



# Multiparameter Waterproof Meters

Multiparameter measurement in compact,  
IP67 rated waterproof enclosures

 **HANNA**<sup>®</sup>  
instruments

## HI98194

# Multiparameter Waterproof Meter

pH, ORP, EC, TDS, Resistivity, Salinity, Seawater  $\sigma$ , Dissolved Oxygen, Atmospheric Pressure and Temperature

- **Waterproof**
  - IP67 rated waterproof, rugged enclosure for meter, IP68 for probe
- **Digital probe**
  - Digital probe with integral temperature sensor and three ports for pH (ORP), EC and DO sensors
- **Color coded, field replaceable sensors**
- **Auto-sensor recognition**
- **Quick calibration feature**
- **Automatic barometric pressure compensation**
- **Automatic temperature compensation**
- **Automatic logging**
  - Store up to 45,000 samples
- **Log-on-demand**
  - Store measurement data at the press of a button
- **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
- **Connectivity**
  - PC connectivity via opto-isolated micro-USB with Hanna software
- **Up to 360 hours of battery life**
  - Powered by (4) 1.5V AA batteries



- **Quick Connect Probe**
  - Fast, secure and waterproof connection

## For Universal Applications

HI98184 provides multiparameter measurement in a compact and rugged, IP67 waterproof enclosure. Ideal for demanding applications, this meter features our rugged, quick connect digital probe with field replaceable sensors.

A backlit, graphic LCD provides easy to read resolution even in low-lit areas. A combination of dedicated and soft keys allows easy, intuitive operation in a choice of languages.

## Data Logging

The HI98194 allows users to store up to 45,000 continuous or log-on-demand samples with logging intervals from one second to three hours. Logged data can be later transferred to a PC with the HI920015 micro USB cable and Hanna HI9298194 software.

## Dedicated HELP Button

The contextual HELP menu can be accessed to obtain on-screen information and assistance about each feature at the touch of a button.

## Quick Connect Probe

The HI7698194 probe features a quick connect DIN connector to make attaching and removing the probe simple and easy.



HI9828-25  
Quick Calibration  
solution

- **Field ready with Quick Calibration solution**
  - Standardize pH and conductivity with one calibration solution
  - Simply screw the calibration beaker filled with HI 9828-25 (500 mL) or HI9828-27 (1 gallon) solution onto the probe, select "Quick calibration" from the menu and press OK. Individual calibration may also be performed using multiple calibration points

## pH: Specific Features

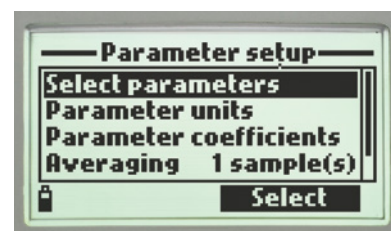
- **Calibration**
  - Up to a three-point calibration with five standard buffers and one custom buffer available
- **pH in mV option**
  - Useful for diagnostics
- **GLP data**
  - Offset, slope, date, time and buffers used
- **Automatically temperature compensated readings**
- **pH or pH/ORP field replaceable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

## EC/TDS/Resistivity: Specific Features

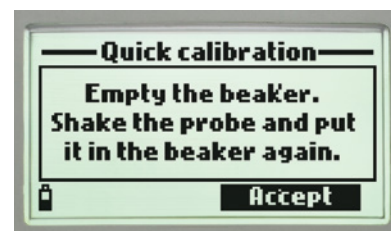
- **Calibration**
  - Single-point calibration from six standards (84  $\mu\text{S}/\text{cm}$ , 1,413  $\mu\text{S}/\text{cm}$ , 5.00 mS/cm, 12.88 mS/cm, 80 mS/cm, 111.8 mS/cm or custom point)
- **Temperature compensation**
  - Automatic Temperature Compensation
  - Configurable temperature coefficient range from 0.00 to 6.00%/°C
  - Choice of reference temperatures at 20 or 25°C
  - Absolute conductivity can be displayed along with the temperature compensated value
- **Auto-ranging**
- **Salinity readings**
  - Practical Salinity Scale (PSU) based on conductivity calibration

## Dissolved Oxygen: Specific Features

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



- **Setup**
  - Extensive setup screen features



- **Guides**
  - On screen guides are displayed to help you while performing procedures such as calibration



- **Rugged carrying case with custom insert included**

# HI98194 Probe and Sensor Features and Specifications



## Probe Specifications

## HI7698194

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

## Multi-function Sensor

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



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

## Specifications

## HI98194

|                           |                          |                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| pH / mV                   | Range                    | 0.00 to 14.00 pH / $\pm 600.0$ mV                                                                                                                                                                                                                                                                                                                                                                                         |
|                           | Resolution               | 0.01 pH / 0.1 mV                                                                                                                                                                                                                                                                                                                                                                                                          |
|                           | Accuracy                 | $\pm 0.02$ pH / $\pm 0.5$ mV                                                                                                                                                                                                                                                                                                                                                                                              |
|                           | Calibration              | automatic one, two, or three points with automatic recognition of five standard buffers (pH 4.01, 6.86, 7.01, 9.18, 10.01) or one custom buffer                                                                                                                                                                                                                                                                           |
| ORP                       | Range                    | $\pm 2000.0$ mV                                                                                                                                                                                                                                                                                                                                                                                                           |
|                           | Resolution               | 0.1 mV                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                           | Accuracy                 | $\pm 1.0$ mV                                                                                                                                                                                                                                                                                                                                                                                                              |
|                           | Calibration              | automatic at one custom point (relative mV)                                                                                                                                                                                                                                                                                                                                                                               |
| EC                        | Range                    | 0 to 200 mS/cm (absolute EC up to 400 mS/cm)                                                                                                                                                                                                                                                                                                                                                                              |
|                           | Resolution               | <b>manual:</b> 1 $\mu$ S/cm; 0.001 mS/cm; 0.01 mS/cm; 0.1 mS/cm; 1 mS/cm;<br><b>automatic:</b> 1 $\mu$ S/cm from 0 to 9999 $\mu$ S/cm; 0.01 mS/cm from 10.00 to 99.99 mS/cm; 0.1 mS/cm from 100.0 to 400.0 mS/cm;<br><b>automatic mS/cm:</b> 0.001 mS/cm from 0.000 to 9.999 mS/cm; 0.01 mS/cm from 10.00 to 99.99 mS/cm; 0.1 mS/cm from 100.0 to 400.0 mS/cm                                                             |
|                           | Accuracy                 | $\pm 1\%$ of reading or $\pm 1$ $\mu$ S/cm whichever is greater                                                                                                                                                                                                                                                                                                                                                           |
|                           | Calibration              | automatic single point, with six standard solutions (84 $\mu$ S/cm, 1413 $\mu$ S/cm, 5.00 mS/cm, 12.88 mS/cm, 80.0 mS/cm, 111.8 mS/cm) or custom point                                                                                                                                                                                                                                                                    |
| TDS                       | Range                    | 0.0 to 400.0 ppt (g/L) (the maximum value depends on the TDS factor)                                                                                                                                                                                                                                                                                                                                                      |
|                           | Resolution               | <b>manual:</b> 1 ppm (mg/L); 0.001 ppt (g/L); 0.01 ppt (g/L); 0.1 ppt (g/L); 1 ppt (g/L);<br><b>automatic:</b> 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);<br><b>automatic ppt (g/L):</b> 0.001 ppt (g/L) from 0.000 to 9.999 ppt (g/L); 0.01 ppt (g/L) from 10.00 to 99.99 ppt (g/L); 0.1 ppt (g/L) from 100.0 to 400.0 ppt (g/L) |
|                           | Accuracy                 | $\pm 1\%$ of reading or $\pm 1$ ppm (mg/L) whichever is greater                                                                                                                                                                                                                                                                                                                                                           |
|                           | Calibration              | based on conductivity calibration                                                                                                                                                                                                                                                                                                                                                                                         |
| Resistivity               | Range                    | 0 to 999999 $\Omega \cdot \text{cm}$ ; 0 to 1000.0 k $\Omega \cdot \text{cm}$ ; 0 to 1.0000 M $\Omega \cdot \text{cm}$                                                                                                                                                                                                                                                                                                    |
|                           | Resolution               | dependent on resistivity reading                                                                                                                                                                                                                                                                                                                                                                                          |
|                           | Calibration              | based on conductivity calibration                                                                                                                                                                                                                                                                                                                                                                                         |
| Salinity                  | Range                    | 0.00 to 70.00 PSU                                                                                                                                                                                                                                                                                                                                                                                                         |
|                           | Resolution               | 0.01 PSU                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                           | Accuracy                 | $\pm 2\%$ of reading or $\pm 0.01$ PSU whichever is greater                                                                                                                                                                                                                                                                                                                                                               |
|                           | Calibration              | based on conductivity calibration                                                                                                                                                                                                                                                                                                                                                                                         |
| Seawater $\sigma$         | Range                    | 0.0 to 50.0 $\sigma_t$ , $\sigma_\theta$ , $\sigma_{15}$                                                                                                                                                                                                                                                                                                                                                                  |
|                           | Resolution               | 0.1 $\sigma_t$ , $\sigma_\theta$ , $\sigma_{15}$                                                                                                                                                                                                                                                                                                                                                                          |
|                           | Accuracy                 | $\pm 1$ $\sigma_t$ , $\sigma_\theta$ , $\sigma_{15}$                                                                                                                                                                                                                                                                                                                                                                      |
|                           | Calibration              | based on conductivity calibration                                                                                                                                                                                                                                                                                                                                                                                         |
| Dissolved Oxygen          | Range                    | 0.0 to 500.0%; 0.00 to 50.00 ppm (mg/L)                                                                                                                                                                                                                                                                                                                                                                                   |
|                           | Resolution               | 0.1%; 0.01 ppm (mg/L)                                                                                                                                                                                                                                                                                                                                                                                                     |
|                           | Accuracy                 | 0.0 to 300.0%: $\pm 1.5\%$ of reading or $\pm 1.0\%$ whichever is greater; 300.0 to 500.0%: $\pm 3\%$ of reading; 0.00 to 30.00 ppm (mg/L): $\pm 1.5\%$ of reading or $\pm 0.10$ ppm (mg/L), whichever is greater; 30.00 ppm (mg/L) to 50.00 ppm (mg/L): $\pm 3\%$ of reading                                                                                                                                             |
|                           | Calibration              | automatic one or two points at 0, 100% or one custom point                                                                                                                                                                                                                                                                                                                                                                |
| Atmospheric Pressure      | Range                    | 450 to 850 mm Hg; 17.72 to 33.46 in Hg; 600.0 to 1133.2 mbar; 8.702 to 16.436 psi; 0.5921 to 1.1184 atm; 60.00 to 113.32 kPa                                                                                                                                                                                                                                                                                              |
|                           | Resolution               | 0.1 mm Hg; 0.01 in Hg; 0.1 mbar; 0.001 psi; 0.0001 atm; 0.01 kPa                                                                                                                                                                                                                                                                                                                                                          |
|                           | Accuracy                 | $\pm 3$ mm Hg within $\pm 15^\circ\text{C}$ from the temperature during calibration                                                                                                                                                                                                                                                                                                                                       |
|                           | Calibration              | automatic at one custom point                                                                                                                                                                                                                                                                                                                                                                                             |
| Temperature               | Range                    | $-5.00$ to $55.00^\circ\text{C}$ ; $23.00$ to $131.00^\circ\text{F}$ ; 268.15 to 328.15K                                                                                                                                                                                                                                                                                                                                  |
|                           | Resolution               | $0.01^\circ\text{C}$ ; $0.01^\circ\text{F}$ ; 0.01K                                                                                                                                                                                                                                                                                                                                                                       |
|                           | Accuracy                 | $\pm 0.15^\circ\text{C}$ ; $\pm 0.27^\circ\text{F}$ ; $\pm 0.15\text{K}$                                                                                                                                                                                                                                                                                                                                                  |
|                           | Calibration              | automatic at one custom point                                                                                                                                                                                                                                                                                                                                                                                             |
| Additional Specifications | Temperature Compensation | automatic from $-5$ to $55^\circ\text{C}$ ( $23$ to $131^\circ\text{F}$ )                                                                                                                                                                                                                                                                                                                                                 |
|                           | Logging Memory           | 45,000 records (continuous logging or log-on-demand of all parameters)                                                                                                                                                                                                                                                                                                                                                    |
|                           | Logging Interval         | one second to three hours                                                                                                                                                                                                                                                                                                                                                                                                 |
|                           | PC Connectivity          | via USB (with Hanna PC software)                                                                                                                                                                                                                                                                                                                                                                                          |
|                           | Environment              | 0 to $50^\circ\text{C}$ ( $32$ to $122^\circ\text{F}$ ); RH 100% IP67                                                                                                                                                                                                                                                                                                                                                     |
|                           | Battery Type / Life      | 1.5V AA batteries (4) / approximately 360 hours of continuous use without backlight (50 hours with backlight)                                                                                                                                                                                                                                                                                                             |
|                           | Dimensions / Weight      | 185 x 93 x 35.2 mm (7.3 x 3.6 x 1.4") / 400 g (14.2 oz.)                                                                                                                                                                                                                                                                                                                                                                  |