



Professional Waterproof Meter

for Ultrapure Water

 **HANNA**[®]
instruments

Designed for Water Professionals

High purity water used in power generation, semiconductor manufacturing, and other industries can be difficult to measure due to the ability of carbon dioxide (CO_2) to diffuse into water and form carbonic acid (H_2CO_3). Carbonic acid quickly dissociates into hydrogen ions (H^+) and bicarbonate ions (HCO_3^-). These ions will increase the conductivity and decrease the resistivity of the water. In order to measure high purity water accurately it is necessary to perform a continuous flow measurement. HI98197 uses the HI763123 four-ring probe with a threaded connection that is screwed into a stainless steel body flow cell. The flow cell is then connected to a water source to more accurately determine the conductivity or resistivity without exposure to air. HI98197 is an ideal meter for monitoring the efficiency of a mixed bed resin or equivalent system that produces high purity water of $18.2 \text{ M}\Omega\cdot\text{cm}$ at 25°C .



HI605453 flow cell
for ultrapure water





HI98197

Professional Waterproof Meter

for Ultrapure Water

- **Conductivity and resistivity**
 - High resolution of 0.001 $\mu\text{S}/\text{cm}$ for conductivity and 0.1 $\text{M}\Omega\cdot\text{cm}$ for resistivity
- **Calibration**
 - Perform up to a five point calibration for enhanced accuracy
- **Temperature compensation**
 - Automatic Temperature Compensation
 - Configurable temperature coefficient range from 0.00 to 10.00%/°C
- **Approximately 100 hour battery life**
 - Powered by (4) 1.5V AA batteries
- **Four-ring platinum probe**
 - This probe can cover low EC samples to 1000 mS/cm (actual EC)
- **Waterproof**
 - IP67 rated waterproof, rugged enclosure
- **Clear display**
 - Graphic LCD display with multifunction virtual keys
- **AutoHold**
 - Automatically holds the first stable reading on the display
- **Enhanced calibration**
 - An "out of calibration range" warning blinks if the measurement range is not covered by the current calibration
- **Calibration timeout**
 - Alerts when calibration is due at a specified interval
- **Connectivity**
 - PC connectivity via opto-isolated micro-USB with HI92000 software
- **Data logging**
 - The HI98197 allows storage of up to 400 log-on-demand samples or 1000 lot logging samples that can be later transferred to a PC with the supplied USB cable and software
- **GLP**
 - GLP data provides information from previous calibration to ensure Good Laboratory Practices are met
- **Intuitive keypad**
 - Most of the available options such as GLP information, help, range, calibration, and backlight have a dedicated button

For Ultrapure Water Applications

HI98197 is a waterproof, portable EC (conductivity) meter that has an expanded conductivity range from 0.000 $\mu\text{S}/\text{cm}$ to 400 mS/cm , as well as TDS (total dissolved solids), resistivity, and three salinity scales. This meter automatically recognizes the probe type and allows the user to adjust the nominal cell constant. HI98197 is also ready to perform all three stages of USP <645> method required for EC measurement of water for injection.

Choose from seven memorized standards and obtain up to a five-point conductivity calibration. For salinity (% range), HI7037 standard allows users to perform a one-point calibration.

EC and TDS measurements are fully customizable and include: cell constant selection between 0.010 and 10.000, selection of linear, natural water (non-linear), or no temperature compensation (for actual conductivity reading), configurable temperature compensation coefficient range from 0.00 to 10.00%/°C, choice of reference temperatures of 15°C, 20°C and 25°C, and a selectable TDS factor between 0.40 and 1.00.

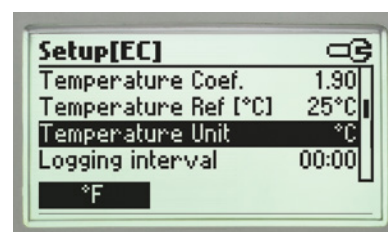
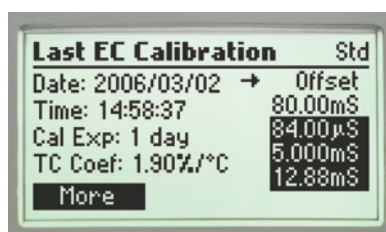
Ten sets of customized measurement parameters can be stored as a user profile and later recalled.



Quick connect probe

HI763123 four-ring platinum conductivity probe features a quick connect DIN connector to make attaching and removing the probe simple and easy.

On-screen Features



- **Log-on-demand**

- Store measurement data at the press of a button

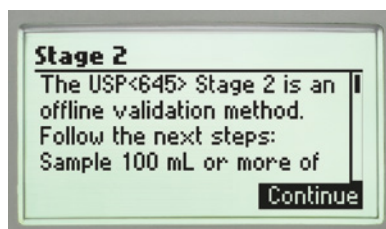
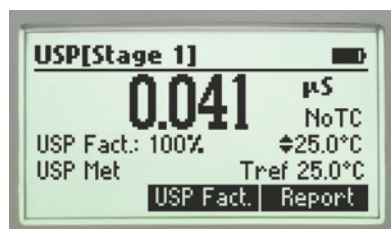
- **GLP data**

- Calibration data, including date, time, and calibration values can be retrieved by pressing the GLP button

- **Setup screen**

- Our extensive setup screen features a host of configurable options such as time, date, temperature units, and language for help screens and guides

USP <645> On-screen Features



- **Three stages of conformity**

- Performs all three stages of USP <645> water quality testing requirements

- **On-screen guide**

- Users are provided with on-screen instructions for each USP stage

- **Progress bar**

- Displays reading stability progress towards meeting stage 2 requirements



Supplied complete

HI98197 is supplied complete with sensor, flow cell, tubing, calibration solution, beakers, PC software and connection cable, instruction manual, quick start guide and batteries in a rugged, custom carrying case.

Specifications

HI98197

EC	Range	0.000 to 9.999 $\mu\text{S}/\text{cm}$; 10.00 to 99.99 $\mu\text{S}/\text{cm}$; 100.0 to 999.9 $\mu\text{S}/\text{cm}$; 1.000 to 9.999 mS/cm ; 10.00 to 99.99 mS/cm ; 100.0 to 1000.0 mS/cm (actual conductivity*; temperature compensated to 400 mS/cm)
	Resolution	0.001 $\mu\text{S}/\text{cm}$; 0.01 $\mu\text{S}/\text{cm}$; 0.1 $\mu\text{S}/\text{cm}$; 0.001 mS/cm ; 0.01 mS/cm ; 0.1 mS/cm
	Accuracy	$\pm 1\%$ of reading ($\pm 0.01 \mu\text{S}/\text{cm}$ or 1 digit, whichever is greater)
	Calibration	automatic up to five points with seven memorized standards (0.00 $\mu\text{S}/\text{cm}$, 84.0 $\mu\text{S}/\text{cm}$, 1.413 mS/cm , 5.00 mS/cm , 12.88 mS/cm , 80.0 mS/cm , 111.8 mS/cm)
TDS	Range	0.00 to 99.99 ppm; 100.0 to 999.9 ppm; 1.000 to 9.999 g/L; 10.00 to 99.99 g/L; 100.0 to 400.0 g/L (autoranging)
	Resolution	0.01 ppm; 0.1 ppm; 0.001 g/L; 0.01 g/L; 0.1 g/L
	Accuracy	$\pm 1\%$ of reading ($\pm 0.05 \text{ ppm}$ or 1 digit, whichever is greater)
Resistivity	Range	1.0 to 99.9 $\Omega\cdot\text{cm}$; 100 to 999 $\Omega\cdot\text{cm}$; 1.00 to 9.99 $\text{K}\Omega\cdot\text{cm}$; 10.0 to 99.9 $\text{K}\Omega\cdot\text{cm}$; 100 to 999 $\text{K}\Omega\cdot\text{cm}$; 1.00 to 9.99 $\text{M}\Omega\cdot\text{cm}$; 10.0 to 100.0 $\text{M}\Omega\cdot\text{cm}$ (autoranging)
	Resolution	0.1 $\Omega\cdot\text{cm}$; 1 $\Omega\cdot\text{cm}$; 0.01 $\text{K}\Omega\cdot\text{cm}$; 0.1 $\text{K}\Omega\cdot\text{cm}$; 1 $\text{K}\Omega\cdot\text{cm}$; 0.01 $\text{M}\Omega\cdot\text{cm}$; 0.1 $\text{M}\Omega\cdot\text{cm}$
	Accuracy	$\pm 1\%$ of reading ($\pm 10 \Omega$ or 1 digit, whichever is greater)
Salinity	Range	% NaCl: 0.0 to 400.0%; practical salinity: 0.00 to 42.00 (PSU); seawater scale: 0.00 to 80.00 (ppt)
	Resolution	0.1%; 0.01
	Accuracy	$\pm 1\%$ of reading
	Calibration	max. one point only in % NaCl range with HI7037 standard; use conductivity calibration for all other ranges
Temperature	Range	-20.0 to 120.0°C; -4.0 to 248.0°F
	Resolution	0.1°C; 0.1°F
	Accuracy	$\pm 0.2^\circ\text{C}$; $\pm 0.4^\circ\text{F}$ (excluding probe error)
	Calibration	one or two points
Additional Specifications	Cell Constant Setup	0.010 to 10.000
	Temperature Compensation	NoTC, linear (-20.0 to 120.0°C; -4.0 to 248.0°F), non linear (0 to 36°C; 32 to 98.6°F) ISO/DIS 7888 std
	Reference Temperature	15°C, 20°C, and 25°C
	Temperature Coefficient	0.00 to 10.00 %/°C
	TDS Factor	0.40 to 1.00
	Probe	HI763123 platinum, four-ring conductivity/TDS probe with internal temperature sensor and 1 m (3.3') cable (included)
	Logging	log-on-demand: 400 samples; lot logging: 5, 10, 30 sec, 1, 2, 5, 10, 15, 30, 60, 120, 180 min (max 1000 samples)
	Memorized Profiles	up to 10
	Measurement Modes	autorange, autoend, lock, and fixed range
	PC Connectivity	opto-isolated sealed USB (with HI92000 software and micro USB cable)
	Battery Type / Life	1.5V AA batteries (4) / approximately 100 hours of continuous use (without backlight), 25 hours with backlight
	Auto-off	user selectable: 5, 10, 30, 60 min, disabled
	Environment	0 to 50°C (32 to 122°F); RH 100% IP67
	Dimensions/Weight	185 x 93 x 35.2 mm (7.3 x 3.6 x 1.4") / 400 g (14.2 oz.)

*Uncompensated temperature reading
 * 1 gpg = 17 ppm CaCO_3



shown in HI720197 rugged carrying case with custom insert (included)

HI98197 includes:



HI763123
platinum, four-ring
conductivity/TDS probe
with internal temperature
sensor and 1 m (3.3') cable



HI605453
stainless steel flow cell
for ultrapure water



tubing



HI7031M
1413 µS/cm calibration
solution (230 mL)



HI7033M
84 µS/cm calibration
solution (230 mL)



100 mL plastic beaker (2)



rugged carrying case with custom insert



HI92000 PC software



HI920015 micro USB cable



1.5V AA batteries (4)



quality certificate,
instruction manual, and
quick start guide