

HI98196

# Multiparameter Waterproof Meter

pH, ORP, Dissolved Oxygen,  
Atmospheric Pressure and  
Temperature

## pH Features

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

## Dissolved Oxygen Features

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

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



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

HI710034 Orange



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## Backlit Graphic LCD Display

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

## Waterproof Protection

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



## Quick Connect Digital Probe

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

## Color Coded, Field Replaceable Sensors

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

## Standard Calibration

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

## Auto-sensor Recognition

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

## Automatic Temperature Compensation

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

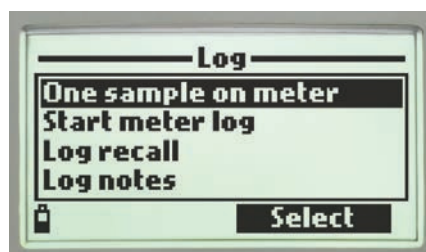
## Automatic Barometric Pressure Compensation

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



## GLP Data

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

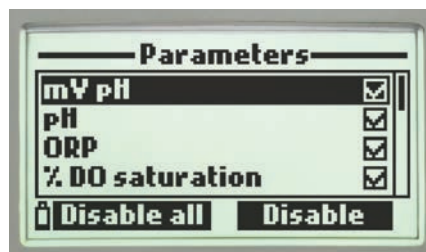


## Data Logging

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

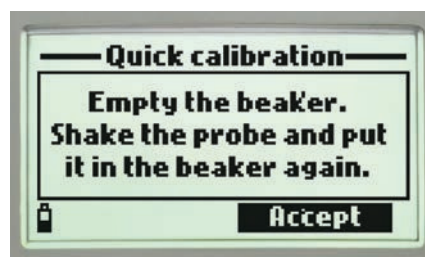
## Intuitive Keypad

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



## Setup

Extensive setup screen features



## Dedicated Help Key

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

## PC Connectivity

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

## Long Battery Life

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



## Rugged custom carrying case

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

Probe and Sensors

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



| Specifications             | HI7698196                                                                                                          |              |
|----------------------------|--------------------------------------------------------------------------------------------------------------------|--------------|
| Sensor Inputs              | two (pH or pH/ORP, DO)                                                                                             |              |
| Sample Environment         | fresh, brackish, seawater                                                                                          |              |
| Waterproof Protection      | IP68                                                                                                               |              |
| Operating Temperature      | -5 to 55°C                                                                                                         |              |
| Storage Temperature        | -20 to 70°C                                                                                                        |              |
| Maximum Depth              | 20 m (66')                                                                                                         |              |
| Dimensions (without cable) | 342 mm (13.5"); 46 mm (1.8") dia                                                                                   |              |
| Weight (without sensors)   | 570 g (20.1 oz.)                                                                                                   |              |
| Cable Specification        | multistrand-multiconductor shielded cable with internal strength member rated for 68 kg (150 lb.) intermittent use |              |
| 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                             | HI7698194-2                         |
|-----------------------|-------------|-----------------------------|-----------------------------------------|-------------------------------------|
| Description           |             | pH sensor                   | pH/ORP sensor                           | DO sensor                           |
| Measurement Type      |             | pH, mV (pH)                 | pH, mV (pH), ORP                        | DO (% saturation and concentration) |
| Measurement Range     |             | 0.00 to 13.00 pH; ±600.0 mV | 0.00 to 13.00 pH; ±600.0 mV; ±2000.0 mV | 0.0 to 500.0 %; 0.00 to 50.00 mg/L  |
| Temperature Range     |             | -5 to 55°C                  | -5 to 55°C                              | -5 to 55°C                          |
| Color Code            |             | red                         | red                                     | white                               |
| Materials             | Tip         | glass (pH)                  | glass (pH); Pt (ORP)                    | cat/an: Ag/Zn                       |
|                       | Junction    | ceramic                     | ceramic                                 | membrane: HDPE                      |
|                       | Body        | PEI                         | PEI                                     | white top ABS                       |
|                       | Electrolyte | gel                         | gel                                     |                                     |
|                       | Reference   | double                      | double                                  |                                     |
| Maintenance Solution  |             | HI70300 (storage solution)  | HI70300 (storage solution)              | HI7042S (DO electrolyte)            |
| Dimensions            |             | 118 x 15 mm                 | 118 x 15 mm                             | 99 x 17 mm                          |
| Depth                 |             | 20 m (65')                  | 20 m (65')                              | 20 m (65')                          |



| Specifications            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | HI98196                                                                                                                                                                                                                                                                       |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| pH / mV                   | Range                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.00 to 14.00 pH / $\pm 600.0$ mV                                                                                                                                                                                                                                             |
|                           | Resolution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0.01 pH / 0.1 mV                                                                                                                                                                                                                                                              |
|                           | Accuracy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | $\pm 0.02$ pH / $\pm 0.5$ mV                                                                                                                                                                                                                                                  |
|                           | Calibration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | automatic up to three points with automatic recognition of five standard buffers (pH 4.01, 6.86, 7.01, 9.18, 10.01) or one custom buffer                                                                                                                                      |
| ORP                       | Range                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | $\pm 2000.0$ mV                                                                                                                                                                                                                                                               |
|                           | Resolution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0.1 mV                                                                                                                                                                                                                                                                        |
|                           | Accuracy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | $\pm 1.0$ mV                                                                                                                                                                                                                                                                  |
|                           | Calibration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | automatic at one custom point (relative mV)                                                                                                                                                                                                                                   |
| Dissolved Oxygen          | Range                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.0 to 500.0%; 0.00 to 50.00 ppm (mg/L)                                                                                                                                                                                                                                       |
|                           | Resolution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0.1%; 0.01 ppm (mg/L)                                                                                                                                                                                                                                                         |
|                           | Accuracy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0.0 to 300.0%; $\pm 1.5\%$ of reading or $\pm 1.0\%$ whichever is greater; 300.0 to 500.0%; $\pm 3\%$ of reading; 0.00 to 30.00 ppm (mg/L); $\pm 1.5\%$ of reading or $\pm 0.10$ 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)                                                                                                                                                                 |
| Ordering Information      | Dimensions / Weight                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 185 x 93 x 35.2 mm (7.3 x 3.6 x 1.4") / 400 g (14.2 oz.)                                                                                                                                                                                                                      |
|                           | <p>All models are supplied with:<br/> HI7698194-1 pH/ORP sensor, HI7698194-2 DO sensor, HI7698295 short protective probe shield, HI9828-20 quick calibration solution, HI76981942 probe maintenance kit, HI7698290 calibration beaker, HI9298194 PC software, HI920015 micro USB cable, batteries (4), quality certificate, and instruction manual in a rugged carrying case with custom insert.</p> <p><b>HI98196</b> is supplied with HI7698196/4 multiparameter probe with 4m (13') cable<br/> <b>HI98196/10</b> is supplied with HI7698196/10 multiparameter probe with 10m (33') cable<br/> <b>HI98196/20</b> is supplied with HI7698196/20 multiparameter probe with 20m (66') cable<br/> <b>HI98196/40</b> is supplied with HI7698196/40 multiparameter probe with 40m (131') cable</p> |                                                                                                                                                                                                                                                                               |
| Accessories               | <b>HI710034</b> orange protective rubber boot                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                               |

pH and ORP solutions begin on page 2.144;  
for DO accessories see HI7042S, HI7040L and HI76409A/P page 6.33

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