HI98494

Multiparameter Bluetooth® pH/EC/OPDO® Meter

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

- **Bluetooth connectivity**
  - Retrieve data logs with Hanna Lab app for either sending by e-mail or download to a smart device for review

- **Waterproof**
  - IP67 rated waterproof, rugged enclosure for meter, IP68 for probe

- **Digital probe**
  - Digital probe with built-in temperature sensor and three ports for pH (ORP), EC and optical DO sensors
  - Color coded, field replaceable sensors
  - Auto-sensor recognition
  - Stainless steel, weighted protective guard

- **Quick calibration feature**

- **Automatic barometric pressure compensation**

- **Automatic temperature compensation**

- **Logging**
  - Automatic interval logging of up to 45,000 samples
  - Log-on-demand to store measurement data

- **GLP**
  - GLP data provides data from previous five calibrations to ensure Good Laboratory Practices are met

- **Dedicated help key**
  - On-screen context specific help is readily available at the press of a button

- **Backlit LCD display with multifunction virtual keys**

- **Intuitive keypad**
  - Dedicated and virtual soft keys

- **USB type-C**
  - Computer connectivity for transferring logged data as .CSV file
  - Port used for recharging built-in lithium-ion battery

- **Dual power source**
  - Meter operates on built-in lithium-ion battery
 - Meter automatically switches to common alkaline batteries as backup power source

Stainless steel, weighted protective guard

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Feature Overview

Bluetooth® 5.0 Connectivity

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

Measurements

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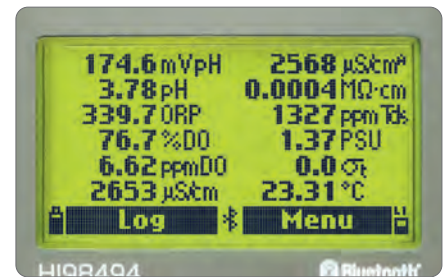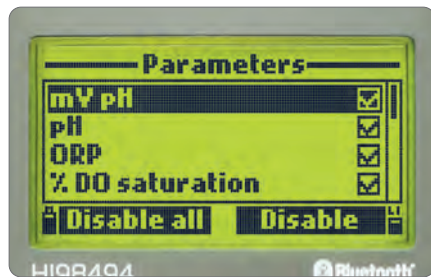
Data Logging

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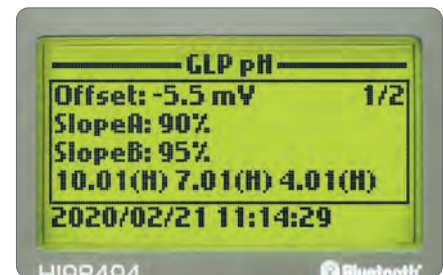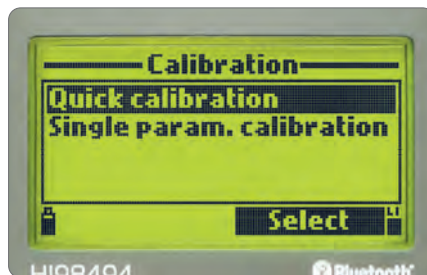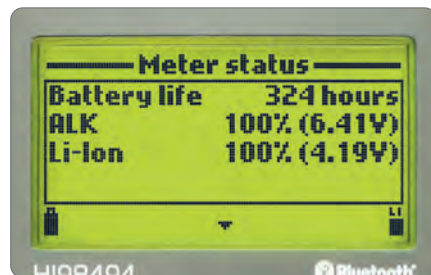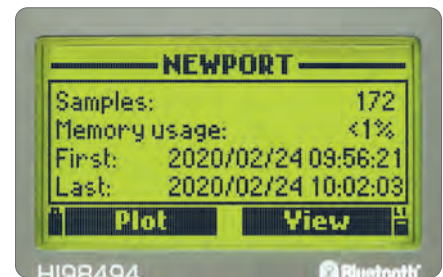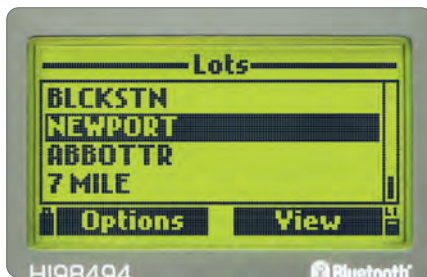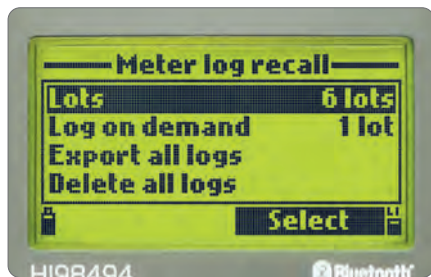
Dual Power Source

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

Quick-Calibration

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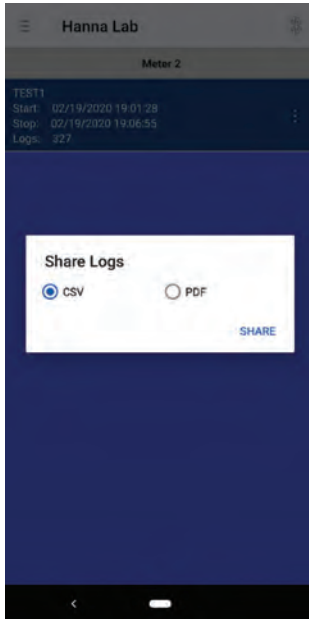
GLP Data

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

Bluetooth® and Hanna Lab App Compatibility

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

Share

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

GLP

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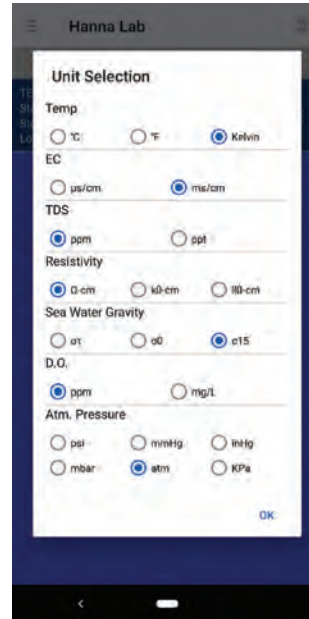
Unit Selection

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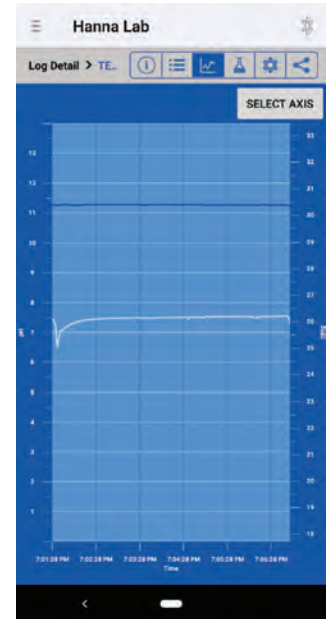
Data Graphing

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

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Multiparameter Probe and Sensors

Multi-function Sensor

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

Easy sensor removal with hex key

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

Optical Dissolved Oxygen Smart Caps

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

RFID tag

Sensor Specifications		HI7698194-0	HI7698194-1	HI7698194-3	HI7698494-5
Description		pH sensor	pH/ORP sensor	EC sensor	optical; luminescence quenching DO sensor
Measurement Type		pH, mV (pH)	pH, mV (pH), ORP	EC	DO (% saturation and concentration)
Measurement Range		0.00 to 13.00 pH ; ±600.0 mV	0.00 to 13.00 pH; ±600.0 mV; ±2000.0 mV	0.0 to 200.0 mS/cm; 0.0 to 400 mS/cm (absolute)	0.0 to 500.0 %; 0.00 to 50.00 mg/L
Temperature Range		-5 to 55°C	-5 to 55°C	-5 to 55°C	-5 to 55°C
Color Code		red	red	blue	green
Materials	Tip	glass (pH)	glass (pH); Pt (ORP)	stainless steel electrodes AISI 316	polypropylene
	Glass Type	LT (low temperature)	LT (low temperature)	–	–
	Junction	ceramic	ceramic	–	–
	Body	PEI	PEI	ABS/epoxy	ABS
	Electrolyte	gel	gel	–	–
	Reference	double	double	–	–
Maintenance Solution		HI70300 (storage solution)	HI70300 (storage solution)	none	none
Dimensions		118 x 15 mm	118 x 15 mm	111 x 17 mm	99 x 17 mm
Depth		20 m (65')	20 m (65')	20 m (65')	20 m (65')

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Data Transfer & Charging

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

Waterproof Probe Connection and USB Type-C

Waterproof Quick Connect DIN Connector

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

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

EC	Range	0 to 200 mS/cm (absolute EC up to 400 mS/cm)
	Resolution	**manual:** 1 µS/cm; 0.001 mS/cm; 0.01 mS/cm; 0.1 mS/cm; 1 mS/cm; **automatic:** 1 µS/cm from 0 to 9999 µS/cm; 0.01 mS/cm from 10.00 to 99.99 mS/cm; 0.1 mS/cm from 100.0 to 400.0 mS/cm; **automatic (mS/cm):** 0.001 mS/cm from 0.000 to 9.999 mS/cm; 0.01 mS/cm from 10.00 to 99.99 mS/cm; 0.1 mS/cm from 100.0 to 400.0 mS/cm
	Accuracy	±1% of reading or ±1 µS/cm whichever is greater
	Calibration	automatic one-point Quick Calibration using HI9828-25 ; automatic single point, with six standard solutions (84 µS/cm, 1413 µS/cm, 5.00 mS/cm, 12.88 mS/cm, 80.0 mS/cm, 111.8 mS/cm) or custom point
TDS	Range	0.0 to 400.0 ppt (g/L) (the maximum value depends on the TDS factor)
	Resolution	**manual:** 1 ppm (mg/L); 0.001 ppt (g/L); 0.01 ppt (g/L); 0.1 ppt (g/L); 1 ppt (g/L); **automatic:** 1 ppm (mg/L) from 0 to 9999 ppm (mg/L); 0.01 ppt (g/L) from 10.00 to 99.99 ppt (g/L); 0.1 ppt (g/L) from 100.0 to 400.0 ppt (g/L); **automatic ppt (g/L):** 0.001 ppt (g/L) from 0.000 to 9.999 ppt (g/L); 0.01 ppt (g/L) from 10.00 to 99.99 ppt (g/L); 0.1 ppt (g/L) from 100.0 to 400.0 ppt (g/L)
	Accuracy	±1% of reading or ±1 ppm (mg/L) whichever is greater
	Calibration	based on conductivity calibration
Resistivity	Range	0 to 999999 Ω•cm; 0 to 1000.0 kΩ•cm; 0 to 1.0000 MΩ•cm
	Resolution	dependent on resistivity reading
	Calibration	based on conductivity calibration
Salinity	Range	0.00 to 70.00 PSU
	Resolution	0.01 PSU
	Accuracy	±2% of reading or ±0.01 PSU whichever is greater
	Calibration	based on conductivity calibration
	Compensation	used for DO salinity compensation
Seawater σ	Range	0.0 to 50.0 σ_t, σ_0, σ_{15}
	Resolution	0.1 σ_t, σ_0, σ_{15}
	Accuracy	±1 σ_t, σ_0, σ_{15}
	Calibration	based on conductivity calibration
Dissolved Oxygen	Range	0.0 to 500.0%; 0.00 to 50.00 ppm (mg/L)
	Resolution	0.1%; 0.01 ppm (mg/L)
	Accuracy	±1.5% of reading ± 0.01mg/L for 0.00-20.00mg/L; ±5% of reading for 20.00-50.00mg/L; ±1.5% of reading ±0.1% for 0.0-200.0%; ±5% of reading for 200.0-500.0%
	Calibration	automatic Quick Calibration in water saturated air; one or two-point automatic calibration at 100% and 0%; manual single point using a value entered by the user in % saturation or mg/L
Atmospheric Pressure	Range	450 to 850 mm Hg; 17.72 to 33.46 in Hg; 600.0 to 1133.2 mbar; 8.702 to 16.436 psi; 0.5921 to 1.1184 atm; 60.00 to 113.32 kPa
	Resolution	0.1 mm Hg; 0.01 in Hg; 0.1 mbar; 0.001 psi; 0.0001 atm; 0.01 kPa
	Accuracy	±3 mm Hg within ±15°C from calibration temperature
	Calibration	automatic at one custom point
Temperature	Range	-5.00 to 55.00°C; 23.00 to 131.00°F; 268.15 to 328.15K
	Resolution	0.01°C; 0.01°F; 0.01K
	Accuracy	±0.15°C; ±0.27°F; ±0.15K
	Calibration	automatic at one custom point
Additional Specifications	Temperature Compensation	automatic from -5 to 55°C (23 to 131°F)
	Logging Memory	45,000 records interval logging or 25,000 records log-on-demand of all parameters
	Logging Interval	one second to three hours
	Connectivity	Bluetooth® using Hanna Lab App; USB-C: Host – save logs to USB stick device – appears as .MSD on computer
	Environment	0 to 50°C (32 to 122°F); RH 100% IP67
	Battery Type / Life	1.5V AA batteries (4); built-in Li-ion battery (1) / minimum 200 hours (AA, without backlighting and BLE) minimum 50 hours (Li-ion battery, without backlighting and BLE)
	Dimensions / Weight	185 x 93 x 35.2 mm (7.3 x 3.6 x 1.4") / 400 g (14.2 oz.)
Ordering Information		all models are supplied with: HI7698194-1 pH/ORP sensor, HI7698194-3 EC sensor, HI7698295 short protective probe shield, HI7698494-5 optical DO sensor, HI9828-20 quick calibration solution, zero oxygen solution, HI76984942 probe maintenance kit, HI920016 USB type-C cable, HI7698290 calibration beaker, batteries (4), quality certificate, and instruction manual in a rugged carrying case with custom insert. **HI98494** is supplied with HI7698494 multiparameter probe with 4m (13') cable **HI98494/10** is supplied with HI7698494/10 multiparameter probe with 10m (33') cable **HI98494/20** is supplied with HI7698494/20 multiparameter probe with 20m (66') cable **HI98494/30** is supplied with HI7698494/20 multiparameter probe with 20m (66') cable **HI98494/40** is supplied with HI7698494/40 multiparameter probe with 40m (131') cable **HI98494/50** is supplied with HI7698494/40 multiparameter probe with 40m (131') cable
Accessories		**HI710034** orange protective rubber boot

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