HI76x9829 probes utilize field replaceable sensors with auto-recognition. The sensors are housed with the probe electronics in a rugged housing and a water-tight cable connection. The HI76909829 probe allows conductivity, pH/ORP (or an ISE), and dissolved oxygen measurement. Other probe models allow turbidity and logging.

Probes with the logging function have a logging memory that allows storage of up to 140,000 individual samples or 35,000 complete

sample data sets with date and time stamp thus permitting up to a 70 day deployment with all channels logging at 10 minute intervals. The probe incorporates a temperature sensor for temperature compensation of all parameters.

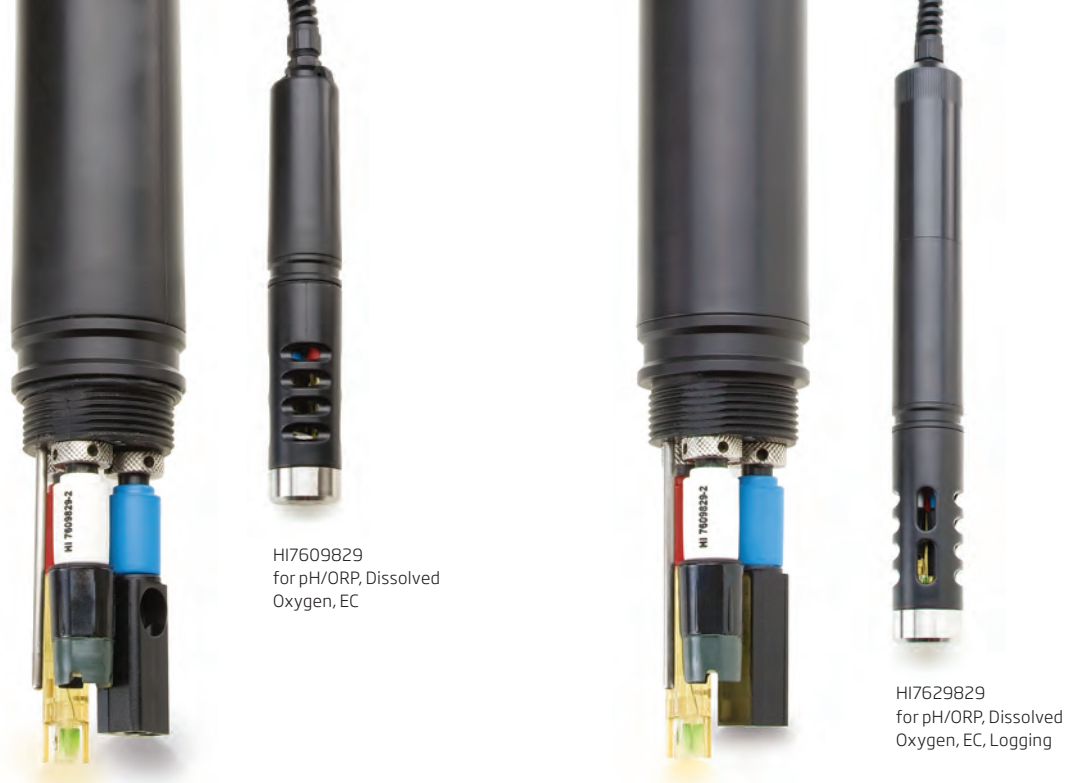
The probes are available with a choice of cable lengths such as 4m, 10 m and 20 m (13', 33', 65') that utilize a DIN connection to interface with the meters. Logging probes can be connected directly to a PC with the HI76982910 USB adapter cable, and HI929829 PC application software to download log files directly from the probes.

Sensors

Hanna offers a selection of seven sensors to be used on the intelligent probes. Sensor replacement is quick and easy with screw type connectors and are color coded for easy identification. The HI9829 automatically recognizes sensor presence.

The HI7609829-4 EC/turbidity sensor is field replaceable and offers readings from both parameters at the same time.

All potentiometric sensors feature a double junction design and are gel filled to increase resistance to contamination. One of the ISE sensors can be used in place of the pH sensor and is automatically recognized. pH in mV readings are also displayed –which is useful for troubleshooting.



HI7609829
for pH/ORP, Dissolved
Oxygen, EC

HI7629829
for pH/ORP, Dissolved
Oxygen, EC, Logging

With two probes to choose from, these digital probes provide stable, noise-free sensor signal management without the need for pre-amplified pH sensors.

Specifications	HI7609829	HI7629829	
Supported Configuration	Connector 1	pH, pH/ORP, ammonium ISE, chloride ISE, nitrate ISE	
	Connector 2	dissolved oxygen	
	Connector 3	EC	
Temperature sensor	built-in	built-in	
Autonomous Logging	-	yes	
Logging Interval	-	1 second to 3 hours	
Computer Interface	-	USB (HI76982910)	
Memory	-	140,000 measurements (single parameter logged); 35,000 measurements (all parameters logged)	
Operating Temperature	-5 to 55°C*	-5 to 55°C*	
Maximum Depth	20 m (66')*	20 m (66')*	
Cable Specification	multistrand-multiconductor shielded cable with internal strength member rated for 68 kg (150 lb.) intermittent use		
Wetted Materials	body: ABS; threads: nylon; shield: ABS/316 SS; temperature probe: 316 SS; O-rings: EPDM		
Logging Probe Internal Battery Type	-	1.5V (4) AA alkaline	
Logging Probe Battery Life <small>Note: Log space must be available for continuous logging</small>	-	Interval	all channels logging (no averaging)
		1-5 seconds	72 hours
		1 minute	22 days
		10 minutes	70 days
Sample Environment	fresh, brackish, seawater	fresh, brackish, seawater	
Waterproof Protection	IP68	IP68	
Dimensions (without cable)	342 mm (13.5"), dia=46 mm (1.8")	442 mm (17.4"), dia 46 mm (1.8")	
Weight (with batteries and sensors)	570 g (20.1 oz.)	775 g (27.3 oz.)	

* Reduced for ISE sensors

Sensor Configurations

Both probes can accommodate a multitude of sensor configurations. The long sensor cap fits all configurations while the short sensor cap fits configurations not requiring the turbidity/EC sensor.



Dissolved Oxygen

HI7609829-2 DO

The dissolved oxygen in lakes, rivers, and oceans is crucial for the organisms and creatures living in it. If dissolved oxygen concentrations drop below normal levels in water bodies, the water quality degrades and the organisms begin to die off. The HI7609829-2 galvanic DO sensor does not require long polarization times so is ready for measurement at a moment's notice. This sensor also utilizes a replaceable cap design for ease of maintenance and a safe, non-toxic electrolyte. DO readings are compensated for the effects of temperature (using the probe's built-in temperature sensor) and atmospheric pressure (using the HI 9829's internal atmospheric pressure sensor). The DO measurement complies with standard methods 4500-O G and EPA article 360.1.



pH

HI7609829-0 pH
HI7609829-1 pH/ORP

The HI7609829-0 and -1 feature a double junction design and are gel filled to increase resistance to contamination. These pH or pH/ORP sensors incorporate the technology that has made Hanna so successful as a pH manufacturer. Reliable pH measurements are one of the most important indicators of water chemistry indicating the relative amount of free hydrogen and hydroxyl ions in the water. Hanna's pH sensors utilize a resilient PEI body to protect them from solid particulates found in water samples. Consistency and quality are the hallmarks of these sensors. Our differential measurement system further enhances the measurement reliability, providing temperature corrected pH.

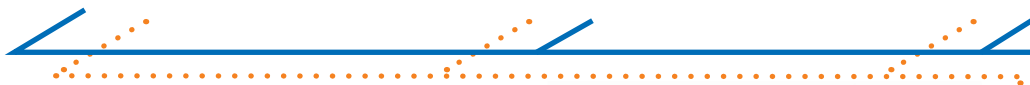
OR



ISE

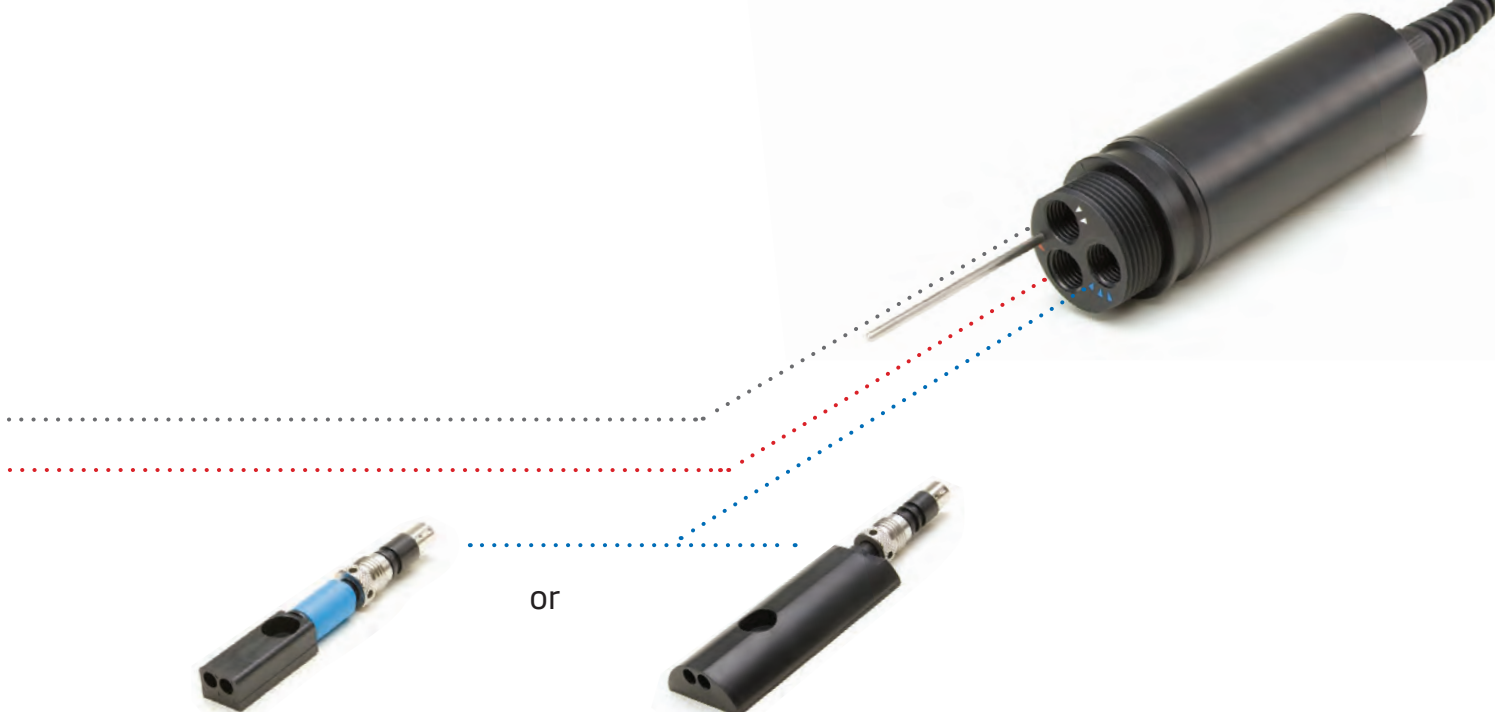
HI7609829-10 Ammonium ISE
HI7609829-11 Chloride ISE
HI7609829-12 Nitrate ISE

A choice of three ion selective electrodes (ISE) is available for constant reporting of common surface water contaminants. Nitrate, ammonium and chloride ISEs are available. Each ISE is a combination electrode incorporating an extremely constant reference spiral; all potentiometric probes feature a double junction and solid gel reference design. The HI9829 displays measurements of ion activity as ppm ammonium-nitrogen, ppm chloride, and ppm nitrate-nitrogen.



HI7698295

Short cap for probes without EC/turbidity sensor



Conductivity

HI7609829-3 EC

The HI7609829-3 4-electrode conductivity sensor using the polarographic measurement principal ensures stable conductivity readings. Electrolytic conductivity measures the ability of water to conduct an electrical current. It is highly dependent on the amount of dissolved solids (such as salt) in the water. Absolute conductivity, temperature-corrected conductivity, salinity. Seawater and water hardness (TDS) determinations are possible with measurements from this sensor.

Conductivity and Turbidity

HI7609829-4 EC/Turbidity

The HI7609829-4 combined EC/turbidity sensor is a replaceable design for instantaneous conductivity and turbidity measurements that conform to ISO 7027 standards. It provides measurements from 0.0 to 1000 FNU. Turbidity is the amount of particulate matter that is suspended in water. Turbidity measures the scattering effect that suspended solids have on light: the higher the intensity of scattered light, the higher the turbidity. Material that causes water to be turbid include: clay, silt, finely divided organic and inorganic matter, soluble colored organic compounds, plankton and microscopic organisms. Conductivity measurement is the same as in the HI7609829-3.



HI7698296

Long cap for probes with EC/turbidity sensor



FastTracker™
location traceability



Fast Tracker™ –Tag Identification System

HANNA's Fast Tracker™–Tag Identification System simplifies test logging. iButton®s with a unique ID can be installed at various sampling sites. When the matching connector on the meter contacts the location button, measurements are logged and labeled with the alphanumeric user-entered location ID. Location, date, time and measurements are logged into the meter which can be transferred to a PC. The Fast Tracker™ system complements the GPS for ultimate tracking.

iButton® Tags are Easy to Install

Install the optional TAGs near your sampling points for quick and easy iButton® readings. Each TAG contains a computer chip with a unique identification code encased in stainless steel. You can install a practically unlimited amount of TAGs. Additional TAGs can be ordered for all of your traceability requirements.

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Monitoring and Tracking

The HI9829 with GPS module can track measurement locations with detailed coordinate information. All models of the HI9829 are equipped with the Fast Tracker™ TAG ID system which is an invaluable tool for associating measurements with their locations. The HI9829 also incorporates a real-time clock which stamps all logged data with a time and date in addition to location information.

GPS (Global Positioning System)

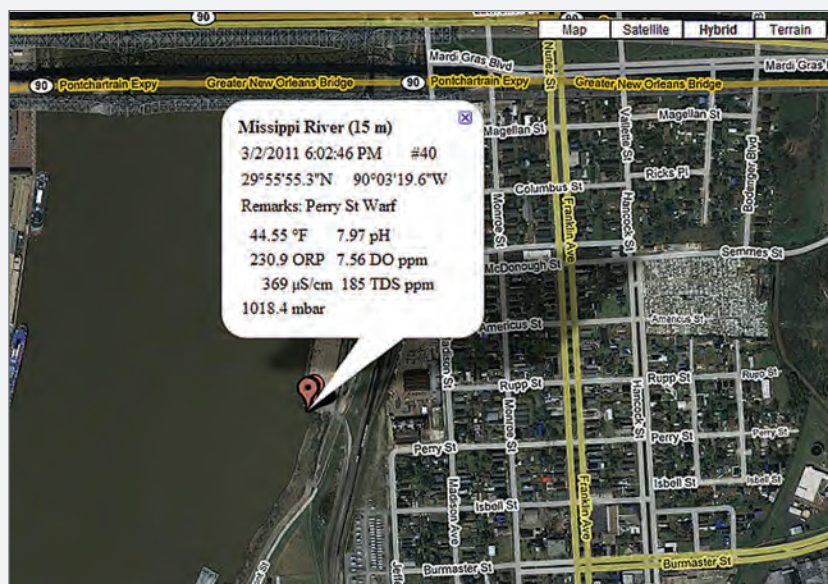
The HI9829 with GPS features an internal 12 channel GPS receiver and antenna that calculates its position to track locations along with measurement data. The GPS tracks your location using satellites to within 30 ft (10 m) so you can be sure that you return to the same location for repeated measurements. The GPS coordinates can be shown on the LCD together with up to 10 measurement parameters and are recorded with logged data. Users can connect to GPS tracking software such as Google™ Maps* to view locations where samples have been taken. Measurement information is shown right on the map.

Features

- **Basic GPS Features**
 - GPS coordinates shown on the LCD with up to 10 measurement parameters
 - GPS signal strength shown on LCD
 - Logged data is embedded with GPS coordinates
 - GPS status screen
- **Advanced GPS Features**
 - Users can associate GPS coordinates with alphanumeric locations
 - Distances between current location and predefined locations are displayed arranged by distance
 - Memorizes last location and time should signal be lost
- **HI929829 PC Application Software**
 - Manages logged data from the HI9829
 - Displays GPS coordinates with logged data
 - Automatically maps samples on your PC (internet connection required)
 - Shows location points on map with measurement data



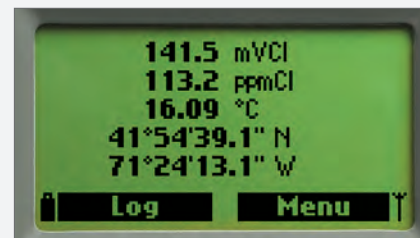
GPS Screen Features



- GPS data can be customized to meet specific requirement



- Displays distances between current and predefined locations



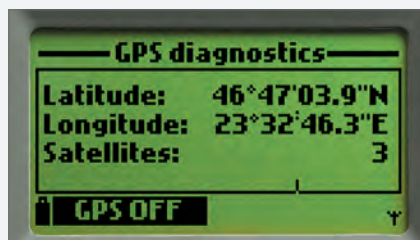
- Display current readings along with GPS coordinates

Measurement log data - LOG005.LOG

type: HI 9829 Fw. Version v1.00b05.6

	Date	Time	Temp.[°C]	pH	ORP[mV]
1	2011.06.08	18:42:17	24.84	6.27	45.4
2	2011.06.08	18:42:22	24.84	6.27	45.4
3	2011.06.08	18:42:27	24.78	6.29	46.2
4	2011.06.08	18:42:32	24.73	6.25	43.6
5	2011.06.08	18:42:37	26.93	7.36	12.9
6	2011.06.08	18:42:42	29.66	7.38	12.3
7	2011.06.08	18:42:47	29.71	7.41	12.2
8	2011.06.08	18:42:52	29.73	7.45	13.1
9	2011.06.08	18:42:57	29.78	7.49	13.4
10	2011.06.08	18:43:02	29.54	7.45	17.3
11	2011.06.08	18:43:07	29.73	7.58	14.4
12	2011.06.08	18:43:12	29.76	7.60	14.6
13	2011.06.08	18:43:17	29.76	7.62	14.7
14	2011.06.08	18:43:22	29.75	7.63	15.0
15	2011.06.08	18:43:27	29.73	7.63	15.8
16	2011.06.08	18:43:32	29.74	7.64	16.1
17	2011.06.08	18:43:37	29.74	7.65	16.2
18	2011.06.08	18:43:42	29.73	7.66	16.4
19	2011.06.08	18:43:47	29.70	7.66	17.3
20	2011.06.08	18:43:52	29.72	7.67	17.0
21	2011.06.08	18:43:57	29.73	7.68	17.0
22	2011.06.08	18:44:02	29.71	7.68	17.2
23	2011.06.08	18:47:35	26.52	6.52	47.7

Export Print Graphic Log Close Help Map



- Shows current position and number of satellites

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Specifications	HI9829	HI9829 with GPS
Temperature Compensation	automatic from -5 to 55°C (23 to 131°F)	automatic from -5 to 55°C (23 to 131°F)
GPS	-	12 channel receiver, 10 m (30 ft) range
Logging Memory from Meter	44,000 records	44,000 records
Logging Interval	1 second to 3 hours	1 second to 3 hours
Computer Interface	USB (with HI 929829 software)	USB (with HI929829 software)
FastTracker™ TAG ID	Yes	Yes
Waterproof Protection	IP67	IP67
Environment	0 to 50°C (32 to 122°F); RH 100%	0 to 50°C (32 to 122°F); RH 100%
Power Supply	1.5V alkaline C cells (4) / 1.2V NiMH rechargeable C cells (4), USB, 12V power adapter	1.5V alkaline C cells (4) / 1.2V NiMH rechargeable C cells (4), USB, 12V power adapter
Dimensions	221 x 115 x 55 mm (8.7 x 4.5 x 2.2")	221 x 115 x 55 mm (8.7 x 4.5 x 2.2")
Weight	750g (26.5 oz.)	750g (26.5 oz.)

HI9829 Parameter Specifications

	pH / mV of pH input	ORP mV	Ammonium-Nitrogen	Chloride	Nitrate-Nitrogen
Range	0.00 to 14.00 pH / ±600.0 mV	±2000.0 mV	0.02 to 200 ppm (as N)	0.6 to 200 ppm	0.62 to 200 ppm (as N)
Resolution	0.01 pH / 0.1 mV	0.1 mV	0.01 ppm to 1 ppm; 0.1 ppm to 200 ppm		
Accuracy	±0.02 pH / ±0.5 mV	±1.0 mV	±5% of reading or 2 ppm, whichever is greater		
Calibration	automatic one, two, or three points with five memorized standard buffers (pH 4.01, 6.86, 7.01, 9.18, 10.01) or one custom buffer	automatic at one custom point	1 or 2 point, 10 ppm and 100 ppm		

	Conductivity	TDS	Resistivity	Salinity	Seawater σ
Range	0 to 200 mS/cm (absolute EC up to 400 mS/cm)	0 to 400000 mg/L or ppm (the maximum value depends on the TDS factor)	0 to 999999 $\Omega \cdot \text{cm}$; 0 to 1000.0 $\text{k}\Omega \cdot \text{cm}$; 0 to 1.0000 $\text{M}\Omega \cdot \text{cm}$	0.00 to 70.00 PSU	0 to 50.0 σ_t , σ_0 , σ_{15}
Resolution	manual: 1 $\mu\text{S}/\text{cm}$; 0.001 mS/cm; 0.01 mS/cm; 0.1 mS/cm; 1 mS/cm; automatic: 1 $\mu\text{S}/\text{cm}$ from 0 to 9999 $\mu\text{S}/\text{cm}$; 0.01 mS/cm from 10.00 to 99.99 mS/cm; 0.1 mS/cm from 100.0 to 400.0 mS/cm; autorange mS/cm: 0.001 mS/cm from 0.000 to 9.999 mS/cm; 0.01 mS/cm from 10.00 to 99.99 mS/cm; 0.1 mS/cm from 100.0 to 400.0 mS/cm	manual: 1 mg/L (ppm); 0.001 g/L (ppt); 0.01 g/L (ppt); 0.1 g/L (ppt); 1 g/L (ppt); automatic: 1 mg/L (ppm) from 0 to 9999 mg/L (ppm); 0.01 g/L (ppt) from 10.00 to 99.99 g/L (ppt); 0.1 g/L (ppt) from 100.0 to 400.0 g/L (ppt); autorange g/L (ppt) scales: 0.001 g/L (ppt) from 0.000 to 9.999 g/L (ppt); 0.01 g/L (ppt) from 10.00 to 99.99 g/L (ppt); 0.1 g/L (ppt) from 100.0 to 400.0 g/L (ppt)	dependent on resistivity reading	0.01 PSU	0.1 σ_t , σ_0 , σ_{15}
Accuracy	±1% of reading or ±1 $\mu\text{S}/\text{cm}$, whichever is greater	±1% of reading or ±1 mg/L, whichever is greater	-	±2% of reading or ±0.01 PSU, whichever is greater	±1 σ_t , σ_0 , σ_{15}
Calibration	automatic one point with six memorized standards (84 $\mu\text{S}/\text{cm}$, 1413 $\mu\text{S}/\text{cm}$, 5.00 mS/cm, 12.88 mS/cm, 80.0 mS/cm, 111.8 mS/cm) or custom point	based on conductivity or salinity calibration		one custom point	based on conductivity or salinity calibration

	Turbidity	Dissolved Oxygen	Atm. Pressure	Temperature
Range	0.0 to 99.9 FNU; 100 to 1000 FNU	0.0 to 500.0%; 0.00 to 50.00 ppm	450 to 850 mm Hg; 17.72 to 33.46 in Hg; 600.0 to 1133.2 mbar; 8.702 to 16.436 psi; 0.5921 to 1.1184 atm; 60.00 to 113.32 kPa	-5.00 to 55.00°C; 23.00 to 131.00°F; 268.15 to 328.15K
Resolution	0.1 FNU from 0.0 to 99.9 FNU; 1 FNU from 100 to 1000 FNU	0.1%; 0.01 ppm	0.1 mm Hg; 0.01 in Hg; 0.1 mbar; 0.001 psi; 0.0001 atm; 0.01 kPa	0.01°C; 0.01°F; 0.01K
Accuracy	±0.3 FNU or ±2% of reading, whichever is greater	0.0 to 300.0%: ±1.5% of reading or ±1.0% whichever is greater; 300.0 to 500.0%: ±3% of reading; 0.00 to 30.00 ppm: ±1.5% of reading or 0.10 ppm, whichever is greater; 30.00 ppm to 50.00 ppm: ±3% of reading	±3 mm Hg within ±15°C from the temperature during calibration	±0.15°C; ±0.27°F; ±0.15K
Calibration	Automatic 1, 2 or 3 points at 0, 20 and 200 FNU, or custom	automatic one or two points at 0, 100% or one custom point	automatic at one custom point	Automatic at one custom point

Ordering Information

Meter and Probe with Rugged Carrying Case

HI9829 - [w] [x] [y] [z]



W=	0	Basic meter, no GPS
	1	Meter with GPS
x=	0	No turbidity basic probe
	1	Turbidity basic probe
	2	Autonomously logging probe, no turbidity
y=	04	4 meter cable length
	10	10 meter cable length
z=	1	115V
	2	230V

z=1 is supplied with 115V AC to 12V DC Adapter
z=2 is supplied with 230V AC to 12V DC Adapter

All HI9829 Kits Include:

- HI9829 or HI 98290 (GPS Model)
- HI710140 Hard carrying case
- HI710005/8 (115V) or HI710006/8 (230V) Multiparameter Probe (see table)
- HI7698292 Probe Maintenance Kit
- HI929829 Application Software
- HI7698291 USB cable (PC to meter)
- HI710045 Power supply cable
- HI710046 Cigarette lighter cable
- HI7609829-1 pH/ORP sensor
- HI7609829-2 Galvanic DO Sensor
- HI920005 iButton® with holder (5 pcs)
- HI9828-25 Calibration solution
- Instruction Manual

Optional Kit Components:

- HI7609829-12 Nitrate sensor
- HI7609829-11 Chloride ISE sensor
- HI7609829-10 Ammonium ISE sensor
- HI7698297 Long quick release flow cell Spare Solution (see below)

Kit Specific Components:

Kit Number Probe

Kit Number	Probe	HI7609829-3 EC Sensor	HI7698290 Short calibration beaker	HI7609829-4 EC / Turbidity Sensor	HI7698293 Long calibration beaker	HI9829-16 0 FNU calibration solution	HI9829-17 20 FNU calibration solution	HI9829-18 200 FNU calibration solution	HI76982910 USB cable (PC to Probe)	HI7698295 Short protective sleeve	HI7698296 long protective sleeve
HI9829-0004Z	HI7609829/4	•	•							•	
HI9829-0010Z	HI7609829/10	•	•							•	
HI9829-0020Z	HI7609829/20	•	•							•	
HI9829-0104Z	HI7609829/4			•	•	•	•	•			•
HI9829-0110Z	HI7609829/10			•	•	•	•	•			•
HI9829-0120Z	HI7609829/20			•	•	•	•	•			•
HI9829-0204Z	HI7629829/4	•	•						•	•	
HI9829-0210Z	HI7629829/10	•	•						•	•	
HI9829-0220Z	HI7629829/20	•	•						•	•	
HI9829-0304Z	HI7629829/4			•	•	•	•	•	•	•	•
HI9829-0310Z	HI7629829/10			•	•	•	•	•	•	•	•
HI9829-0320Z	HI7629829/20			•	•	•	•	•	•	•	•
HI9829-1004Z	HI7609829/4	•	•							•	
HI9829-1010Z	HI7609829/10	•	•							•	
HI9829-1020Z	HI7609829/20	•	•							•	
HI9829-1104Z	HI7609829/4			•	•	•	•	•			•
HI9829-1110Z	HI7609829/10			•	•	•	•	•			•
HI9829-1120Z	HI7609829/20			•	•	•	•	•			•
HI9829-1204Z	HI7629829/4	•	•						•	•	
HI9829-1210Z	HI7629829/10	•	•						•	•	
HI9829-1220Z	HI7629829/20	•	•						•	•	
HI9829-1304Z	HI7629829/4			•	•	•	•	•	•	•	•
HI9829-1310Z	HI7629829/10			•	•	•	•	•	•	•	•
HI9829-1320Z	HI7629829/20			•	•	•	•	•	•	•	•

Spare Solution

HI9829-10	25 sachets 10ppm ammonia-nitrogen calibration solution
HI9829-10/11	10 sachets each of 10ppm and 100ppm ammonia-nitrogen calibration solution
HI9829-11	25 sachets 100ppm ammonia-nitrogen calibration solution
HI9829-12	25 sachets 10ppm chloride calibration solution
HI9829-12/13	10 sachets each of 10ppm and 100ppm chloride calibration solution
HI9829-13	25 sachets 100ppm chloride calibration solution
HI9829-14	25 sachets 10ppm nitrate-nitrogen calibration solution
HI9829-14/15	10 sachets each of 10ppm and 100ppm nitrate-nitrogen calibration solution
HI9829-15	25 sachets 100ppm nitrate-nitrogen calibration solution

Meter with Probe Ordering Information

Choose Your Configuration Below

Meter and Probe with Rugged Carrying Case

Basic	HI9829-00041 (115V) HI9829-00042 (230V)	HI9829 meter, HI7609829/4 probe, HI7698291 USB cable (PC to meter), HI920005 iButton® with holder (5 pcs), HI929829 PC application software, HI7609829-3 EC sensor, HI7609829-2 DO sensor, HI7609829-1 pH/ORP sensor, HI710045 power supply cable, HI7698292 probe maintenance kit, HI7698290 short calibration beaker, HI9828-25 calibration solution (500 mL), HI710046 cigarette lighter cable, HI710005/8 (115V) or HI710006/8 (230V), instruction manual.
	HI9829-00101 (115V) HI9829-00102 (230V)	HI9829 meter, HI7609829/10 probe, HI7698291 USB cable (PC to meter), HI920005 iButton® with holder (5 pcs), HI929829 PC application software, HI7609829-3 EC sensor, HI7609829-2 DO sensor, HI7609829-1 pH/ORP sensor, HI710045 power supply cable, HI7698292 probe maintenance kit, HI7698290 short calibration beaker, HI9828-25 calibration solution (500 mL), HI710046 cigarette lighter cable, HI710005/8 (115V) or HI710006/8 (230V), instruction manual.
	HI9829-00201 (115V) HI9829-00202 (230V)	HI9829 meter, HI7609829/20 probe, HI7698291 USB cable (PC to meter), HI920005 iButton® with holder (5 pcs), HI929829 PC application software, HI7609829-3 EC sensor, HI7609829-2 DO sensor, HI7609829-1 pH/ORP sensor, HI710045 power supply cable, HI7698292 probe maintenance kit, HI7698290 short calibration beaker, HI9828-25 calibration solution (500 mL), HI710046 cigarette lighter cable, HI710005/8 (115V) or HI710006/8 (230V), instruction manual.
GPS	HI9829-10041 (115V) HI9829-10042 (230V)	HI9829 meter with GPS, HI7609829/4 probe, HI7698291 USB cable (PC to meter), HI920005 iButton® with holder (5 pcs), HI929829 PC application software, HI7609829-3 EC sensor, HI7609829-2 DO sensor, HI7609829-1 pH/ORP sensor, HI710045 power supply cable, HI7698292 probe maintenance kit, HI7698290 short calibration beaker, HI9828-25 calibration solution (500 mL), HI710046 cigarette lighter cable, HI710005/8 (115V) or HI710006/8 (230V), instruction manual.
	HI9829-10101 (115V) HI9829-10102 (230V)	HI9829 meter with GPS, HI7609829/10 probe, HI7698291 USB cable (PC to meter), HI920005 iButton® with holder (5 pcs), HI929829 PC application software, HI7609829-3 EC sensor, HI7609829-2 DO sensor, HI7609829-1 pH/ORP sensor, HI710045 power supply cable, HI7698292 probe maintenance kit, HI7698290 short calibration beaker, HI9828-25 calibration solution (500 mL), HI710046 cigarette lighter cable, HI710005/8 (115V) or HI710006/8 (230V), instruction manual.
	HI9829-10201 (115V) HI9829-10202 (230V)	HI9829 meter with GPS, HI7609829/20 probe, HI7698291 USB cable (PC to meter), HI920005 iButton® with holder (5 pcs), HI929829 PC application software, HI7609829-3 EC sensor, HI7609829-2 DO sensor, HI7609829-1 pH/ORP sensor, HI710045 power supply cable, HI7698292 probe maintenance kit, HI7698290 short calibration beaker, HI9828-25 calibration solution (500 mL), HI710046 cigarette lighter cable, HI710005/8 (115V) or HI710006/8 (230V), instruction manual.
Basic & Turbidity	HI9829-01041 (115V) HI9829-01042 (230V)	HI9829 meter, HI7609829/4 probe, HI7698291 USB cable (PC to meter), HI920005 iButton® with holder (5 pcs), HI929829 PC application software, HI7609829-2 DO sensor, HI7609829-1 pH/ORP sensor, HI7609829-4 EC/Turbidity sensor, HI710045 power supply cable, HI7698292 probe maintenance kit, HI9829-16 0 FNU calibration solution (230 mL), HI9829-17 20 FNU calibration solution (230 mL), HI9829-18 200 FNU calibration solution (230 mL), HI7698293 long calibration beaker, HI9828-25 calibration solution (500 mL), HI710046 cigarette lighter cable, HI710005/8 (115V) or HI710006/8 (230V), instruction manual.
	HI9829-01101 (115V) HI9829-01102 (230V)	HI9829 meter, HI7609829/10 probe, HI7698291 USB cable (PC to meter), HI920005 iButton® with holder (5 pcs), HI929829 PC application software, HI7609829-2 DO sensor, HI7609829-1 pH/ORP sensor, HI7609829-4 EC/Turbidity sensor, HI710045 power supply cable, HI7698292 probe maintenance kit, HI9829-16 0 FNU calibration solution (230 mL), HI9829-17 20 FNU calibration solution (230 mL), HI9829-18 200 FNU calibration solution (230 mL), HI7698293 long calibration beaker, HI9828-25 calibration solution (500 mL), HI710046 cigarette lighter cable, HI710005/8 (115V) or HI710006/8 (230V), instruction manual.
	HI9829-01201 (115V) HI9829-01202 (230V)	HI9829 meter, HI7609829/20 probe, HI7698291 USB cable (PC to meter), HI920005 iButton® with holder (5 pcs), HI929829 PC application software, HI7609829-2 DO sensor, HI7609829-1 pH/ORP sensor, HI7609829-4 EC/Turbidity sensor, HI710045 power supply cable, HI7698292 probe maintenance kit, HI9829-16 0 FNU calibration solution (230 mL), HI9829-17 20 FNU calibration solution (230 mL), HI9829-18 200 FNU calibration solution (230 mL), HI7698293 long calibration beaker, HI9828-25 calibration solution (500 mL), HI710046 cigarette lighter cable, HI710005/8 (115V) or HI710006/8 (230V), instruction manual.
GPS & Turbidity	HI9829-11041 (115V) HI9829-11042 (230V)	HI9829 meter with GPS, HI7609829/4 probe, HI7698291 USB cable (PC to meter), HI920005 iButton® with holder (5 pcs), HI929829 PC application software, HI7609829-2 DO sensor, HI7609829-1 pH/ORP sensor, HI7609829-4 EC/Turbidity sensor, HI710045 power supply cable, HI7698292 probe maintenance kit, HI9829-16 0 FNU calibration solution (230 mL), HI9829-17 20 FNU calibration solution (230 mL), HI9829-18 200 FNU calibration solution (230 mL), HI7698293 long calibration beaker, HI9828-25 calibration solution (500 mL), HI710046 cigarette lighter cable, HI710005/8 (115V) or HI710006/8 (230V), instruction manual.
	HI9829-11101 (115V) HI9829-11102 (230V)	HI9829 meter with GPS, HI7609829/10 probe, HI7698291 USB cable (PC to meter), HI920005 iButton® with holder (5 pcs), HI929829 PC application software, HI7609829-2 DO sensor, HI7609829-1 pH/ORP sensor, HI7609829-4 EC/Turbidity sensor, HI710045 power supply cable, HI7698292 probe maintenance kit, HI9829-16 0 FNU calibration solution (230 mL), HI9829-17 20 FNU calibration solution (230 mL), HI9829-18 200 FNU calibration solution (230 mL), HI7698293 long calibration beaker, HI9828-25 calibration solution (500 mL), HI710046 cigarette lighter cable, HI710005/8 (115V) or HI710006/8 (230V), instruction manual.
	HI9829-11201 (115V) HI9829-11202 (230V)	HI9829 meter with GPS, HI7609829/20 probe, HI7698291 USB cable (PC to meter), HI920005 iButton® with holder (5 pcs), HI929829 PC application software, HI7609829-2 DO sensor, HI7609829-1 pH/ORP sensor, HI7609829-4 EC/Turbidity sensor, HI710045 power supply cable, HI7698292 probe maintenance kit, HI9829-16 0 FNU calibration solution (230 mL), HI9829-17 20 FNU calibration solution (230 mL), HI9829-18 200 FNU calibration solution (230 mL), HI7698293 long calibration beaker, HI9828-25 calibration solution (500 mL), HI710046 cigarette lighter cable, HI710005/8 (115V) or HI710006/8 (230V), instruction manual.

Multiparameter Probe (Cable length: 4m, 10m, 20m)



HI9828-27
Quick calibration solution,
1 gallon

Probe Only, No Sensors

HI7609829/4	Probe for pH/pH+ORP/ISE, DO, EC, temperature with HI7698295 short protective shield and 4 m (13.1') cable
HI7609829/10	Probe for pH/pH+ORP/ISE, DO, EC, temperature with HI7698295 short protective shield and 10 m (33') cable
HI7609829/20	Probe for pH/pH+ORP/ISE, DO, EC, temperature with HI7698295 short protective shield and 20 m (65.6') cable
HI7629829/4	Logging probe for pH/pH+ORP/ISE, DO, EC, temperature with HI7698295 short protective shield and 4 m (13.1') cable
HI7629829/10	Logging probe for pH/pH+ORP/ISE, DO, EC, temperature with HI7698295 short protective shield and 10 m (33') cable
HI7629829/20	Logging probe for pH/pH+ORP/ISE, DO, EC, temperature with HI7698295 short protective shield and 20 m (65.6') cable

Sensors with O-Ring

HI7609829-1	pH/ORP
HI7609829-2	Dissolved Oxygen
HI7609829-3	EC
HI7609829-4	EC/Turbidity
HI7609829-10	Ammonium ISE
HI7609829-11	Chloride ISE
HI7609829-12	Nitrate ISE

Quick Calibration Solutions

HI9828-25	Quick calibration solution, 500 mL
HI9828-27	Quick calibration solution, 1 gal

pH Calibration Solutions

HI7004L	pH 4.01 buffer solution, 500 mL
HI7007L	pH 7.01 buffer solution, 500 mL
HI7010L	pH 10.01 buffer solution, 500 mL

ORP Calibration Solutions

HI7021L	ORP test solution @240 mV, 500 mL
HI7022L	ORP test solution @470 mV, 500 mL

EC Calibration Solutions

HI7030L	12880 $\mu\text{S/cm}$ cal. sol., 500 mL
HI7031L	1413 $\mu\text{S/cm}$ cal. sol., 500 mL
HI7033L	84 $\mu\text{S/cm}$ cal. sol., 500 mL
HI7034L	80000 $\mu\text{S/cm}$ cal. sol., 500 mL
HI7035L	111800 $\mu\text{S/cm}$ cal. sol., 500 mL
HI7039L	5000 $\mu\text{S/cm}$ cal. sol., 500 mL

Dissolved Oxygen Solutions

HI7040L	Zero oxygen solution, 500 mL
HI7042S	Electrolyte solution, 30 mL

Turbidity Calibration Solutions

HI9829-16	0 FNU calibration solution, 230 mL
HI9829-17	20 FNU calibration solution, 230 mL
HI9829-18	200 FNU calibration solution, 230 mL

ISE Standards

HI9829-10/11	Kit containing 10 sachets each of 10 ppm and 100 ppm standard for HI7609829-10 ammonium ISE
HI9829-10	10 ppm standard sachet for HI7609829-10 ammonium ISE, 20 mL (25)
HI9829-11	100 ppm standard sachet for HI7609829-10 ammonium ISE, 20 mL (25)
HI9829-12/13	Kit containing 10 sachets each of 10 ppm and 100 ppm standard for HI7609829-11 chloride ISE
HI9829-12	10 ppm standard sachet for HI7609829-11 chloride ISE, 20 mL (25)
HI9829-13	100 ppm standard sachet for HI7609829-11 chloride ISE, 20 mL (25)
HI9829-14/15	Kit containing 10 sachets each of 10 ppm and 100 ppm standard for HI7609829-12 nitrate ISE
HI9829-14	10 ppm standard sachet for HI7609829-12 nitrate ISE, 20 mL (25)
HI9829-15	100 ppm standard sachet for HI7609829-12 nitrate ISE, 20 mL (25)

Probe Maintenance Kit

HI7698292	Probe maintenance kit consisting of HI70425 (electrolyte solution for DO sensor), O-rings for DO sensor (5), small brush, O-rings for probe (5), and syringe with grease to lubricate the O-rings.
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pH/ORP Cleaning and Storage Solutions

HI70300L	pH/ORP electrode storage sol., 500 mL
HI7061L	pH/ORP electrode cleaning sol., 500 mL

Accessories

HI929829	PC application software
HI7698291	USB cable, PC to meter
HI76982910	USB cable, PC to probe
HI710046	Car accessory port cable
HI7698290	Short calibration beaker
HI7698293	Long calibration beaker
HI7698297	Quick Release Flow Cell
HI7698294	Short flow cell
HI7698297	Long, quick release flow cell
HI7698295	Short protective shield
HI7698296	Long protective shield
HI920005	iButton® with holder (5 pcs)
HI710140	Hard carrying case
HI710045	Power supply cable



HI76982910
USB cable, PC to probe



HI710046
Car accessory port cable



HI7698292
Probe maintenance kit



HI7698297
Long, quick release flow cell

HI98494

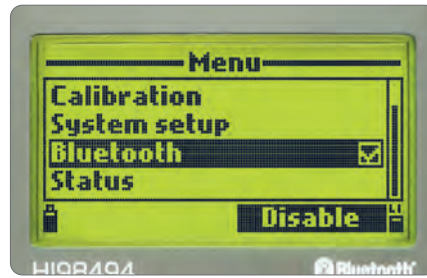
Multiparameter Bluetooth® pH/EC/OPDO® Meter

pH, ORP, EC, TDS, Resistivity, Salinity,
Seawater σ , Dissolved Oxygen, Atmospheric
Pressure and Temperature

- **Bluetooth connectivity**
 - Retrieve data logs with Hanna Lab app for either sending by e-mail or download to a smart device for review
- **Waterproof**
 - IP67 rated waterproof, rugged enclosure for meter, IP68 for probe
- **Digital probe**
 - Digital probe with built-in temperature sensor and three ports for pH (ORP), EC and optical DO sensors
 - Color coded, field replaceable sensors
 - Auto-sensor recognition
 - Stainless steel, weighted protective guard
- **Quick calibration feature**
- **Automatic barometric pressure compensation**
- **Automatic temperature compensation**
- **Logging**
 - Automatic interval logging of up to 45,000 samples
 - Log-on-demand to store measurement data
- **GLP**
 - GLP data provides data from previous five calibrations to ensure Good Laboratory Practices are met
- **Dedicated help key**
 - On-screen context specific help is readily available at the press of a button
- **Backlit LCD display with multifunction virtual keys**
- **Intuitive keypad**
 - Dedicated and virtual soft keys
- **USB type-C**
 - Computer connectivity for transferring logged data as .CSV file
 - Port used for recharging built-in lithium-ion battery
- **Dual power source**
 - Meter operates on built-in lithium-ion battery
 - Meter automatically switches to common alkaline batteries as backup power source



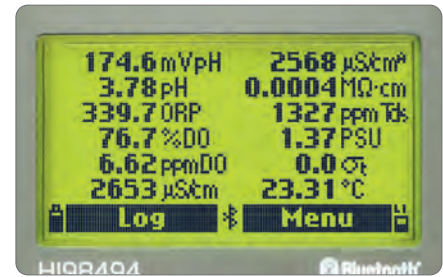
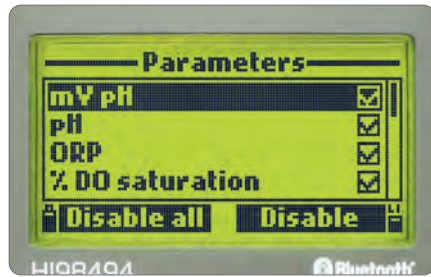
Stainless steel, weighted
protective guard



HI98494 offers the ability to connect wirelessly to a smart device running the Hanna Lap App. Using the app, log lots can be e-mailed or downloaded for review.

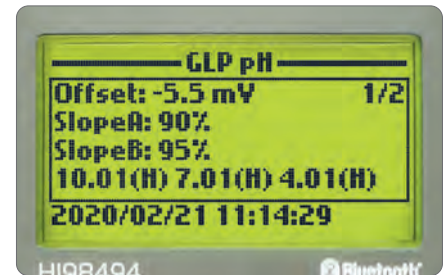
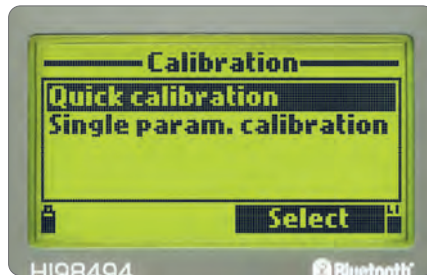
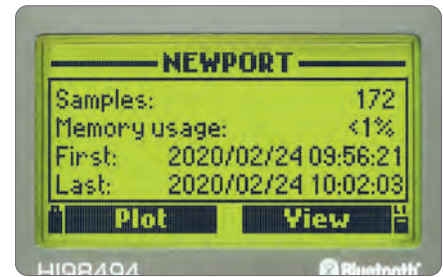
Measurements

HI98494 can display from 1 to 12 parameters on the high contrast backlit LCD. The pH, EC and DO measurements are automatically compensated for temperature variations. Dissolved oxygen measurements are automatically compensated for barometric pressure and salinity.



Data Logging

HI98494 can be used to log one data point or do interval logging for continuous logging at a specified interval. All logs have the option to store data into a named lot and the ability to add remarks. Both help to provide for meaningful data including notes on local environmental conditions.



Dual Power Source

The meter operates on a built-in lithium-ion battery. When the rechargeable battery is low the meter will automatically switch to the 1.5 AA alkaline batteries.

Quick-Calibration

Quick Calibration provides a speedy, single point calibration for pH, conductivity, and dissolved oxygen. Standard calibration options are available including pH up to three points, conductivity at one point and dissolved oxygen up to two points.

GLP Data

Calibration information is captured along with time and date stamp. Information includes calibration values along with other values that have an impact on the measurement. GLP data is stored with logged data.

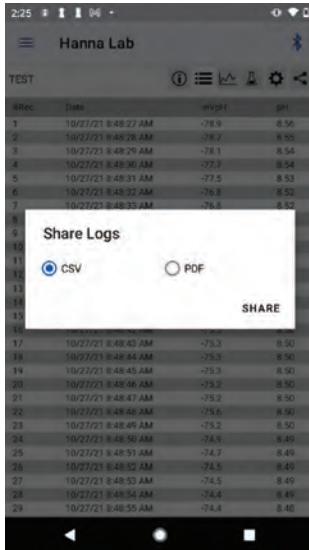
Bluetooth® and Hanna Lab App Compatibility

Using the Bluetooth connection the data can be transferred to a smart device for review or shared as an e-mail.

Multiparameter



portable



Share

Logs can be shared as a .CSV or .PDF file when being e-mailed.



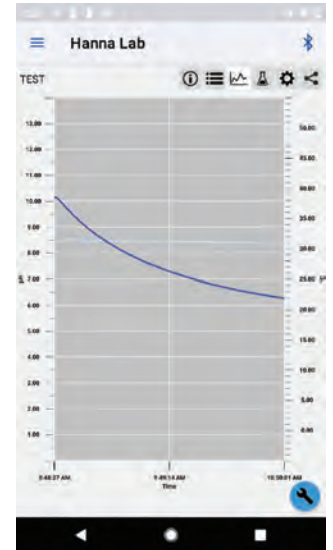
GLP

Comprehensive GLP data can be reviewed for all parameters when the logged data is downloaded to a smart device.



Unit Selection

When reviewing data on a smart device there is an option to select the measurement units to be displayed independently of the meter settings.



Data Graphing

For trend analysis the Hanna Lab App offers the option to graph logged data.

Multiparameter Probe and Sensors

Multi-function Sensor

- Quick sensor replacement
 - Sensor replacement is quick and easy with field replaceable, screw type connectors and are color coded for easy identification. These meters automatically recognize sensors.



Easy sensor removal with hex key

Probe Specifications	HI7698494
Sensor Inputs	three (pH or pH/ORP, DO, EC)
Sample Environment	fresh, brackish, seawater
Waterproof Protection	IP68
Operating Temperature	-5 to 55°C
Storage Temperature	-20 to 70°C
Maximum Depth	20 m (66')
Dimensions (without cable)	342 mm (13.5"); 46 mm (1.8") dia
Weight (without sensors)	570 g (20.1 oz.)
Cable Specification	multistrand-multiconductor shielded cable with internal strength member rated for 68 kg (150 lb.) intermittent use
	Body ABS
	Threads Nylon
Wetted Materials	Shield ABS / 316 SS
	Temperature Probe 316 SS
	O-rings EPDM

Optical Dissolved Oxygen Smart Caps

The optical dissolved oxygen sensor uses a smart cap that has an RFID tag that stores calibration coefficients unique to each cap. The RFID keeps track of the age of the cap and alerts the user when it should be replaced.



Sensor Specifications	HI7698194-0	HI7698194-1	HI7698194-3	HI7698494-5	
Description	pH sensor	pH/ORP sensor	EC sensor	optical; luminescence quenching DO sensor	
Measurement Type	pH, mV (pH)	pH, mV (pH), ORP	EC	DO (% saturation and concentration)	
Measurement Range	0.00 to 13.00 pH; ±600.0 mV	0.00 to 13.00 pH; ±600.0 mV; ±2000.0 mV	0.0 to 200.0 mS/cm; 0.0 to 400 mS/cm (absolute)	0.0 to 500.0 %; 0.00 to 50.00 mg/L	
Temperature Range	-5 to 55°C	-5 to 55°C	-5 to 55°C	-5 to 55°C	
Color Code	red	red	blue	green	
Materials	Tip	glass (pH)	glass (pH); Pt (ORP)	polypropylene	
	Glass Type	LT (low temperature)	LT (low temperature)	-	
	Junction	ceramic	ceramic	-	
	Body	PEI	PEI	ABS/epoxy	ABS
	Electrolyte	gel	gel	-	-
Reference	double	double	-	-	
Maintenance Solution	HI70300 (storage solution)	HI70300 (storage solution)	none	none	
Dimensions	118 x 15 mm	118 x 15 mm	111 x 17 mm	99 x 17 mm	
Depth	20 m (65')	20 m (65')	20 m (65')	20 m (65')	



Data Transfer & Charging

The USB Type-C port provides for easy data transfer to memory stick, PC, or other compatible devices and is used to charge internal lithium-ion battery.

Waterproof Probe Connection and USB Type-C

Waterproof Quick Connect DIN Connector

The meter connects to the multiparameter probe through a single waterproof connector and makes attaching and removing the probe quick and easy. The meter automatically detects the probe when connected.

Specifications	HI98494	
pH / mV	Range	0.00 to 14.00 pH / ± 600.0 mV
	Resolution	0.01 pH / 0.1 mV
	Accuracy	± 0.02 pH / ± 0.5 mV
	Calibration	automatic one-point Quick Calibration using HI9828-25; automatic one, two, or three points with automatic recognition of five standard buffers (pH 4.01, 6.86, 7.01, 9.18, 10.01) or one custom buffer
ORP	Range	± 2000.0 mV
	Resolution	0.1 mV
	Accuracy	± 1.0 mV
	Calibration	manual at one custom point (relative mV)

EC	Range	0 to 200 mS/cm (absolute EC up to 400 mS/cm)
	Resolution	manual: 1 μ S/cm; 0.001 mS/cm; 0.01 mS/cm; 0.1 mS/cm; 1 mS/cm; automatic: 1 μ S/cm from 0 to 9999 μ S/cm; 0.01 mS/cm from 10.00 to 99.99 mS/cm; 0.1 mS/cm from 100.0 to 400.0 mS/cm; automatic (mS/cm): 0.001 mS/cm from 0.000 to 9.999 mS/cm; 0.01 mS/cm from 10.00 to 99.99 mS/cm; 0.1 mS/cm from 100.0 to 400.0 mS/cm
	Accuracy	$\pm 1\%$ of reading or $\pm 1 \mu$ S/cm whichever is greater
	Calibration	automatic one-point Quick Calibration using HI9828-25 ; automatic single point, with six standard solutions (84 μ S/cm, 1413 μ S/cm, 5.00 mS/cm, 12.88 mS/cm, 80.0 mS/cm, 111.8 mS/cm) or custom point
TDS	Range	0.0 to 400.0 ppt (g/L) (the maximum value depends on the TDS factor)
	Resolution	manual: 1 ppm (mg/L); 0.001 ppt (g/L); 0.01 ppt (g/L); 0.1 ppt (g/L); 1 ppt (g/L); automatic: 1 ppm (mg/L) from 0 to 9999 ppm (mg/L); 0.01 ppt (g/L) from 10.00 to 99.99 ppt (g/L); 0.1 ppt (g/L) from 100.0 to 400.0 ppt (g/L); automatic ppt (g/L): 0.001 ppt (g/L) from 0.000 to 9.999 ppt (g/L); 0.01 ppt (g/L) from 10.00 to 99.99 ppt (g/L); 0.1 ppt (g/L) from 100.0 to 400.0 ppt (g/L)
	Accuracy	$\pm 1\%$ of reading or ± 1 ppm (mg/L) whichever is greater
	Calibration	based on conductivity calibration
Resistivity	Range	0 to 999999 $\Omega \cdot \text{cm}$; 0 to 1000.0 k $\Omega \cdot \text{cm}$; 0 to 1.0000 M $\Omega \cdot \text{cm}$
	Resolution	dependent on resistivity reading
	Calibration	based on conductivity calibration
Salinity	Range	0.00 to 70.00 PSU
	Resolution	0.01 PSU
	Accuracy	$\pm 2\%$ of reading or ± 0.01 PSU whichever is greater
	Calibration	based on conductivity calibration
Seawater σ	Compensation	used for DO salinity compensation
	Range	0.0 to 50.0 $\sigma_t, \sigma_0, \sigma_{15}$
	Resolution	0.1 $\sigma_t, \sigma_0, \sigma_{15}$
	Accuracy	$\pm 1 \sigma_t, \sigma_0, \sigma_{15}$
Dissolved Oxygen	Calibration	based on conductivity calibration
	Range	0.0 to 500.0%; 0.00 to 50.00 ppm (mg/L)
	Resolution	0.1%; 0.01 ppm (mg/L)
	Accuracy	$\pm 1.5\%$ of reading ± 0.01 mg/L for 0.00-20.00mg/L; $\pm 5\%$ of reading for 20.00-50.00mg/L; $\pm 1.5\%$ of reading $\pm 0.1\%$ for 0.0-200.0%; $\pm 5\%$ of reading for 200.0-500.0%
Atmospheric Pressure	Calibration	automatic Quick Calibration in water saturated air; one or two-point automatic calibration at 100% and 0%; manual single point using a value entered by the user in % saturation or mg/L
	Range	450 to 850 mm Hg; 17.72 to 33.46 in Hg; 600.0 to 1133.2 mbar; 8.702 to 16.436 psi; 0.5921 to 1.1184 atm; 60.00 to 113.32 kPa
	Resolution	0.1 mm Hg; 0.01 in Hg; 0.1 mbar; 0.001 psi; 0.0001 atm; 0.01 kPa
	Accuracy	± 3 mm Hg within $\pm 15^\circ\text{C}$ from calibration temperature
Temperature	Calibration	automatic at one custom point
	Range	-5.00 to 55.00 $^\circ\text{C}$; 23.00 to 131.00 $^\circ\text{F}$; 268.15 to 328.15K
	Resolution	0.01 $^\circ\text{C}$; 0.01 $^\circ\text{F}$; 0.01K
	Accuracy	$\pm 0.15^\circ\text{C}$; $\pm 0.27^\circ\text{F}$; $\pm 0.15\text{K}$
Additional Specifications	Calibration	automatic at one custom point
	Temperature Compensation	automatic from -5 to 55 $^\circ\text{C}$ (23 to 131 $^\circ\text{F}$)
	Logging Memory	45,000 records interval logging or 25,000 records log-on-demand of all parameters
	Logging Interval	one second to three hours
	Connectivity	Bluetooth [®] using Hanna Lab App; USB-C: Host - save logs to USB stick device - appears as .MSD on computer
	Environment	0 to 50 $^\circ\text{C}$ (32 to 122 $^\circ\text{F}$); RH 100% IP67
Ordering Information	Battery Type / Life	1.5V AA batteries (4); built-in Li-ion battery (1) / minimum 200 hours (AA, without backlighting and BLE) minimum 50 hours (Li-ion battery, without backlighting and BLE)
	Dimensions / Weight	185 x 93 x 35.2 mm (7.3 x 3.6 x 1.4") / 400 g (14.2 oz.)
Accessories	all models are supplied with: HI7698194-1 pH/ORP sensor, HI7698194-3 EC sensor, HI7698295 short protective probe shield, HI7698494-5 optical DO sensor, HI9828-20 quick calibration solution, zero oxygen solution, HI7698494-2 probe maintenance kit, HI920016 USB type-C cable, HI7698290 calibration beaker, batteries (4), quality certificate, and instruction manual in a rugged carrying case with custom insert.	
	HI98494 is supplied with HI7698494 multiparameter probe with 4m (13') cable HI98494/10 is supplied with HI7698494/10 multiparameter probe with 10m (33') cable HI98494/20 is supplied with HI7698494/20 multiparameter probe with 20m (66') cable HI98494/30 is supplied with HI7698494/20 multiparameter probe with 20m (66') cable HI98494/40 is supplied with HI7698494/40 multiparameter probe with 40m (131') cable HI98494/50 is supplied with HI7698494/40 multiparameter probe with 40m (131') cable	
HI710034 orange protective rubber boot		
HI740246 ISE and HI7698494 pH Sensor Storage cap (5 pcs.)		

HI98194

Multiparameter Waterproof Meter

pH, ORP, EC, TDS, Resistivity, Salinity, Seawater σ , Dissolved Oxygen, Atmospheric Pressure and Temperature

pH Features

- **Calibration**
 - Up to a three-point calibration with five standard buffers and one custom buffer available
- **pH in mV option**
 - Useful for diagnostics
- **GLP data**
 - Offset, slope, date, time and buffers used
- **Automatically temperature compensated readings**
- **pH or pH/ORP field replaceable sensors**
 - Gel filled and maintenance free
 - Double junction for reduced contamination of reference cell

Dissolved Oxygen Features

- **Choice of units**
 - Display units in % saturation or ppm (mg/L)
- **Salinity compensation for saline waters**
 - Manual entry of salinity values
 - Readings compensated for salinity effects
- **Built-in barometer**
 - Automatic compensation for changes in atmospheric pressure
 - User selectable units
- **Temperature compensation**
- **Polarization**
 - Automatic polarization of probe at startup
- **Membrane caps**
 - Ready-to-use HDPE pre-tensioned membrane caps are easy to replace

EC/TDS/Resistivity Features

- **Calibration**
 - Single-point calibration from six standards
- **Temperature compensation**
 - Automatic Temperature Compensation
 - Configurable temperature coefficient range from 0.00 to 6.00%/°C
 - Choice of reference temperatures at 20 or 25°C
 - Absolute conductivity can be displayed along with the temperature compensated value
- **Auto-ranging**
- **Salinity readings**
 - Practical Salinity Scale (PSU) based on conductivity calibration



The HI98194 is a waterproof portable logging multiparameter meter that monitors up to 12 different water quality parameters. It's multi-sensor probe allows for the measurement of key parameters including pH, ORP, conductivity, dissolved oxygen, and temperature. The probe transmits readings digitally to the meter, where data points can be displayed and logged. The complete system is simple to setup and easy to use.

Backlit Graphic LCD Display

The HI98194 features a backlit graphic LCD with on-screen help and the capability to display up to twelve parameters simultaneously. The graphic display allows for the use of virtual keys to provide for an intuitive user interface.

Waterproof Protection

The meter is enclosed in an IP67 rated waterproof casing and can withstand immersion in water at a depth of 1 m for up to 30 minutes. The probe features an IP68 rating for continuous immersion in water.

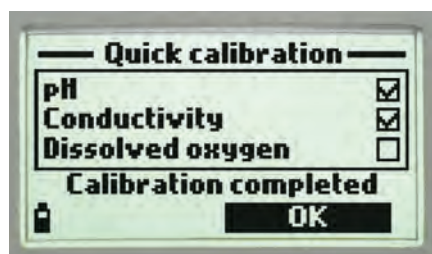


Quick Connect Digital Probe

The HI7698194 probe features a Quick Connect DIN connector that makes a waterproof connection with the meter.

Color Coded, Field Replaceable Sensors

Sensor replacement is quick and easy with field replaceable, screw type connectors that are color coded for easy sensor port identification.



Standard or Quick Calibration

Quick Calibration provides a speedy, single-point calibration for pH, conductivity, and dissolved oxygen. Standard pH calibration options are available for calibrating up to three points from a selection of five standard buffers and one custom buffer. Conductivity calibration is a single point from six standard selections or one custom standard. Dissolved oxygen calibration is up to two standard points or a single custom point.

Auto-sensor Recognition

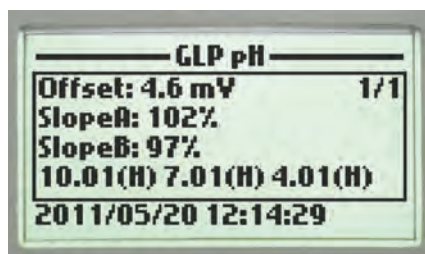
The probe and meter automatically recognize the sensors that are connected. Any ports not used on the probe will not have the parameter displayed or be configurable.

Automatic Temperature Compensation

Integrated temperature sensor allows for automatic temperature compensation of pH, conductivity, and dissolved oxygen measurements.

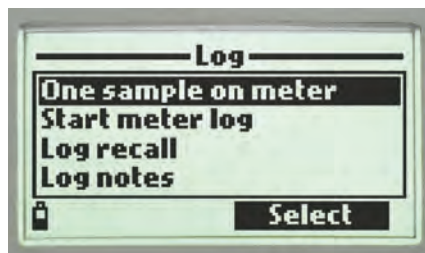
Automatic Barometric Pressure Compensation

The meter features a built-in barometer with user-selectable units for dissolved oxygen pressure compensation.



GLP Data

HI98194 includes a GLP feature that allows users to view calibration data and calibration expiration information at the touch of a key. Calibration data includes date, time, buffers/standards used for calibration, and slope characteristics.

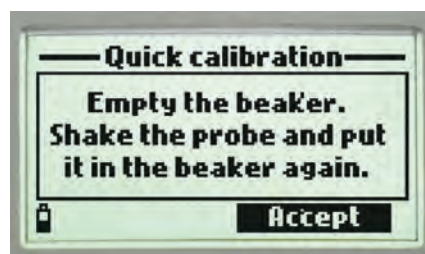


Data Logging

The HI98194 allows users to store up to 45,000 continuous or log-on-demand samples with logging intervals from one second to three hours.

Intuitive Keypad

The fitted rubber keypad has dedicated keys for power, backlight, up/down arrows, help and alphanumeric characters. The meter also features two virtual soft keys that navigate the user through the configuration of each parameter, meter setup, and logging of data. The interface is intuitive for any user's level of experience.



Dedicated Help Key

Contextual help is always available through a dedicated "HELP" key. Clear tutorial messages and directions are available on-screen to quickly and easily guide users through setup and calibration. The help information displayed is relative to the setting/option being viewed.

PC Connectivity

Logged data can be transferred to a Window's compatible PC with the included HI920015 micro USB cable and HI9298194 software.

Long Battery Life

The display of the meter has a battery icon indicator to show the remaining power. The meter uses four 1.5V AA batteries that provide up to 360 hours of battery life.



Rugged Custom Carrying Case

The HI98194 meter, probe, and all accessories are supplied in a rugged carrying case designed to provide years of use. The inside compartment of the carrying case is thermoformed to securely hold and protect all of the components.

Probe and Sensors

The HI7698194 is a multiparameter pH/EC/DO/Temperature probe for use with the HI98194 portable meter. It features a Quick Connect DIN that makes a waterproof connection with the meter. Sensors are automatically recognized by the probe and meter when connected. Any ports not used on the probe will not have the parameter displayed on the meter. Sensor replacement is quick and easy with field replaceable, screw type connectors that are color coded for easy sensor identification. The probe features a multistrand-multiconductor shielded cable with 4m, 10m, 20m, and 40m lengths available. It's rugged, waterproof design makes it ideal for field use.

Probe Specifications	HI7698194
Sensor Inputs	three (pH or pH/ORP, DO, EC)
Sample Environment	fresh, brackish, seawater
Waterproof Protection	IP68
Operating Temperature	-5 to 55°C
Storage Temperature	-20 to 70°C
Maximum Depth	20 m (66')
Dimensions (without cable)	342 mm (13.5"); 46 mm (1.8") dia
Weight (without sensors)	570 g (20.1 oz.)
Cable Specification	multistrand-multiconductor shielded cable with internal strength member rated for 68 kg (150 lb.) intermittent use
	Body ABS
	Threads Nylon
Wetted Materials	Shield ABS / 316 SS
	Temperature Probe 316 SS
	O-rings EPDM



HI9828-25
Quick Calibration
solution



Sensor Specifications	HI7698194-0	HI7698194-1	HI7698194-3	HI7698194-2
Description	pH sensor	pH/ORP sensor	EC sensor	DO sensor
Measurement Type	pH, mV (pH)	pH, mV (pH), ORP	EC	DO (% saturation and concentration)
Measurement Range	0.00 to 13.00 pH; ± 600.0 mV	0.00 to 13.00 pH; ± 600.0 mV; ± 2000.0 mV	0.0 to 200.0 mS/cm; 0.0 to 400 mS/cm (absolute)	0.0 to 500.0 %; 0.00 to 50.00 mg/L
Temperature Range	-5 to 55°C	-5 to 55°C	-5 to 55°C	-5 to 55°C
Color Code	red	red	blue	white
	Tip glass (pH)	glass (pH); Pt (ORP)	stainless steel electrodes AISI 316	cat/an: Ag/Zn
	Glass Type LT (low temperature)	LT (low temperature)	-	-
Materials	Junction ceramic	ceramic	-	membrane: HDPE
	Body PEI	PEI	ABS/epoxy	white top ABS
	Electrolyte gel	gel	-	-
	Reference double	double	-	-
Maintenance Solution	HI70300 (storage solution)	HI70300 (storage solution)	none	HI7042S (DO electrolyte)
Dimensions	118 x 15 mm	118 x 15 mm	111 x 17 mm	99 x 17 mm
Depth	20 m (65')	20 m (65')	20 m (65')	20 m (65')

HI7698194



Multi-function Sensor

- Quick sensor replacement
 - Sensor replacement is quick and easy with field replaceable, screw type connectors and are color coded for easy identification. These meters automatically recognize sensors.



- Optional shockproof silicon rubber boot
 - Specially designed to protect your instrument from damage or impact

HI710034 Orange

Specifications		HI98194
pH / mV	Range	0.00 to 14.00 pH / ± 600.0 mV
	Resolution	0.01 pH / 0.1 mV
	Accuracy	± 0.02 pH / ± 0.5 mV
	Calibration	automatic one, two, or three points with automatic recognition of five standard buffers (pH 4.01, 6.86, 7.01, 9.18, 10.01) or one custom buffer
ORP	Range	± 2000.0 mV
	Resolution	0.1 mV
	Accuracy	± 1.0 mV
	Calibration	automatic at one custom point (relative mV)
EC	Range	0 to 200 mS/cm (absolute EC up to 400 mS/cm)
	Resolution	manual: 1 μ S/cm; 0.001 mS/cm; 0.01 mS/cm; 0.1 mS/cm; 1 mS/cm; automatic: 1 μ S/cm from 0 to 9999 μ S/cm; 0.01 mS/cm from 10.00 to 99.99 mS/cm; 0.1 mS/cm from 100.0 to 400.0 mS/cm; automatic mS/cm: 0.001 mS/cm from 0.000 to 9.999 mS/cm; 0.01 mS/cm from 10.00 to 99.99 mS/cm; 0.1 mS/cm from 100.0 to 400.0 mS/cm
	Accuracy	$\pm 1\%$ of reading or ± 1 μ S/cm whichever is greater
	Calibration	automatic single point, with six standard solutions (84 μ S/cm, 1413 μ S/cm, 5.00 mS/cm, 12.88 mS/cm, 80.0 mS/cm, 111.8 mS/cm) or custom point
TDS	Range	0.0 to 400.0 ppt (g/L) (the maximum value depends on the TDS factor)
	Resolution	manual: 1 ppm (mg/L); 0.001 ppt (g/L); 0.01 ppt (g/L); 0.1 ppt (g/L); 1 ppt (g/L); automatic: 1 ppm (mg/L) from 0 to 9999 ppm (mg/L); 0.01 ppt (g/L) from 10.00 to 99.99 ppt (g/L); 0.1 ppt (g/L) from 100.0 to 400.0 ppt (g/L); automatic ppt (g/L): 0.001 ppt (g/L) from 0.000 to 9.999 ppt (g/L); 0.01 ppt (g/L) from 10.00 to 99.99 ppt (g/L); 0.1 ppt (g/L) from 100.0 to 400.0 ppt (g/L)
	Accuracy	$\pm 1\%$ of reading or ± 1 ppm (mg/L) whichever is greater
	Calibration	based on conductivity calibration
Resistivity	Range	0 to 999999 $\Omega \cdot \text{cm}$; 0 to 1000.0 $\text{k}\Omega \cdot \text{cm}$; 0 to 1.0000 $\text{M}\Omega \cdot \text{cm}$
	Resolution	dependent on resistivity reading
	Calibration	based on conductivity calibration
Salinity	Range	0.00 to 70.00 PSU
	Resolution	0.01 PSU
	Accuracy	$\pm 2\%$ of reading or ± 0.01 PSU whichever is greater
	Calibration	based on conductivity calibration
Seawater σ	Range	0.0 to 50.0 $\sigma_t, \sigma_\theta, \sigma_{15}$
	Resolution	0.1 $\sigma_t, \sigma_\theta, \sigma_{15}$
	Accuracy	± 1 $\sigma_t, \sigma_\theta, \sigma_{15}$
	Calibration	based on conductivity calibration
Dissolved Oxygen	Range	0.0 to 500.0%; 0.00 to 50.00 ppm (mg/L)
	Resolution	0.1%; 0.01 ppm (mg/L)
	Accuracy	0.0 to 300.0%: $\pm 1.5\%$ of reading or $\pm 1.0\%$ whichever is greater; 300.0 to 500.0%: $\pm 3\%$ of reading; 0.00 to 30.00 ppm (mg/L): $\pm 1.5\%$ of reading or ± 0.10 ppm (mg/L), whichever is greater; 30.00 ppm (mg/L) to 50.00 ppm (mg/L): $\pm 3\%$ of reading
	Calibration	automatic one or two points at 0, 100% or one custom point
Atmospheric Pressure	Range	450 to 850 mm Hg; 17.72 to 33.46 in Hg; 600.0 to 1133.2 mbar; 8.702 to 16.436 psi; 0.5921 to 1.1184 atm; 60.00 to 113.32 kPa
	Resolution	0.1 mm Hg; 0.01 in Hg; 0.1 mbar; 0.001 psi; 0.0001 atm; 0.01 kPa
	Accuracy	± 3 mm Hg within $\pm 15^\circ\text{C}$ from the temperature during calibration
	Calibration	automatic at one custom point
Temperature	Range	-5.00 to 55.00°C ; 23.00 to 131.00°F ; 268.15 to 328.15K
	Resolution	0.01 $^\circ\text{C}$; 0.01 $^\circ\text{F}$; 0.01K
	Accuracy	$\pm 0.15^\circ\text{C}$; $\pm 0.27^\circ\text{F}$; $\pm 0.15\text{K}$
	Calibration	automatic at one custom point
Additional Specifications	Temperature Compensation	automatic from -5 to 55°C (23 to 131°F)
	Logging Memory	45,000 records (continuous logging or log-on-demand of all parameters)
	Logging Interval	one second to three hours
	PC Connectivity	via USB (with Hanna PC software)
	Environment	0 to 50°C (32 to 122°F); RH 100% IP67
	Battery Type / Life	1.5V AA batteries (4) / approximately 360 hours of continuous use without backlight (50 hours with backlight)
Dimensions / Weight	185 x 93 x 35.2 mm (7.3 x 3.6 x 1.4") / 400 g (14.2 oz.)	
Ordering Information	All models are supplied with: HI7698194-1 pH/ORP sensor, HI7698194-3 EC sensor, HI7698295 short protective probe shield, HI7698194-2 DO sensor, HI9828-20 quick calibration solution, HI76981942 probe maintenance kit, HI7698290 calibration beaker, HI9298194 PC software, HI920015 micro USB cable, batteries (4), quality certificate, and instruction manual in a rugged carrying case with custom insert.	
	HI98194 is supplied with HI7698194 multiparameter probe with 4m (13') cable	
	HI98194/10 is supplied with HI7698194/10 multiparameter probe with 10m (33') cable	
	HI98194/20 is supplied with HI7698194/20 multiparameter probe with 20m (66') cable	
	HI98194/40 is supplied with HI7698194/40 multiparameter probe with 40m (131') cable	
Accessories	HI710034 orange protective rubber boot	
	HI720194 spare thermoformed carrying case for HI98194, HI98195, and HI98196	

HI98195

Multiparameter Waterproof Meter

pH, ORP, EC, TDS, Resistivity, Salinity, Seawater σ and Temperature

pH Features

- **Calibration**
 - Up to a three-point calibration with five standard buffers and one custom buffer available
- **pH in mV option**
 - Useful for diagnostics
- **GLP data**
 - Offset, slope, date, time and buffers used
- **Automatically temperature compensated readings**
- **pH or pH/ORP field replaceable sensors**
 - Gel filled and maintenance free
 - Double junction for reduced contamination of reference cell

EC/TDS/Resistivity Features

- **Calibration**
 - Single-point calibration from six standards
- **Temperature compensation**
 - Automatic Temperature Compensation
 - Configurable temperature coefficient range from 0.00 to 6.00%/°C
 - Choice of reference temperatures at 20 or 25°C
 - Absolute conductivity can be displayed along with the temperature compensated value
- **Auto-ranging**
- **Salinity readings**
 - Practical Salinity Scale (PSU) based on conductivity calibration

The HI98195 is a waterproof portable logging multiparameter meter that monitors up to 9 different water quality parameters. It's multi-sensor probe allows for the measurement of key parameters including pH, ORP, conductivity, and temperature. The probe transmits readings digitally to the meter, where data points can be displayed and logged. The complete system is simple to setup and easy to use.



- **Optional shockproof silicon rubber boot**
 - Specially designed to protect your instrument from damage or impact

HI710034 Orange

Backlit Graphic LCD Display

The HI98195 features a backlit graphic LCD with on-screen help and the capability to display up to nine parameters simultaneously. The graphic display allows for the use of virtual keys to provide for an intuitive user interface.

Waterproof Protection

The meter is enclosed in an IP67 rated waterproof casing and can withstand immersion in water at a depth of 1 m for up to 30 minutes. The probe features an IP68 rating for continuous immersion in water.

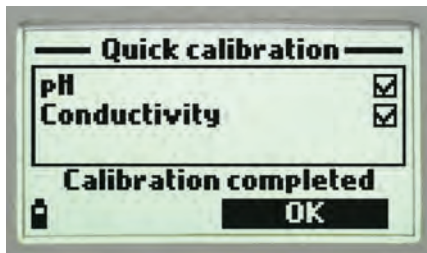


Quick Connect Digital Probe

The HI7698195 probe features a Quick Connect DIN connector that makes a waterproof connection with the meter.

Color Coded, Field Replaceable Sensors

Sensor replacement is quick and easy with field replaceable, screw type connectors that are color coded for easy sensor port identification.



Standard or Quick Calibration

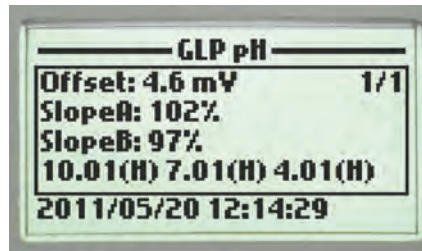
Quick Calibration provides a speedy, single point calibration for pH and conductivity. Standard pH calibration options are available for calibrating up to three points from a selection of five standard buffers and one custom buffer. Conductivity calibration is a single point from six standard selections or one custom standard.

Auto-sensor Recognition

The probe and meter automatically recognize the sensors that are connected. Any ports not used on the probe will not have the parameter displayed or be configurable.

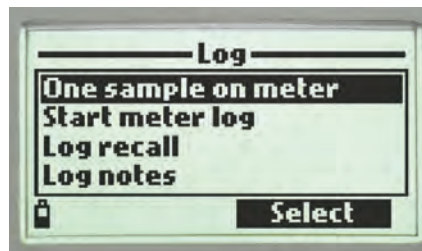
Automatic Temperature Compensation

Integrated temperature sensor allows for automatic temperature compensation of pH and conductivity measurements.



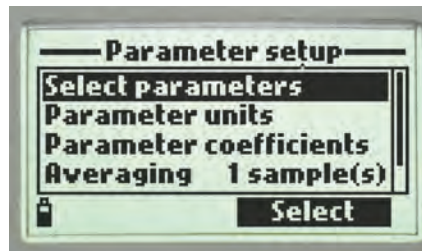
GLP Data

HI98195 includes a GLP feature that allows users to view calibration data and calibration expiration information at the touch of a key. Calibration data includes date, time, buffers/standards used for calibration, and slope characteristics.



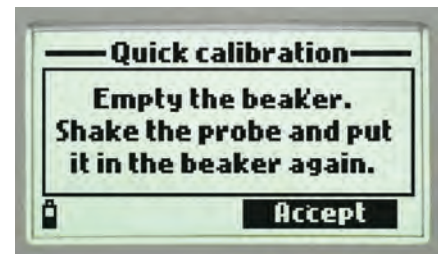
Data Logging

The HI98195 allows users to store up to 45,000 continuous or log-on-demand samples with logging intervals from one second to three hours.



Intuitive Keypad

The fitted rubber keypad has dedicated keys for power, backlight, up/down arrows, help and alphanumeric characters. The meter also features two virtual soft keys that navigate the user through the configuration of each parameter, meter setup, and logging of data. The interface is intuitive for any user's level of experience.



Dedicated Help Key

Contextual help is always available through a dedicated "HELP" key. Clear tutorial messages and directions are available on-screen to quickly and easily guide users through setup and calibration. The help information displayed is relative to the setting/option being viewed.

PC Connectivity

Logged data can be transferred to a Window's compatible PC with the included HI920015 micro USB cable and HI9298194 software.

Long Battery Life

The display of the meter has a battery icon indicator to show the remaining power. The meter uses four 1.5V AA batteries that provide up to 360 hours of battery life.



Rugged Custom Carrying Case

The HI98195 meter, probe, and all accessories are supplied in a rugged carrying case designed to provide years of use. The inside compartment of the carrying case is thermoformed to securely hold and protect all of the components.

Probe and Sensors

The HI7698195 is a multiparameter pH/EC/Temperature probe for use with the HI98195 portable meter. It features a Quick Connect DIN that makes a waterproof connection with the meter. Sensors are automatically recognized by the probe and meter when connected. Any ports not used on the probe will not have the parameter displayed on the meter. Sensor replacement is quick and easy with field replaceable, screw type connectors that are color coded for easy sensor identification. The probe features a multistrand-multiconductor shielded cable with 4m, 10m, 20m, and 40m lengths available. It's rugged, waterproof design makes it ideal for field use.

Specifications	HI7698195	
Sensor Inputs	two (pH or pH/ORP, EC)	
Sample Environment	fresh, brackish, seawater	
Waterproof Protection	IP68	
Operating Temperature	-5 to 55°C	
Storage Temperature	-20 to 70°C	
Maximum Depth	20 m (66')	
Dimensions (without cable)	342 mm (13.5"); 46 mm (1.8") dia	
Weight (without sensors)	570 g (20.1 oz.)	
Cable Specification	multistrand-multiconductor shielded cable with internal strength member rated for 68 kg (150 lb.) intermittent use	
Wetted Materials	Body	ABS
	Threads	Nylon
	Shield	ABS / 316 SS
	Temperature Probe	316 SS
	O-rings	EPDM



HI9828-25
Quick Calibration
solution



Sensor Specifications	HI7698194-0	HI7698194-1	HI7698194-3	
Description	pH sensor	pH/ORP sensor	EC sensor	
Measurement Type	pH, mV (pH)	pH, mV (pH), ORP	EC	
Measurement Range	0.00 to 13.00 pH; ± 600.0 mV	0.00 to 13.00 pH; ± 600.0 mV; ± 2000.0 mV	0.0 to 200.0 mS/cm; 0.0 to 400 mS/cm (absolute)	
Temperature Range	-5 to 55°C	-5 to 55°C	-5 to 55°C	
Color Code	red	red	blue	
Materials	Tip	glass (pH)	glass (pH); Pt (ORP)	stainless steel electrodes AISI 316
	Glass Type	LT (low temperature)	LT (low temperature)	-
	Junction	ceramic	ceramic	-
	Body	PEI	PEI	ABS/epoxy
	Electrolyte	gel	gel	-
	Reference	double	double	-
Maintenance Solution	HI70300 (storage solution)	HI70300 (storage solution)	none	
Dimensions	118 x 15 mm	118 x 15 mm	111 x 17 mm	
Depth	20 m (65')	20 m (65')	20 m (65')	



Multi-function Sensor

- **Quick sensor replacement**
 - Sensor replacement is quick and easy with field replaceable, screw type connectors and are color coded for easy identification. These meters automatically recognize sensors

Specifications	HI98195	
pH / mV	Range	0.00 to 14.00 pH / ±600.0 mV
	Resolution	0.01 pH / 0.1 mV
	Accuracy	±0.02 pH / ±0.5 mV
	Calibration	automatic one, two, or three points with automatic recognition of five standard buffers (pH 4.01, 6.86, 7.01, 9.18, 10.01) or one custom buffer
ORP	Range	±2000.0 mV
	Resolution	0.1 mV
	Accuracy	±1.0 mV
	Calibration	automatic at one custom point (relative mV)
EC	Range	0 to 200 mS/cm (absolute EC up to 400 mS/cm)
	Resolution	manual: 1 µS/cm; 0.001 mS/cm; 0.01 mS/cm; 0.1 mS/cm; 1 mS/cm; automatic: 1 µS/cm from 0 to 9999 µS/cm; 0.01 mS/cm from 10.00 to 99.99 mS/cm; 0.1 mS/cm from 100.0 to 400.0 mS/cm; automatic mS/cm: 0.001 mS/cm from 0.000 to 9.999 mS/cm; 0.01 mS/cm from 10.00 to 99.99 mS/cm; 0.1 mS/cm from 100.0 to 400.0 mS/cm
	Accuracy	±1% of reading or ±1 µS/cm whichever is greater
	Calibration	automatic single point, with six standard solutions (84 µS/cm, 1413 µS/cm, 5.00 mS/cm, 12.88 mS/cm, 80.0 mS/cm, 111.8 mS/cm) or custom point
TDS	Range	0.0 to 400.0 ppt (g/L) (the maximum value depends on the TDS factor)
	Resolution	manual: 1 ppm (mg/L); 0.001 ppt (g/L); 0.01 ppt (g/L); 0.1 ppt (g/L); 1 ppt (g/L); automatic: 1 ppm (mg/L) from 0 to 9999 ppm (mg/L); 0.01 ppt (g/L) from 10.00 to 99.99 ppt (g/L); 0.1 ppt (g/L) from 100.0 to 400.0 ppt (g/L); automatic ppt (g/L): 0.001 ppt (g/L) from 0.000 to 9.999 ppt (g/L); 0.01 ppt (g/L) from 10.00 to 99.99 ppt (g/L); 0.1 ppt (g/L) from 100.0 to 400.0 ppt (g/L)
	Accuracy	±1% of reading or ±1 ppm (mg/L) whichever is greater
	Calibration	based on conductivity or salinity calibration
Resistivity	Range	0 to 999999 Ω•cm; 0 to 1000.0 kΩ•cm; 0 to 1.0000 MΩ•cm
	Resolution	dependent on resistivity reading
	Calibration	based on conductivity or salinity calibration
Salinity	Range	0.00 to 70.00 PSU
	Resolution	0.01 PSU
	Accuracy	±2% of reading or ±0.01 PSU whichever is greater
	Calibration	based on conductivity calibration
Seawater σ	Range	0.0 to 50.0 σ _t , σ ₀ , σ ₁₅
	Resolution	0.1 σ _t , σ ₀ , σ ₁₅
	Accuracy	±1 σ _t , σ ₀ , σ ₁₅
	Calibration	based on conductivity or salinity calibration
Temperature	Range	-5.00 to 55.00°C; 23.00 to 131.00°F; 268.15 to 328.15K
	Resolution	0.01°C; 0.01°F; 0.01K
	Accuracy	±0.15°C; ±0.27°F; ±0.15K
	Calibration	automatic at one custom point
Additional Specifications	Temperature Compensation	automatic from -5 to 55°C (23 to 131°F)
	Logging Memory	45,000 records (continuous logging or log-on-demand of all parameters)
	Logging Interval	one second to three hours
	PC Connectivity	via USB (with Hanna PC software)
	Environment	0 to 50°C (32 to 122°F); RH 100% IP67
	Battery Type / Life	1.5V AA batteries (4) / approximately 360 hours of continuous use without backlight (50 hours with backlight)
Dimensions / Weight	185 x 93 x 35.2 mm (7.3 x 3.6 x 1.4") / 400 g (14.2 oz.)	
Ordering Information	<p>All models are supplied with: HI7698194-1 pH/ORP sensor, HI7698194-3 EC sensor, HI7698295 short protective probe shield, HI9828-20 quick calibration solution, HI76981952 probe maintenance kit, HI7698290 calibration beaker, HI9298194 PC software, HI920015 micro USB cable, batteries (4), quality certificate, and instruction manual in a rugged carrying case with custom insert.</p> <p>HI98195 is supplied with HI7698195 multiparameter probe with 4m (13') cable HI98195/10 is supplied with HI7698195/10 multiparameter probe with 10m (33') cable HI98195/20 is supplied with HI7698195/20 multiparameter probe with 20m (66') cable HI98195/40 is supplied with HI7698195/40 multiparameter probe with 40m (131') cable</p>	
Accessories	<p>HI710034 orange protective rubber boot</p> <p>HI720194 spare thermoformed carrying case for HI98194, HI98195, and HI98196</p>	

HI981954

Multiparameter Waterproof Meter

pH, ORP, EC, TDS, Resistivity, Salinity,
Seawater σ and Temperature

pH Features

- Calibration
 - Up to a three-point calibration with five standard buffers and one custom buffer available
- pH in mV option
 - Useful for diagnostics
- GLP data
 - Offset, slope, date, time and buffers used
- Automatically temperature compensated readings
- pH or pH/ORP field replaceable sensors
 - Gel filled and maintenance free
 - Double junction for reduced contamination of reference cell

EC/TDS/Resistivity Features

- Calibration
 - Single-point calibration from six standards
- Temperature compensation
 - Automatic Temperature Compensation
 - Configurable temperature coefficient range from 0.00 to 6.00%/°C
 - Choice of reference temperatures at 20 or 25°C
 - Absolute conductivity can be displayed along with the temperature compensated value
- Auto-ranging
- Salinity readings
 - Practical Salinity Scale (PSU) based on conductivity calibration

The HI981954 is a waterproof portable logging multiparameter meter that monitors up to 9 different water quality parameters. Its multi-sensor probe allows for the measurement of key parameters including pH, ORP, conductivity, and temperature. The probe transmits readings digitally to the meter, where data points can be displayed and logged. The complete system is simple to setup and easy to use.



- Optional shockproof silicon rubber boot
 - Specially designed to protect your instrument from damage or impact

HI710034 Orange



Backlit Graphic LCD Display

The HI981954 features a backlit graphic LCD with on-screen help and the capability to display up to nine parameters simultaneously. The graphic display allows for the use of virtual keys to provide for an intuitive user interface.

Waterproof Protection

The meter is enclosed in an IP67 rated waterproof casing and can withstand immersion in water at a depth of 1 m for up to 30 minutes. The probe features an IP68 rating for continuous immersion in water.

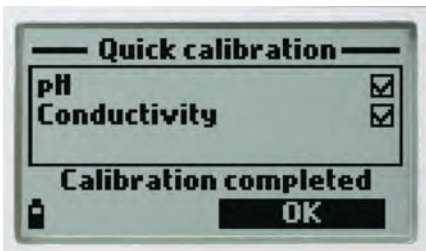


Quick Connect Digital Probe

The HI7698195 probe features a Quick Connect DIN connector that makes a waterproof connection with the meter.

Color Coded, Field Replaceable Sensors

Sensor replacement is quick and easy with field replaceable, screw type connectors that are color coded for easy sensor port identification.



Standard or Quick Calibration

Quick Calibration provides a speedy, single point calibration for pH and conductivity. Standard pH calibration options are available for calibrating up to three points from a selection of five standard buffers and one custom buffer. Conductivity calibration is a single point from six standard selections or one custom standard.

Auto-sensor Recognition

The probe and meter automatically recognize the sensors that are connected. Any ports not used on the probe will not have the parameter displayed or be configurable.

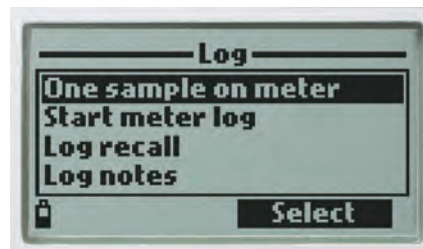
Automatic Temperature Compensation

Integrated temperature sensor allows for automatic temperature compensation of pH and conductivity measurements.



GLP Data

HI981954 includes a GLP feature that allows users to view calibration data and calibration expiration information at the touch of a key. Calibration data includes date, time, buffers/standards used for calibration, and slope characteristics.



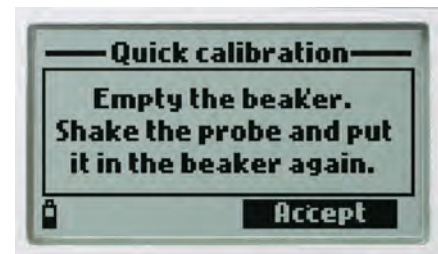
Data Logging

The HI981954 allows users to store up to 45,000 continuous or log-on-demand samples with logging intervals from one second to three hours.



Intuitive Keypad

The fitted rubber keypad has dedicated keys for power, backlight, up/down arrows, help and alphanumeric characters. The meter also features two virtual soft keys that navigate the user through the configuration of each parameter, meter setup, and logging of data. The interface is intuitive for any user's level of experience.



Dedicated Help Key

Contextual help is always available through a dedicated "HELP" key. Clear tutorial messages and directions are available on-screen to quickly and easily guide users through setup and calibration. The help information displayed is relative to the setting/option being viewed.

PC Connectivity

Logged data can be transferred to a Window's compatible PC with the included HI920015 micro USB cable and HI9298194 software.

Long Battery Life

The display of the meter has a battery icon indicator to show the remaining power. The meter uses four 1.5V AA batteries that provide up to 360 hours of battery life.



Rugged Custom Carrying Case

The HI981954 meter, probe, and all accessories are supplied in a rugged carrying case designed to provide years of use. The inside compartment of the carrying case is thermoformed to securely hold and protect all of the components.

Probe and Sensors

The HI7698195 is a multiparameter pH/EC/Temperature probe for use with the HI981954 portable meter. It features a Quick Connect DIN that makes a waterproof connection with the meter. Sensors are automatically recognized by the probe and meter when connected. Any ports not used on the probe will not have the parameter displayed on the meter. Sensor replacement is quick and easy with field replaceable, screw type connectors that are color coded for easy sensor identification. The probe features a multistrand-multiconductor shielded cable with 4m, 10m, 20m, and 40m lengths available. It's rugged, waterproof design makes it ideal for field use.

Specifications	HI7698195	
Sensor Inputs	two (pH or pH/ORP, EC)	
Sample Environment	fresh, brackish, seawater	
Waterproof Protection	IP68	
Operating Temperature	-5 to 55°C	
Storage Temperature	-20 to 70°C	
Maximum Depth	20 m (66')	
Dimensions (without cable)	342 mm (13.5"); 46 mm (1.8") dia	
Weight (without sensors)	570 g (20.1 oz.)	
Cable Specification	multistrand-multiconductor shielded cable with internal strength member rated for 68 kg (150 lb.) intermittent use	
Wetted Materials	Body	ABS
	Threads	Nylon
	Shield	ABS / 316 SS
	Temperature Probe	316 SS
O-rings	EPDM	



HI9828-25
Quick Calibration
solution



Sensor Specifications	HI7698194-0	HI7698194-1	HI7698194-3	
Description	pH sensor	pH/ORP sensor	EC sensor	
Measurement Type	pH, mV (pH)	pH, mV (pH), ORP	EC	
Measurement Range	0.00 to 13.00 pH; ±600.0 mV	0.00 to 13.00 pH; ±600.0 mV; ±2000.0 mV	0.0 to 200.0 mS/cm; 0.0 to 400 mS/cm (absolute)	
Temperature Range	-5 to 55°C	-5 to 55°C	-5 to 55°C	
Color Code	red	red	blue	
Materials	Tip	glass (pH)	glass (pH); Pt (ORP)	stainless steel electrodes AISI 316
	Glass Type	LT (low temperature)	LT (low temperature)	-
	Junction	ceramic	ceramic	-
	Body	PEI	PEI	ABS/epoxy
	Electrolyte	gel	gel	-
	Reference	double	double	-
Maintenance Solution	HI70300 (storage solution)	HI70300 (storage solution)	none	
Dimensions	118 x 15 mm	118 x 15 mm	111 x 17 mm	
Depth	20 m (65')	20 m (65')	20 m (65')	



Multi-function Sensor

- **Quick sensor replacement**
 - Sensor replacement is quick and easy with field replaceable, screw type connectors and are color coded for easy identification. These meters automatically recognize sensors

Specifications	HI981954	
pH / mV	Range	0.00 to 14.00 pH / ± 600.0 mV
	Resolution	0.01 pH / 0.1 mV
	Accuracy	± 0.02 pH / ± 0.5 mV
	Calibration	automatic one, two, or three points with automatic recognition of five standard buffers (pH 4.01, 6.86, 7.01, 9.18, 10.01) or one custom buffer
ORP	Range	± 2000.0 mV
	Resolution	0.1 mV
	Accuracy	± 1.0 mV
	Calibration	automatic at one custom point (relative mV)
EC	Range	0 to 200 mS/cm (absolute EC up to 400 mS/cm)
	Resolution	manual: 1 μ S/cm; 0.001 mS/cm; 0.01 mS/cm; 0.1 mS/cm; 1 mS/cm; automatic: 1 μ S/cm from 0 to 9999 μ S/cm; 0.01 mS/cm from 10.00 to 99.99 mS/cm; 0.1 mS/cm from 100.0 to 400.0 mS/cm; automatic mS/cm: 0.001 mS/cm from 0.000 to 9.999 mS/cm; 0.01 mS/cm from 10.00 to 99.99 mS/cm; 0.1 mS/cm from 100.0 to 400.0 mS/cm
	Accuracy	$\pm 1\%$ of reading or ± 1 μ S/cm whichever is greater
	Calibration	automatic single point, with six standard solutions (84 μ S/cm, 1413 μ S/cm, 5.00 mS/cm, 12.88 mS/cm, 80.0 mS/cm, 111.8 mS/cm) or custom point
TDS	Range	0.0 to 400.0 ppt (g/L) (the maximum value depends on the TDS factor)
	Resolution	manual: 1 ppm (mg/L); 0.001 ppt (g/L); 0.01 ppt (g/L); 0.1 ppt (g/L); 1 ppt (g/L); automatic: 1 ppm (mg/L) from 0 to 9999 ppm (mg/L); 0.01 ppt (g/L) from 10.00 to 99.99 ppt (g/L); 0.1 ppt (g/L) from 100.0 to 400.0 ppt (g/L); automatic ppt (g/L): 0.001 ppt (g/L) from 0.000 to 9.999 ppt (g/L); 0.01 ppt (g/L) from 10.00 to 99.99 ppt (g/L); 0.1 ppt (g/L) from 100.0 to 400.0 ppt (g/L)
	Accuracy	$\pm 1\%$ of reading or ± 1 ppm (mg/L) whichever is greater
	Calibration	based on conductivity or salinity calibration
Resistivity	Range	0 to 999999 Ω •cm; 0 to 1000.0 k Ω •cm; 0 to 1.0000 M Ω •cm
	Resolution	dependent on resistivity reading
	Calibration	based on conductivity or salinity calibration
Salinity	Range	0.00 to 70.00 PSU
	Resolution	0.01 PSU
	Accuracy	$\pm 2\%$ of reading or ± 0.01 PSU whichever is greater
	Calibration	based on conductivity calibration
Seawater σ	Range	0.0 to 50.0 σ_t , σ_o , σ_{15}
	Resolution	0.1 σ_t , σ_o , σ_{15}
	Accuracy	± 1 σ_t , σ_o , σ_{15}
	Calibration	based on conductivity or salinity calibration
Temperature	Range	-5.00 to 55.00°C; 23.00 to 131.00°F; 268.15 to 328.15K
	Resolution	0.01°C; 0.01°F; 0.01K
	Accuracy	± 0.15 °C; ± 0.27 °F; ± 0.15 K
	Calibration	automatic at one custom point
Additional Specifications	Temperature Compensation	automatic from -5 to 55°C (23 to 131°F)
	Logging Memory	45,000 records (continuous logging or log-on-demand of all parameters)
	Logging Interval	one second to three hours
	PC Connectivity	via USB (with Hanna PC software)
	Environment	0 to 50°C (32 to 122°F); RH 100% IP67
	Battery Type / Life	1.5V AA batteries (4) / approximately 360 hours of continuous use without backlight (50 hours with backlight)
Dimensions / Weight	185 x 93 x 35.2 mm (7.3 x 3.6 x 1.4") / 400 g (14.2 oz.)	
Ordering Information	HI981954 is supplied with HI7698195 multiparameter probe with 4m (13') cable, HI7698194-1 pH/ORP sensor, HI7698194-3 EC sensor, HI7698295 short protective probe shield, HI9828-20 quick calibration solution, HI76981952 probe maintenance kit, HI7698290 calibration beaker, HI9298194 PC software, HI920015 micro USB cable, batteries (4), quality certificate, and instruction manual in a rugged carrying case with custom insert.	
Accessories	HI710034 orange protective rubber boot	

HI98196

Multiparameter Waterproof Meter

pH, ORP, Dissolved Oxygen, Atmospheric Pressure and Temperature

pH Features

- **Calibration**
 - Up to a three-point calibration with five standard buffers and one custom buffer available
- **pH in mV option**
 - Useful for diagnostics
- **GLP data**
 - Offset, slope, date, time and buffers used
- **Automatically temperature compensated readings**
- **pH or pH/ORP field replaceable sensors**
 - Gel filled and maintenance free
 - Double junction for reduced contamination of reference cell

Dissolved Oxygen Features

- **Choice of units**
 - Display units in % saturation or ppm (mg/L)
- **Salinity compensation for saline waters**
 - Manual entry of salinity values
 - Readings compensated for salinity effects
- **Built-in barometer**
 - Automatic compensation for changes in atmospheric pressure
 - User selectable units
- **Temperature compensation**
- **Polarization**
 - Automatic polarization of probe at startup
- **Membrane caps**
 - Ready-to-use HDPE pre-tensioned membrane caps are easy to replace

The HI98196 is a waterproof portable logging multiparameter meter that monitors up to 6 different water quality parameters. It's multi-sensor probe allows for the measurement of key parameters including pH, ORP, conductivity, dissolved oxygen, and temperature. The probe transmits readings digitally to the meter, where data points can be displayed and logged. The complete system is simple to setup and easy to use.



- **Optional shockproof silicon rubber boot**
 - Specially designed to protect your instrument from damage or impact

HI710034 Orange

Backlit Graphic LCD Display

The HI98196 features a backlit graphic LCD with on-screen help and the capability to display up to twelve parameters simultaneously. The graphic display allows for the use of virtual keys to provide for an intuitive user interface.

Waterproof Protection

The meter is enclosed in an IP67 rated waterproof casing and can withstand immersion in water at a depth of 1 m for up to 30 minutes. The probe features an IP68 rating for continuous immersion in water.



Quick Connect Digital Probe

The HI7698196 probe features a Quick Connect DIN connector that makes a waterproof connection with the meter.

Color Coded, Field Replaceable Sensors

Sensor replacement is quick and easy with field replaceable, screw type connectors that are color coded for easy sensor port identification.

Standard Calibration

Standard pH calibration options are available for calibrating up to three points from a selection of five standard buffers and one custom buffer. Dissolved oxygen calibration is up to two standard points or a single custom point.

Auto-sensor Recognition

The probe and meter automatically recognize the sensors that are connected. Any ports not used on the probe will not have the parameter displayed or be configurable.

Automatic Temperature Compensation

Integrated temperature sensor allows for automatic temperature compensation of pH and dissolved oxygen measurements.

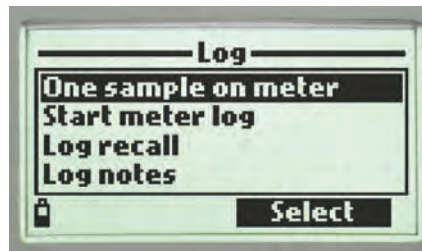
Automatic Barometric Pressure Compensation

The meter features a built-in barometer with user-selectable units for dissolved oxygen pressure compensation.



GLP Data

HI98196 includes a GLP feature that allows users to view calibration data and calibration expiration information at the touch of a key. Calibration data includes date, time, buffers/standards used for calibration, and slope characteristics.

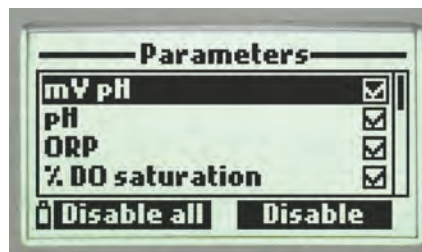


Data Logging

The HI98196 allows users to store up to 45,000 continuous or log-on-demand samples with logging intervals from one second to three hours.

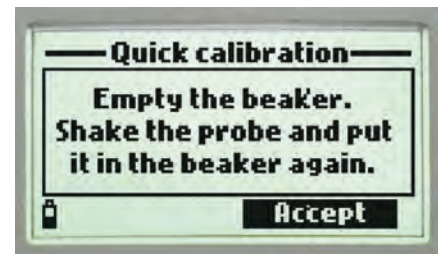
Intuitive Keypad

The fitted rubber keypad has dedicated keys for power, backlight, up/down arrows, help and alphanumeric characters. The meter also features two virtual soft keys that navigate the user through the configuration of each parameter, meter setup, and logging of data. The interface is intuitive for any user's level of experience.



Setup

Extensive setup screen features



Dedicated Help Key

Contextual help is always available through a dedicated "HELP" key. Clear tutorial messages and directions are available on-screen to quickly and easily guide users through setup and calibration. The help information displayed is relative to the setting/option being viewed.

PC Connectivity

Logged data can be transferred to a Window's compatible PC with the included HI920015 micro USB cable and HI9298194 software.

Long Battery Life

The display of the meter has a battery icon indicator to show the remaining power. The meter uses four 1.5V AA batteries that provide up to 360 hours of battery life.



Rugged custom carrying case

The HI98196 meter, probe, and all accessories are supplied in a rugged carrying case designed to provide years of use. The inside compartment of the carrying case is thermoformed to securely hold and protect all of the components.

Probe and Sensors

The HI7698196 is a multiparameter pH/DO/Temperature probe for use with the HI98196 portable meter. It features a Quick Connect DIN that makes a waterproof connection with the meter. Sensors are automatically recognized by the probe and meter when connected. Any ports not used on the probe will not have the parameter displayed on the meter. Sensor replacement is quick and easy with field replaceable, screw type connectors that are color coded for easy sensor identification. The probe features a multistrand-multiconductor shielded cable with 4m, 10m, 20m, and 40m lengths available. It's rugged, waterproof design makes it ideal for field use.



Specifications	HI7698196
Sensor Inputs	two (pH or pH/ORP, DO)
Sample Environment	fresh, brackish, seawater
Waterproof Protection	IP68
Operating Temperature	-5 to 55°C
Storage Temperature	-20 to 70°C
Maximum Depth	20 m (66')
Dimensions (without cable)	342 mm (13.5"); 46 mm (1.8") dia
Weight (without sensors)	570 g (20.1 oz.)
Cable Specification	multistrand-multiconductor shielded cable with internal strength member rated for 68 kg (150 lb.) intermittent use
	Body ABS
	Threads Nylon
Wetted Materials	Shield ABS / 316 SS
	Temperature Probe 316 SS
	O-rings EPDM

Multi-function Sensor

- Quick sensor replacement
 - Sensor replacement is quick and easy with field replaceable, screw type connectors and are color coded for easy identification. These meters automatically recognize sensors



Sensor Specifications	HI7698194-0	HI7698194-1	HI7698194-2
Description	pH sensor	pH/ORP sensor	DO sensor
Measurement Type	pH, mV (pH)	pH, mV (pH), ORP	DO (% saturation and concentration)
Measurement Range	0.00 to 13.00 pH; ±600.0 mV	0.00 to 13.00 pH; ±600.0 mV; ±2000.0 mV	0.0 to 500.0 %; 0.00 to 50.00 mg/L
Temperature Range	-5 to 55°C	-5 to 55°C	-5 to 55°C
Color Code	red	red	white
	Tip glass (pH)	glass (pH); Pt (ORP)	cat/an: Ag/Zn
	Glass Type LT (low temperature)	LT (low temperature)	-
Materials	Junction ceramic	ceramic	membrane: HDPE
	Body PEI	PEI	white top ABS
	Electrolyte gel	gel	-
	Reference double	double	-
Maintenance Solution	HI70300 (storage solution)	HI70300 (storage solution)	HI7042S (DO electrolyte)
Dimensions	118 x 15 mm	118 x 15 mm	99 x 17 mm
Depth	20 m (65')	20 m (65')	20 m (65')



Specifications	HI98196	
pH / mV	Range	0.00 to 14.00 pH / ± 600.0 mV
	Resolution	0.01 pH / 0.1 mV
	Accuracy	± 0.02 pH / ± 0.5 mV
	Calibration	automatic up to three points with automatic recognition of five standard buffers (pH 4.01, 6.86, 7.01, 9.18, 10.01) or one custom buffer
ORP	Range	± 2000.0 mV
	Resolution	0.1 mV
	Accuracy	± 1.0 mV
	Calibration	automatic at one custom point (relative mV)
Dissolved Oxygen	Range	0.0 to 500.0%; 0.00 to 50.00 ppm (mg/L)
	Resolution	0.1%; 0.01 ppm (mg/L)
	Accuracy	0.0 to 300.0%; $\pm 1.5\%$ of reading or $\pm 1.0\%$ whichever is greater; 300.0 to 500.0%; $\pm 3\%$ of reading; 0.00 to 30.00 ppm (mg/L); $\pm 1.5\%$ of reading or ± 0.10 ppm (mg/L), whichever is greater; 30.00 ppm (mg/L) to 50.00 ppm (mg/L); $\pm 3\%$ of reading
	Calibration	automatic one or two points at 0, 100% or one custom point
Atmospheric Pressure	Range	450 to 850 mm Hg; 17.72 to 33.46 in Hg; 600.0 to 1133.2 mbar; 8.702 to 16.436 psi; 0.5921 to 1.1184 atm; 60.00 to 113.32 kPa
	Resolution	0.1 mm Hg; 0.01 in Hg; 0.1 mbar; 0.001 psi; 0.0001 atm; 0.01 kPa
	Accuracy	± 3 mm Hg within $\pm 15^\circ\text{C}$ from the temperature during calibration
	Calibration	automatic at one custom point
Temperature	Range	-5.00 to 55.00°C ; 23.00 to 131.00°F ; 268.15 to 328.15K
	Resolution	0.01°C ; 0.01°F ; 0.01K
	Accuracy	$\pm 0.15^\circ\text{C}$; $\pm 0.27^\circ\text{F}$; $\pm 0.15\text{K}$
	Calibration	automatic at one custom point
Additional Specifications	Temperature Compensation	automatic from -5 to 55°C (23 to 131°F)
	Logging Memory	45,000 records (continuous logging or log-on-demand of all parameters)
	Logging Interval	one second to three hours
	PC Connectivity	via USB (with Hanna PC software)
	Environment	0 to 50°C (32 to 122°F); RH 100% IP67
	Battery Type / Life	1.5V AA batteries (4) / approximately 360 hours of continuous use without backlight (50 hours with backlight)
Ordering Information	Dimensions / Weight	185 x 93 x 35.2 mm (7.3 x 3.6 x 1.4") / 400 g (14.2 oz.)
	All models are supplied with: HI7698194-1 pH/ORP sensor, HI7698194-2 DO sensor, HI7698295 short protective probe shield, HI9828-20 quick calibration solution, HI76981942 probe maintenance kit, HI7698290 calibration beaker, HI9298194 PC software, HI920015 micro USB cable, batteries (4), quality certificate, and instruction manual in a rugged carrying case with custom insert. HI98196 is supplied with HI7698196 multiparameter probe with 4m (13') cable HI98196/10 is supplied with HI7698196/10 multiparameter probe with 10m (33') cable HI98196/20 is supplied with HI7698196/20 multiparameter probe with 20m (66') cable HI98196/40 is supplied with HI7698196/40 multiparameter probe with 40m (131') cable	
Accessories	HI710034 orange protective rubber boot	
	HI720194 spare thermoformed carrying case for HI98194, HI98195, and HI98196	

HI991300 · HI991301

pH/EC/TDS/ Temperature Meters

- Simultaneous, pH, EC/TDS and temperature measurements on a large three-line LCD display;
- User-friendly Design
 - With only two buttons, meter operation could not be simpler. Two buttons allow you to quickly adjust settings, select the measurement range, and choose calibration buffer sets.



- **Watertight Connection**
 - A Quick Connect DIN connector makes attaching and removing the probe simple and easy. The rubber coating protects the cable and creates a sealed connection for added reliability.
- **Probe Condition**
 - An on-screen indicator provides visual confirmation that your probe is working at its best.
- **Large LCD**
 - A multilevel display provides at-a-glance readings of your most important numbers from any angle.
- **Durable IP67 waterproof casing**
 - Designed to withstand the knocks, drops, and spills of real life, the new IP67 body ensures top performance in any environment. These meters are totally protected against dust and water intrusion from any direction.
- **On-screen calibration tags**
- **mV of pH measurement for electrode check**
- **Selectable temperature unit (°C or °F)**
- **Battery life indication and low battery detection**



- **Optional shockproof silicon rubber boot**
 - Specially designed to protect your instrument from damage or impact

HI710028 Orange
HI710029 Blue

The HI991300 and HI991301 are light weight, portable pH, conductivity (or total dissolved solids) and temperature meters for portable applications requiring both a pH and conductivity (or TDS) measurement. Applications include measurements for greenhouses irrigation, hydroponics and groundwater monitoring from agriculture nutrient pollution.

The HI991300 and HI991301 meters feature 2 button operation and are simple to use. All operations and settings, including calibration buffers and temperature scale selections, are made through these 2 buttons. They have a waterproof and compact casing rated for IP67 conditions and a large Tri-line display. The meters have automatic pH calibration at one or two points and a single conductivity calibration. Other user selectable features include different TDS factors from 0.45 to 1.00, and a range of temperature coefficients (β) from 0.0 to 2.4% for better conductivity or TDS solution temperature compensation. These meters are supplied with a multi-parameter probe specifically designed for these meters. To increase conductivity accuracy, two meter models are available, with different conductivity ranges, for applications from purified to brackish waters.

The HI12883 multi-parameter probe, incorporates a domed shaped pH bulb rated from 0-13 pH, a single junction Ag/AgCl reference electrode with gelled electrolyte and a retractable cloth wick junction, a graphite EC/TDS cell, and a temperature sensor in one convenient, rugged polypropylene body. In addition, to ensure against interference from transient electrical noise to pH, a solidstate preamplifier is integrated into the probe. The probe is rated from 0 to 50°C.

HI1288 amplified pH electrode

- 3 sensors in a single probe
- Pre-amplified pH electrode for resistance to electrical noise
- Extractable cloth junction to clear any clogging
- Graphite EC/TDS sensor

The HI991301 and HI991300 are supplied with an amplified polypropylene body pH/EC/TDS/temperature probe. The built in amplifier will reduce the effects of electrical noise on the high impedance pH measurement. Examples of sources of electrical noise include rectifiers, motors and ballasts.

The HI1288 pH electrode also features an extractable cloth junction. Every pH electrode has a junction. Many use a single ceramic frit

which acts as a barrier between the inside reference cell to the outside sample. This barrier allows for a diffusion electrolyte that is necessary for the pH measurement. Any clogging of the junction will result in a reduced diffusion and as a result the readings will become erratic. Most probes will have to have this junction cleaned and if not possible then the probe has to be replaced. The extractable cloth junction of the HI1288 allows for the renewing of the junction. Simply extract 1/8" of the junction by pulling on the junction will expose a new portion. Any clogging that was present will be cleared and the response time will be back to normal extending the life of the pH electrode.

The EC/TDS sensor is made of graphite. A common problem with amperometric sensors is a polarization effect. With amperometric sensors there are two poles in which a voltage is alternated. The positive and negative ions



in the solution migrate to one of the negative or positive poles. When the charges build up on one of these poles a polarization effect occurs. Having a conductivity sensor made of graphite reduces the polarization effect.

Specifications	HI991300	HI991301	
pH	Range*	-2.00 to 16.00 pH / -2.0 to 16.0 pH	-2.00 to 16.00 pH / -2.0 to 16.0 pH
	Resolution	0.01 pH / 0.1 pH	0.01 pH / 0.1 pH
	Accuracy (@25°C/77°F)	±0.02 pH / ±0.1 pH	±0.02 pH / ±0.1 pH
	Calibration	automatic, 1 or 2 points choose between 2 sets of buffers (standard: 4.01; 7.01; 10.01 or NIST: 4.01; 6.86; 9.18)	automatic, 1 or 2 points choose between 2 sets of buffers (standard: 4.01; 7.01; 10.01 or NIST: 4.01; 6.86; 9.18)
pH-mV	Range	±825 mV	±825 mV
	Resolution	1 mV	1 mV
	Accuracy (@25°C/77°F)	±1 mV	±1 mV
EC	Range	0 to 3999 µS/cm**	0.00 to 20.00 mS/cm**
	Resolution	1 µS/cm	0.01 mS/cm
	Accuracy (@25°C/77°F)	±2% F.S.	±2% F.S.
TDS	Range	0 to 2000 ppm (mg/L)	0.00 to 10.00 ppt (g/L)
	Resolution	1 ppm (mg/L)	0.01 ppt (g/L)
	Accuracy (@25°C/77°F)	±2% F.S.	±2% F.S.
Temperature	Range*	-5.0 to 105.0°C / 23.0 to 221.0°F	-5.0 to 105.0°C / 23.0 to 221.0°F
	Resolution	0.1°C/0.1°F	0.1°C/0.1°F
	Accuracy (@25°C/77°F)	±0.5°C / ±1.0°F	±0.5°C / ±1.0°F
Ordering Information	EC/TDS Calibration	automatic, one point at: 1413 µS/cm or 1382 ppm (CONV=0.5) or 1500 ppm (CONV=0.7)	automatic, one point at: 12880 µS/cm or 6.44 ppt (CONV=0.5) or 9.02 ppt (CONV=0.7)
	pH Temp. Compensation	automatic	automatic
	EC/TDS Temperature Compensation	automatic with β selectable from 0.0-2.4%/°C with 0.1 increments	
	TDS Conversion Factor	selectable from 0.45 to 1.00 with 0.01 increments	
	Probe (included)	HI12883 pH/EC/TDS/temperature sensor, DIN connector and 1 m (3.3') cable	
	Battery Type/Life	1.5V AAA (3) / approx. 600 hours of continuous use	
	Auto-off	user selectable: after 8 min, 60 min or disabled	
	Environment	0 to 50°C (32 to 122°F); RH max. 100%	
	Meter Dimensions	154 x 63 x 30 mm (6.1 x 2.5 x 1.2")	
	Meter Mass (with batteries)	196 g (6.91 oz.)	
	Casing Ingress Protection Rating	IP67	
	<p>HI991300 is supplied with HI12883 pH/EC/TDS probe with built-in temperature sensor, DIN connector and 1m (3.3') cable, pH 4.01 and 7.01 buffer sachets, HI70031 1413 µS/cm and HI70032 1382 ppm calibration solution sachets, HI700601 Electrode cleaning solution sachets (2), 100 mL beaker, 1.5V AAA batteries (3), calibration certificate of meter, calibration certificate of probe, instruction manual and HI710142 rugged carrying case.</p> <p>HI991301 is supplied with HI12883 pH/EC/TDS probe with built-in temperature sensor, DIN connector and 1m (3.3') cable, pH 4.01 and 7.01 buffer sachets, HI70030 12880 µS/cm and HI70038 6.44 ppt calibration solution sachets, HI700601 electrode cleaning solution sachets (2), 100 mL beaker, 1.5V AAA batteries (3), calibration certificate of meter, calibration certificate of probe, instruction manual and HI710142 rugged carrying case.</p>		

* the pH range is limited from 0 to 13 pH and the temperature range from 0 to 50°C (32 to 122°F) using HI12883 probe

HI9814

pH / EC / TDS / Temperature Meter

with Multiparameter Probe

- Simultaneous, pH, EC/TDS and temperature measurements on a large three-line LCD display;
- User-friendly Design
 - With only two buttons, meter operation could not be simpler. Two buttons allow you to quickly adjust settings, select the measurement range, and choose calibration buffer sets.



- Watertight Connection
 - A Quick Connect DIN connector makes attaching and removing the probe simple and easy. The rubber coating protects the cable and creates a sealed connection for added reliability.
- Probe Condition
 - An on-screen indicator provides visual confirmation that your probe is working at its best.
- Large LCD
 - A multilevel display provides at-a-glance readings of your most important numbers from any angle.
- Durable IP67 waterproof Casing
 - Designed to withstand the knocks, drops, and spills of real life, the new IP67 body ensures top performance in any environment. These meters are totally protected against dust and water intrusion from any direction.
- On-screen calibration tags
- mV of pH measurement for electrode check
- Selectable temperature unit (°C or °F)
- Battery life indication and low battery detection



HI9814 is a durable, portable pH, conductivity, total dissolved solids and temperature meter for most measurements encountered in hydroponics, aquaponics or general agriculture applications. All operations and settings, are made through only two buttons and the housing is waterproof and rated for IP67 conditions. User-selectable features include selectable TDS factors of 0.5 and 0.7 as well as auto-off after 8 minutes or 60 minutes to prolong battery life.

The supplied HI1285-7 multiparameter probe measures pH, EC/TDS, and temperature in one convenient, rugged probe.



- Calibrate pH and EC with one solution
 - The HI9814 offers a quick calibration feature that allows for calibration of both parameters with a single solution. Simply enter calibration mode and the meter will automatically detect and calibrate pH and EC sensors. EC calibration is automatically applied to TDS readings.



- Optional shockproof silicon rubber boot
- Specially designed to protect your instrument from damage or impact

HI710030 Green



HI1285-7 Multiparameter Probe

- 3 sensors in a single probe
- Gel filled maintenance free pH electrode
- Amplified pH electrode
- Polypropylene body
 - The polypropylene body houses all the sensors in a single body design and is durable. The probe is gel filled for maintenance free operation. It does not have to be refilled periodically.

The specially engineered HI1285-7 pH/EC/TDS/temperature probe utilizes a fiber junction and gel electrolyte which provides a fast response and reduced potential for contamination. These features make this probe ideal for use in fertilizer solutions.

A solid-state preamplifier is integrated into the probe to protect the pH measurement from transient electrical noise. Sources of electrical noise include ballasts used in lighting and pumps to circulate water and nutrient solutions.

The HI1285-7 probe features a Quick Connect DIN connector that makes a waterproof connection with the meter.



HI12943 pH Electrode

HI9814 is also compatible with the HI12943 pH electrode.

See page 2.139 for more information

Specifications

HI9814

pH	Range*	-2.00 to 16.00 pH
	Resolution	0.01 pH
	Accuracy	±0.02 pH
	Calibration	automatic, one or two-point calibration (using pH 4.01, 7.01, 10.01 buffers); one-point calibration using quick calibration solution
	Temperature Compensation	automatic
pH-mV	Range	±825 mV
	Resolution	1 mV
	Accuracy	±1 mV
EC	Range	0.00 to 6.00 mS/cm**
	Resolution	0.01 mS/cm
	Accuracy	±2% F.S.
	Calibration	automatic, one-point at 1.41 mS/cm or 5.00 mS/cm; one-point calibration using quick calibration solution
	Temperature Compensation	automatic, with $\beta = 1.9\%/^{\circ}\text{C}$
TDS	Range	0 to 3000 ppm (500 CF); 0 to 3999 ppm (700 CF)
	Resolution	10 ppm (mg/L)
	Accuracy	±2% F.S.
	Conversion Factor (CF)***	0.5 (500 ppm) or 0.7 (700 ppm)
Temperature	Range*	-5.0 to 105.0°C / 23.0 to 221.0°F
	Resolution	0.1°C/0.1°F
	Accuracy	±0.5°C/±1.0°F
Additional Specifications	Probe (included)	HI1285-7 pH/EC/TDS/temperature sensor, DIN connector and 1 m (3.3') cable
	Battery Type/Life	1.5V AAA (3) /approx. 500 hours of continuous use
	Auto-off	user selectable: after 8 min, 60 min or disabled
	Environment	0 to 50°C (32 to 122°F); RH max. 100%
	Meter Dimensions	154 x 63 x 30 mm (6.1 x 2.5 x 1.2")
	Meter Mass (with batteries)	196 g (6.91 oz.)
	Casing Ingress Protection Rating	IP67
Ordering Information	<p>HI9814 is supplied with HI1285-7 pH/EC/TDS probe with built-in temperature sensor, DIN connector and 1m (3.3') cable, HI50036 Quick calibration solution sachets (3), HI700661 electrode cleaning solution sachets for agriculture (3), 100 mL beaker, 1.5V AAA batteries (3), calibration certificate of meter, calibration certificate of probe, instruction manual and rugged carrying case.</p>	
Accessories	green carrying case	

* the pH range is limited from 0 to 13 pH and the temperature range from 0 to 50 °C (32 to 122 °F) using HI1285-7 probe.

HI9813-51 · HI9813-61

pH/EC/TDS/ Temperature Portable Meter

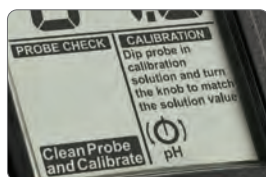
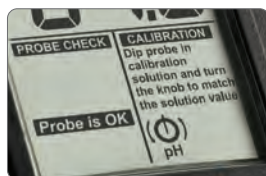
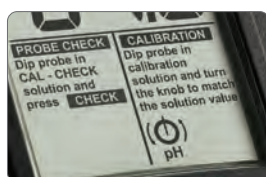
- Waterproof
- CAL Check™ (HI9813-61)
 - Allows the user to easily check the probe calibration status at any time.
- Variable EC to TDS conversion factor
 - Factor automatically adjusts from 0.56 to 0.78 based on actual EC readings
 - Factor based on 442 curve for natural water
- Automatic Temperature Compensation
 - All readings are compensated for variations in temperature
- Low Battery Indicator

The HI9813-61 and HI9813-51 portable meters feature a large LCD which displays either pH, EC, TDS or temperature readings along with tutorial instructions. The pH readings are displayed with a 0.1 resolution and an accuracy of ± 0.1 pH while the EC and TDS readings are displayed with a 0.01 mS/cm and 1 ppm (mg/L) resolution and 2% full scale accuracy. The EC range of both meters is from 0.00 to 4.00 mS/cm and TDS is from 0 to 1999 ppm. The temperature correction coefficient (β) is fixed at 2 %/°C and allows for automatic temperature compensated measurements of EC and TDS. These meters are calibrated manually to a single point with the use of two trimmers. pH is calibrated to pH 7.01 while EC/TDS is calibrated to either 1.41 mS/cm (1413 μ S/cm) or 1500 ppm. The LCD screen has battery life indicator as well as on-screen tutorial messages.

No probe changes are required when switching your measured parameter between pH, conductivity and TDS. These multiparameter meters reduce the number of instruments required for daily water quality analysis.

The supplied probe on both models feature a polypropylene body, amplified pH electrode with a built-in EC/TDS and temperature sensors. The amplifier for the pH electrode prevents interference from humidity and electrical noise from common sources including from motors, ballasts or pumps. The HI9813-61 and HI9813-51 are versatile meters for the agriculture, greenhouse and hydroponics industries.





HI9813-61 CAL Check™

Feature

The HI9813-61's CAL Check feature alerts users if there is a problem with the pH electrode. This feature is important for customers that calibrate only to pH 7.0; if there is a fracture on the pH glass of the electrode, the pH meter will always display pH 7.0 regardless of the solution being measured. This can be disastrous for the person that calibrates at pH 7.0 and takes readings of samples with an expected pH of 7.0. The user will never be aware that there is a problem. Placing the HI1285-61 pH/EC electrode in HI50021 CAL Check solution and pressing the "Check" button helps users determine if the probe needs to be calibrated, cleaned or replaced. The meter runs CAL Check diagnostics and will display either "Probe is OK" or "Clean Probe and Calibrate". If the reading is around pH 4.0 when the probe is placed in the solution then the probe is broken and needs to be replaced.



HI1285 series probes

These meters are supplied with a polypropylene body pH/EC/TDS/temperature probe. The pH, EC, TDS, and temperature sensor are housed in a single body that connects to the meter with a DIN connector.

- **3 sensors in a single probe**
- **Amplified pH electrode**
 - The pH electrode circuit has a built-in amplifier that will reduce the effects of electrical noise on the high impedance pH measurement. Examples of sources of electrical noise include motors, ballasts, and pumps which are common in greenhouses.
- **Amperometric EC/TDS sensor**
 - The EC/TDS readings are performed by an amperometric sensor. An alternating voltage is applied to the sensor and the amount of current that passes between the two stainless steel pins is dependent upon the amount of salts (fertilizer) present. A greater amount of salt present results in an increase in conductance.
- **Polypropylene body**
 - The polypropylene body houses all the sensors in a single body design and is durable. The probe is gel filled for maintenance free operation. It does not have to be refilled periodically.

Specifications		HI9813-51	HI9813-61 (with CAL Check)
pH	Range	0.0 to 14.0 pH	0.0 to 14.0 pH
	Resolution	0.1 pH	0.1 pH
	Accuracy	±0.1 pH	±0.1 pH
EC	Range	0.00 to 4.00 mS/cm	0.00 to 4.00 mS/cm
	Resolution	0.01 mS/cm	0.01 mS/cm
	Accuracy	±2% F.S.	±2% F.S.
TDS	Range	0 to 1999 ppm (mg/L)	0 to 1999 ppm (mg/L)
	Resolution	1 ppm (mg/L)	1 ppm (mg/L)
	Accuracy	±2% F.S.	±2% F.S.
Temperature	Range	0.0 to 60.0°C	0.0 to 60.0°C
	Resolution	0.1°C	0.1°C
	Accuracy	±0.5°C	±0.5°C
Additional Specifications	TDS Conversion Factor	0.56 to 0.78 ppm = 1 µS/cm (according to TDS 442 curve)	0.56 to 0.78 ppm = 1 µS/cm (according to TDS 442 curve)
	pH & EC/TDS Calibration	manual, one point (all parameters except temperature)	manual, one point (all parameters except temperature)
	Temp. Compensation	automatic 0 to 70°C (32 to 158°F) with β=2%/°C (EC/TDS only)	automatic 0 to 70°C (32 to 158°F) with β=2%/°C (EC/TDS only)
	Probe	HI1285-51 polypropylene body, pre-amplified multiparameter probe with internal temperature sensor, 8-pin DIN connector and 1 m (3.3') cable (included)	HI1285-61 polypropylene body, pre-amplified multiparameter probe with CAL Check compatibility, internal temperature sensor, 8-pin DIN connector and 1 m (3.3') cable (included)
	Battery Type / Life	9V / approximately 450 hours of continuous use	
	Environment	0 to 50°C (32 to 122°F); RH max 100%	
	Dimensions	145 x 80 x 36 mm (5.7 x 3.1 x 1.4")	
Weight	230 g (8.1 oz.)		
Ordering Information		<p>HI9813-51 is supplied with HI1285-51 multiparameter probe, HI70007 pH 7.01 calibration solution sachet, HI70442 1500 ppm (mg/L) calibration solution sachet, HI70031 1413 µS/cm calibration solution sachet, HI700661 electrode cleaning solution sachets (2), battery and instructions.</p> <p>HI9813-61 is supplied with HI1285-61 multiparameter probe, HI70007 pH 7.01 calibration solution sachet, HI70442 1500 ppm (mg/L) calibration solution sachet, HI70031 1413 µS/cm calibration solution sachet, HI50021 calibration check solution sachets (2), HI700661 electrode cleaning solution sachets (2), 9v battery (1), instructions and rugged carrying case.</p>	
		<p>HI50021P CAL Check solution sachets for HI9813-6, 20mL (25)</p>	
Accessories		HI710007 blue shockproof rubber boot	
		HI710008 orange shockproof rubber boot	
		HI7209811 spare carrying case for HI981X-X series	

HI9810-61 · HI9811-51 · HI9812-51

pH/EC/TDS/ Temperature Portable Meters

- Waterproof
- Automatic Temperature Compensation
 - All readings are compensated for variations in temperature
- Low battery indicator

HI9810-61 is a pH/EC/TDS meter designed to measure pH, $\mu\text{S}/\text{cm}$, mg/L and temperature in hydroponics, greenhouse, farming and ground water applications. HI9810-6 features Cal Check™, which allows the user to easily check the probe calibration status at any time.

The HI9812-51 and HI9811-51 are pH/EC/TDS meters for agriculture, greenhouse and hydroponics applications.

These meters feature a large LCD which displays either pH, EC, TDS or temperature readings along with tutorial instructions. The pH readings are displayed with a 0.1 resolution and an accuracy of ± 0.1 pH while the EC and TDS readings are displayed with a 10 mS/cm and 10 ppm (mg/L) resolution and 2% full scale accuracy. The temperature correction coefficient (β) is fixed at 2 %/°C and allows for automatic temperature compensated measurements of EC and TDS. These meters are calibrated manually to a single point with the use of two trimmers. pH is calibrated to pH 7.01 while EC/TDS is calibrated to either 1.41 mS/cm (1413 $\mu\text{S}/\text{cm}$) or 1500 ppm. The LCD screen has battery life indicator as well as on-screen tutorial messages.

No probe changes are required when switching your measured parameter between pH, conductivity and TDS. These multiparameter meters reduce the number of instruments required for daily water quality analysis.

The supplied probe on all models feature a polypropylene body, amplified pH electrode with a built-in EC/TDS and temperature sensors. The amplifier for the pH electrode prevents interference from humidity and electrical noise from common sources including from motors, ballasts or pumps.





HI1285-51 and HI1285-61 probes

HI9811-51 and HI9812-51 are supplied with the HI1285-51 pH/EC/TDS/temperature probe. The HI9810-61 is supplied with the HI1285-61 pH/EC/TDS/temperature probe with CAL Check. The pH, EC, TDS, and temperature sensor are housed in a single body that connects to the meter with a DIN connector.

- **Amplified pH electrode**
 - The pH electrode circuit has a built in amplifier that will reduce the effects of electrical noise on the high impedance pH measurement. Examples of sources of electrical noise include motors, ballasts, and pumps which are common in greenhouses.
- **Amperometric EC/TDS sensor**
 - The EC/TDS readings are performed by an amperometric sensor. An alternating voltage is applied to the sensor and the amount of current that passes between the two stainless steel pins is dependent upon the amount of salts (fertilizer) present. A greater amount of salt present results in an increase in conductance.
- **Polypropylene body**
 - The polypropylene body houses all the sensors in a single body design and is durable. The probe is gel filled for maintenance free operation. It does not have to be refilled periodically.
- **3 sensors in a single probe**
- **Gel filled maintenance free pH electrode**

Specifications	HI9810-61	HI9811-51	HI9812-51
pH	Range	0.0 to 14.0 pH	0.0 to 14.0 pH
	Resolution	0.1 pH	0.1 pH
	Accuracy	±0.1 pH	±0.1 pH
EC	Range	0 to 6000 µS/cm	0 to 1990 µS/cm
	Resolution	10 µS/cm	10 µS/cm
	Accuracy	±2% F.S.	±2% F.S.
TDS	Range	0 to 3000 ppm (mg/L)	0 to 1990 ppm (mg/L)
	Resolution	10 ppm (mg/L)	10 ppm (mg/L)
	Accuracy	±2% F.S.	±2% F.S.
Temperature	Range	0 to 70°C	0 to 60°C
	Resolution	0.1°C	10°C
	Accuracy	±0.5°C	±1°C
Additional Specifications	TDS Conversion Factor	0.5 ppm (mg/L) = 1 µS/cm	0.5 ppm (mg/L) = 1 µS/cm
	pH Calibration	manual, 1-point through offset trimmer	
	EC/TDS Calibration	manual, 1-point through slope trimmer	
	EC/TDS Temperature Compensation	automatic from 0 to 70°C (32 to 158°F) with $\beta = 2\% / ^\circ\text{C}$	
	Probe (included)	HI1285-61 polypropylene body, pre-amplified multiparameter probe with CAL Check, internal temperature sensor, 8-pin DIN connector and 1 m (3.3') cable	HI1285-51 polypropylene body, pre-amplified multiparameter probe with internal temperature sensor, 8-pin DIN connector and 1 m (3.3') cable
	Battery Type / Life	9V / approximately 450 hours of continuous use	
	Environment	0 to 50°C (32 to 122°F); RH max 100%	
	Dimensions	145 x 80 x 36 mm (5.7 x 3.1 x 1.4")	
	Weight	230 g (8.1 oz.)	
Ordering Information	HI9810-61 is supplied with HI1285-61 multiparameter probe with CAL Check, HI70007 pH 7.01 calibration solution sachet, HI70032 1382 ppm (mg/L) calibration solution sachet, HI70031 1413 µS/cm calibration solution sachet, HI700661 electrode cleaning solution sachets (2), 9v battery (1), instructions and rugged carrying case.		
	HI9811-51 and HI9812-51 are supplied with HI1285-51 multiparameter probe, HI70007 pH 7.01 calibration solution sachet, HI70032 1382 ppm (mg/L) calibration solution sachet, HI70031 1413 µS/cm calibration solution sachet, HI700661 electrode cleaning solution sachets (2), 9v battery (1), instructions and rugged carrying case.		
Accessories	HI710007 blue shockproof rubber boot		
	HI710008 orange shockproof rubber boot		
	HI7209811 spare carrying case for HI981X-X series		



Code	HI1285-7	HI1285-61	HI1285-51	HI12883
Description	pre-amplified pH and EC probe	pre-amplified pH and EC probe	pre-amplified pH and EC probe	pre-amplified pH and EC probe
Reference	single, Ag/AgCl	single, Ag/AgCl	single, Ag/AgCl	single, Ag/AgCl
Junction / Flow Rate	cloth	cloth	cloth	cloth
Electrolyte	gel	gel	gel	gel
Max Pressure	0.1 bar	0.1 bar	0.1 bar	1 bar
Range	pH: 0 to 13 / EC T: 0 to 50°C (32 to 122°F) - LT	pH: 0 to 13 / EC T: 0 to 50°C (32 to 122°F) - LT	pH: 0 to 13 / EC T: 0 to 50°C (32 to 122°F) - LT	pH: 0 to 13 / EC T: 0 to 50°C (32 to 122°F) - LT
Tip / Shape	spheric (dia: 8.0 mm)	spheric (dia: 8.0 mm)	spheric (dia: 8.0 mm)	spheric (dia: 8.5 mm)
Glass Type	LT (low temperature)	LT (low temperature)	LT (low temperature)	LT (low temperature)
Temperature Sensor	yes	yes	yes	yes
Amplifier	yes	yes	yes	yes
Body Material	polypropylene	polypropylene	polypropylene	polypropylene
Cable	7-pole; 1 m (3.3')	7-pole; 1 m (3.3')	7-pole; 1 m (3.3')	7-pole; 1 m (3.3')
Recommended Use	greenhouses, hydroponics	greenhouses, hydroponics, environmental monitoring, water treatment, boilers, cooling towers	greenhouses, hydroponics, environmental monitoring, water treatment, boilers, cooling towers	general purpose, water treatment, agriculture, boilers, cooling towers
Plug	Quick Connect DIN To be used with HI9814	DIN with CAL Check™ To be used with HI9813-61 and HI9810-61	DIN To be used with HI9811-51, HI9812-51 and HI9813-51	Quick Connect DIN To be used with HI991300 and HI991301