HI98190 • HI98191

Professional Waterproof Meters

pH/ORP and pH/ORP/ISE

- Waterproof
  - IP67 rated waterproof, rugged enclosure
- ISE measurement units (HI98191 only)
  - Extensive choice of units to display readings (ppm, ppt, g/L, µg/L, mg/L, M, mol/L, mmol/L, %, w/v, user)
- CAL Check™
  - Alerts users to problems during calibration including dirty/broken electrode, contaminated buffer and overall probe condition
- Automatic or manual temperature compensation
  - pH sensors incorporate a built-in temperature sensor
- Calibration
  - Up to a five-point calibration with seven standard buffers and five custom buffers available
- Log-on-demand
  - Store measurement data at the press of a button
- GLP
  - GLP data provides data from previous calibration to ensure Good Laboratory Practices are met
- AutoHold
  - Automatically holds the first stable reading on the display
- Calibration timeout
  - Alerts when calibration is due at a specified interval
- Help menu
  - On-screen context specific help is readily available at the press of a button
- Clear display
  - Dot matrix display with multifunction virtual keys
- Intuitive keypad
  - Most of the available options such as GLP information, help, range, calibration and backlight have a dedicated button
- Connectivity
  - PC connectivity via opto-isolated micro-USB with HI92000 software
- Approximately 200 hour battery life
  - Powered by (4) 1.5V AA batteries



Quick Connect Probe

(HI98190 only)

For Universal Applications

HI98190 and HI98191 are IP67 rated waterproof meters designed for universal applications. HI98190 measures pH/ORP and temperature while HI98191 also includes ISE measurements.

Exchange out the pH probe for an ORP probe to obtain mV readings in the ±2000 mV range. HI98191 adds direct ion concentration readings for ISEs with a choice of units for calibration and display.

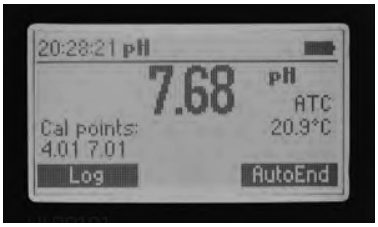
Quick Connect Probe

The HI98190 features the HI12963 titanium bodied pH/temperature electrode with a quick connect DIN connector to make attaching and removing the probe simple and easy. The HI98191 is supplied with the HI72911B titanium bodied pH/temperature electrode with BNC and RCA connectors.

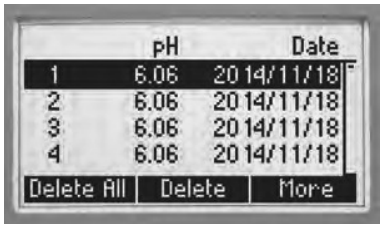
ISE Sensors and Calibration

HI98191 has 17 different standard ISE sensors pre-programmed in the meter. Selecting the appropriate sensor will automatically update the ion charge for slope calibration and can be calibrated up to five points with the choice of seven standards and five custom standards (choice of units). This meter allows an extensive choice of measurement units (ppm, ppt, g/L, ppb, µg/L, mg/mL, M, mol/L, mmol/L, % w/v, user) and has an expanded measuring range of 1.00×10^{-7} to 9.99×10^{10}.

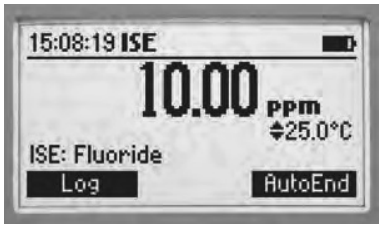
On-screen Features



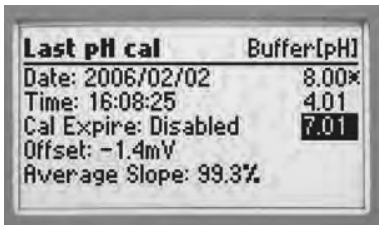
- Backlit LCD
  - Press the backlight button to view the display in low-light conditions



- Log-on-demand
  - Store measurement data at the press of a button. Data can be viewed on-screen or transferred to a PC.



- ISE measurements
  - The HI98191 includes ISE measurements when used with our wide selection of ISE electrodes or a custom version



- GLP data
  - Comprehensive GLP functions are directly accessible by pressing the GLP key. Calibration data, including date, time and calibration values are stored for retrieval at a later time



- 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



- Calibration
  - pH calibration features detailed CAL Check™ messages. Users are guided through the calibration procedure with step-by-step on-screen instructions

pH Calibration

Choose from seven standard pH buffers and five custom pH buffers to obtain up to five point calibration and achieve high precision readings with a pH accuracy of ±0.002 and up to ±0.001 pH resolution.

CAL Check™

Hanna's CAL Check™ maintains a history of past calibrations and monitors the pH electrode and buffers during subsequent calibrations for any signs of wide variances due to a dirty or broken electrode or contaminated pH buffers. During calibration, users are alerted to problems should they occur. After calibration, the electrode's overall condition is displayed as a percentage.

Data Logging

The log-on-demand feature allows users to store up to 200 samples (HI98190) or 300 samples (HI98191) that can be later transferred to a PC with the HI920015 USB cable and HI92000 software.

GLP and On-Screen Help

Comprehensive GLP data is directly accessible by pressing the GLP key; the contextual help menu can be accessed to obtain on-screen information and assistance at the touch of a button.



- Calibrate right in the case with custom beaker holders
  - Our custom carrying case features beaker holders for calibration out in the field.



HI98190 shown in HI720190 rugged carrying case with custom thermoformed insert (included)



HI98191 shown in HI720191 rugged carrying case with custom thermoformed insert (included)

- Supplied complete
  - Each meter is supplied complete with sensor, calibration solution, beakers, PC software and connection cable, instruction manual, quick start guide and batteries in a rugged, custom carrying case.

Specifications		HI98190	HI98191
pH*	Range	-2.0 to 20.0 pH; -2.00 to 20.00 pH; -2.000 to 20.000 pH	-2.0 to 20.0 pH; -2.00 to 20.00 pH; -2.000 to 20.000 pH
	Resolution	0.1 pH; 0.01 pH; 0.001 pH	0.1 pH; 0.01 pH; 0.001 pH
	Accuracy	±0.1 pH; ±0.01 pH; ±0.002 pH	±0.1 pH; ±0.01 pH; ±0.002 pH
	Calibration	up to five-point calibration, seven standard buffers available (1.68, 4.01, 6.86, 7.01, 9.18, 10.01, 12.45) and five custom buffers	up to five-point calibration, seven standard buffers available (1.68, 4.01, 6.86, 7.01, 9.18, 10.01, 12.45) and five custom buffers
	Temperature Compensation	automatic or manual from -20.0 to 120.0°C (-4.0 to 248.0°F)	automatic or manual from -20.0 to 120.0°C (-4.0 to 248.0°F)
mV*	Range	±2000 mV	±2000 mV
	Resolution	0.1 mV	0.1 mV
	Accuracy	±0.2 mV	±0.2 mV
	Relative mV Offset Range	±2000 mV	±2000 mV
ISE	Range	–	from 1.00 E^{-7} to 9.99 E^{10} concentration
	Resolution	–	3 digits 0.01; 0.1; 1; 10 concentration
	Accuracy	–	±0.5% of reading (monovalent ions), ±1% of reading (divalent ions)
	Calibration	–	up to five point calibration, seven standard solutions available
Temperature*	Range	-20.0 to 120.0 °C (-4.0 to 248.0°F)	-20.0 to 120.0 °C (-4.0 to 248.0°F)
	Resolution	0.1°C (0.1°F)	0.1°C (0.1°F)
	Accuracy	±0.4°C (±0.8°F) (excluding probe error)	±0.4°C (±0.8°F) (excluding probe error)
Additional Specifications	pH Probe	HI98190: HI12963 titanium body, pH electrode with internal temperature sensor, quick DIN connector and 1 m (3.3' cable) HI98191: HI72911B titanium body, pH electrode with internal temperature sensor, BNC connector and 1 m (3.3' cable)	
	Slope Calibration	from 80 to 110%	
	Log-on-demand	200 samples (100 each pH/mV range)	300 samples (100 each pH/mV/ISE range)
	PC Connection	opto-isolated USB with HI92000 software and micro USB cable	
	Input Impedance	10^{12} Ω	
	Battery Type / Life	1.5V AA batteries (4) / approximately 200 hours of continuous use without backlight (50 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.)	
Ordering Information		**HI98190** and **HI98191** are supplied with HI12963 pH electrode (HI98190), HI72911B pH electrode (HI98191), HI 7662 temperature Probe (HI 98191) HI7004M pH 4.01 buffer solution (230 mL), HI7007M pH 7.01 buffer solution (230 mL), electrode general cleaning solution sachet (2), 100 mL plastic beaker (2), HI92000 PC software, HI920015 micro USB cable, 1.5V AA batteries (4), instruction manual, quick start guide, quality certificate and HI 720190 (HI98190) or HI720191 (HI98191) rugged carrying case with custom thermoformed insert.	

* Limits will be reduced to actual sensor limits

pH and ORP solutions begin on page 3.100; ISE solutions begin on page 4.22