

HI98168

pH / Temperature Meter for Soil

The HI98168 is a rugged, waterproof, portable pH meter that allows for the direct measure of soil pH. This meter is supplied with a specialized pH electrode that has a rugged conical tip for insertion in soil.

- **Waterproof**
 - IP67 rated waterproof, rugged enclosure
- **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
- **Approximately 200 hour battery life**
 - Powered by four 1.5V AA batteries
- **Clear display**
 - Dot matrix display with multifunction virtual keys
- **Auto hold**
 - Automatically holds the first stable reading on the display
- **Calibration timeout**
 - Alerts when calibration is due at a specified interval
- **Connectivity**
 - PC connectivity via opto-isolated micro-USB with HI92000 software
- **GLP**
 - GLP data provides data from previous calibration to ensure Good Laboratory Practices are met
- **Intuitive keypad**
 - Important and often used functions such as GLP information, help, range, calibration, and backlight have a dedicated button
- **Supplied complete**
 - Each meter is supplied complete with sensor, calibration and cleaning solutions, beakers, PC software and connection cable, instruction manual, quick start guide, and batteries in a rugged, custom carrying case



pH

portable

Soil pH Meter

designed for agriculture professionals

Hanna 98 series quality pH meters are rugged and portable with the performance and features of a benchtop. Seven models are available in this series to measure food, milk, meat, yogurt, cheese, beer, wine, and soil. Each model is supplied with an application specific electrode and cleaning solutions. These waterproof meters comply to IP67 standards and can be easily operated with one hand.



Backlit Graphic LCD Display

These meters feature a backlit graphic LCD with on-screen help. 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.

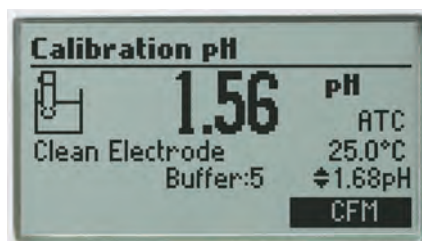


Quick Connect Probe

Each meter features an application specific pH/temperature probe with a quick connect DIN connector to make attaching and removing the probe simple and easy.

Calibration Timeout

Alerts when calibration is due at a specified interval.



pH Calibration

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

Enhanced Calibration

An "out of calibration range" warning can be engaged to keep the user informed of the current calibration and help to avoid performing measurements that are out of the bracketed range.



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.



GLP

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



Data Logging

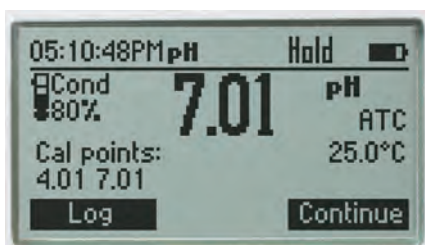
The log-on-demand feature allows users to store up to 200 samples that can later be transferred to a PC with the HI920015 USB cable and HI92000 software.

Automatic Temperature Compensation

pH sensors incorporate a built-in temperature sensor in the tip of the electrode for a fast and accurate temperature compensated value.

Intuitive Keypad

The fitted rubber keypad has dedicated keys for many important and often used functions. These meters also feature two virtual soft keys that navigate the user through setup and logging of data. The interface is intuitive for any user's level of experience.



Auto Hold

Pressing AutoEnd during measurement will automatically hold the first stable reading on the display.



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.



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.



PC Connectivity

Logged data can be transferred to a Windows compatible PC with the included HI920015 micro USB cable and HI92000 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 200 hours of battery life.



Supplied Complete in a Rugged Custom Carrying Case

Each meter is supplied complete with sensor, calibration and cleaning solutions, beakers, PC software and connection cable, instruction manual, quick start guide and batteries in a rugged, custom carrying case. The inside compartment of the carrying case is thermoformed to securely hold and protect all of the components.

Specifications	HI98168	
pH*	Range	-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
	Accuracy	±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
	Temperature Compensation	automatic or manual from -20.0 to 120.0°C (-4.0 to 248.0°F)
mV	Range	±2000 mV
	Resolution	0.1 mV
	Accuracy	±0.2 mV
	Relative mV Offset Range	±2000 mV
Temperature*	Range	-20.0 to 120.0 °C (-4.0 to 248.0°F)
	Resolution	0.1°C (0.1°F)
	Accuracy	±0.4°C (±0.8°F) (excluding probe error)
Additional Specifications	pH Probe	HI12923 Glass body, conical tip, refillable pH electrode with internal temperature sensor, quick DIN connector and 1 m (3.3' cable)
	Slope Calibration	from 80 to 110%
	Log-on-demand	Up to 200 samples (100 pH, 100 mV)
	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	HI98168 is supplied with HI12923 pH electrode, HI721319 ground auger, HI7004M pH 4.01 buffer solution (230 mL), HI7007M pH 7.01 buffer solution (230 mL), HI700663 Cleaning solution sachet for soil deposits, HI700664 Cleaning solution for humus deposits, HI7051M Soil Test Solution (230 mL), 100 mL plastic beaker (2), HI92000 PC software, HI920015 micro USB cable, 1.5V AA batteries (4), instruction manual, and quality certificate in a HI720161 hard carrying case with custom insert.



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

HI710035 Blue

HI12923

pH / Temperature Probe for Soil

The HI12923 pH electrode that is supplied with the HI98168 is uniquely designed with a conical tip and a triple ceramic junction for improved performance in soils that have a low moisture content. The probe has a built in amplifier to reduce noise from humidity that can effect the probe connection to the meter. The HI12923 connects to the HI98168 with a quick-connect, waterproof DIN connector, allowing for a secure, non-threaded attachment.

Refillable

As electrolyte is lost over time it can be replenished to extend the life of the electrode.

Triple ceramic junction

The outer reference has three ceramic frits that allow electrolyte to flow at a high rate from the inside of the probe to the outside. A higher flow rate allows for a pH measurement of soil with low moisture.

Conical Tip

The conical tip is made of durable low temperature glass and allows for direct measurement in soils. In the case any rocks are present an auger is provided to make a hole for the probe.

Quick Connect DIN Connector

This secure waterproof connector allows for a single cable to be used for both pH and temperature measurements.



Application Importance

The measurement of pH in agricultural activities is very important due to the influence it has on the growth of the plant. Soil can be acid, neutral or alkaline, according to its pH value. Most plants prefer a pH range from 5.5 to 7.5; but some species prefer more acid or alkaline soils. Nevertheless, every plant requires a particular range of pH for optimum growth.

2

pH

portable

Specifications	HI12923
Description	pH electrode
Reference	single, Ag/AgCl
Junction	ceramic, triple / 40-50 μ L/h
Electrolyte	KCl 3.5M + AgCl
Max Pressure	0.1 bar
Range	pH: 0 to 12
Recommended Operating Temperature	-5 to 70°C (23 to 158°F) - LT
Glass Type	LT (low temperature)
Tip /Shape	conic (12 x 12 mm)
Temperature Sensor	yes
Amplifier	yes
Body Material	glass
Cable	coaxial; 1 m (3.3')
Connection	quick connect DIN