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Introduction

Laboratory Accuracy in the Field

In the past, measuring and monitoring important parameters was limited to the laboratory. Now, these parameters are being tested right in the field for applications such as environmental study, agriculture, the food industry, horticulture, wastewater management, fish farming, water quality maintenance, and anywhere quality and accuracy is important. Hanna has developed a large variety of testers and monitors designed to fulfill the requirements of virtually any application.

Hanna offers a vast selection of single and multiparameter testers which cover a multitude of the most important parameters: pH, ORP, conductivity (EC), total dissolved solids (TDS), temperature and salt.

Testers can perform on the spot measurements quickly, accurately, and inexpensively. They allow users with different backgrounds and technical training to make readings without the need of a laboratory or having to purchase expensive and complex analytical equipment.

Hanna provides high accuracy in a single parameter tester for pH, EC, TDS, temperature, and more. Multiparameter testers are also available, eliminating the hassle of carrying multiple testers.

Hanna testers have easy to read LCDs and durable outer casings. They are able to measure in places with a high percentage of humidity, and low power demand allows a long battery life, eliminating the need for frequent battery replacement.

pH Testers

All Hanna pH testers come with a replaceable pH probe, which is a unique advantage over most pH testers found on the market today.

Testers feature Automatic Temperature Compensation (ATC) and calibration at one or two points. Designed to be pocket sized with a narrow tip, they are ideal for measurements in smaller samples.

Conductivity Testers

Conductivity (EC) testers are widely used for monitoring EC/TDS with water conditioning, reverse osmosis, cooling towers, drinking water, wastewater, laboratories, agriculture, aquaculture and aquariums, hydroponics, and the printing industry.

With selectable or fixed conversion factors to relate to EC and TDS, readings can be more accurate. Hanna conductivity testers feature an amperometric graphite probe that provides greater accuracy and repeatability in measurements because it cannot be contaminated by salt deposits in solutions. Calibration of conductivity testers is simple and can be done manually or automatically with a single point.

Measurements are automatically temperature compensated to ensure correct readings.

Salt and Water Purity Testers

The waterproof Marine Line salinity tester can help you monitor the concentration of dissolved salts in saltwater aquariums. It is often the first water parameter many aquarists test for as it is crucial in making artificial seawater.

Water purity testers enable users to check the purity of distilled or demineralized water in environments such as printed circuit board washing, laundry, steam cleaning, and all areas where pure water is used. The measurement for salt and water purity is conductometric.

Thermometers

Hanna's thermometers feature a unique CAL Check™ function to ensure accurate measurements every time. Hanna temperature sensors allow users to take measurements with extremely high accuracy in a short amount of time. The sharp tip of the probes can easily penetrate semi-solid products, making routine controls simple and quick. These testers are ideal meters for measuring temperature according to HACCP requirements.

Hanna GroLine Monitors

Hanna GroLine monitors are an ideal solution in applications where constant monitoring of a stationary sample such as fertilizer solution is required. These multiparameter monitors allow the user to monitor pH, EC, TDS, and Temperature with one probe..

Ideal for hydroponics, greenhouses, horticulture, two versions are offered, one supplied with an inline probe and one supplied with a standard combination probe.

24/7 Monitoring

These GroLine Monitors provide 24 hour continuous monitoring of pH, conductivity (EC or TDS), and temperature in hydroponic nutrients. Quick to setup and simple to use, these monitors were designed with hydroponics, aquaponics, and greenhouses in mind.

Instantly See All Measurements

The versatile display of the Monitors allows for three screen modes. The LCD can display all three essential hydroponic nutrients measurements at one time, a 3-second cycle of single measurements, or a real-time graph screen with options for measurement selection and log recall.

Monitor Changes Over Time

Fluctuations in your hydroponic nutrient solution can have lasting effects on your plants. These Monitors automatically log every 15 minutes for the last 30 days, and stores min, max, and average values so you can recognize when patterns arise and help prevent future problems. For review and storage, use the USB-C to easily transfer data to a flash drive or PC using a cable. Files are exported as .csv.

Grow With Confidence

GroLine Monitors free up your time by doing the testing for you. Simply set high and low alarm levels – if your hydroponic nutrient solution moves out of range a measurement error will display. A quick look at the large display will let you know if your nutrient solution needs adjusting.

Inline Probe

The supplied HI1285-9 multiparameter probe for GroLine monitor model HI981421 measures pH, EC, and temperature in one convenient, rugged probe. A solid-state preamplifier is integrated into the probe to protect the pH measurement from transient electrical noise.

Simpler with a combination probe

The HI1285-8 for GroLine monitor model HI981420 is a 3-in-1 pre-amplified combination probe. This probe is built to be durable and features two graphite sensors for reliable conductivity readings. A built-in temperature sensor ensures fast, accurately compensated readings even during sudden temperature fluctuations.

Temperature Monitors

Few manufacturers have given any thought to providing users with a convenient way of monitoring temperature conditions in catering, refrigerators, and other places that need quick monitoring. Hanna's precision thermometers can be mounted right over the samples to be measured or placed in refrigerators for continuous readings of cold storage products.

Temperature monitors come with Hanna's exclusive CAL Check™ feature. With CAL Check, users can ensure the accuracy of the meter without the need for external calibration equipment.

Food grade stainless steel probes and quick response times assure the safety and preservation of the goods monitored.

Product Spotlights

Marine Line

HI981520

Marine Monitor

pH, Marine Salinity, and Temperature

Testing and monitoring salinity in saltwater aquariums is an ongoing task.

The HI981520 is an easy to use vertical mount unit that continuously monitors and displays conductivity and pH.

See page page 1.62

GroLine®

HI981421

GroLine® Hydroponics Monitor

with inline multiparameter probe

The HI981421 GroLine Monitor provides 24 hour continuous monitoring of pH, conductivity (EC or TDS), and temperature in hydroponic nutrients. Quick to setup and simple to use, this monitor was designed with Hydroponics, Aquaponics, and Greenhouses in mind. Make your nutrient solution easy to manage with the GroLine Monitor and combined pH/EC/Temperature probe.

See page 1.54

Marine Line

HI98319

Low and High Range Salinity Tester

The HI98319 is a compact, waterproof, pocket-sized marine Salinity tester designed for the measurement of salinity in salt water aquariums, aquaculture, brackish water, or other salt-water bodies.

See Page1.37

GroLine®

HI98325

Low and High Range Salinity Tester

The HI98325 is a compact, waterproof, pocket-sized, salinity tester designed to measure salinity levels in irrigation water.

See Page1.38

DiST 9

HI98326

Low and High Range Salinity Tester

The HI98326 (DiST 9) is a compact, waterproof, pocket-sized Salinity tester designed for the measurement of salinity in salt water aquariums, aquaculture, brackish water, or other salt-water bodies.

See Page1.39

Pool Line

HI981074

pH Tester

See page 1.18

Pool Line

HI983024 • HI983044

TDS and EC Testers

See page 1.46

Pool Line

HI985394

Digital Thermometer

See page 1.52

Comparison Guides

Code	pH Range	EC Range	TDS Range	ORP Range	Salinity Range	Temperature Range(s)	0.01 pH Resolution	Automatic Calibration	Automatic EC Calibration	pH Calibration Points	EC/TDS Calibration Points	Quick Cal Calibration Solution Compatible	pH Buffer Sets	ATC	Waterproof	Replaceable Electrode/Probe	Cloth Extendable Junction	HOLD Function	BEPS	Auto-off	Page
Multiparameter																					
HI98129	•	•	•			°C/°F	•	•	•	2	1		2	•	•	•	•	•	•	•	1.8
HI98130	•	•	•			°C/°F	•	•	•	2	1		2	•	•	•	•	•	•	•	1.8
HI98131	•	•	•			°C/°F	•	•	•	2	1	•	2	•	•	•	•	•	•	•	1.10
HI981304	•	•	•			°C/°F	•	•	•	2	1		2	•	•	•	•	•	•	•	1.12
pH/ORP																					
HI98127	•					°C/°F		•		2			2	•	•	•	•	•	•	•	1.14
HI98128	•					°C/°F	•	•		3			2	•	•	•	•	•	•	•	1.14
HI981274	•					°C/°F		•		2			2	•	•	•	•	•	•	•	1.16
HI98107	•					°C/°F		•		2					•		•			•	1.17
HI98108	•					°C/°F	•	•		3				•	•		•			•	1.17
HI981074	•					°C/°F		•		2					•		•			•	1.18
HI98118	•					°C/°F	•	•		2		•		•	•		•			•	1.19
HI98100	•						•	•		2						•				•	1.20
HI98103	•							•		2						•				•	1.20
HI981004	•						•	•		2						•				•	1.22
HI981014	•							•		2						•				•	1.22
HI98115	•						•	•		2						•				•	1.23
HI981030	•						•	•		2						•				•	1.24
HI981034	•						•	•		2						•				•	1.25
HI981032	•						•	•		2						•				•	1.26
HI981035	•						•	•		2						•				•	1.27
HI981036 / HI981045	•						•	•		2						•				•	1.28
HI981038	•						•	•		2						•				•	1.29
HI981039	•						•	•		2						•				•	1.30
HI981033	•						•	•		2						•				•	1.31
HI981031	•						•	•		2						•				•	1.32
HI981037	•						•	•		2						•	•			•	1.33
HI981214	•			•		°C/°F	•			2			2	•	•	•	•	•	•	•	1.36
HI981204				•		°C/°F									•	•		•	•	•	1.36
HI98120				•		°C/°F									•	•		•	•	•	1.34
HI98121	•			•		°C/°F	•			2			2	•	•	•	•	•	•	•	1.34
EC/TDS																					
HI98319					•	°C/°F		•						•	•					•	1.37
HI98325					•	°C/°F		•						•	•					•	1.38
HI98326					•	°C/°F		•						•	•					•	1.39
HI98301			•			°C/°F			•		1			•	•					•	1.44
HI98302			•			°C/°F			•		1			•	•					•	1.44
HI98303		•				°C/°F			•		1			•	•					•	1.44
HI98304		•				°C/°F			•		1			•	•					•	1.44
HI983024			•			°C/°F			•		1			•	•					•	1.46
HI983044		•				°C/°F			•		1			•	•					•	1.46
HI983124		•	•			°C/°F			•		1			•	•	•		•	•	•	1.42
HI98311		•	•			°C/°F			•		1			•	•	•		•	•	•	1.40
HI98312		•	•			°C/°F			•		1			•	•	•		•	•	•	1.40
HI98318		•	•			°C/°F			•		1	•		•	•					•	1.43
HI98331		•				°C/°F			•		1			•		•				•	1.45
HI98308		•									1					•					1.47
HI98309		•																			1.47

Code	pH Range	EC Range	TDS Range	ORP Range	Marine Salinity Range	Temperature Range(s)	pH Calibration Points	pH Buffer Sets	Automatic Calibration	pH Temperature Compensation	EC Temperature Compensation	TDS Temperature Compensation	CAL Check™	Waterproof	EN 13485 certified	HOLD Function	Backlit LCD	12 VDC Power Supply	Battery Power	Visual Alarm	Auto-off	Page
Temperature																						
HI98501						°C/°F							•								•	1.50
HI151						°C/°F							•	•							•	1.49
HI151-000						°C/°F							•	•	•						•	1.49
HI151-1						°C/°F							•	•							•	1.49
HI151-100						°C/°F							•	•	•						•	1.49
HI151-2						°C/°F							•	•							•	1.49
HI151-200						°C/°F							•	•	•						•	1.49
HI151-3						°C/°F							•	•							•	1.49
HI151-300						°C/°F							•	•	•						•	1.49
HI151-4						°C/°F							•	•							•	1.49
HI151-400						°C/°F							•	•	•						•	1.49
HI151-5						°C/°F							•	•							•	1.49
HI151-500						°C/°F							•	•	•						•	1.49
HI98509						°C/°F							•		•						•	1.51
HI98539						°C/°F							•								•	1.52
HI985394						°C/°F							•								•	1.52
HI145-00						°C							•								•	1.53
HI145-01						°F							•								•	1.53
HI145-20						°C							•								•	1.53
HI145-30						°F							•								•	1.53
Monitors																						
HI981421	•	•	•			°C/°F	2		•	•	•	•		•		•	•	•		•		1.54
HI981420	•	•	•			°C/°F	2		•	•	•	•		•		•	•	•		•		1.58
HI981520	•				•	°C/°F	2		•	•				•			•	•		•		1.62
HI146-00						°C													•			1.66
HI147-00						°C													•			1.67
HI147-01						°F													•			1.67

HI98129 (Combo) · HI98130 (Combo)

pH/EC/TDS Testers

- Waterproof
  - Designed to float if accidentally dropped in a tank
- Automatic Temperature Compensation
  - All readings are compensated for variations in temperature
  - Temperature displayed in °C or °F along with pH reading
- Stability indicator
  - Meter displays a tag that will disappear when the reading has achieved stability
- HOLD button
  - Freezes reading on the display to allow recording of measurement
- BEPS (Battery Error Prevention System)
  - Meter will automatically shuts off if there is not enough power to get an accurate measurement
- Battery % level at startup
- Low Battery Indicator
- Auto-off
  - Automatically shuts off after 8 minutes of non-use to maximize battery life

The HI98129 and HI98130 are waterproof testers that offer high accuracy pH, EC/TDS, and temperature measurements in a single tester; no more switching between meters for your routine measurements. These floating, waterproof combination testers have an easy-to-read LCD and an automatic shut-off. pH and EC/TDS readings are automatically temperature-compensated.

These testers feature a replaceable pH electrode cartridge as well as an EC/TDS graphite electrode. The replaceable pH cartridge means this tester does not need to be discarded when the pH sensor is exhausted.

The EC/TDS conversion factor is user-selectable, as well as the temperature compensation coefficient (β).

LCD Display Features

On-screen battery life

LCD indicates the percentage of battery power remaining upon startup.

HOLD function

The HOLD function "freezes" the LCD display temporarily.

Instability & ATC indicators

Ensures reliable EC and TDS measurements. ATC symbol is shown when active.

Standard or N.I.S.T buffer calibration

Automatic calibration is performed with two sets of memorized buffers for greater accuracy.

Adjustable temperature coefficient factor

Users can choose between different factors (β) for precise temperature compensated measurements.

Adjustable TDS conversion factor

For measurement accuracy, users can choose between a range of conductivity to TDS conversion factors.

Specifications		HI98129	HI98130
pH	Range	0.00 to 14.00 pH	0.00 to 14.00 pH
	Resolution	0.01 pH	0.01 pH
	Accuracy	±0.05 pH	±0.05 pH
Conductivity	Range	0 to 3999 µS/cm	0.00 to 20.00 mS/cm
	Resolution	1 µS/cm	0.01 mS/cm
	Accuracy	±2% F.S.	±2% F.S.
TDS	Range	0 to 2000 mg/L (ppm)	0.00 to 10.00 g/L (ppt)
	Resolution	1 ppm (mg/L)	0.01 ppt (g/L)
	Accuracy	±2% F.S.	±2% F.S.
Temperature	Range	0.0 to 60.0°C / 32.0 to 140.0°F	0.0 to 60.0°C / 32.0 to 140.0°F
	Resolution	0.1°C / 0.1°F	0.1°C / 0.1°F
	Accuracy	±0.5°C /±1°F	±0.5°C /±1°F
Additional Specifications	EC/TDS Calibration	automatic, one point at 1413 µS/cm or 1382 ppm (mg/L)	automatic, one point at 12.88 mS/cm or 6.44 ppt (g/L)
	pH Calibration	automatic, one or two-point with two sets of standard buffers (pH 4.01 / 7.01 / 10.01 or 4.01 / 6.86 / 9.18)	
	Temperature Compensation	pH: automatic; EC/TDS: automatic with β adjustable from 0.0 to 2.4% / °C	
	TDS Conversion Factor	0.45 to 1.00	
	pH Electrode	HI73127 (replaceable; included)	
	Environment	0 to 50°C (32 to 122°F); RH max 100%	
	Battery Type / Life	1.5V (4) / approx. 100 hours of continuous use; auto-off after 8 minutes of non-use	
	Dimensions / Weight	163 x 40 x 26 mm (6.4 x 1.6 x 1.0") / 100 g (3.5 oz.)	
Ordering Information	**HI98129** (Combo) is supplied with HI73127 pH electrode, HI73128 electrode removal tool, pH 4.01 buffer solution sachet, pH 7.01 buffer solution sachet, 1413 µS/cm conductivity standard sachet, 1382 ppm TDS standard sachet, pH electrode cleaning solution sachet, storage solution sachet, batteries, and instructions.		
	HI98130 (Combo) is supplied with HI73127 pH electrode, HI73128 electrode removal tool, pH 4.01 buffer solution sachet, pH 7.01 buffer solution sachet, 12880 µS/cm conductivity standard sachet, 6.44 ppt TDS standard sachet, pH electrode cleaning solution sachet, storage solution sachet, batteries, and instructions.		

High accuracy EC/TDS graphite probe

The graphite conductivity probe provides greater accuracy because it cannot be contaminated by salt deposits. The exposed temperature sensor provides fast response times and guarantees highly accurate temperature compensated readings.

Replaceable pH electrode cartridge

The Combo features an easy-to-replace pH electrode. The sturdy, snap-in connector means there are no pins which could bend or break.

pH solutions begin on page 2.174; EC and TDS solutions begin on page 5.36;
see pH electrode specifications on page 1.68

GroLine®

HI98131

GroLine® pH/EC/TDS Combo Tester

- Waterproof
  - Designed to withstand the humidity of a growing environment
- Automatic one-point calibration using our Quick Cal solution
- Automatic Temperature Compensation
  - All readings are compensated for variations in temperature
  - Temperature displayed in °C or °F along with pH reading
- Measurement instability indicator
  - Meter displays a tag that will disappear when the reading has achieved stability
- HOLD button
  - Freezes reading on the display to allow recording of measurement
- BEPS (Battery Error Prevention System)
  - Meter will automatically shuts off if there is not enough power to get an accurate measurement
- Battery % level at startup
- Low Battery Indicator
- Auto-off
  - Automatically shuts off after 8 or 60 minutes of non-use to maximize battery life

The HI98131 GroLine Combo offers high accuracy pH, EC (conductivity), TDS (total dissolved solids), and temperature measurements in a rugged, waterproof casing that floats.

The GroLine Combo features a replaceable pH electrode as well as an EC/TDS graphite electrode. The replaceable pH cartridge means this tester does not need to be discarded when the pH sensor is exhausted.

The EC/TDS conversion factor is user-selectable, as well as the temperature compensation coefficient (β).

High accuracy EC/TDS graphite probe

The graphite conductivity probe provides greater accuracy because it cannot be contaminated by salt deposits. The exposed temperature sensor provides fast response times and guarantees highly accurate temperature compensated readings.

Replaceable pH electrode cartridge

The Combo features an easy-to-replace pH electrode. The sturdy, snap-in connector means there are no pins which could bend or break.

Protective cap

The protective cap features an internal cup that can be filled with storage solution to keep the pH sensor moist.

Calibrate pH and EC with one solution

Callibration of both pH and EC can be performed using our Quick Cal calibration solution

Supplied complete

Supplied with all the tools necessary to start performing tests

Specifications

		HI98131
pH	Range	0.00 to 14.00 pH
	Resolution	0.01 pH
	Accuracy	±0.1 pH
	Calibration	automatic, one or two-point calibration (using pH 4.01, 7.01, 10.01 buffers); one-point calibration using HI5036 or HI50036 Quick Cal calibration solution
	Temperature Compensation	automatic
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 Cal calibration solution
	Temperature Compensation	automatic, with β = 1.9%/°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**	0.5 (500 ppm) or 0.7 (700 ppm)
Temperature	Range*	0.0 to 60.0°C / 32.0 to 140.0°F
	Resolution	0.1°C / 0.1°F
	Accuracy	±0.5°C /±1°F
Additional Specifications	pH Electrode	HI73127 (replaceable; included)
	Environment	0 to 50°C (32 to 122°F); RH max 100%
	Battery Type / Life	1.5V (4) / approx. 100 hours of continuous use; auto-off after 8 min or 60 min of non-use; can be disabled
	Dimensions / Weight	163 x 40 x 26 mm (6.4 x 1.6 x 1.0") / 100 g (3.5 oz.)
Ordering Information	**HI98131** (GroLine Combo) is supplied with HI73127 pH electrode, electrode removal tool, Quick Cal calibration solution sachets (4), electrode cleaning solution sachet, batteries, storage cap, quality certificate, and instruction manual.	

pH solutions begin on page 2.174; Quick Cal solutions begin on page 2.181;
EC and TDS solutions begin on page 5.36; see pH electrode specifications on page 1.68

Pool Line

HI981304

pH/EC/TDS Combo Tester

- Waterproof
  - Designed to float if accidentally dropped in a tank
- Automatic Temperature Compensation
  - All readings are compensated for variations in temperature
  - Temperature displayed in °C or °F along with pH reading
- Stability indicator
  - Meter displays a tag that will disappear when the reading has achieved stability
- HOLD button
  - Freezes reading on the display to allow recording of measurement
- BEPS (Battery Error Prevention System)
  - Meter will automatically shuts off if there is not enough power to get an accurate measurement
- Battery % level at startup
- Low Battery Indicator
- Auto-off
  - Automatically shuts off after 8 minutes of non-use to maximize battery life

HI981304 is a waterproof tester that offers high accuracy pH, EC/TDS, and temperature measurements in a single tester; no more switching between meters for your routine measurements. This floating, waterproof combination tester has an easy-to-read LCD and automatic shut-off. pH and EC/TDS readings are automatically temperature-compensated.

The EC/TDS conversion factor is user-selectable, as well as the temperature compensation coefficient (β).

High accuracy EC/TDS graphite probe

The graphite conductivity probe provides greater accuracy because it cannot be contaminated by salt deposits. The exposed temperature sensor provides fast response times and guarantees highly accurate temperature compensated readings.

Replaceable pH electrode cartridge

The Combo features an easy-to-replace pH electrode. The sturdy, snap-in connector means there are no pins which could bend or break.

Protective cap

The protective cap features an internal cup that can be filled with storage solution to keep the pH sensor moist.

Specifications		HI981304
pH	Range	0.00 to 14.00 pH
	Resolution	0.01 pH
	Accuracy	±0.05 pH
Conductivity	Range	0.00 to 20.00 mS/cm
	Resolution	0.01 mS/cm
	Accuracy	±2% F.S.
TDS	Range	0.00 to 10.00 g/L (ppt)
	Resolution	0.01 ppt (g/L)
	Accuracy	±2% F.S.
Temperature	Range	0.0 to 60.0°C / 32.0 to 140.0°F
	Resolution	0.1°C / 0.1°F
	Accuracy	±0.5°C /±1°F
Additional Specifications	EC/TDS Calibration	automatic, one point at 12.88 mS/cm or 6.44 ppt (g/L)
	pH Calibration	automatic, one or two-point with two sets of standard buffers (pH 4.01 / 7.01 / 10.01 or 4.01 / 6.86 / 9.18)
	Temperature Compensation	pH: automatic; EC/TDS: automatic with β adjustable from 0.0 to 2.4% / °C
	TDS Conversion Factor	0.45 to 1.00
	pH Electrode	HI73127 (replaceable; included)
	Environment	0 to 50°C (32 to 122°F); RH max 100%
	Battery Type / Life	1.5V (4) / approx. 100 hours of continuous use; auto-off after 8 minutes of non-use
	Dimensions / Weight	163 x 40 x 26 mm (6.4 x 1.6 x 1.0") / 100 g (3.5 oz.)
Ordering Information	**HI981304** is supplied with HI73127 pH electrode, HI73128 electrode removal tool, pH 4.01 buffer solution sachet, pH 7.01 buffer solution sachet, 12880 µS/cm conductivity standard sachet, 6.44 ppt TDS standard sachet, pH electrode cleaning solution sachet, storage solution sachet, batteries, and instructions.	

Calibrate right in our sachets

Calibration can be performed directly in our solution sachets

Supplied complete

Supplied with all the tools necessary to start performing tests

pH solutions begin on page 2.174; EC and TDS solutions begin on page 5.36;
see pH electrode specifications on page 1.68

HI98127 (pHep®4) · HI98128 (pHep®5)

pH and Temperature Testers

- Waterproof
  - Designed to float if accidentally dropped in water
- Up to three-point calibration (HI98128)
- Automatic Temperature Compensation
  - All readings are compensated for variations in temperature
  - Temperature displayed in °C or °F along with pH reading
- Stability indicator
  - Meter displays a tag that will disappear when the reading has achieved stability
- HOLD button
  - Freezes reading on the display to allow recording of measurement
- BEPS (Battery Error Prevention System)
  - Meter will automatically shuts off if there is not enough power to get an accurate measurement
- Battery % level at startup
- Low Battery Indicator
- Automatic Shut-Off
  - The meter can be set to automatically turn off after 8 minutes or 60 minutes to conserve battery life in the event that the meter is left on. The auto off feature can be disabled.

The pHep®4 and pHep®5 are waterproof pH testers that have many advanced features found in more expensive portable instrumentation. These ergonomic meters feature automatic one , two or (HI98128) three-point calibration to a known buffer, automatic temperature compensation, battery percent level indicator at start up, and a stability indicator to alert the user when a stable reading has been obtained. The large multi level LCD display shows both pH and temperature simultaneously.

These meters also feature the HI73127 replaceable electrode with a stainless steel round connector. This cartridge design has no pins which could bend or break.

LCD Display Features

On-screen battery life

LCD indicates the percentage of battery power remaining upon startup.

HOLD function

The HOLD function "freezes" the LCD display temporarily.

Standard or N.I.S.T buffer calibration

Automatic calibration is performed with two sets of memorized buffers for greater accuracy.

Replaceable pH electrode cartridge

The Combo features an easy-to-replace pH electrode. The sturdy, snap-in connector means there are no pins which could bend or break.

Exposed temperature sensor

An exposed temperature sensor allows for rapid automatic temperature compensated pH measurements.

Pocket clip

A pocket clip is featured on the back of the pHep 4 and pHep 5

Protective cap

The protective cap features an internal cup that can be filled with storage solution to keep the pH sensor moist.

Specifications		HI98127 (pHep®4)	HI98128 (pHep®5)
pH	Range	-2.0 to 16.0 pH	-2.00 to 16.00 pH
	Resolution	0.1 pH	0.01 pH
	Accuracy	±0.1 pH	±0.05 pH
Temperature	Range	-5.0 to 60.0°C / 23.0 to 140.0°F	-5.0 to 60.0°C / 23.0 to 140.0°F
	Resolution	0.1°C / 0.1°F	0.1°C / 0.1°F
	Accuracy	±0.5°C /±1°F	±0.5°C /±1°F
Additional Specifications	pH Calibration	automatic, one, two, or (HI98128) three-point with two sets of standard buffers (pH 4.01 / 7.01 / 10.01 or 4.01 / 6.86 / 9.18)	
	Temperature Compensation	automatic	
	Battery Type / Life	1.5V (4) / approx. 300 hours of continuous use; auto-off after 8 minutes of non-use	
	Environment	-5 to 50°C (23 to 122°F); RH max 100%	
	Dimensions	163 x 40 x 26 mm (6.4 x 1.6 x 1.0")	
	Weight	100 g (3.5 oz.)	
Ordering Information		**HI98127** (pHep®4) and **HI98128** (pHep®5) are supplied with HI73127 pH electrode, HI73128 electrode removal tool, pH 4.01 buffer solution sachets (2), pH 7.01 buffer solution sachets (2), electrode cleaning solution sachet, electrode storage solution sachet, batteries, and instructions.	

pH solutions begin on page 2.174; see pH electrode specifications on page 1.68

Pool Line

HI981274

pH and Temperature Tester

- Waterproof
  - Designed to float if accidentally dropped in water
- Automatic Temperature Compensation
  - All readings are compensated for variations in temperature
  - Temperature displayed in °C or °F along with pH reading
- Stability indicator
  - Meter displays a tag that will disappear when the reading has achieved stability
- HOLD button
  - Freezes reading on the display to allow recording of measurement
- BEPS (Battery Error Prevention System)
  - Meter will automatically shuts off if there is not enough power to get an accurate measurement
- Battery % level at startup
- Low Battery Indicator
- Automatic Shut-Off
  - The meter can be set to automatically turn off after 8 minutes or 60 minutes to conserve battery life in the event that the meter is left on. The auto off feature can be disabled.

This tester provides high accuracy pH and temperature measurement in a rugged, waterproof casing that floats.

This meter also features the HI73127 replaceable electrode with a stainless steel round connector. This cartridge design has no pins which could bend or break.

The protective cap features an internal cup that can be filled with storage solution to keep the pH sensor moist.

Specifications		HI981274
pH	Range	-2.0 to 16.0 pH
	Resolution	0.1 pH
	Accuracy	±0.1 pH
Temperature	Range	-5.0 to 60.0°C / 23.0 to 140.0°F
	Resolution	0.1°C / 0.1°F
	Accuracy	±0.5°C /±1°F
Additional Specifications	pH Calibration	automatic, one or two-point with two sets of standard buffers (pH 4.01 / 7.01 / 10.01 or 4.01 / 6.86 / 9.18)
	Temperature Compensation	automatic
	Battery Type / Life	1.5V (4) / approx. 300 hours of continuous use; auto-off after 8 minutes of non-use
	Environment	-5 to 50°C (23 to 122°F); RH max 100%
	Dimensions	163 x 40 x 26 mm (6.4 x 1.6 x 1.0")
	Weight	100 g (3.5 oz.)
Ordering Information	**HI981274** is supplied with HI73127 pH electrode, electrode removal tool, protective cap, pH 4.01 buffer solution sachets (2), pH 7.01 buffer solution sachets (2), electrode cleaning solution sachet, electrode storage solution sachet, batteries, and instructions.	

pH solutions begin on page 2.174; see pH electrode specifications on page 1.68

HI98107 pHep® · HI98108 pHep+

pHep pH Testers

- Waterproof
- Up to three-point calibration (HI98108)
- Built in temperature sensor for Automatic Temperature Compensated measurements
- Automatic one or two-point calibration
- Stability indicator
- Low battery indicator
- Two-button operation

The pHep is used by millions of people around the world to monitor pH in laboratories and industrial applications as well as in agriculture, fish farming, food manufacturing and quality control, swimming pools, and the printing industry.

Exposed temperature sensor for faster response times

Watertight seal

An easily removable cover provides access to the battery compartment.

Supplied in a carrying case with buffer and cleaning solutions.

Specifications		HI98107 (pHep®)	HI98108 (pHep®+)
pH	Range	0.0 to 14.0 pH	0.00 to 14.00 pH
	Resolution	0.1 pH	0.01 pH
	Accuracy (@25°C/77°F)	±0.1 pH	±0.10 pH
	Calibration	automatic, one, two, or (HI98108) three-point (pH 4.01, 7.01, 10.01)	
Temperature	Range	0.0 to 50.0 °C (32.0 to 122.0 °F)	0.0 to 50.0 °C (32.0 to 122.0 °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
Additional Specifications	Temperature Compensation	automatic, 0 to 50°C (32 to 122°F)	
	Glass Type	GP (general purpose)	
	Battery Type / Life	CR2032 3V Li-ion / approximately 800 hours of continuous use	
	Auto-off	8 minutes, 60 minutes, or can be disabled	
	Environment	0 to 50°C (32 to 122°F); RH 100% max	
	Dimensions	160 x 40 x 17 mm (6.3 x 1.6 x 0.7")	
	Weight	75 g (2.6 oz.)	
Ordering Information	**HI98107** (pHep) is supplied with CR2032 battery, electrode cleaning solution sachet, pH 4.01 buffer solution sachet, pH 7.01 buffer solution sachet (2), storage/protection sleeve, instruction manual, and quality certificate. **HI98108** (pHep+) is supplied with CR2032 battery, electrode cleaning solution sachet, pH 4.01 buffer solution sachet, pH 7.01 buffer solution sachet (2), storage/protection sleeve, instruction manual, and quality certificate.		

pH solutions begin on page 2.174

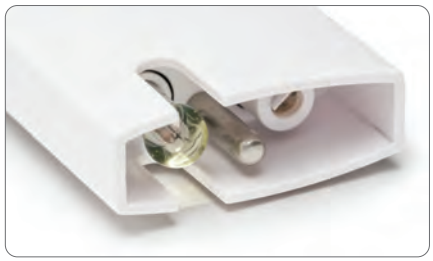
Pool Line

HI981074

pH Tester

- Waterproof
- Built in temperature sensor for Automatic Temperature Compensated measurements
- Automatic one or two-point calibration
- Stability indicator
- Low battery indicator
- Two-button operation

HI981074 is a pocket-sized pH meter, part of Hanna Instruments® Pool Line family. It has a compact and waterproof casing, and automatic pH calibration at one or two points. All readings are automatically compensated for temperature variations with a built-in temperature sensor.



Exposed temperature sensor for faster response times

Watertight seal

An easily removable cover provides access to the battery compartment.

Carrying case included

Supplied in a carrying case with buffer and cleaning solutions.

Specifications		HI981074
pH	Range	0.0 to 14.0 pH
	Resolution	0.1 pH
	Accuracy (@25°C/77°F)	±0.1 pH
	Calibration	automatic, one or two-points (pH 4.01, 7.01, 10.01)
Temperature	Range	0.0 to 50.0 °C (32.0 to 122.0 °F)
	Resolution	0.1°C / 0.1°F
	Accuracy (@25°C/77°F)	±0.5°C /±1.0°F
Additional Specifications	Temperature Compensation	automatic, 0 to 50°C (32 to 122°F)
	Glass Type	GP (general purpose)
	Battery Type / Life	CR2032 3V Li-ion / approximately 800 hours of continuous use
	Auto-off	8 minutes, 60 minutes, or can be disabled
	Environment	0 to 50°C (32 to 122°F); RH 100% max
	Dimensions	160 x 40 x 17 mm (6.3 x 1.6 x 0.7")
	Weight	75 g (2.6 oz.)
Ordering Information	**HI981074** is supplied with electrode cleaning solution sachet, pH 4.01 buffer solution sachet, pH 7.01 buffer solution sachet (2), storage/protection sleeve, CR2032 battery, instruction manual, and quality certificate.	

pH solutions begin on page 2.174

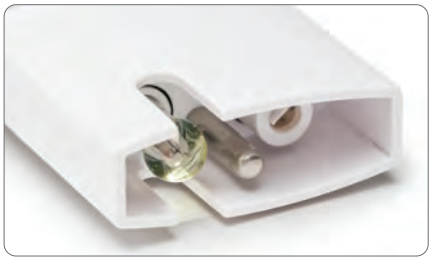
GroLine®

HI98118

GroLine® pH Tester

- Waterproof
- Quick calibration mode using Hanna Quick Cal pH/EC calibration solution
- Two-button operation

The GroLine HI98118 pH/temperature tester is our latest pocket meter for measuring the pH of a hydroponic nutrient solution. The HI98118 has a very large easy to read LCD display that shows both pH and temperature along with calibration, stability, and low battery indicators. All operations are simplified to two buttons.



Exposed temperature sensor for faster response times

Watertight seal

An easily removable cover provides access to the battery compartment.

Supplied in a carrying case with buffer and cleaning solutions.

Specifications		HI98118
pH	Range	0.00 to 14.00 pH
	Resolution	0.01 pH
	Accuracy (@25°C/77°F)	±0.10 pH
	Calibration	automatic, one or two-points (pH 4.01, 7.01, 10.01)
	Quick Calibration	one-point calibration using HI5036 or HI50036P Quick Cal calibration solution
Temperature	Range	0.0 to 50.0 °C (32.0 to 122.0 °F)
	Resolution	0.1°C/0.1°F
	Accuracy (@25°C/77°F)	±0.5°C/±1.0°F
Additional Specifications	Temperature Compensation	automatic, 0 to 50°C (32 to 122°F)
	Glass Type	GP (general purpose)
	Battery Type / Life	CR2032 3V Li-ion / approximately 1000 hours of continuous use
	Auto-off	8 minutes, 60 minutes, or can be disabled
	Environment	0 to 50°C (32 to 122°F); RH 100% max
	Dimensions	160 x 40 x 17 mm (6.3 x 1.6 x 0.7")
	Weight	75 g (2.6 oz.)
Ordering Information	**HI98118** GroLine pH tester, Quick Cal calibration sachets (3), electrode cleaning solution sachet, battery, instruction manual, and quality certificate.	

pH solutions begin on page 2.174; Quick Cal solutions begin on page 2.181

HI98100 · HI98103

Checker® pH Testers

The latest HI98103 Checker and HI98100 Checker Plus are the next generation of the original Hanna Checker pH tester. The Checker is by far one of the most popular pH meters in the world with over 1 million meters used since its introduction in 1991. From students to researchers, the Checker has been helping people with their pH measurements.

These Checker pH testers have been designed with many advanced features while maintaining the look and feel of the original Checker. The HI98100 Checker Plus and HI98103 Checker now offer automatic calibration to one or two points, automatic buffer recognition, calibrated buffer tags, stability indicator, low battery indicator, and selectable automatic shut off. Both the Checker and Checker Plus maintain the iconic pentagon design with a probe measuring 103 mm in length that is tapered to an 8 mm diameter, making it ideal for measurements in test tubes and vials.

Over 1 million users since its introduction

Replaceable pH Electrode

The supplied HI1271 pH electrode is 103 mm long and tapers to an 8 mm diameter at the sensing end to easily fit into test tubes, vials, and other containers with small openings.

Economical

The Checker and Checker Plus are full-featured pH testers at an affordable price.

High accuracy

The HI98100 Checker Plus features ±0.2 pH accuracy with 0.01 resolution while the HI98103 features 0.1 resolution.

Large LCD

Enhanced LCD that displays reading, stability indicator, low battery indicator, and calibration tags.

Automatic Calibration

These meters are calibrated automatically to one or two points. The calibration buffers are automatically recognized and after calibration the buffer values used are shown on the display as a tag.

Stability Indicator

An hourglass indicator is displayed on the LCD until a stable reading is obtained. Once a reading stabilizes, the indicator disappears and a reading can be recorded.

Automatic Shut-off

These meters can be set to automatically turn off after 8 minutes or 60 minutes to conserve battery life in the event that the meter is left on. The auto-off feature can also be disabled.

Long Battery Life

These Checkers have a long battery life of approximately 1000 hours. When the battery power is running low a battery indicator is displayed.

Plastic Carrying Case

The HI98100 and HI98103 are supplied complete with meter, probe, calibration solutions, and cleaning solutions packaged in a durable plastic carrying case.

The HI1271 pH electrode can be easily replaced. Just unscrew the electrode from the meter body and screw on a new one.

Calibration can be performed directly in our solution sachets.

An easily removable cover provides access to the replaceable battery.

Supplied in a carrying case with buffer and cleaning solutions.

Specifications		HI98100 Checker®Plus	HI98103 Checker
pH	Range	0.00 to 14.00 pH	0.0 to 14.0 pH
	Resolution	0.01 pH	0.1 pH
	Accuracy (@25°C/77°F)	±0.2 pH	
	Calibration	automatic, one or two-point	
Additional Specifications	Electrode	HI1271 (included)	
	Battery Type / Life	CR2032 Li-ion / approximately 1000 hours of continuous use	
	Auto-off	8 minutes, 60 minutes, or can be disabled	
	Environment	0 to 50°C (32 to 122°F); RH 95% max	
	Dimensions	50 x174 x 21 mm (2 x 6.8 x 0.9")	
	Weight	50 g (1.8 oz)	
Ordering Information		**HI98100 (Checker)** and **HI98103 (Checker Plus)** are supplied with HI1271 pH electrode, pH 4.01 buffer solution sachet (2), pH 7.01 buffer solution sachet (2), electrode cleaning solution sachet (2), battery, quality certificate, and instruction manual in a carrying case.	

pH solutions begin on page 2.174; see pH electrode specifications on page 1.69

Pool Line

HI981004 • HI981014

pH Testers

Replaceable pH Electrode

The supplied HI1271 pH electrode is 103 mm long and tapers to an 8 mm diameter at the sensing end to easily fit into test tubes, vials, and other containers with small openings.

High accuracy

The HI981004 features ±0.2 pH accuracy with 0.01 resolution while the HI981014 features 0.1 resolution.

Large LCD

Enhanced LCD that displays reading, stability indicator, low battery indicator, and calibration tags.

Automatic Calibration

This meter is calibrated automatically to one or two points. The calibration buffers are automatically recognized and after calibration the buffer values used are shown on the display as a tag.

Stability Indicator

An hourglass indicator is displayed on the LCD until a stable reading is obtained. Once a reading stabilizes, the indicator disappears and a reading can be recorded.

Automatic Shut-off

These testers can be set to automatically turn off after 8 minutes or 60 minutes to conserve battery life in the event that the meter is left on. The auto-off feature can also be disabled.

Long Battery Life

This meter has a long battery life of approximately 1000 hours. When the battery power is running low a battery indicator is displayed.

Plastic Carrying Case

The HI981004 and HI981014 are supplied complete with meter, probe, calibration solutions, and cleaning solutions packaged in a durable plastic carrying case.

Specifications		HI981004	HI981014
pH	Range	0.00 to 14.00 pH	0.0 to 14.0 pH
	Resolution	0.01 pH	0.1 pH
	Accuracy (@25°C/77°F)	±0.2 pH	
	Calibration	automatic, one or two-point	
Additional Specifications	Electrode	HI1271 (included)	
	Battery Type / Life	CR2032 Li-ion / approximately 1000 hours of continuous use	
	Auto-off	8 minutes, 60 minutes, or can be disabled	
	Environment	0 to 50°C (32 to 122°F); RH 95% max	
	Dimensions	50 x174 x 21 mm (2 x 6.8 x 0.9")	
	Weight	50 g (1.8 oz)	
Ordering Information		**HI981004** and **HI981014** are supplied with HI1271 pH electrode, pH 4.01 buffer solution sachet (2), pH 7.01 buffer solution sachet (2), electrode cleaning solution sachet (2), battery, quality certificate, and instruction manual in a carrying case.	

pH solutions begin on page 2.174; see pH electrode specifications on page 1.69

GroLine®

HI98115

pH Tester

The HI98115 GroLine® pH tester has been designed with many advanced features for growers of all types. This pH tester offers automatic calibration to one or two points, automatic buffer recognition, calibrated buffer tags, stability indicator, low battery indicator, and selectable automatic shut-off. With its compact size, one-button operation, and ease of calibration, the HI98115 is the optimal tool for pH measurement in nutrient solutions and soil slurries.

The HI1271 pH electrode can be easily replaced. Just unscrew the electrode from the meter body and screw on a new one.

Plastic Carrying Case

Supplied complete with meter, probe, calibration solutions, and cleaning solutions packaged in a durable plastic carrying case.

Replaceable pH Electrode

The HI1271 supplied gel filled pH electrode is 103 mm long and tapers to an 8 mm diameter at the sensing end. This narrow electrode easily fits into test tubes, vials, and other containers with small openings.

Economical

The HI98115 is a full-featured pH tester at a price that anyone that needs to measure pH can afford.

High accuracy

The HI98115 GroLine pH tester features ±0.2 pH accuracy with 0.01 resolution.

Large LCD

Enhanced LCD that displays reading, stability indicator, low battery indicator, and calibration tags.

Automatic Calibration

HI98115 is calibrated automatically to one or two points. The calibration buffers are automatically recognized and after calibration the buffer values used are shown on the display as a tag.

Stability Indicator

An hourglass indicator is displayed on the LCD until a stable reading is obtained. Once a reading stabilized the indicator disappears and a reading can be recorded.

Automatic Shut-Off

The meter can be set to automatically turn off after 8 minutes or 60 minutes to conserve battery life in the event that the meter is left on. The auto off feature can be disabled.

Specifications		HI98115
pH	Range	0.00 to 14.00 pH
	Resolution	0.01 pH
	Accuracy (@25°C/77°F)	±0.2 pH
	Calibration	automatic, one or two-point
Additional Specifications	Electrode	HI1271 (included)
	Battery Type / Life	CR2032 Li-ion / approximately 1000 hours of continuous use
	Auto-off	8 minutes, 60 minutes, or can be disabled
	Environment	0 to 50°C (32 to 122°F); RH 95% max
	Dimensions	50 x174 x 21 mm (2 x 6.8 x 0.9")
	Weight	50 g (1.8 oz)
Ordering Information	**HI98115** is supplied with HI1271 pH electrode, pH 4.01 buffer solution sachet (2), pH 7.01 buffer solution sachet (2), electrode cleaning solution sachet (2), battery, quality certificate, and instruction manual in a carrying case.	

pH solutions begin on page 2.174; see pH electrode specifications on page 1.69

GroLine®

HI981030

Soil pH Tester

with specialized probe

The HI981030 GroLine® soil pH tester is an application specific designed pH tester for the measurement of soil pH. This tester offers many advanced features including the ability to clear any clogging of the reference junction, which results in a longer life than standard pH testers.

- pH electrode with replaceable bridge electrolyte
  - The pH electrode has an outer junction sleeve that can be removed and cleaned. Once cleaned a small amount of supplied gel electrolyte is added and the junction is refreshed improving the pH measurement and extending the life of the meter.
- Conical tip
  - Allows for easy penetration into wetted soil. If stones are present or the soil is hardened then it is best to use an auger to make a hole for the pH electrode to be inserted into. If the soil is dry the use of purified water can be used to wet the soil.
- PVDF body
  - Polyvinylidene Fluoride (PVDF) is a food grade plastic that is resistant to most chemicals and solvents, including sodium hypochlorite that is used for disinfection. It has high abrasion resistance, mechanical strength, and resistance to ultraviolet light. PVDF is also resistant to fungal growth.
- Large LCD
  - An enhanced LCD displays the measurement reading, stability indicator, low battery indicator, and calibration tags.
- Automatic calibration
  - The GroLine soil pH tester is calibrated automatically to one or two points. The calibration buffers are automatically recognized and after calibration the buffer values used are shown on the display.
- Automatic temperature compensation
- Stability indicator
  - An hourglass indicator is displayed on the LCD until a stable reading is obtained. Once a reading stabilizes, the indicator disappears and a reading can be taken.
- Automatic shut-off
  - The meter can be set to automatically turn off after 8 minutes or 60 minutes to conserve battery life in the event that the meter is left on. The auto-off feature can also be disabled.
- Probe diagnostic
  - During calibration the meter will display an error (Err) message as an indicator that the probe needs to be cleaned.
- Long battery life
  - The GroLine soil pH tester has an exceptional battery life of approximately 800 hours. When the battery power is running low, the low battery indicator blinks.
- Economical
  - The GroLine soil pH tester is an advanced meter at a price that is affordable for both the home gardener and professional grower.

Removable sleeve to extend probe life

Supplied complete

Supplied complete with meter, probe, calibration solutions, and cleaning solutions.

Specifications		HI981030
pH	Range	0.00 to 12.00 pH
	Resolution	0.01 pH
	Accuracy (@25°C/77°F)	±0.05 pH
	Calibration	automatic, one or two-point
Additional Specifications	Temperature Compensation	automatic, 0 to 50°C (32 to 122°F)
	Glass Type	LT (low temperature)
	Battery Type / Life	CR2032 Li-ion / approx. 800 hours of continuous use
	Auto-off	8 minutes, 60 minutes, or disabled
	Environment	0 to 50°C (32 to 122°F); RH 95% max
	Dimensions	51 x 151 x 21 mm (2 x 5.9 x 0.9")
	Weight	44 g (1.6 oz.)
Ordering Information	**HI981030** is supplied with pH 4.01 buffer solution sachets (2), pH 7.01 buffer solution sachets (2), electrode cleaning solution sachets for deposits of soil (1) and humus (1), gelled bridge electrolyte, electrode storage solution, CR2032 3V Li-ion battery, quality certificate, and instruction manual.	

GroLine solutions begin on page 2.181

Conical tip electrode

Easy to clean electrode with a maintenance-free gel electrolyte

Supplied complete

Supplied complete with meter, probe, calibration solutions, and cleaning solutions.

Specifications		HI981034
pH	Range	0.00 to 12.00 pH
	Resolution	0.01 pH
	Accuracy (@25°C/77°F)	±0.05 pH
	Calibration	automatic, one or two-point
Additional Specifications	Temperature Compensation	automatic, 0 to 50°C (32 to 122°F)
	Glass Type	LT (low temperature)
	Battery Type / Life	CR2032 Li-ion / approx. 800 hours of continuous use
	Auto-off	8 minutes, 60 minutes, or disabled
	Environment	0 to 50°C (32 to 122°F); RH 95% max
	Dimensions	51 x 159 x 21 mm (2 x 6.3 x 0.9")
	Weight	50 g (1.8 oz.)
Ordering Information	**HI981034** is supplied with pH 4.01 buffer solution sachet (2), pH 7.01 buffer solution sachet (2), electrode cleaning solution sachet (2), electrode storage solution, CR2032 3V Li-ion battery, quality certificate, and instruction manual.	

Foodcare

HI981034

Milk pH Tester

with specialized probe

The HI981034 Foodcare Milk pH tester is an application specific designed pH tester for the measurement of pH in the milk production process. This tester offers many advanced features including resistance to clogging of the reference junction, which results in a longer life than standard pH testers.

- pH electrode with open junction
  - The pH electrode of this tester uses an open outer junction design. The open junction is more resistant to clogging when the probe is inserted into solids and semisolids than pH electrodes that use ceramic or other porous materials.
- Low temperature (LT) glass
  - The pH glass tip uses a special low temperature (LT) glass formulation with a lower resistance of approximately 50 Megaohms compared to general purpose (GP) with a resistance of about 100 Megaohms. This is beneficial when measuring food products at lower temperatures in order to have the ideal resistance for the measuring circuit.
- Conical tip
  - Allows for a large surface area and easy penetration into semisolids making it ideal for milk and milk products like yogurt.
- Glass body
  - Glass body is non-porous and easy to clean and disinfect.
- Large LCD
  - An enhanced LCD displays the measurement reading, stability indicator, low battery indicator, and calibration tags.
- Automatic calibration
  - The Foodcare Milk pH Tester is calibrated automatically to one or two points. The calibration buffers are automatically recognized and after calibration the buffer values used are shown on the display.
- Automatic temperature compensation
- Stability indicator
  - An hourglass indicator is displayed on the LCD until a stable reading is obtained. Once a reading stabilizes, the indicator disappears and a reading can be taken.
- Automatic shut-off
  - The meter can be set to automatically turn off after 8 minutes or 60 minutes to conserve battery life in the event that the meter is left on. The auto-off feature can also be disabled.
- Probe diagnostic
  - During calibration the meter will display an error (Err) message as an indicator that the probe needs to be cleaned.
- Long battery life
  - The Foodcare Milk pH Tester has an exceptional battery life of approximately 800 hours. When the battery power is running low, the low battery indicator blinks.
- Economical
  - The Foodcare Milk pH Tester is an advanced meter at a price that is affordable for both the hobbyist and professional.

pH solutions begin on page 2.174

Foodcare

HI981032

Cheese pH Tester

with specialized probe

The HI981032 Foodcare Cheese pH tester is an application specific designed pH tester for the measurement of pH during the cheesemaking process. This tester offers many advanced features including a pH electrode designed specifically for cheese.

- pH Electrode with open junction
  - The pH electrode of this tester uses an open outer junction design. The open junction is more resistant to clogging when the probe is inserted into solids and semisolids than pH electrodes that use ceramic or other porous materials.
- Low temperature (LT) glass
  - The pH glass tip uses a special low temperature (LT) glass formulation with a lower resistance of approximately 50 Megaohms compared to general purpose (GP) with a resistance of about 100 Megaohms. This is beneficial when measuring food products at lower temperatures in order to have the ideal resistance for the measuring circuit.
- Conical tip
  - Allows for easy penetration into solids and semisolids, which is needed when wanting to take a direct measurement in cheese.
- PVDF body
  - Polyvinylidene Fluoride (PVDF) is a food grade plastic that is resistant to most chemicals and solvents, including sodium hypochlorite. It has high abrasion resistance, mechanical strength, and resistance to ultraviolet. PVDF is also resistant to fungal growth
- Large LCD
  - An enhanced LCD displays the measurement reading, stability indicator, low battery indicator, and calibration tags.
- Automatic calibration
  - The Foodcare Cheese pH Tester is calibrated automatically to one or two points. The calibration buffers are automatically recognized and after calibration the buffer values used are shown on the display.
- Automatic temperature compensation
- Stability indicator
  - An hourglass indicator is displayed on the LCD until a stable reading is obtained. Once a reading stabilizes, the indicator disappears and a reading can be taken.
- Automatic shut-off
  - The meter can be set to automatically turn off after 8 minutes or 60 minutes to conserve battery life in the event that the meter is left on. The auto-off feature can also be disabled.
- Probe diagnostic
  - During calibration the meter will display an error (Err) message as an indicator that the probe needs to be cleaned.
- Long battery life
  - The Foodcare Cheese pH Tester has an exceptional battery life of approximately 800 hours. When the battery power is running low, the low battery indicator blinks.
- Economical
  - The Foodcare Cheese pH Tester is an advanced meter at a price that is affordable for both the hobbyist and professional.

Conical tip electrode

Easy to clean electrode with a maintenance-free gel electrolyte

Supplied complete

Supplied complete with meter, probe, calibration solutions, and cleaning solutions.

Specifications		HI981032
pH	Range	0.00 to 12.00 pH
	Resolution	0.01 pH
	Accuracy (@25°C/77°F)	±0.05 pH
	Calibration	automatic, one or two-point
Additional Specifications	Temperature Compensation	automatic, 0 to 50°C (32 to 122°F)
	Glass Type	LT (low temperature)
	Battery Type / Life	CR2032 Li-ion / approx. 800 hours of continuous use
	Auto-off	8 minutes, 60 minutes, or disabled
	Environment	0 to 50°C (32 to 122°F); RH 95% max
	Dimensions	50 x 129 x 21 mm (2 x 5.1 x 0.9")
	Weight	40 g (1.4 oz.)
Ordering Information	**HI981032** is supplied with pH 4.01 buffer solution sachets (2), pH 7.01 buffer solution sachets (2), electrode cleaning solution sachets (2), electrode storage solution, CR2032 3V Li-ion battery, quality certificate, and instruction manual.	

pH solutions begin on page 2.174; see specific cleaning solutions on 2.188

Flat tip electrode

Easy to clean electrode with a maintenance-free gel electrolyte

Supplied complete

Supplied complete with meter, probe, calibration solutions, and cleaning solutions

Foodcare

HI981035

Sushi pH Tester

with specialized probe

The HI981035 Foodcare Sushi pH tester is an application specific designed pH tester for the measurement of pH of sushi rice as part of a Hazardous Analysis of Critical Control Points (HACCP) plan. This tester offers many advanced features including a pH electrode designed specifically for sushi.

- Flat tip pH sensor
  - A flat tip pH electrode allows for the direct measurement of solids by simply touching the surface of the product. No need to make slurries with purified water.
- pH Electrode with open junction
  - The pH electrode of this tester uses an open outer junction design. The open junction is clog resistant due to the hard gel surface known as Viscolene that is used for the reference cell. When the junction becomes coated with starch from the rice simply clean the probe to expose the viscolene reference.
- Titanium body
  - A titanium body offers additional protection as compared to traditional glass body pH probes.
- Large LCD
  - An enhanced LCD displays the measurement reading, stability indicator, low battery indicator, and calibration tags.
- Automatic calibration
  - The Foodcare Sushi pH Tester is calibrated automatically to one or two points. The calibration buffers are automatically recognized and after calibration the buffer values used are shown on the display.
- Automatic temperature compensation
- Stability indicator
  - An hourglass indicator is displayed on the LCD until a stable reading is obtained. Once a reading stabilizes, the indicator disappears and a reading can be taken.
- Automatic shut-off
  - The meter can be set to automatically turn off after 8 minutes or 60 minutes to conserve battery life in the event that the meter is left on. The auto-off feature can also be disabled.
- Probe diagnostic
  - During calibration the meter will display an error (Err) message as an indicator that the probe needs to be cleaned.
- Long battery life
  - The Foodcare Sushi pH Tester has an exceptional battery life of approximately 800 hours. When the battery power is running low, the low battery indicator blinks.
- Economical
  - The Foodcare Sushi pH Tester is a feature rich meter at a price that is affordable for both the hobbyist and professional.

Specifications		HI981035
pH	Range	0.00 to 12.00 pH
	Resolution	0.01 pH
	Accuracy (@25°C/77°F)	±0.05 pH
	Calibration	automatic, one or two-point
Additional Specifications	Temperature Compensation	automatic, 0 to 50°C (32 to 122°F)
	Glass Type	LT (low temperature)
	Battery Type / Life	CR2032 Li-ion / approx. 800 hours of continuous use
	Auto-off	8 minutes, 60 minutes, or disabled
	Environment	0 to 50°C (32 to 122°F); RH 95% max
	Dimensions	51 x 160 x 21 mm (2 x 6.3 x 0.9")
	Weight	52 g (1.8 oz.)
Ordering Information	**HI981035** is supplied with pH 4.01 buffer solution sachets (2), pH 7.01 buffer solution sachets (2), electrode cleaning and disinfection solution sachets (2), electrode storage solution, CR2032 3V Li-ion battery, quality certificate, and instruction manual.	

pH solutions begin on page 2.174; see specific cleaning solutions on 2.188

Foodcare

HI981036 • HI981045

Meat pH Testers

with specialized probe

HI981036 and HI981045 Foodcare Meat pH testers are application specific designed pH testers for the measurement of pH during the meat processing process. These testers offer many advanced features including a pH electrode designed specifically for meat.

- Meets Hazard Analysis Critical Control (HACCP) process standards
- pH electrode with replaceable bridge electrolyte
  - The pH electrode has an outer junction sleeve that can be removed and cleaned. Once cleaned a small amount of supplied gel electrolyte is added and the junction is refreshed improving the pH measurement and extending the life of the meter.
- Low temperature (LT) glass
  - The pH glass tip uses a special low temperature (LT) glass formulation suited for fast stabilization and accurate results at lower temperatures in order to have the ideal resistance for the measuring circuit.
- Conical tip
  - Allows for easy penetration into solids and semisolids, which is needed when wanting to take a direct measurement in meat.
- Removable stainless steel meat blade available (HI981045 only)
  - The HI981045 features threads at the base of the probe for compatibilty with the FC097 stainless steel meat blade (optional accessory).
- PVDF body
  - Polyvinylidene Fluoride (PVDF) is a food grade plastic that is resistant to most chemicals and solvents, including sodium hypochlorite. It has high abrasion resistance, mechanical strength, and resistance to ultraviolet light. PVDF is also resistant to fungal growth.
- Large LCD
  - An enhanced LCD displays the measurement reading, stability indicator, low battery indicator, and calibration tags.
- Automatic calibration
  - These testers are calibrated automatically to one or two points. The calibration buffers are automatically recognized and after calibration the buffer values used are shown on the display.
- Automatic temperature compensation
- Stability indicator
  - An hourglass indicator is displayed on the LCD until a stable reading is obtained. Once a reading stabilizes, the indicator disappears and a reading can be taken.
- Automatic shut-off
  - These testers can be set to automatically turn off after 8 minutes or 60 minutes to conserve battery life in the event that the tester is left on. The auto-off feature can also be disabled.
- Probe diagnostic
  - During calibration the meter will display an error (Err) message as an indicator that the probe needs to be cleaned.
- Long battery life
  - These testers have an exceptional battery life of approximately 800 hours. When the battery power is running low, the low battery indicator blinks.

HI981036

HI981045
FC097 meat blade compatible

FC097 meat blade for HI981045 (optional)

Specifications		HI981036	HI981045
pH	Range	0.00 to 12.00 pH	
	Resolution	0.01 pH	
	Accuracy (@25°C/77°F)	±0.05 pH	
	Calibration	automatic, one or two-point	
Additional Specifications	Temperature Compensation	automatic, 0 to 50°C (32 to 122°F)	
	Glass Type	LT (low temperature)	
	Blade Compatible	no	yes, FC097
	Battery Type / Life	CR2032 Li-ion / approx. 800 hours of continuous use	
	Auto-off	8 minutes, 60 minutes, or disabled	
	Environment	0 to 50°C (32 to 122°F); RH 95% max	
	Dimensions	51 x 148 x 21 mm (2 x 5.8 x 0.9")	
	Weight	45 g (1.58 oz.)	
Ordering Information	**HI981036** and **HI981045** (with thread) are supplied with pH 4.01 buffer solution sachets (2), pH 7.01 buffer solution sachets (2), electrode cleaning solution sachets (2), gelled bridge electrolyte, electrode storage solution, CR2032 3V Li-ion battery, quality certificate, and instruction manual.		
Accessories	**FC097** stainless steel meat blade for HI981045		

pH solutions begin on page 2.174; see specific cleaning solutions on 2.188

Conical tip electrode

Easy to clean electrode with a maintenance-free gel electrolyte

Supplied complete

Supplied complete with meter, probe, calibration solutions, and cleaning solutions.

Foodcare

HI981038

Bread and Dough pH Tester

with specialized probe

The HI981038 Foodcare Bread and Dough pH tester is an application specific designed pH tester for the measurement of pH during the dough and bread making process. This tester offers many advanced features including a pH electrode designed specifically for bread and dough.

- pH Electrode with open junction
  - The pH electrode of this tester uses an open outer junction design. The open junction is more resistant to clogging when the probe is inserted into solids and semisolids than pH electrodes that use ceramic or other porous materials.
- Low temperature (LT) glass
  - The pH glass tip uses a special low temperature (LT) glass formulation with a lower resistance of approximately 50 Megaohms compared to general purpose (GP) with a resistance of about 100 Megaohms. This is beneficial when measuring food products at lower temperatures in order to have the ideal resistance for the measuring circuit.
- Conical tip
  - Allows for easy penetration into solids and semisolids, which is needed when wanting to take a direct measurement in bread or dough.
- PVDF body
  - Polyvinylidene Fluoride (PVDF) is a food grade plastic that is resistant to most chemicals and solvents, including sodium hypochlorite. It has high abrasion resistance, mechanical strength, and resistance to ultraviolet. PVDF is also resistant to fungal growth
- Large LCD
  - An enhanced LCD displays the measurement reading, stability indicator, low battery indicator, and calibration tags.
- Automatic calibration
  - The Foodcare Bread and Dough pH Tester is calibrated automatically to one or two points. The calibration buffers are automatically recognized and after calibration the buffer values used are shown on the display.
- Automatic temperature compensation
- Stability indicator
  - An hourglass indicator is displayed on the LCD until a stable reading is obtained. Once a reading stabilizes, the indicator disappears and a reading can be taken.
- Automatic shut-off
  - The meter can be set to automatically turn off after 8 minutes or 60 minutes to conserve battery life in the event that the meter is left on. The auto-off feature can also be disabled.
- Probe diagnostic
  - During calibration the meter will display an error (Err) message as an indicator that the probe needs to be cleaned.
- Long battery life
  - The Foodcare Bread and Dough pH Tester has an exceptional battery life of approximately 800 hours. When the battery power is running low, the low battery indicator blinks.
- Economical
  - The Foodcare Bread and Dough pH Tester is an advanced meter at a price that is affordable for both the hobbyist and professional.

Specifications		HI981038
pH	Range	0.00 to 12.00 pH
	Resolution	0.01 pH
	Accuracy (@25°C/77°F)	±0.05 pH
	Calibration	automatic, one or two-point
Additional Specifications	Temperature Compensation	automatic, 0 to 50°C (32 to 122°F)
	Glass Type	LT (low temperature)
	Battery Type / Life	CR2032 Li-ion / approx. 800 hours of continuous use
	Auto-off	8 minutes, 60 minutes, or disabled
	Environment	0 to 50°C (32 to 122°F); RH 95% max
	Dimensions	50 x 129 x 21 mm (2 x 5.1 x 0.9")
	Weight	42 g (1.5 oz.)
Ordering Information	**HI981038** is supplied with pH 4.01 buffer solution sachets (2), pH 7.01 buffer solution sachets (2), electrode cleaning solution sachets (2), electrode storage solution, CR2032 3V Li-ion battery, quality certificate, and instruction manual.	

pH solutions begin on page 2.174; see specific cleaning solutions on 2.188

Foodcare

HI981039

Chocolate pH Tester

with specialized probe

The HI981039 Foodcare Chocolate pH tester is an application specific designed pH tester for the measurement of pH during the chocolate making process. This tester offers many advanced features including a pH electrode designed specifically for chocolate.

- pH electrode with replaceable bridge electrolyte
  - The pH electrode has an outer junction sleeve that can be removed and cleaned. Once cleaned a small amount of supplied gel electrolyte is added and the junction is refreshed improving the pH measurement and extending the life of the meter.
- Low temperature (LT) glass
  - The pH glass tip uses a special low temperature (LT) glass formulation with a lower resistance of approximately 50 Megaohms compared to general purpose (GP) with a resistance of about 100 Megaohms. This is beneficial when measuring food products at lower temperatures in order to have the ideal resistance for the measuring circuit.
- Conical tip
  - Allows for easy penetration into semisolids, which is needed when wanting to take a direct measurement in chocolate.
- PVDF body
  - Polyvinylidene Fluoride (PVDF) is a food grade plastic that is resistant to most chemicals and solvents, including sodium hypochlorite. It has high abrasion resistance, mechanical strength, and resistance to ultraviolet light. PVDF is also resistant to fungal growth.
- Large LCD
  - An enhanced LCD displays the measurement reading, stability indicator, low battery indicator, and calibration tags.
- Automatic calibration
  - The Foodcare Chocolate pH Tester is calibrated automatically to one or two points. The calibration buffers are automatically recognized and after calibration the buffer values used are shown on the display.
- Automatic temperature compensation
- Stability indicator
  - An hourglass indicator is displayed on the LCD until a stable reading is obtained. Once a reading stabilizes, the indicator disappears and a reading can be taken.
- Automatic shut-off
  - The meter can be set to automatically turn off after 8 minutes or 60 minutes to conserve battery life in the event that the meter is left on. The auto-off feature can also be disabled.
- Probe diagnostic
  - During calibration the meter will display an error (Err) message as an indicator that the probe needs to be cleaned.
- Long battery life
  - The Foodcare Chocolate pH Tester has an exceptional battery life of approximately 800 hours. When the battery power is running low, the low battery indicator blinks.
- Economical
  - The Foodcare Chocolate pH Tester is a fully featured meter at a price that is affordable for both the hobbyist and professional.

Removable sleeve to extend probe life

Supplied complete

Supplied complete with meter, probe, calibration solutions, and cleaning solutions.

Specifications		HI981039
pH	Range	0.00 to 12.00 pH
	Resolution	0.01 pH
	Accuracy (@25°C/77°F)	±0.05 pH
	Calibration	automatic, one or two-point
Additional Specifications	Temperature Compensation	automatic, 0 to 50°C (32 to 122°F)
	Glass Type	LT (low temperature)
	Battery Type / Life	CR2032 Li-ion / approx. 800 hours of continuous use
	Auto-off	8 minutes, 60 minutes, or disabled
	Environment	0 to 50°C (32 to 122°F); RH 95% max
	Dimensions	51 x 148 x 21 mm (2 x 5.8 x 0.9")
	Weight	45 g (1.6 oz.)
Ordering Information	**HI981039** is supplied with pH 4.01 buffer solution sachets (2), pH 7.01 buffer solution sachets (2), electrode cleaning solution sachets (2), gelled bridge electrolyte, electrode storage solution, CR2032 3V Li-ion battery, quality certificate, and instruction manual.	

pH solutions begin on page 2.174; see specific cleaning solutions on 2.188

Clogging Prevention System (CPS) technology

Moveable, anti-clogging PE sleeve that maintains stability and fast response

Supplied complete

Supplied complete with meter, probe, calibration solutions, and cleaning solutions

Foodcare

HI981033

Wine pH Tester

with specialized probe

The HI981033 Foodcare Wine pH tester is an application specific designed pH tester for the measurement of pH of grape juice, must, and wine. This tester offers many advanced features including a unique Clogging Prevention System (CPS™) that uses a movable Polyethylene (PE) sleeve for the ability to clear any clogging of the reference junction. The CPS Technology results in a much longer life than standard pH testers.

- pH electrode with PE movable sleeve junction (CPS Technology)
  - The pH electrode of this tester uses a PE movable sleeve as part of the outer ground glass junction. The PE material repels solids to prevent clogging. When clogging does occur the sleeve can be moved and the ground glass surface cleaned resulting in stable readings and fast response time.
- Refillable
  - The open junction design of the PTFE sleeve allows for a high flow rate of electrolyte for a fast and steady reading. The sleeve can be moved to expose the fill hole for reference electrolyte. The ability to refill the probe extends the life of the electrode.
- Low temperature (LT) glass
  - The pH glass tip uses a special low temperature (LT) glass formulation with a lower resistance of approximately 50 Megaohms compared to general purpose (GP) with a resistance of about 100 Megaohms. This is beneficial when measuring samples at lower temperatures in order to have the ideal resistance for the measuring circuit.
- Domed tip
  - Allows for large surface area to be in contact with the wine sample.
- Glass body
  - A glass body is easy to clean and stain resistant.
- Large LCD
  - An enhanced LCD displays the measurement reading, stability indicator, low battery indicator, and calibration tags.
- Automatic calibration
  - The Foodcare Wine pH Tester is calibrated automatically to one or two points. The calibration buffers are automatically recognized and after calibration the buffer values used are shown on the display.
- Automatic temperature compensation
- Stability indicator
  - An hourglass indicator is displayed on the LCD until a stable reading is obtained. Once a reading stabilizes, the indicator disappears and a reading can be taken.
- Automatic shut-off
  - The meter can be set to automatically turn off after 8 minutes or 60 minutes to conserve battery life.
- Probe diagnostic
  - During calibration the meter will display an error (Err) message as an indicator that the probe needs to be cleaned.
- Long battery life
  - The Foodcare Wine pH Tester has an exceptional battery life of approximately 800 hours. When the battery power is running low, a low battery indicator is displayed.

Specifications		HI981033
pH	Range	0.00 to 12.00 pH
	Resolution	0.01 pH
	Accuracy (@25°C/77°F)	±0.05 pH
	Calibration	automatic, one or two-point
Additional Specifications	Temperature Compensation	automatic, -5 to 60°C (23 to 140°F)
	Glass Type	LT (low temperature)
	Battery Type / Life	CR2032 Li-ion / approx. 800 hours of continuous use
	Auto-off	8 minutes, 60 minutes, or disabled
	Environment	0 to 50°C (32 to 122°F); RH 95% max
	Dimensions	51 x 157 x 21 mm (2 x 6.2 x 0.9")
	Weight	46 g (1.6 oz.)
Ordering Information	**HI981033** is supplied with pH 3.00 buffer solution sachets (2), pH 7.01 buffer solution sachets (2), electrode cleaning solution sachets for wine stains (1) and deposits (1), electrolyte fill solution, electrode storage solution, refilling pipette, CR2032 3V Li-ion battery, quality certificate, and instruction manual.	

pH solutions begin on page 2.174; see specific cleaning solutions on 2.188

Foodcare

HI981031

Beer pH Tester

with specialized probe

The HI981031 Beer pH tester is an application specific designed pH tester for the measurement of pH during the brewing process. This tester offers many advanced features including an application specific pH electrode for measuring the pH of mash, cooled wort, and beer samples with a temperature up to 80°C (176°F).

- Titanium body
  - A titanium body offers additional protection as compared to traditional glass body pH probes.
- Flat tip pH sensor
  - The flat tip sensor allows easy cleaning of the pH sensing surface as compared to rounded bulbs as solids from mash and cooled wort collect on the surface.
- Large LCD
  - An enhanced LCD displays the measurement reading, stability indicator, low battery indicator, and calibration tags.
- Automatic calibration
  - The Foodcare Beer pH Tester is calibrated automatically to one or two points. The calibration buffers are automatically recognized and after calibration the buffer values used are shown on the display as a tag.
- Automatic temperature compensation
- Stability indicator
  - An hourglass indicator is displayed on the LCD until a stable reading is obtained. Once a reading stabilizes, the indicator disappears and a reading can be taken.
- Automatic shut-off
  - The meter can be set to automatically turn off after 8 minutes or 60 minutes to conserve battery life in the event that the meter is left on. The auto-off feature can also be disabled.
- Probe diagnostic
  - During calibration the meter will display an error (Err) message as an indicator that the probe needs to be cleaned.
- Long battery life
  - The Foodcare Beer pH Tester has an exceptional battery life of approximately 800 hours. When the battery power is running low, the low battery indicator blinks.
- Economical
  - The Foodcare Beer pH Tester is a fully featured meter at a price that is affordable for both the home brewer to professional brewmaster looking to start experimenting with pH measurements.

Specialized flat tip pH sensor

Supplied complete

Supplied complete with meter, probe, calibration solutions, and cleaning solutions

Specifications		HI981031
pH	Range	0.00 to 12.00 pH
	Resolution	0.01 pH
	Accuracy (@25°C/77°F)	±0.05 pH
	Calibration	automatic, one or two-point
Additional Specifications	Temperature Compensation	automatic, 0 to 50°C (32 to 122°F)
	Glass Type	LT (low temperature)
	Battery Type / Life	CR2032 Li-ion / approx. 800 hours of continuous use
	Auto-off	8 minutes, 60 minutes, or disabled
	Environment	0 to 50°C (32 to 122°F); RH 95% max
	Dimensions	51 x 165 x 21 mm (2 x 6.5 x 0.9")
	Weight	58 g (2 oz.)
Ordering Information		**HI981031** is supplied with pH 4.01 buffer solution sachets (2), pH 7.01 buffer solution sachets (2), electrode cleaning solution sachets (2), electrode storage solution, CR2032 3V Li-ion battery, quality certificate, and instruction manual.

pH solutions begin on page 2.174; see specific cleaning solutions on 2.188

HI981037

Skin & Scalp pH Tester

with specialized probe

The HI981037 is a tester made specifically for measuring the pH of the skin and scalp. This tester uses a flat tip electrode with an open reference junction that allows for the direct contact surface measurement of pH. An open junction design is necessary in order to permit contact between the internal reference cell and the surface of the skin.

The pH of the skin is slightly acidic at a pH of approximately 5. Having an acidic pH helps to protect against harmful bacteria and fungi while promoting the growth of beneficial bacteria. Disruption of the skin pH can lead to or amplify skin disorders. Many skin care products and soaps are made to be pH balanced so that the product does not alter the pH of skin outside a desirable range.

Electrode features:

- Flat tip pH Electrode
  - A flat tip electrode allows for the direct pH measurement of a surface.
- Open reference junction
  - The pH electrode of this tester uses an open outer junction design. The open junction provides for a direct contact with the skin or scalp for the electrode to work with minimal moisture for a stable measurement.
- Glass Body
  - The glass body of the pH electrode is not porous and can be cleaned and disinfected.

Tester features:

- Large LCD
  - Displays the measurement reading, stability indicator, low battery indicator, and calibration tags.
- Automatic Calibration
  - This pH tester is calibrated automatically to one or two points. Buffers are recognized automatically and after calibration, buffer values used are shown on the display.
- Automatic temperature compensation
- Stability Indicator
  - An hourglass indicator is displayed on the LCD until a stable reading is obtained.
- Automatic Shut-off
  - The meter can be set to automatically turn off after 8 minutes or 60 minutes to conserve battery life in the event that the meter is left on. The auto-off feature can also be disabled.
- Probe Diagnostic
  - During calibration the meter will display an error (Err) message as an indicator that the probe needs to be cleaned.
- Long Battery Life
  - The skin & scalp pH tester has an exceptional battery life of approximately 800 hours. When the battery power is running low, the low battery indicator blinks.

Flat tip electrode

Easy to clean electrode with a maintenance-free gel electrolyte

Supplied complete

Supplied complete with meter, probe, calibration solutions, and cleaning solutions.

Specifications		HI981037
pH	Range	0.00 to 12.00 pH
	Resolution	0.01 pH
	Accuracy (@25°C/77°F)	±0.05 pH
	Calibration	automatic, one or two-point
Additional Specifications	Temperature Compensation	automatic, 0 to 50°C (32 to 122°F)
	Battery Type / Life	CR2032 Li-ion / approx. 800 hours of continuous use
	Auto-off	8 minutes, 60 minutes, or disabled
	Environment	0 to 50°C (32 to 122°F); RH 95% max
	Dimensions	51 x 124 x 21 mm (2 x 4.9 x 0.9")
	Weight	46 g (1.6 oz.)
Ordering Information	**HI981037** is supplied with pH 4.01 buffer solution sachet (2), pH 7.01 buffer solution sachet (2), cleaning and disinfection solution sachet for skin residuals, electrode cleaning solution sachet for skin grease and sebum, electrode storage solution (13 mL), CR2032 3V Li-ion battery, quality certificate, and instruction manual.	

pH solutions begin on page 2.174; see specific cleaning solutions on 2.188

HI98120 · HI98121

ORP and pH/ORP Testers

- Automatic one or two-point pH calibration (HI98121)
- Waterproof
  - Waterproof and designed to float
- ATC
  - Automatic Temperature Compensation (HI98121)
- HOLD feature
  - HOLD button to freeze readings on the display
- Battery indicator
  - Battery life indicator at startup

The HI98120 is a waterproof ORP and temperature meter, while the HI98121 measures pH, ORP, and temperature. The housing of these testers has been completely sealed against humidity and is designed to float.

Electrode replacement with the stainless steel round connector means there are no pins to bend or break during replacement.

HI73120 replaceable ORP cartridge for HI98120.

HI73127 replaceable pH cartridge for HI98121.

HI98120

HI98121

LCD Display Features

On-screen battery life

LCD indicates the percentage of battery power remaining upon startup.

HOLD function

The HOLD function "freezes" the LCD display temporarily.

Standard or N.I.S.T buffer calibration (HI98121)

Automatic calibration is performed with two sets of memorized buffers for greater accuracy.

Replaceable pH (HI98121) or ORP (HI98120) electrode cartridge

The easy-to-replace electrode cartridge features a sturdy, snap-in connector with no pins which could bend or break.

Exposed temperature sensor

An exposed temperature sensor allows for rapid automatic temperature compensated pH measurements.

Pocket clip

A pocket clip is featured on the back of these testers.

Specifications		HI98120	HI98121
pH	Range	–	-2.00 to 16.00 pH
	Resolution	–	0.01 pH
	Accuracy	–	±0.05 pH
ORP	Range	± 1000 mV	± 1000 mV
	Resolution	1 mV	1 mV
	Accuracy	±2 mV	±2 mV
Temperature	Range	-5.0 to 60.0°C / 23.0 to 140.0°F	-5.0 to 60.0°C / 23.0 to 140.0°F
	Resolution	0.1°C / 0.1°F	0.1°C / 0.1°F
	Accuracy	±0.5°C / ±1°F	±0.5°C / ±1°F
Additional Specifications	ORP Calibration	factory calibrated	factory calibrated
	pH Calibration	–	automatic, one or two-point with two sets of standard buffers (pH 4.01 / 7.01 / 10.01 or 4.01 / 6.86 / 9.18)
	Temperature Compensation	–	automatic for pH readings
	Electrodes	HI73120 replaceable ORP electrode (included)	HI73127 replaceable pH electrode (included); fixed ORP sensor
	Battery Type / Life	1.5V (4) / approximately 250 hours of continuous use; auto-off after 8 minutes of non-use	
	Environment	-5 to 50°C (23 to 122°F); RH max 100%	
	Dimensions / Weight	163 x 40 x 26 mm (6.4 x 1.6 x 1.0") / 100 g (3.5 oz.)	
Ordering Information	**HI98120** (ORP) is supplied with HI73120 ORP electrode, HI73128 electrode removal tool, 470 mV ORP test solution sachets (6), batteries, and instructions.		
	HI98121 (ORP/pH) is supplied with HI73127 pH electrode, HI73128 electrode removal tool, pH 4.01 buffer solution sachet, pH 7.01 buffer solution sachet, 470 mV ORP test solution sachets (2), pH electrode cleaning solution sachet, pH electrode storage solution sachet, batteries, and instructions.		

Protective cap

The protective cap features an internal cup that can be filled with storage solution to keep the sensor moist.

pH solutions begin on page 2.174; ORP solutions begin on page 2.186

Pool Line

HI981204 • HI981214

ORP and pH/ORP Testers

- Automatic one or two-point pH calibration (HI981214)
- Waterproof
  - Waterproof and designed to float
- ATC
  - Automatic Temperature Compensation
- HOLD feature
  - HOLD button to freeze readings on the display
- Battery indicator
  - Battery life indicator at startup

The HI981204 is a waterproof ORP and temperature meter, while the HI981214 measures pH, ORP, and temperature. The housing of these testers has been completely sealed against humidity and is designed to float.

Electrode replacement with the stainless steel round connector means there are no pins to bend or break during replacement.

HI73120 replaceable ORP cartridge for HI981204.

HI73127 replaceable pH cartridge for HI981214.

Specifications		HI981204	HI981214
pH	Range	–	-2.00 to 16.00 pH
	Resolution	–	0.01 pH
	Accuracy	–	±0.05 pH
ORP	Range	± 1000 mV	± 1000 mV
	Resolution	1 mV	1 mV
	Accuracy	±2 mV	±2 mV
Temperature	Range	-5.0 to 60.0°C / 23.0 to 140.0°F	-5.0 to 60.0°C / 23.0 to 140.0°F
	Resolution	0.1°C / 0.1°F	0.1°C / 0.1°F
	Accuracy	±0.5°C / ±1°F	±0.5°C / ±1°F
Additional Specifications	ORP Calibration	factory calibrated	factory calibrated
	pH Calibration	–	automatic, one or two-point with two sets of standard buffers (pH 4.01 / 7.01 / 10.01 or 4.01 / 6.86 / 9.18)
	Temperature Compensation	–	automatic for pH readings
	Electrodes	HI73120 replaceable ORP electrode (included)	HI73127 replaceable pH electrode (included); fixed ORP sensor
	Battery Type / Life	1.5V (4) / approximately 250 hours of continuous use; auto-off after 8 minutes of non-use	
	Environment	-5 to 50°C (23 to 122°F); RH max 100%	
	Dimensions / Weight	163 x 40 x 26 mm (6.4 x 1.6 x 1.0") / 100 g (3.5 oz.)	
Ordering Information	**HI981204** (ORP) is supplied with HI73120 ORP electrode, HI73128 electrode removal tool, 470 mV ORP test solution sachets (6), batteries, and instructions. **HI981214** (ORP/pH) is supplied with HI73127 pH electrode, HI73128 electrode removal tool, pH 4.01 buffer solution sachet, pH 7.01 buffer solution sachet, 470 mV ORP test solution sachets (2), pH electrode cleaning solution sachet, pH electrode storage solution sachet, batteries, and instructions.		

pH solutions begin on page 2.174; see pH electrode specifications on page 1.68

Supplied in a carrying case with calibration solutions.

Marine Line

HI98319

Low and High Range Salinity Tester

- Waterproof
- Automatic temperature compensation (ATC)
- Dual pin graphite EC probe

The HI98319 is a compact, waterproof, pocket-sized marine Salinity tester designed for the measurement of salinity in salt water aquariums, aquaculture, brackish water, or other salt-water bodies.

HI98325 features amperometric graphite electrodes that provide improved repeatability in measurements as the pins do not oxidize. Additionally, this tester offers an exposed temperature sensor for faster response times and automatic single-point calibration.

Salinity results are displayed in either parts per thousand (ppt), Practical Salinity Units (PSU), or Specific Gravity (S.G.).

Specifications

		HI98319	
		Low Range	High Range
ppt (g/L)	Range	0.00 to 10.00	0.0 to 70.0
	Resolution	0.01	0.1
	Accuracy	±2.0 ppt	±1.0 (0.0 to 40.0); ±2.0 (40.0 to 70.0)
PSU	Range	0.00 to 10.00	0.0 to 70.0
	Resolution	0.01	0.1
	Accuracy	±2.0 ppt	±1.0 (0.0 to 40.0); ±2.0 (40.0 to 70.0)
S.G. (Specific gravity)	Range	1.000 - 1.007	1.000 to 1.041
	Resolution	0.001	0.001
	Accuracy	±0.001	±0.001
Temperature	Range	0.0 to 50.0 °C (32.0 to 122.0 °F)	
	Resolution	0.1 °C / 0.1 °F	
	Accuracy	±0.5 °C/±1.0 °F	
Method	ppt	International Oceanographic Tables, 1966	
	PSU	Standard Methods for the Examination of Water and Wastewater, 2520 B, Electrical Conductivity Method	
	S.G.	Standard Methods for the Examination of Water and Wastewater, 2520 C, Density Method	
Additional Specifications	Calibration Solution	HI70023 (5.00 ppt); HI70024 (35.00 ppt)	
	Calibration	automatic, single point (5.00 or 35.00 ppt)	
	Temperature Compensation	automatic from 5.0 to 50.0 °C (41.0 to 122.0 °F)	
	Battery type	CR2032 3V Lithium-ion	
	Battery life	approximately 100 hours of continuous use	
	Auto-off	user selectable: after 8 min., 60 min., or disabled	
	Environment	0 to 50 °C (32 °C to 122 °F);RH max 100%	
	Dimensions	160 x 40 x 17 mm (6.3 x 1.6 x 0.7")	
	Weight	68 g (2.4 oz.) without battery	
Ordering Information	**HI98319** is supplied with 5.00 ppt salinity calibration standard solution, 20 mL sachet (2 pcs.), 35.00 ppt salinity calibration standard solution, 20 mL sachet (2 pcs.), 3V Lithium battery - CR2032, installed (1 pc.), storage / protection sleeve, instruction manual, and instrument quality certificate.		

Exposed temperature sensor for faster response times

Watertight seal

An easily removable cover provides access to the battery compartment.

GroLine®

HI98325

Low and High Range Salinity Tester

- Waterproof
- Automatic temperature compensation (ATC)
- Dual pin graphite EC probe

The HI98325 is a compact, pocket-sized, salinity tester designed to measure salinity levels in irrigation water.

This waterproof tester is the ideal tool in agricultural areas such as coffee farms, orange farms, watermelon farms, tea and rice farms where level salinity values are vital to crop management. Additionally, the HI98325 is useful in industries such as printing, textiles, food and beverage as well as research and environmental protection institutes where low level salinity values are needed.

HI98325 features amperometric graphite electrodes that provide improved repeatability in measurements as the pins do not oxidize. Additionally, this tester offers an exposed temperature sensor for faster response times and automatic single-point calibration.

Salinity results are displayed in either parts per (g/L), Practical Salinity Units (PSU), or Specific Gravity (S.G.).

Exposed temperature sensor for faster response times

Watertight seal

An easily removable cover provides access to the battery compartment.

Water salinity classes based on salinity levels

Non-saline	< 0.75 mg/L	
Moderately saline	0.75 to 1.5 mg/L	affects crop productivity of salt-sensitive trees
Highly saline	1.5 to 3.5 mg/L	affects most trees
Severely saline	3.5 to 6.5 mg/L	affects salt-tolerant trees

Specifications

		HI98325 Low Range	HI98325 High Range
ppt (g/L)	Range	0.00 to 10.00	0.0 to 70.0
	Resolution	0.01	0.1
	Accuracy	±2.0 ppt	±1.0 (0.0 to 40.0); ±2.0 (40.0 to 70.0)
PSU	Range	0.00 to 10.00	0.0 to 70.0
	Resolution	0.01	0.1
	Accuracy	±2.0 ppt	±1.0 (0.0 to 40.0); ±2.0 (40.0 to 70.0)
S.G. (Specific gravity)	Range	1.000 to 1.007	1.000 to 1.041
	Resolution	0.001	0.001
	Accuracy	±0.001	±0.001
Temperature	Range	0.0 to 50.0 °C (32.0 to 122.0 °F)	
	Resolution	0.1 °C / 0.1 °F	
	Accuracy	±0.5 °C/±1.0 °F	
Method	ppt	International Oceanographic Tables, 1966	
	PSU	Standard Methods for the Examination of Water and Wastewater, 2520 B, Electrical Conductivity Method	
	S.G.	Standard Methods for the Examination of Water and Wastewater, 2520 C, Density Method	
Additional Specifications	Calibration Solution	HI70023 (5.00 ppt); HI70024 (35.00 ppt)	
	Calibration	automatic, single point (5.00 or 35.00 ppt)	
	Temperature Compensation	automatic from 5.0 to 50.0 °C (41.0 to 122.0 °F)	
	Battery type	CR2032 3V Lithium-ion	
	Battery life	approximately 100 hours of continuous use	
	Auto-off	user selectable: after 8 min., 60 min., or disabled	
	Environment	0 to 50 °C (32 °C to 122 °F);RH max 100%	
	Dimensions	160 x 40 x 17 mm (6.3 x 1.6 x 0.7")	
	Weight	68 g (2.4 oz.) without battery	
Ordering Information	**HI98325** is supplied with 5.00 ppt salinity calibration standard solution, 20 mL sachet (2 pcs.), 35.00 ppt salinity calibration standard solution, 20 mL sachet (2 pcs.), 3V Lithium battery - CR2032, installed (1 pc.), storage / protection sleeve, instruction manual, and instrument quality certificate.		

HI98326 (DiST®9)

Low and High Range Salinity Tester

- Waterproof
- Automatic temperature compensation (ATC)
- Dual pin graphite EC probe

The HI98326 (DiST 9) is a compact, waterproof, pocket-sized Salinity tester designed for the measurement of salinity in salt water aquariums, aquaculture, brackish water, or other salt-water bodies.

HI98326 features amperometric graphite electrodes that provide improved repeatability in measurements as the pins do not oxidize. Additionally, this tester offers an exposed temperature sensor for faster response times and automatic single-point calibration.

Salinity results are displayed in either parts per thousand (ppt), Practical Salinity Units (PSU), or Specific Gravity (S.G.).

Specifications

		HI98326 (DiST 9)	
		Low Range	High Range
ppt (g/L)	Range	0.00 to 10.00	0.0 to 70.0
	Resolution	0.01	0.1
	Accuracy	±2.0 ppt	±1.0 (0.0 to 40.0); ±2.0 (40.0 to 70.0)
PSU	Range	0.00 to 10.00	0.0 to 70.0
	Resolution	0.01	0.1
	Accuracy	±2.0 ppt	±1.0 (0.0 to 40.0); ±2.0 (40.0 to 70.0)
S.G. (Specific gravity)	Range	1.000 - 1.007	1.000 to 1.041
	Resolution	0.001	0.001
	Accuracy	±0.001	±0.001
Temperature	Range	0.0 to 50.0 °C (32.0 to 122.0 °F)	
	Resolution	0.1 °C / 0.1 °F	
	Accuracy	±0.5 °C/±1.0 °F	
Method	ppt	International Oceanographic Tables, 1966	
	PSU	Standard Methods for the Examination of Water and Wastewater, 2520 B, Electrical Conductivity Method	
	S.G.	Standard Methods for the Examination of Water and Wastewater, 2520 C, Density Method	
Additional Specifications	Calibration Solution	HI70023 (5.00 ppt); HI70024 (35.00 ppt)	
	Calibration	automatic, single point (5.00 or 35.00 ppt)	
	Temperature Compensation	automatic from 5.0 to 50.0 °C (41.0 to 122.0 °F)	
	Battery type	CR2032 3V Lithium-ion	
	Battery life	approximately 100 hours of continuous use	
	Auto-off	user selectable: after 8 min., 60 min., or disabled	
	Environment	0 to 50 °C (32 °C to 122 °F);RH max 100%	
	Dimensions	160 x 40 x 17 mm (6.3 x 1.6 x 0.7")	
	Weight	68 g (2.4 oz.) without battery	
Ordering Information	**HI98326** (DiST 9) is supplied with 5.00 ppt salinity calibration standard solution, 20 mL sachet (2 pcs.), 35.00 ppt salinity calibration standard solution, 20 mL sachet (2 pcs.), 3V Lithium battery - CR2032, installed (1 pc.), storage / protection sleeve, instruction manual, and instrument quality certificate.		

Exposed temperature sensor for faster response times

Watertight seal

An easily removable cover provides access to the battery compartment.

HI98311 · HI98312

EC/TDS and Temperature Testers

- Waterproof
  - Waterproof and designed to float
- Automatic Temperature Compensation (ATC)
- HOLD feature
  - HOLD button to freeze readings on the display
- Battery Error Prevention System (BEPS)
  - Alerts the user of low battery power that could adversely affect readings

When the original DiST® (Dissolved Solids Tester) was first introduced, conductivity (EC) and total dissolved solids (TDS) measurements became easy and affordable. The DiST's ease of use, in combination with its affordability, made it the standard in EC and TDS measurement. Hanna continues the standard in EC and TDS testing with the DiST®5 and DiST®6.

These testers include features such as: a replaceable graphite electrode, adjustable TDS ratio, °C or °F measurement, Automatic Temperature Compensation (ATC) with adjustable β, battery level indicator, stability indicator, automatic shut-off, and automatic calibration.

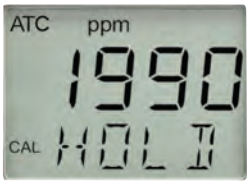
The graphite conductivity electrode offers greater accuracy by resisting contamination by salt deposits in the sample.

All of these features are packed in a floating, waterproof casing. These 3-in-1 testers are unmatched in EC/TDS and temperature measurements.

LCD Display Features

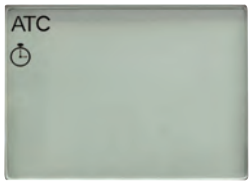
On-screen battery life

LCD indicates the percentage of battery power remaining upon startup.



HOLD function

The HOLD function "freezes" the LCD display temporarily.



Instability & ATC indicators

Ensures reliable EC and TDS measurements. ATC symbol is shown when active.

Adjustable temperature coefficient factor

Users can choose between different factors (β) for precise temperature compensated measurements.

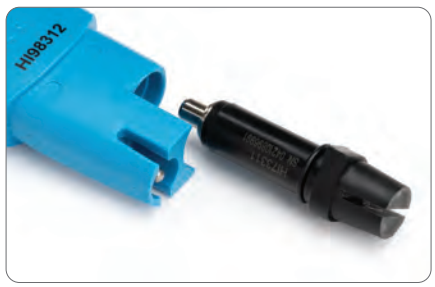
Adjustable TDS conversion factor

For measurement accuracy, users can choose between a range of conductivity to TDS conversion factors.

Exposed temperature sensor

An exposed temperature sensor allows for rapid automatic temperature compensated measurements.

Specifications		HI98311 (DiST®5)	HI98312 (DiST®6)
EC	Range	0 to 3999 µS/cm	0.00 to 20.00 mS/cm
	Resolution	1 µS/cm	0.01 mS/cm
	Accuracy	±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	±2% F.S.	±2% F.S.
Temperature	Range	0.0 to 60.0°C / 32.0 to 140.0°F	0.0 to 60.0°C / 32.0 to 140.0°F
	Resolution	0.1°C / 0.1°F	0.1°C / 0.1°F
	Accuracy	±0.5°C / ±1°F	±0.5°C / ±1°F
Additional Specifications	Calibration	automatic, one point at 1413 µS/cm or 1382 ppm (mg/L)	automatic, one point at 12.88 mS/cm or 6.44 ppt (g/L)
	TDS Conversion Factor	adjustable from 0.45 to 1.00	
	Temperature Compensation	automatic, with β adjustable from 0.0 to 2.4% / °C	
	Probe	HI73311 replaceable EC/TDS graphite electrode (included)	
	Environment	0 to 50°C (32 to 122°F); RH max 100%	
	Battery Type / Life	1.5V (4) / approx. 100 hours of continuous use; auto-off after 8 minutes of non-use	
	Dimensions	163 x 40 x 26 mm (6.4 x 1.6 x 1.0")	
	Weight	100 g (3.5 oz.)	
Ordering Information	**HI98311** (DiST®5) is supplied with HI73311 EC/TDS probe, HI73128 probe removal tool, 1413 µS/cm conductivity standard sachets (3), 1382 ppm TDS standard sachets (3), batteries, and instructions. **HI98312** (DiST®6) is supplied with HI73311 EC/TDS probe, HI73128 probe removal tool, 12880 µS/cm conductivity standard sachets (3), 6.44 ppt TDS standard sachets (3), batteries, and instructions.		



Replaceable graphite electrode

An easy-to-replace graphite electrode with a sturdy, snap-in connector means there are no pins to bend or break.

Pocket clip

A pocket clip is featured on the back.

EC and TDS solutions begin on page 5.36; see EC electrode specifications on page 1.68

Pool Line

HI983124

EC/TDS and Temperature Tester

- Waterproof
  - Waterproof and designed to float
- Automatic Temperature Compensation (ATC)
- HOLD feature
  - HOLD button to freeze readings on the display
- Battery Error Prevention System (BEPS)
  - Alerts the user of low battery power that could adversely affect readings

Replaceable graphite electrode

An easy-to-replace graphite electrode with a sturdy, snap-in connector means there are no pins to bend or break.

Pocket clip

A pocket clip is featured on the back.

Specifications		HI983124
EC	Range	0.00 to 20.00 mS/cm
	Resolution	0.01 mS/cm
	Accuracy	±2% F.S.
TDS	Range	0.00 to 10.00 ppt (g/L)
	Resolution	0.01 ppt (g/L)
	Accuracy	±2% F.S.
Temperature	Range	0.0 to 60.0°C / 32.0 to 140.0°F
	Resolution	0.1°C / 0.1°F
	Accuracy	±0.5°C / ±1°F
Additional Specifications	Calibration	automatic, one point at 12.88 mS/cm or 6.44 ppt (g/L)
	TDS Conversion Factor	adjustable from 0.45 to 1.00
	Temperature Compensation	automatic, with β adjustable from 0.0 to 2.4% / °C
	Probe	HI73311 replaceable EC/TDS graphite electrode (included)
	Environment	0 to 50°C (32 to 122°F); RH max 100%
	Battery Type / Life	1.5V (4) / approx. 100 hours of continuous use; auto-off after 8 minutes of non-use
	Dimensions	163 x 40 x 26 mm (6.4 x 1.6 x 1.0")
	Weight	100 g (3.5 oz.)
Ordering Information	**HI983124** is supplied with HI73311 EC/TDS probe, HI73128 probe removal tool, 12880 µS/cm conductivity standard sachets (3), 6.44 ppt TDS standard sachets (3), batteries, and instructions.	

EC and TDS solutions begin on page 5.36; see EC electrode specifications on page 1.68

GroLine®

HI98318

EC/TDS Tester

- Waterproof
- Automatic temperature compensation (ATC)
- Automatic one-point EC calibration
- Measurement stability indicator

The GroLine® waterproof EC/TDS tester is ideal for hydroponics, greenhouses, or anywhere you need quick and accurate conductivity measurements.

Exposed temperature sensor for faster response times

Watertight seal

An easily removable cover provides access to the battery compartment.

Supplied in a carrying case with calibration solutions.

Specifications		HI98318
EC/TDS	Range	0.00 to 6.00 mS/cm; 0 to 3000 ppm (0.5); 0 to 4000 ppm (0.7)
	Resolution	0.01 mS/cm; 10 ppm (0.5); 10 ppm (0.7)
	Accuracy (@25°C/77°F)	±2% F.S.
	Calibration	automatic, one-point (1.41 mS)
	Quick Calibration	one-point calibration using HI5036 or HI50036P Quick Cal calibration solution
	TDS Conversion Factor (CF)*	0.5 (500 ppm) or 0.7 (700 ppm)
Temperature	Range	0.0 to 50.0°C/32.0 to 122.0°F
	Resolution	0.1°C/0.1°F
	Accuracy (@25°C/77°F)	±0.5°C/±1°F
Additional Specifications	Temperature Compensation	automatic, 0.0 to 50.0°C (32 to 122°F)
	Battery Type / Life	CR2032 Li-ion (Included) / approx. 250 hours of continuous use
	Auto-off	8 minutes, 60 minutes, or can be disabled
	Environment	0 to 50°C (32 to 122°F); RH 100% max
	Dimensions	160 x 40 x 17 mm (6.3 x 1.6 x 0.7")
	Weight	75 g (2.6 oz.)
Ordering Information	**HI98318** GroLine EC/TDS testeris supplied with Quick Cal calibration sachets (4), battery, storage cap, instruction manual, and quality certificate.	

GroLine EC and TDS solutions begin on page 5.36; GroLine Quick Cal solutions begin on page 5.42

DiST®: HI98301 · HI98302 · HI98303 HI98304

EC and TDS Testers

- Waterproof
- Automatic temperature compensation (ATC)
- Automatic one-point calibration
- Measurement stability indicator
- Temperature measurement

The DiST® family of testers is widely used for monitoring EC/TDS in drinking water, water conditioning, reverse osmosis, cooling towers, wastewater, laboratories, agriculture, aquaculture and aquariums, hydroponics, and the printing industry.

These testers feature an amperometric graphite electrode that provides improved repeatability in measurements, since they do not oxidize. An amperometric measurement of EC/TDS is based on Ohm's Law, I = V/R, where R depends on the distance between two pins and their surface. Oxidation changes both the distance and surface, which will directly affect accuracy. DiST® non-oxidizing graphite pins are able to provide an optimal surface for accurate, dependable results.

When calibration is needed, simply submerge the electrode tip into calibration solution and the meter will auto calibrate.

Supplied in a carrying case with buffer and cleaning solutions.

Specifications		HI98301 (DiST®1)	HI98302 (DiST®2)	HI98303 (DiST®3)	HI98304 (DiST®4)
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.		–	–
	TDS Factor	0.5	0.5	–	–
EC	Range	–	–	0 to 2000 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.	
Temperature	Range	0.0 to 50.0°C/32.0 to 122.0°F			
	Resolution	0.1°C / 0.1°F			
	Accuracy (@25°C/77°F)	±0.5°C / ±1.0°F			
Additional Specifications	Calibration Solution	HI70032: 1382 ppm	HI70038: 6.44 ppt	HI70031: 1413 mS/cm	HI70030: 12.88 mS/cm
	Calibration	automatic, one-point			
	Temperature Compensation	automatic from 0 to 50°C (32 to 122°F)			
	Battery Type / Life	CR2032 3V Li-ion / approx. 250 hours of continuous use			
	Environment	0 to 50°C (32 to 122°F); RH 100% max			
	Dimensions	160 x 40 x 17 mm (6.3 x 1.6 x 0.7")			
	Weight	75 g (2.6 oz.)			
Ordering Information		**HI98301** (DiST 1) is supplied with CR2032 battery, 1382 ppm calibration solution sachet (4), storage/protection sleeve, instruction manual, and quality certificate.			
		HI98302 (DiST 2) is supplied with CR2032 battery, 6.44 ppt calibration solution sachet (4), storage/protection sleeve, instruction manual, and quality certificate.			
		HI98303 (DiST 3) is supplied with CR2032 battery, 1413 µS/cm calibration solution sachet (4), storage/protection sleeve, instruction manual, and quality certificate.			
		HI98304 (DiST 4) is supplied with CR2032 battery, 12.88 mS/cm calibration solution sachet (4), storage/protection sleeve, instruction manual, and quality certificate.			

EC solutions begin on page 5.36

114 mm (4.5") stainless steel penetration probe

GroLine®

HI98331 Soil Test™

Direct Soil EC and Temperature Tester

with Built-in Stainless Steel EC Probe

- One-point calibration
- Automatic calibration to 1413 µS/cm conductivity standard
- Automatic Temperature Compensation (ATC)
  - Samples automatically compensated for temperature variations
- Uses a fixed 2%/°C temperature correction coefficient
- Stainless steel penetration electrode
- Allows for direct measurement in soil

The Soil Test™ Direct Soil EC Tester is a rugged and reliable pocket-sized tester that offers quick and accurate readings. The Soil Test™ features a stainless steel penetration probe for direct measurement of conductivity in soils. With a compact size, single button operation, and automatic calibration, Soil Test is an excellent choice for taking direct conductivity measurements in soil.

Battery compartment

An easily removable cover provides access to the battery compartment.

Supplied in a carrying case with probe sleeve

Specifications		HI98331 Soil Test™
EC	Range	0 to 4000 µS/cm 0.00 to 4.00 mS/cm (dS/m)
	Resolution	1 µS/cm 0.01 mS/cm (dS/m)
	Accuracy (@25°C/77°F)	±50 µS/cm (0 to 2000 µS/cm) ±300 µS/cm (2000 to 4000 µS/cm) ±0.05 mS/cm (0.00 to 2.00 mS/cm) ±0.30 mS/cm (2.00 to 4.00 mS/cm)
	Calibration	automatic, one-point (1.41 mS/cm)
Temperature	Range	0.0 to 50.0°C (32.0 to 122.0°F)
	Resolution	0.1°C (0.1°F)
	Accuracy (@25°C/77°F)	±1°C (±1.5°F)
Additional Specifications	Temperature Compensation	Automatic, with coefficient (β) fixed @ 2%/°C
	Probe	114 mm (4.5") stainless steel penetration (fixed)
	Battery Type / Life	CR2032 Li-ion (included) / approx. 100 hours of continuous use
	Auto-off	8 minutes, 60 minutes, or can be disabled
	Environment	0 to 50°C (32 to 122°F); RH 95% max
	Dimensions	50 x 196 x 21 mm (2.0 x 7.7 x 0.9")
	Weight	74 g (2.4 oz.)
Ordering Information	**HI98331** (Soil Test) is supplied with HI73331 penetration conductivity probe, calibration screwdriver, batteries, and instructions.	

EC/TDS solutions begin on page 5.36

Pool Line

HI983024 • HI983044

TDS and EC Testers

- Waterproof
- Automatic temperature compensation (ATC)
- Automatic one-point calibration
- Measurement stability indicator
- Temperature measurement

The Pool Line HI983024 (TDS) and HI983044 (EC) are ideal for monitoring pools and spas.

These Pool Line testers feature an amperometric graphite electrode that provides improved repeatability in measurements, since it does not oxidize. An amperometric measurement of EC/TDS is based on Ohm's Law, I = V/R, where R depends on the distance between two pins and their surface. Oxidation changes both the distance and surface, which will directly affect accuracy. The non-oxidizing graphite pins are able to provide an optimal surface for accurate, dependable results.

When calibration is needed, simply submerge the electrode tip into calibration solution and the meter will auto calibrate.

Specifications		HI983024	HI983044
TDS	Range	0.00 to 10.00 ppt (g/L)	–
	Resolution	0.01 ppt (g/L)	–
	Accuracy (@25°C/77°F)	±2% F.S.	–
	TDS Factor	0.5	–
EC	Range	–	0.00 to 20.00 mS/cm
	Resolution	–	0.01 mS/cm
	Accuracy (@25°C/77°F)	–	±2% F.S.
Temperature	Range	0.0 to 50.0°C/32.0 to 122.0°F	
	Resolution	0.1°C / 0.1°F	
	Accuracy (@25°C/77°F)	±0.5°C / ±1.0°F	
Additional Specifications	Calibration Solution	HI70038: 6.44 ppt	HI70030: 12.88 mS/cm
	Calibration	automatic, one-point	
	Temperature Compensation	automatic from 0 to 50°C (32 to 122°F)	
	Battery Type / Life	CR2032 3V Li-ion / approx. 250 hours of continuous use	
	Environment	0 to 50°C (32 to 122°F); RH 100% max	
	Dimensions	160 x 40 x 17 mm (6.3 x 1.6 x 0.7")	
	Weight	75 g (2.6 oz.)	
Ordering Information	**HI983024** is supplied with CR2032 battery, 6.44 ppt calibration solution sachet (4), storage/protection sleeve, instruction manual, and quality certificate. **HI983044** is supplied with CR2032 battery, 12.88 mS/cm calibration solution sachet (4), storage/protection sleeve, instruction manual, and quality certificate.		

EC and TDS solutions begin on page 5.36

HI98308 · HI98309

Water Purity Testers

The HI98308 and HI98309 use a conductometric measurement to determine the purity of water.

The HI98308 Pure Water Test (PWT) enables users to check the purity of distilled or demineralized water in laboratory or industrial environments.

The HI98309 Ultra Pure Water (UPW) is an ideal tester for high purity water, which has less conductivity.

PWT is suited for fields such as printed circuit board washing, laundry, steam cleaning, checking car battery water and all areas where distilled, demineralized or pure water is used.

UPW is the first pure water tester to measure in 1/1000ths of micro-Siemens (µS) and provides fast spot checks for minute traces of water contamination.

These testers are housed in a durable casing that provides excellent protection against harsh industrial environments.

Specifications		HI98308 (PWT)	HI98309 (UPW)
EC	Range	0.0 to 99.9 µS/cm	0.000 to 1.999 µS/cm
	Resolution	0.1 µS/cm	0.001 µS/cm
	Accuracy	±2% F.S.	±2% F.S.
Additional Specifications	Calibration	manual, one point	factory calibrated
	Temperature Compensation	automatic from 0 to 50°C (32 to 122°F) with β=2%/°C typical	–
	Battery Type / Life	1.5V (4) / approximately 250 hours of continuous use	1.5V (4) / approximately 120 hours of continuous use
	Environment	0 to 50°C (32 to 122°F); RH max 95% non condensing	
	Dimensions	175 x 41 x 23 mm (6.9 x 1.6 x 0.9")	
	Weight	95 g (3.4 oz.)	
Ordering Information		**HI98308** (PWT) and **HI98309** (UPW) are supplied with protective cap, calibration screwdriver (HI98308 only), batteries, and instructions.	

HI151

Checktemp®4 Temperature Testers

with folding probe and five-point factory calibration

HI151 Checktemp 4 is the perfect portable, high-accuracy thermometer for home and professional kitchens. The sharp, stainless steel, fold-out probe is ideal when testing fresh, cooked and semi-frozen food. The sensing tip allows the user to accurately measure the temperature of thin or thick foods. HI151 Checktemp 4 measures temperature in both °C and in °F. EN 13485 certified models are available

Checktemp 4 has a waterproof and compact casing and is factory calibrated. Calibration is verified every time the thermometer is turned ON. A motion sensor eliminates the need of closing and reopening the probe when the meter goes idle.

Six color-coded thermometers are available to meet the food hygiene and Hazard Analysis Critical Control Point (HACCP) regulations.

- Five-point factory calibration
- Ergonomic shape
- Measures in both °C and °F
- Floating case features IP67 protection
- Large LCD
- Turns on by motion sensor
- Internal calibration verification
- EN 13485 certified models available

Easy to access battery compartment

HI151 / HI151-000
white, for dairy products

HI151-1 / HI151-100
red, for raw meat

HI151-2 / HI151-200
blue, for raw fish

HI151-3 / HI151-300
yellow, for cooked meat

HI151-4 / HI151-400
green, for salad and fruits

HI151-5 / HI151-500
brown, for vegetables

Specifications		HI151
Temperature	Range	-50.0 to 300 °C / -58.0 to 572.0 °F
	Resolution	0.1 °C (-50.0 to 199.9 °C); 1.0 °C (200.0 to 300.0 °C) 0.1 °F (-58.0 to 199.9 °F); 1.0 °F (200.0 to 572.0 °F)
	Accuracy (@25°C/77°F)	± 0.4 °C (-50.0 to -30.0 °C); ± 0.2 °C (-30.0 to 170.0 °C) ± 0.4 °C (170.0 to 199.9 °C); ± 1.0 °C ± 1 digit (200.0 to 300.0 °C) ±0.8 °F (-58.0 to -22.0 °F); ±0.4 °F (-22.0 to 199.9 °F) ±1.0 °F (200.0 to 392.0 °F); ±2.0 °F ± 1 digit (392.0 to 572.0 °F)
	Calibration	factory calibrated
Additional Specifications	Probe	stainless steel probe with penetration tip; 103 x 3 mm (dia.) (4.06 x 0.12" dia.)
	Battery Type / Life	CR2032 Li-ion (2) / approx. 4000 hours of continuous use
	Auto-off	1 min, 2 min (default), 8 min, 60 min. or OFF
	Environment	-30.0 to 50.0°C (32.0 to 122.0°F)
	Case ingress protection rating	IP67, floating case
	Dimensions	165 x 45 x 24 mm (6.5 x 1.8 x 0.9")
	Weight	85 g (3.0 oz)
Ordering Information	**HI151** (white/dairy products) is supplied with batteries, quality certificate, and instruction manual. **HI151-000** (white/dairy products, EN 13485 certified) is supplied with batteries, quality certificate, and instruction manual. **HI151-1** (red/raw meat) is supplied with batteries, quality certificate, and instruction manual. **HI151-100** (red/raw meat, EN 13485 certified) is supplied with batteries, quality certificate, and instruction manual. **HI151-2** (blue/raw fish) is supplied with batteries, quality certificate, and instruction manual. **HI151-200** (blue/raw fish, EN 13485 certified) is supplied with batteries, quality certificate, and instruction manual. **HI151-3** (yellow/cooked meat) is supplied with batteries, quality certificate, and instruction manual. **HI151-300** (yellow/cooked meat, EN 13485 certified) is supplied with batteries, quality certificate, and instruction manual. **HI151-4** (green/salad and fruits) is supplied with batteries, quality certificate, and instruction manual. **HI151-400** (green/salad and fruits, EN 13485 certified) is supplied with batteries, quality certificate, and instruction manual. **HI151-5** (brown/vegetables) is supplied with batteries, quality certificate, and instruction manual. **HI151-500** (brown/vegetables, EN 13485 certified) is supplied with batteries, quality certificate, and instruction manual.	

HI98501 Checktemp®

Digital Thermometer

with Stainless Steel Penetration Probe

- Large display
  - The large display features a wide temperature range and optimal viewing angle.
- User selectable °C or °F
- CAL Check™
  - Automatically verifies calibration at startup
- IP65 water resistant protection
- Use as a tool for control in HACCP analysis
- AISI 316 stainless steel penetration probe

Checktemp® Digital Thermometer is a great choice for easy operation with clear digits and better accuracy over a wide range.

Measure temperature without fear of breakage or condensation. This compact meter with a direct probe is ideal for taking quick temperature measurement in semi-solids and liquids.

The sharp-tip probe of the Checktemp® easily penetrates semi-solid products making routine temperature checks simple and quick for both incoming and outgoing goods. Checktemp is the ideal instrument for measuring temperature according to HACCP requirements.

Checktemp is provided with Hanna's unique CAL Check™ function for accurate measurements every time. The Checktemp® implements a CAL Check upon startup and reports the status as "-0-" or "Err".

Select between °C or °F measurement in one tester

CAL Check™

Automatically verifies calibration at startup and alerts the user to the calibration status

Easy battery change

Easily replace the battery with a twist-off cover

Save battery life with auto-off feature

With the auto-off feature, select from 8 min., 60 min., or disable the feature

Specifications	°C	°F
Range	-50.0 to 150.0°C	-58.0 to 302°F
Resolution	0.1°C (-50.0 to 150.0°C)	0.1°F (-58.0 to 199.9°F); 1°F (above 200°F)
Accuracy	±0.2°C (-30 to 120°C) ±0.3°C (outside: -50.0 to -30.0°C and 120.0 to 150.0°C)	±0.5°F (-22 to 199.9°F) ±1°F (outside: -58.0 to -22.0°F and 200 to 302°F)
Probe	fixed, stainless steel probe; 106 x ø 3.6 mm (penetration)	
Battery Type / Life	CR2032 Li-ion / approximately 2000 hours of continuous use	
Auto Off	8 min (default), 60 min or OFF	
Environment	-30 to 50°C (-22 to 122°F); IP65	
Dimensions	50 x 185 x 21 mm (2 x 7.3 x 0.9")	
Weight	50 g (1.8 oz.)	
Ordering Information	**HI98501** (Checktemp®) is supplied with penetration probe, protective cap, battery, and instructions.	

HI98509 Checktemp®1

Digital Thermometer

with Stainless Steel Probe Attached to a 1 m (3.3') Silicone Cable

- EN13485 certified
- Battery life up to two years
  - With the Auto-Off feature, select from 8 min., 60 min., or disable the feature
- HACCP
  - Use as a tool for control in HACCP analysis
- Large display
  - The large display features a wide temperature range and viewing angle
- IP65 water resistant protection
- Silicone probe cable
  - 1 m (3.3') silicone cable maintains flexibility and performance in applications where temperatures are widely variable
- AISI 316 stainless steel penetration probe

Checktemp 1 is a high-accuracy thermometer with a 1 m (3.3') flexible, silicone cable connecting the meter and the AISI 316 stainless steel probe. This probe is in compliance with food regulations, making it an ideal instrument for measuring temperature according to HACCP requirements. The sharp-tip penetration probe easily lances semi-solid products such as fruits, vegetables, and cheeses. This probe can also handle measurements in liquid, air, and frozen materials. The probe incorporates an NTC thermistor sensor to measure the temperature. Thermistors make it possible to obtain extremely high accuracy in a very short period of time.

CAL Check™

Automatically verifies calibration at startup and alerts the user to the calibration status.

The Hanna CAL Check feature has been incorporated into the Checktemp 1 for reliable and accurate measurements. CAL Check automatically runs a self-check diagnostic upon startup and reports status back to the user.

Specifications	HI98509
Range	-50.0 to 150.0°C / -58.0 to 302°F
Resolution	0.1°C (-50.0 to 150°C) / 0.1°F (-58.0 to 199.9°F); 1°F (above 200°F)
Accuracy	±0.2°C (-30 to 120.0°C); ±0.3°C (outside: -50.0 to -30.0°C and 120.0 to 150.0°C) ±0.5°F (-22.0 to 199.9°F); ±1°F (outside: -58.0 to -22.0°F and 200 to 302°F)
Probe	stainless steel probe with 1 m (3.3') silicone cable; 97.3 x dia 3.5 mm (3.8 x dia 0.14")
Battery Type / Life	3 x 1.5V AAA / approximately 2 years of use
Auto Off	8 min (default), 60 min or OFF
Environment	-30 to 50°C (-4 to 122°F); IP65
Dimensions	107 x 59 x 17 mm (4.2 x 5.3 x .65")
Weight	130 g (4.6 oz.)
Ordering Information	**HI98509** (Checktemp 1) is supplied with penetration probe, batteries, stand, and instructions.

Select between °C or °F measurement in one tester

HI98539 Checktemp®Dip · HI985394

Digital Thermometer

with Weighted Stainless Steel Probe Attached to a 3 m (9.9') Silicone Cable

- Battery life up to two years
  - With the Auto-Off feature, select from 8 min., 60 min., or disable the feature
- HACCP
  - Use as a tool for control in HACCP analysis
- Large display
  - The large display features a wide temperature range and viewing angle
- IP65 water resistant protection
- Silicone probe cable
  - 3 m (9.9') silicone cable maintains flexibility and performance in applications where temperatures are widely variable
- AISI 316 stainless steel weighted probe

HI98539 Checktemp Dip and the Pool Line HI985394 are high-accuracy thermometers with a 3 m (9.9') flexible, silicone cable connecting attached to a AISI 316 stainless steel weighted probe.

The probe incorporates an NTC thermistor sensor for temperature measurement. Thermistors make it possible to obtain extremely high accuracy in a very short period of time.

This probe is in compliance with food regulations, making the HI98539 an ideal instrument for measuring temperature in food applications such as wine casks and milk tanks.

In addition to pool and spa use, HI985394 can also be used for applications such as fish farms and water reservoirs where the operator can simply stand on the edge of the water and dip the probe in.

The Hanna CAL Check feature has been incorporated into these thermometers for reliable and accurate measurements. CAL Check automatically runs a self-check diagnostic upon startup and reports status back to the user.

CAL Check™

Automatically verifies calibration at startup and alerts the user of the calibration status.

Select between °C or °F measurement in one tester

Specifications	HI98539 • HI985394 (Pool Line)
Range	-20.0 to 80.0°C / -4.0 to 176.0°F
Resolution	0.1°C / 0.1°F
Accuracy	±0.3°C / ±0.5°F
Probe	weighted stainless steel probe with 3 m (9.9') silicone cable
Battery Type / Life	3 x 1.5V AAA / approximately 2 years of use
Auto Off	8 min (default), 60 min or OFF
Environment	-30 to 50°C (-22 to 122°F); IP65
Dimensions	107 x 59 x 17 mm (4.2 x 2.3 x 0.7")
Weight	109 g (3.8 oz.)
Ordering Information	**HI98539** (Checktemp®Dip) and **HI985394** is supplied with stainless steel weighted probe, stand, batteries, and instructions.

HI145

T-Shaped Thermometer

- CAL Check™
  - Alerts users to calibration status
- HOLD Feature
  - HOLD button to freeze readings on the display

HI145 thermometers were developed for HACCP programs that require high standards of performance with simplicity of use. The durable T-shaped handle fits comfortably in your hand and is ideal for applications where applied force is necessary for insertion, such as with incoming meat inspection and semi-frozen foods. The LCD positioned on top of the meter allows for easy reading in cooking applications.

The HI145-00 and HI145-01 thermometers are equipped with a 125 mm (5") long AISI 316 stainless steel probe. The sharp conical tip provides fast response and improved accuracy over the entire range.

The HI145-20 and HI145-30 thermometers are supplied with a 300 mm (12") long stainless steel probe, ideal for monitoring hot liquids, such as in deep frying and soup preparation.

With an automatic CAL Check feature, the HI145 series performs a self-check of its calibration status and displays it on the LCD. This feature ensures accuracy, repeatability, and confidence in readings.

Specifications	HI145-00	HI145-01	HI145-20	HI145-30
Range	-50.0 to 220°C	-58.0 to 428.0°F	-50.0 to 220°C	-58.0 to 428.0°F
Resolution	0.1°C (-50.0 to 199.9°C); 1°C (200 to 220°C)	0.1°F (-58.0 to 199.9°F); 1°F (200 to 428°F)	0.1°C (-50.0 to 199.9°C); 1°C (200 to 220°C)	0.1°F (-58.0 to 199.9°F); 1°F (200 to 428°F)
Accuracy	±0.3°C (-20 to 90°C); ±0.4% F.S. (outside)	±0.6°F (-4 to 194°F); ±0.4% F.S. (outside)	±0.3°C (-20 to 90°C) ±0.4% F.S. (outside)	±0.6°F (-4 to 194°F); ±0.4% F.S. (outside)
Probe	stainless steel probe; 125 mm x dia 5 mm (4.9 x dia 0.2")		stainless steel probe; 300 mm x dia 5 mm (11.8 x dia 0.2")	
Battery Type / Life	1.5V AAA / approximately 10,000 hours of continuous use; auto-off after 8 minutes of non-use			
Environment	-10 to 50°C (14 to 122°F); RH max 95%		-10 to 50°C (14 to 122°F); RH max 95%	
Dimensions	92 x 165 x 38 mm (3.6 x 6.5 x 1.5")		92 x 340 x 38 mm (3.6 x 13.4 x 1.5")	
Weight	65 g (2.3 oz.)		80 g (2.8 oz.)	
Ordering Information	All models of the HI145 series are supplied complete with battery and instructions. **HI145-00** with 125 mm probe, **HI145-01** with 125 mm probe, **HI145-20** with 300 mm probe; **HI145-30** with 300 mm probe			

GroLine®

HI981421

GroLine® Hydroponics Monitor

with inline multiparameter probe

24/7 Monitoring

The HI981421 GroLine Monitor provides 24 hour continuous monitoring of pH, conductivity (EC or TDS), and temperature in hydroponic nutrients. Quick to setup and simple to use, this monitor was designed with hydroponics, aquaponics, and greenhouses in mind. Make your nutrient solution easy to manage with the GroLine Monitor and combined pH/EC/Temperature probe.

Instantly See All Measurements

The versatile display of the GroLine Monitor allows for three screen modes. The LCD can display all three essential hydroponic nutrients measurements at one time, a 3-second cycle of single measurements, or a real-time graph screen with options for measurement selection and log recall.

Monitor Changes Over Time

Fluctuations in your hydroponic nutrient solution can have lasting effects on your plants. The GroLine Monitor automatically logs every 15 minutes for the last 30 days, and stores min, max, and average values so you can recognize when patterns arise and help prevent future problems. For review and storage, use the USB-C to easily transfer data to a flash drive or PC using a cable. Files are exported as .csv.

Grow With Confidence

The GroLine Monitor frees up your time by doing the testing for you. Simply set high and low alarm levels – if your hydroponic nutrient solution moves out of range a measurement error will display. A quick look at the large display will let you know if your nutrient solution needs adjusting.

Features

- Can be integrated into a fertilizer system
- pH/EC inline probe with built-in temperature sensor
- IP65 rated enclosure designed to withstand harsh growing environments
- Selectable EC to TDS conversion factor: choice of either a 0.5 or 0.7 conversion factor
- Automatic Temperature Compensation
  - All readings are compensated for variations in temperature. Temperature displayed in °C or °F along with pH, EC, or TDS reading
- Large LCD with plant-friendly green backlighting
- Ambient light sensor for automatic LCD dimming
- Quick calibration using Quick Cal solution simultaneously for pH and EC
- Calibration reminder
- Data logging for 30 days
  - Logs every 15 minutes for last 30 days, stores min, max, and average values
- Setup, Calibration, and Operating parameters are stored in nonvolatile memory. All settings are retained if power is lost
- 24 hour summary screens (plot and details)
- GLP feature calibration data for the pH and EC (up to 5 calibrations)
- Alarms feature for all parameters

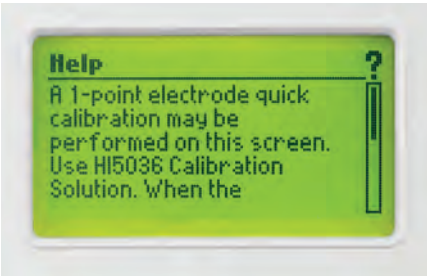
Quick Cal

Quick Cal is for use with Hanna's GroLine pH and/or EC/TDS meters. Using the Quick Cal function found in compatible meters allows for single-point calibration for pH and/or conductivity sensors.

Inline Probe

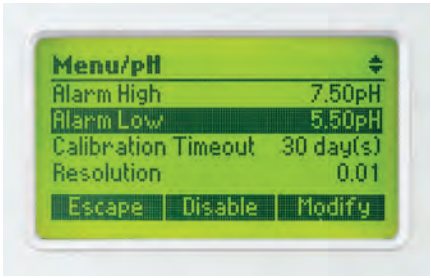
The supplied HI1285-9 multiparameter probe measures pH, EC, and temperature in one convenient, rugged probe. A solid-state preamplifier is integrated into the probe to protect the pH measurement from transient electrical noise. Sources of electrical noise include ballasts used in lighting and pumps to circulate water and nutrient solutions. The HI1285-9 incorporates two graphite EC sensors for reliable conductivity readings

On-Screen Features



On-screen Help

Contextual help is available at the push of a button.

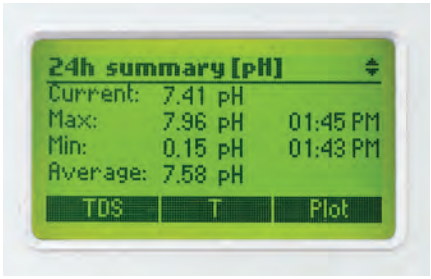


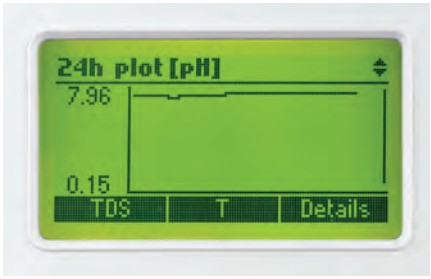
High and Low Alarms

High and Low alarms for pH, EC/TDS, and Temperature. Warns when process is out of desired range by flashing display and message

Menu Navigation

Easy to navigate menu system to access calibration, GLP, and meter setup



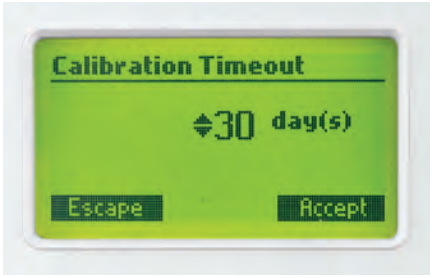


Data Viewing

30 day and 24 hour summary screens can be viewed in plot or detail views. Real-time data can be viewed in plot view

Data Transfer

Data transfer: USB-C port for easy data transfer to memory stick or PC



Calibration Timeout

Set a reminder to calibrate your probe. Reminder can be set from 1 to 30 days

GLP

The HI981421 can store calibration info from the last 5 pH and EC calibrations

Supplied Complete

HI981421 GroLine Monitor is supplied with all the tools necessary so you can start monitoring right away.

Specifications		HI981421
pH	Range	0.00 to 12.00 pH, 0.0 to 12.0 pH
	Resolution	0.01 pH; 0.1 pH
	Accuracy	±0.05 pH, ±0.1pH
	Calibration	one or two-point calibration (using pH 4.01, 7.01, 10.01 buffers) using auto buffer recognition; one-point calibration using quick calibration solution
	Temperature Compensation	Automatic: 0.0 to 60.0°C; 32.0 to 140.0°F
EC	Range	0.00 to 10.00 mS/cm
	Resolution	0.01 mS/cm
	Accuracy	±0.1 mS/cm from 0.00 to 5.00 mS/cm; ±0.2 mS/cm from 5.00 to 10.00 mS/cm)
	Calibration	one-point at 1.41 mS/cm or 5.00 mS/cm using auto standard recognition; one-point calibration using quick calibration solution
	Temperature Compensation	automatic, with β = 1.9%/°C
TDS	Range	0 to 5000 ppm (0.5 TDS Factor*); 0 to 7000 ppm (0.7 TDS Factor*)
	Resolution	10 ppm (mg/L)
	Accuracy	±2%FS
	Calibration	through EC calibration
	Conversion Factor (CF)*	0.5 (500 ppm) or 0.7 (700 ppm)
Temperature	Range	0.0 to 60.0°C/32.0 to 140.0°F
	Resolution	0.1°C/0.1°F
	Accuracy	±0.5°C/±1°F
Probe	Description	HI1285-9 triple junction inline pH/EC/TDS temperature PVC body, pre-amplified multiparameter probe with internal temperature sensor, DIN connector, 3 m (9.8') cable
	Max Pressure	8 bar
	Range	0 to 12 pH
	Ingress protection	IP68 (continous immersion up to 2 meters)
	Dimensions	187 x 25 x 25mm (7.36 x 0.98 x 0.98")
	Weight	191g (7.7oz.)
Additional Specifications	Automatic Logging	measurements (pH, EC, TDS, Temperature) min/max/average/status logged continuously at 15 minutes interval, recall graphic modes
	Data Export	export on USB-C flash drive or PC ; log files in CSV format
	Data Storage	30 days stored data at 15 minutes interval
	Display	128 x 64 pixel B/W LCD with green backlight, Automatic backlight dimming using ambient light sensor.
	GLP	Good Laboratory Practice with last 5 pH and EC calibration history.
	Monitor Waterproof Protection	IP65 (dust and low pressure water jets)
	Alarms	high and low with enable/disable option for all parameters.
	USB-C (Host/Device)	Export logged data on USB flash drive / PC
	Power Supply	12VDC adapter (included)
	Environment	0 to 50°C (32 to 122°F), RH max 95% non-condensing
	Dimensions	125 x 185 x 38 mm (4.92 x 7.28 x 1.49")
	Weight	333g (11.7oz.)
Ordering Information		**HI981421-01** (115V) and **HI981421-02** (230V) is supplied with HI1285-9 multiparameter probe, Quick Cal buffer solution sachets (2), HI700661 electrode cleaning solution sachets for agriculture (2), 12VDC power adapter, quality certificates and instruction manual.

*Note: 1000 µS/cm = 500 ppm with 0.5 TDS Factor
= 700 ppm with 0.7 TDS Factor

pH solutions begin on page 2.174; Quick Cal solutions begin on page 2.181;
EC and TDS solutions begin on page 5.36; see pH electrode specifications on page 1.70

GroLine®

HI981420

GroLine® Hydroponics Monitor

24/7 Monitoring

The HI981420 GroLine Monitor provides 24 hour continuous monitoring of pH, conductivity (EC or TDS), and temperature in hydroponic nutrients. Quick to setup and simple to use, this monitor was designed with hydroponics, aquaponics, and greenhouses in mind. Make your nutrient solution easy to manage with the GroLine Monitor and combined pH/EC/Temperature probe.

Instantly See All Measurements

The versatile display of the GroLine Monitor allows for three screen modes. The LCD can display all three essential hydroponic nutrients measurements at one time, a 3-second cycle of single measurements, or a real-time graph screen with options for measurement selection and log recall.

Monitor Changes Over Time

Fluctuations in your hydroponic nutrient solution can have lasting effects on your plants. The GroLine Monitor automatically logs every 15 minutes for the last 30 days, and stores min, max, and average values so you can recognize when patterns arise and help prevent future problems. For review and storage, use the USB-C to easily transfer data to a flash drive or PC using a cable. Files are exported as .csv.

Grow With Confidence

The GroLine Monitor frees up your time by doing the testing for you. Simply set high and low alarm levels – if your hydroponic nutrient solution moves out of range a measurement error will display. A quick look at the large display will let you know if your nutrient solution needs adjusting.

Features

- 3 sensors combined in a single rugged probe body
  - pH electrode, amperometric EC/TDS sensor, and an internal temperature sensor for temperature compensated readings
- IP65 rated enclosure designed to withstand harsh growing environments
- Selectable EC to TDS conversion factor: choice of either a 0.5 or 0.7 conversion factor
- Automatic Temperature Compensation
  - All readings are compensated for variations in temperature. Temperature displayed in °C or °F along with pH, EC or TDS reading
- Large LCD with plant-friendly green backlighting
- Ambient light sensor for automatic LCD dimming
- Calibration reminder
- Data logging for 30 days
  - Logs every 15 minutes for last 30 days, stores min, max, and average values

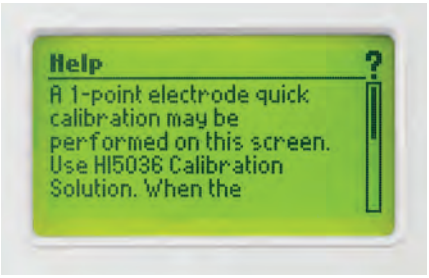
Quick Cal

Quick Cal is for use with Hanna's GroLine pH and/or EC/TDS meters. Using the Quick Cal function found in compatible meters allows for single-point calibration for pH and/or conductivity sensors.

Simpler with a combination probe

The HI1285-8 is a 3-in-1 pre-amplified combination probe. This probe is built to be durable and features two graphite sensors for reliable conductivity readings. A built-in temperature sensor ensures fast, accurately compensated readings even during sudden temperature fluctuations.

On-Screen Features



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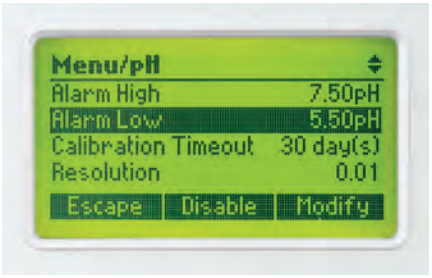

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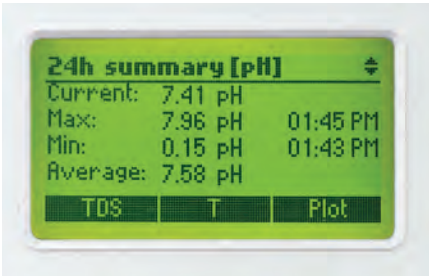

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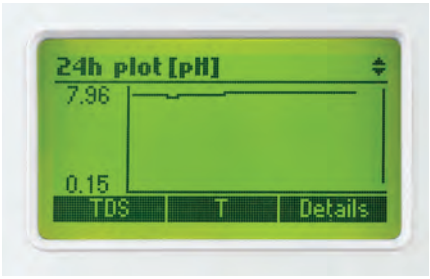

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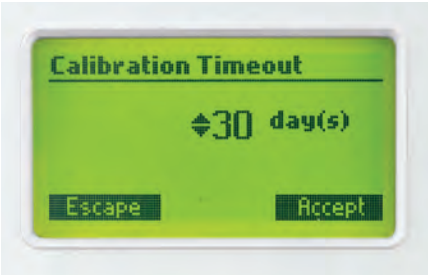


Calibration Timeout

Set a reminder to calibrate your probe. Reminder can be set from 1 to 30 days

GLP

The HI981420 can store calibration info from the last 5 pH and EC calibrations

Supplied Complete

HI981420 GroLine Monitor is supplied with all the tools necessary so you can start monitoring right away.

Specifications		HI981420
pH	Range	0.00 to 14.00 pH; 0.0 to 14.0 pH
	Resolution	0.01 pH; 0.1 pH
	Accuracy	±0.05 pH, ±0.1pH
	Calibration	one or two-point calibration (using pH 4.01, 7.01, 10.01 buffers) using auto buffer recognition; one-point calibration using quick calibration solution
	Temperature Compensation	automatic from 0.0 to 60.0°C (32.0 to 140.0°F)
EC	Range	0.00 to 10.00 mS/cm
	Resolution	0.01 mS/cm
	Accuracy	±0.1 mS/cm from 0.00 to 5.00 mS/cm; ±0.2 mS/cm from 5.00 to 10.00 mS/cm)
	Calibration	one-point at 1.41 mS/cm or 5.00 mS/cm using auto standard recognition; one-point calibration using quick calibration solution
	Temperature Compensation	automatic, with β = 1.9%/°C
TDS	Range	0 to 5000 ppm (0.5 TDS Factor)*; 0 to 7000 ppm (0.7 TDS Factor)*
	Resolution	10 ppm (mg/L)
	Accuracy	±2%FS
	Calibration	through EC calibration
	Conversion Factor (CF)	0.5 (500 ppm) or 0.7 (700 ppm)
Temperature	Range	0.0 to 60.0°C/32.0 to 140.0°F
	Resolution	0.1°C/0.1°F
	Accuracy	±0.5°C/±1°F
Probe	Description	HI1285-8 pH/EC/TDS/temperature polypropylene body, pre-amplified multiparameter probe with internal temperature sensor DIN connector and 2 m (6.6') cable
	Max Pressure	0.2 bar
	Range	0 to 13 pH
	Ingress protection	IP68 (continous immersion up to 2 meters)
	Dimensions	187 x 25 x 25mm (7.36 x 0.98 x 0.98")
	Weight	191g (7.7oz.)
Additional Specifications	Automatic Logging	measurements (pH, EC, TDS, Temperature) min/max/average/status logged continuously at 15 minutes interval, recall graphic modes
	Data Export	export on USB-C flash drive or PC; log files in CSV format
	Data Storage	30 days stored data at 15 minutes interval
	Display	128 x 64 pixel B/W LCD with green backlight, Automatic backlight dimming using ambient light sensor.
	GLP	Good Laboratory Practice with last 5 pH and EC calibration history.
	Monitor Ingress Protection	IP65 (dust and low pressure water jets)
	Alarms	high and low with enable/disable option for all parameters.
	USB-C (Host/Device)	Export logged data on USB flash drive / PC
	Power Supply	12VDC adapter (included)
	Environment	0 to 50°C (32 to 122°F), RH max 95% non-condensing
	Dimensions	125 x 185 x 38 mm (4.92 x 7.28 x 1.49")
	Weight	333g (11.7oz.)
Ordering Information		**HI981420-01** (115V) and **HI981420-02** (230V) is supplied with HI1285-8 multiparameter probe, Quick Cal buffer solution sachets (2), HI700661 electrode cleaning solution sachets for agriculture (2), power adapter, quality certificates, and instruction manual.

*Note: 1000 µS/cm = 500 ppm with 0.5 TDS Factor
= 700 ppm with 0.7 TDS Factor

pH solutions begin on page 2.174; Quick Cal solutions begin on page 2.181;
EC and TDS solutions begin on page 5.36; see pH electrode specifications on page 1.70

Marine Line

HI981520

Marine Monitor

pH, Marine Salinity, and Temperature

Testing and monitoring salinity in saltwater aquariums is an ongoing task.

The HI981520 is an easy to use vertical mount unit that continuously monitors and displays conductivity and pH.

The system can be calibrated at one or two points for pH and at one point for conductivity.

Seawater salinity is expressed in either parts per thousand (ppt), Practical Salinity Units (PSU), or Specific Gravity (S.G.).

A high/low alarm can be configured for each parameter and the results are displayed on a large, easy to read LCD.

The attached two-electrode conductivity probe features a built-in temperature sensor for rapid, high-accuracy temperature readings.

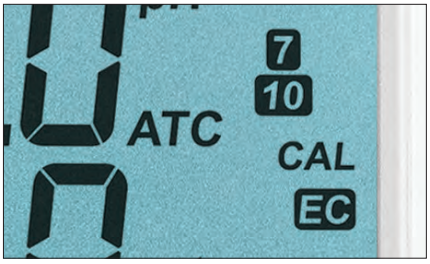
The Hanna HI1286 pH double junction, gel-filled pH electrode features a PEI resin body that is easy to clean and resistant to many aggressive chemicals. Additionally, the double junction design is less susceptible to clogging for fast and stable readings.

- Waterproof
- Automatic temperature compensation (ATC)
- Dual pin graphite EC probe

Features

Backlit LCD

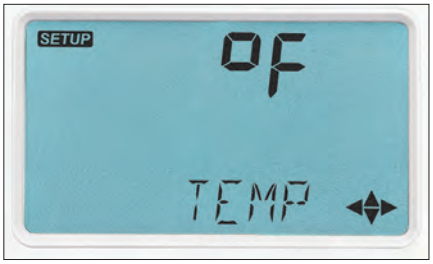
Easy to read backlit LCD display with the option to change LCD color from the setup menu



Automatic Calibration

A one or two-point pH calibration can be performed using one of the two standard buffer solutions: 7.01 or 10.01pH. A one-point conductivity calibration can be performed using 35.00 ppt salinity standard solution.

CAL Tags display in measurement mode after a calibration has been performed.



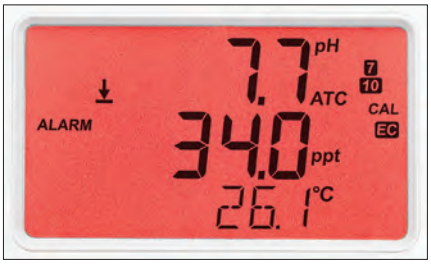
Automatic Temperature Compensation

All readings are compensated for variations in temperature and can be displayed with temperature values in °C or °F. Choose °C or °F measurement through the setup menu.

High/Low Alarms

Alarm Setup

High/Low alarms can be set for each supported parameter (or can be disabled) quickly through the setup menu.



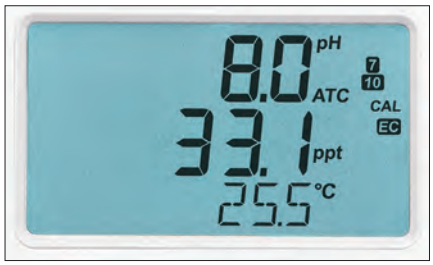
Alarm State

Alarms are generated when measured value exceeds or drops below configured parameter High/Low Value.

Optional Acoustic Alarm

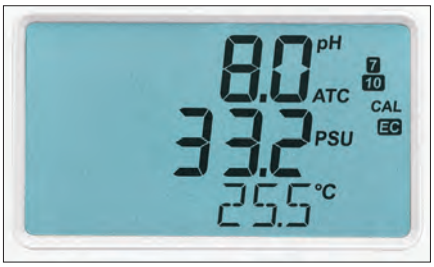
An acoustic signal can be generated each time an alarm is triggered and can be silenced at the touch of a button. Enable or disable this feature easily through the setup menu.

Seawater Salinity



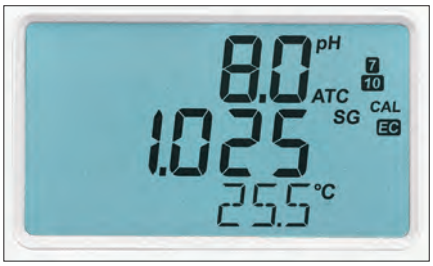
ppt

Measurements expressed in ppt are based on the Natural Seawater Scale that extends from 0.00 to 80.00 g/L and covers 10 to 31 °C temperature range. It determines the salinity based upon a conductivity ratio of sample to standard seawater at 15 °C and an approximate salinity value of 35 in seawater.



PSU

The practical salinity of seawater relates the ratio of electrical conductivity of a normal seawater sample at 15 °C and 1 atmosphere to a potassium chloride solution (KCl) with a mass of 32.4356 g/Kg water at the same temperature and pressure. Under these conditions the ratio is equal to 1 and S=35. The practical salinity scale may be applied to values 0 through 42.00 psu at temperatures between 0 to 35 °C.



Specific Gravity (S.G.)

Specific Gravity, or relative density, is expressed as the ratio of the density of seawater, at a specific temperature, relative to the density of the same volume of pure water at a specific temperature.

The probes are secured with suction cups to the back of an aquarium (tank) and are suited for continuous measurement of conductivity and associated parameters required in applications such as seawater, saltwater aquariums, or aquaculture.

1. Method and Parameter

Chosen parameter and method used is displayed along with the reading.

2. Dedicated Setup Key

A dedicated setup key allows users to quickly navigate to setup options.

3. Dedicated Calibration Key

A dedicated calibration key allows users to start a one or two-point pH and EC automatic calibration at the touch of a button.

4. Splash-proof Keypad

Intuitive on-screen menus are easy to navigate with the splash-proof keypad

5. Power Supply

The 12 Vdc adapter (included) allows for continuous monitoring

6. Compact size

Measures 125 mm (4.92") x 185 mm (7.28") and only 38 mm (1.49") thick.

7. Replaceable pH probe with BNC connection

The PEI resin body is easy to clean and resistant to many aggressive chemicals.

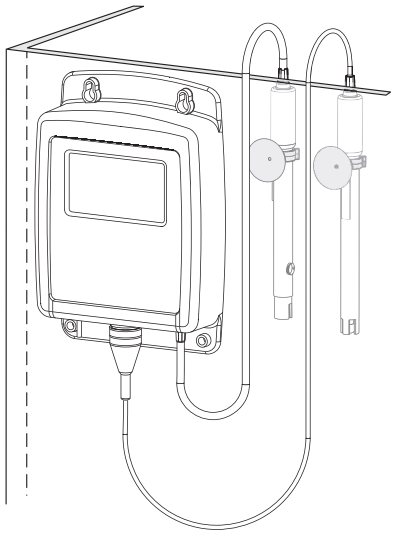
The porous PTFE junction is equally resistant to aggressive chemicals.

The double junction design presents a silver-free electrolyte solution interacting with the sample, making the electrode less susceptible to clogging and guaranteeing a fast response and stable reading.

8. Fixed EC probe

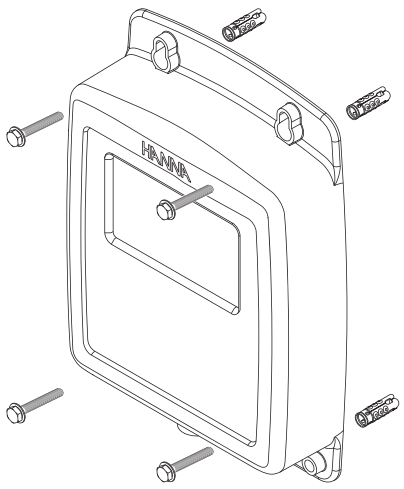
Built-in temperature sensor at the tip of the EC sensor allows for rapid determination of the sample temperature and a high-accuracy temperature reading.

Installation



Supplied Option

The probes can be installed/immersed directly in a tank or aquarium (with supplied suction cups) and are suited for continuous measurement of conductivity and associated parameters required in applications such as seawater, saltwater aquariums, or aquaculture. Each probe features a 2 m (6.6') cable length for extended distances between monitor and sample.



User Supplied Option

Alternatively, the monitor can be secured using the screw mount option (user supplied hardware).

Specifications		HI981520
pH	Range*	0.0 to 14.0 pH
	Resolution	0.1 pH
	Accuracy	±0.2 pH
	Calibration	manual or automatic two-point calibration in 7.01 and 10.01 pH
ppt	Range	0.0 to 70.0 ppt (g/L)
	Resolution	0.1 ppt (g/L)
	Accuracy	±1.0 ppt between 0.0 ppt and 40.0 ppt ±2.0 ppt between 40.0 ppt and 70.0 ppt
	Calibration	automatic, single point in 35.00 ppt
PSU	Range	0.0 to 70.0 PSU
	Resolution	0.1 PSU
	Accuracy	±1.0 PSU between 0.0 and 40.0 PSU ±2.0 PSU between 40.0 and 70.0 PSU
S.G.	Range	1.000 to 1.041 S.G.
	Resolution	0.001 S.G.
	Accuracy	±0.001 S.G.
Temperature	Range	0.0 to 50.0 °C (32.0 to 122.0 °F)
	Resolution	0.1 °C / 0.1 °F
	Accuracy	±0.5 °C / ±1.0 °F
	Compensation	Automatic, 5 to 50 °C (41 to 122 °F)
Alarm	pH	High or Low with Enable or Disable option
	EC	High or Low with Enable or Disable option
	Temperature	High or Low with Enable or Disable option
High/Low Value		with High/Low alarm Enabled
Probes	pH	HI1286 double junction pH electrode with 2 m (6.6') cable
	EC	attached
Power Supply		12 Vdc adapter (included) from 115 Vac, and 230 Vac
Environment		0 to 50°C (32 to 122°F); RH max 95%, non-condensing
Casing		IP65 ingress protection
Dimensions	125 x 185 x 38 mm (4.92 x 7.28 x 1.49")	
Weight	300 g (10.6 oz)	
Ordering Information	**HI981520-01** (115 VAC) and **HI981520-02** (230 VAC) Marine Monitor is supplied with HI1286 pH electrode; attached EC and temperature probe; pH 7.01 buffer solution, 20 mL sachet (2 pcs.); pH 10.01 buffer solution, 20 mL sachet (2 pcs.); 35.00 ppt salinity calibration solution, 20 mL sachet (2 pcs.); electrode cleaning solution, 20 mL sachet (2 pcs.); suction cup with clip (2 pcs.); self-adhesive fastener (2 pcs.); 12 Vdc power adapter; quick reference guide with QR code for manual download and instrument quality certificate.	
Solutions and Accessories	**HI1286** Double junction pH electrode with 2 m (6.6') cable	
	HI70007P pH 7.01 solution, 20 mL sachet (25 pcs.)	
	HI7007M pH 7.01 solution, 230 mL bottle	
	HI70010P pH 10.01 solution, 20 mL sachet (25 pcs.)	
	HI7010M pH 10.01 solution, 230 mL bottle	
	HI70024M 35.00 ppt salinity calibration solution, 230 mL bottle	
	HI70024P 35.00 ppt salinity calibration solution, 20 mL sachet (25 pcs.)	
	HI70300M Storage solution for pH electrodes, 230 mL bottle	
	HI700601P General purpose cleaning solution, 20 mL sachet (25 pcs.)	
	HI7061M Cleaning solution for pH electrodes, 230 mL bottle	

* The range may be limited by the probe's limits.

Specifications	HI1286 pH Probe
Range	0 to 13 pH
Recommended operating temperature	0 to 80 °C (32 to 176 °F)
Body	PEI
Junction	PTFE
Reference	Double junction, Ag/AgCl
Electrolyte	Polymer
Tip	Spheric / Ø 7.5 mm (0.29")
Diameter	12 mm (0.47")
Body length	160 mm (6.29")
Maximum pressure	3 bar (44 psi)
Cable type/length	Coaxial / 2 m (6.56')
Connection	BNC

Specifications	EC and Temperature Probe
Range	0.0 to 70.0 ppt 0.0 to 70.0 PSU 1.000 to 1.041 S.G.
Recommended operating temperature	0 to 50 °C (32 to 122 °F)
Body	Polypropylene (PP)
Conductivity sensor	Material: ABS Electrode: Graphite
Temperature sensor	AISI 316 stainless steel
Outer Diameter	12.50 mm
Overall length	155 mm (6.10")
Maximum pressure	3 bar (44 psi)
Cable type/length	Coaxial / 2 m (6.56')
Connection	Fixed (to the monitor)

HI146-00

Wall-Mounted Precision Thermometer

- CAL Check™
  - Alerts users of calibration status
- HACCP
  - Meets HAACP requirements
- Water resistant

The HI146-00 is a high accuracy thermometer with a professional grade probe attached to a flexible 2 m (6.6') cable. The CAL Check feature is incorporated into its function to allow you to confirm the accuracy of the meters any time.

You can monitor the exact temperature of any product continuously and easily observe it on the LCD display.

With its compact and simplified design, featuring a fixed stainless steel probe and optional probe holder, this thermometer is ideal for monitoring the temperatures of liquids, semi-solids, and refrigerated foods.

The HI146-00 can be easily carried from station to station or installed in a fixed position using the molded eye and a wall mount probe holder.

In order to make sure that the meter is reporting the correct temperature, the HI146-00 has been designed with Hanna's exclusive CAL Check switch. By simply setting the switch from "READ" to "TEST" and without requiring any external equipment, users can ensure the accuracy of the meter. In the "TEST" mode, the HI146-00 shows 0.0 °C (32.0°F) with an accuracy of ±0.3°C (±0.5°F). With this Hanna innovation, the accuracy can be checked throughout the life of the thermometer without requiring any accessories or additional investments.

Specifications	HI146-00 (Pronto)
Range	-50.0 to 150.0°C
Resolution	0.1°C
Accuracy	±0.3°C (-20 to 90°C) ±0.5°C (outside)
Temperature Probe	stainless steel probe (fixed) with 2 m (6.6') cable; 160 x dia 3 mm (6.3 x dia 0.1")
Battery Type / life	1.5V AA / approximately 5 years
Environment	0 to 50°C (32 to 122°F); RH max 95%
Dimensions	86 x 110 x 43 mm (3.4 x 4.3 x 1.7")
Weight	150 g (5.3 oz.)
Ordering Information	**HI146-00** (Pronto) is supplied with stainless steel temperature probe, battery, and instructions.

HI147

Checkfridge Remote Sensor Thermometer

- CAL Check™
  - Alerts users of calibration status
- Battery Error Prevention System (BEPS)
  - Alerts the user of low battery power that could adversely affect readings

Few manufacturers have given any thought to providing the user a convenient means to monitor internal temperature conditions of a refrigerator or freezer from the outside.

Water testing laboratories require constant monitoring of refrigerators and incubators for compliance to standard operations. The Hanna HI147 Checkfridge is the ideal thermometer for accurate, reliable internal temperature readings.

How do you know when the reading on the thermometer is correct? An ice point slurry using distilled or deionized water can be made. Even then there could be several degrees difference between the real and theoretical temperatures. With the HI147, there is no need to waste time preparing an ice bath for making these tests; its unique CAL Check feature can simulate it.

Specifications	HI147-00 Checkfridge C	HI147-01 Checkfridge F
Range	-50.0 to 150.0°C	-58.0 to 302.0°F
Resolution	0.1°C	0.1°F (-58.0 to 199.9°F) 1°F (200 to 302°F)
Accuracy	±0.3 °C ±1 digit (-20.0 to 90.0 °C); ±0.5% f.s. ±1digit (outside)	±0.5 °F ±1 digit (-4.0 to 194.0 °F); ±1% f.s. ±1 digit (outside)
CAL Check	manual, through switch	
Temperature Probe	stainless steel probe with 1 m (3.3') cable (fixed); 40 x dia 5 mm (1.6 x dia 0.2")	
Battery Type / Life	1.5V AA / approximately 30,000 hours of continuous use	
Environment	0 to 50°C (32 to 122°F); RH max 95%	
Dimensions (meter only)	93 x 39 x 31 mm (3.7 x 1.5 x 1.2")	
Weight	60 g (2.1 oz.)	
Ordering Information	**HI147-00** (Checkfridge C) is supplied with battery and instructions. **HI147-01** (Checkfridge F) is supplied with battery and instructions.	

Replacement Electrodes

CODE	HI73127	HI73120	HI73311	HI1270
Description	pH electrode	ORP electrode	EC/TDS electrode	pH electrode
Reference	single, Ag/AgCl	single, Ag/AgCl	–	single, Ag/AgCl
Junction / Flow Rate	cloth	cloth	–	open
Electrolyte	gel	gel	–	viscolene
Max Pressure	0.1 bar	0.1 bar	–	0.1 bar
Range	pH: 0 to 14	ORP: ±2000 mV		pH: 0 to 13
Recommended Operating Temp.	-5 to 50°C (23 to 122°F)	-5 to 50°C (23 to 122°F)	-5 to 50°C (23 to 122°F)	0 to 50°C (32 to 122°F)
Glass Type	LT (low temperature)	–	–	GP (general purpose)
Tip /Shape	spheric (dia: 5.0 mm)	platinum pin	–	spheric (dia: 3.0 mm)
Temperature Sensor	no	no	no	no
Amplifier	no	no	no	no
Body Material	polypropylene	polypropylene	polypropylene	polypropylene
Cable	no	no	no	no
Recommended Use	general purpose, field applications	general purpose, field applications	general purpose, field applications	general purpose, field applications
Connection	pin	pin	pin	screw cap

Replacement Electrodes

CODE	HI1271	HI1280	HI1290	HI1295
Description	pH electrode	pH electrode	pH electrode	pH electrode
Reference	single, Ag/AgCl	single, Ag/AgCl	single, Ag/AgCl	single, Ag/AgCl
Junction / Flow Rate	open	ceramic, single / 15-20 µL/H	ceramic, single / 15-20 µL/H	ceramic, single / 15-20 µL/H
Electrolyte	viscolene	gel	gel	gel
Max Pressure	0.1 bar	0.1 bar	0.1 bar	2 bar
Range	pH: 0 to 13	pH: 0 to 13	pH: 0 to 13	pH: 0 to 13
Recommended Operating Temp.	0 to 50°C (32 to 122°F)	0 to 70°C (32 to 158°F)	0 to 70°C (32 to 158°F)	0 to 70°C (32 to 158°F)
Glass Type	GP (general purpose)	GP (general purpose)	GP (general purpose)	GP (general purpose)
Tip /Shape	spheric (dia: 3.0 mm)	spheric (dia: 5.0 mm)	spheric (dia: 5.0 mm)	spheric (dia: 5.0 mm)
Temperature Sensor	no	yes	yes	yes
Amplifier	no	yes	yes	yes
Body Material	polypropylene	polypropylene	polypropylene	polypropylene
Cable	no	no	no	no
Recommended Use	general purpose, field applications	general purpose, field applications	general purpose, field applications	general purpose, field applications
Connection	screw cap	multi-pin	multi-pin	multi-pin

Replacement Electrodes

CODE	HI1285-8	HI1285-9	HI1286	HI1293
Description	pre-amplified pH and EC probe	pre-amplified pH and EC inline probe	pH electrode	pH electrode
Reference	single, Ag/AgCl	triple, Ag/AgCl	double, Ag/AgCl	double, Ag/AgCl
Junction / Flow Rate	cloth	PTFE	PTFE	PTFE
Electrolyte	gel	polymer	polymer	polymer
Max Pressure	.2 bar	8 bar	3 bar	3 bar
Range	pH: 0 to 13 / EC	pH: 0 to 12 / EC	pH: 0 to 13	pH: 0 to 13
Recommended Operating Temp.	0 to 50°C (32 to 122°F)	0 to 60°C (32 to 140°F)	0 to 80°C (32 to 176°F)	0 to 60°C (32 to 140°F)
–	LT (low temperature)	LT (low temperature)	GP (general purpose)	GP (general purpose)
Tip /Shape	spheric (dia: 8.5 mm)	dome	spheric (dia: 7.5 mm)	spheric (dia: 7.5 mm)
Temperature Sensor	yes	yes	no	no
Amplifier	yes	yes	no	yes
Body Material	polypropylene	PVC (thread 3/4" NPT)	PEI	PEI
Cable	7-pole; 1 m cable (3.3')	7-pole; 3 m cable (9.9')	coaxial; 2 m (6.6')	5-pole; 2 m (6.6')
Recommended Use	hydroponics, aquaponics, greenhouses	hydroponics, aquaponics, greenhouses	general purpose, water treatment, agriculture	hydroponics, greenhouses
Connection	DIN*	DIN*	BNC	DIN

* To be used with HI981420 GroLine monitor

* To be used with HI981421 GroLine monitor