Hanna Instruments HI 99121N

Hanna Instruments HI 99121N Direct Soil and Water Portable pH/Temperature Meter User Manual

Model: HI 99121N

Product Overview

The Hanna Instruments HI 99121N is a robust, portable, and waterproof pH and temperature meter designed for precise measurements in both diluted soil samples and direct soil applications. It comes equipped with the specialized HI 1292D pH electrode, making it an ideal tool for agricultural, environmental, and research professionals.

Image: Hanna Instruments HI 99121N pH/Temperature Meter with its HI 1292D electrode, showing the display and control buttons.

Key features include a large LCD screen for easy readability, automatic temperature compensation (ATC) for accurate readings across varying temperatures, a convenient hold function to freeze and record results, and a battery error protection system (BEPS) to ensure measurement reliability.

Key Features:

- Portable, waterproof pH and temperature meter for soil and water applications.
- Automatic one- or two-point calibration for simplified setup and accuracy.
- Automatic Temperature Compensation (ATC) to eliminate manual calculations.
- Battery Error Protection System (BEPS) to prevent inaccurate readings due to low battery.
- Hold function to freeze the display and facilitate result recording.

What's in the Box

Upon unboxing your HI 99121N meter, please verify that all components listed below are present and in good condition:

- HI 99121N Meter
- HI 1292D pH/temperature electrode
- HI 721319 soil auger
- HI 7051M soil preparation solution
- HI 70004 pH 4.01 buffer solution sachet
- HI 70007 pH 7.01 buffer solution sachet
- HI 700663 cleaning solution sachet for inorganic soil deposits
- HI 700664 cleaning solution sachet for organic soil deposits
- 100 mL plastic beaker
- (3) 1.5V AAA batteries
- Instructions Manual (this document)
- Hard carrying case

Setup and Initial Preparation

1. **Battery Installation:** Open the battery compartment cover on the back of the meter. Insert the three 1.5V AAA batteries, ensuring correct polarity. Close the cover securely.
2. **Electrode Connection:** Connect the HI 1292D pH/temperature electrode to the BNC connector on the bottom of the meter. Ensure a firm and secure connection.
3. **Electrode Conditioning:** Before first use, or after prolonged storage, condition the electrode by soaking its tip in HI 70300 storage solution or pH 7.01 buffer solution for at least 30 minutes. This ensures optimal performance.
4. **Initial Calibration:** It is recommended to perform an initial calibration before taking measurements. Refer to the "Operating Instructions - Calibration" section for detailed steps.

Operating Instructions

Powering On/Off

- To turn the meter **ON**, press the **ON/OFF MODE** button.
- To turn the meter **OFF**, press and hold the **ON/OFF MODE** button for approximately 2 seconds until the meter shuts down. The meter also features an auto-off function after 8 minutes of non-use to conserve battery life.

Calibration

The HI 99121N features automatic one- or two-point pH calibration. On-screen tutorial messages will guide you through the process.

1. Ensure the electrode is clean and conditioned.
2. Press and hold the **ON/OFF MODE** button for 5 seconds to enter calibration mode. The display will show "CAL" and "pH 7.01 USE".
3. Rinse the electrode with distilled water and immerse it into the pH 7.01 buffer solution. Wait for the reading to stabilize. The meter will automatically recognize the buffer.
4. If performing a two-point calibration, the display will then prompt for the second buffer (e.g., "pH 4.01 USE"). Rinse the electrode and immerse it into the pH 4.01 buffer solution.
5. Once calibration is complete, the meter will return to measurement mode, displaying "Calibrated".

Taking Measurements (Soil and Water)

The HI 99121N can measure pH and temperature in both soil and water samples.

For Direct Soil Measurement:

1. For hard soil, use the HI 721319 soil auger to perforate the soil to the desired depth.
2. Carefully insert the conical tip of the HI 1292D electrode directly into the soil. Ensure good contact between the electrode and the soil.
3. Allow sufficient time for the reading to stabilize. The pH and temperature values will be displayed.

For Diluted Soil Samples or Water Samples:

1. Prepare your sample (e.g., diluted soil solution in the 100 mL beaker).
2. Immerse the electrode tip into the sample. Ensure the liquid level is above the sensing bulb.
3. Gently stir the solution and wait for the reading to stabilize.

Hold Function

To freeze the current reading on the display, press the**SET HOLD** button. The "HOLD" indicator will appear. Press the button again to release the hold and return to live measurement mode.

Maintenance and Care

- **Electrode Cleaning:** Regularly clean the HI 1292D electrode to ensure accurate readings. Use the provided HI 700663 (for inorganic deposits) or HI 700664 (for organic deposits) cleaning solution sachets as needed. Rinse thoroughly with distilled water after cleaning.
- **Electrode Storage:** When not in use, always store the electrode with its protective cap filled with HI 70300 storage solution or pH 7.01 buffer solution. *Never store the electrode dry or in distilled water.*
- **Battery Replacement:** When the battery indicator shows low power or the meter does not turn on, replace the three 1.5V AAA batteries. Ensure the meter is off before opening the battery compartment.
- **General Care:** Keep the meter and electrode clean and dry. Store the unit in its hard carrying case when not in use to protect it from dust and physical damage.

Troubleshooting

Problem	Possible Cause	Solution
Inaccurate or Unstable Readings	◦ Dirty or clogged electrode junction. ◦ Electrode not properly conditioned. ◦ Expired or contaminated buffer solutions. ◦ Electrode damage. ◦ Insufficient sample immersion.	◦ Clean the electrode using appropriate cleaning solutions. ◦ Re-condition the electrode in storage solution. ◦ Use fresh buffer solutions for calibration. ◦ Inspect electrode for physical damage; replace if necessary. ◦ Ensure electrode tip is fully immersed in sample.
Meter does not turn ON	◦ Dead or improperly installed batteries.	◦ Replace batteries, ensuring correct polarity.

Problem	Possible Cause	Solution
"Err" or "Low Batt" message	◦ Battery Error Protection System (BEPS) activated due to low battery. ◦ Calibration error.	◦ Replace batteries immediately. ◦ Re-calibrate the meter carefully following instructions.

Specifications

Parameter	Value
pH Range	-2.00 to 16.00 pH
pH Resolution	0.01 pH
pH Accuracy	±0.02 pH
Temperature Range	-5.0 to 105.0 °C (23.0 to 221.0 °F)
Temperature Resolution	0.1 °C / 0.1 °F
Temperature Accuracy	±0.5 °C (up to 60 °C), ±1 °C (outside); ±1.0 °F (up to 140 °F), ±2 °F (outside)
Temperature Compensation	Automatic (-5.0 to 105.0 °C / 23.0 to 221.0 °F)
Electrode	HI 1292D pH/Temperature Electrode (included)
Power Supply	3 x 1.5V AAA batteries
Battery Life	Approximately 1200 hours of continuous use
Auto-off	After 8 minutes of non-use
Dimensions	152 x 58 x 30 mm (6.0 x 2.3 x 1.2 inches)
Weight	205 g (7.2 oz.)

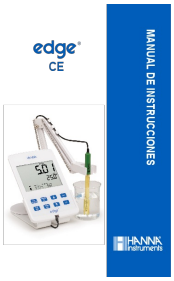
Warranty and Support

Hanna Instruments products are manufactured to high standards and are warranted against defects in workmanship and materials. For specific warranty terms and conditions, please refer to the warranty card included with your product or visit the official Hanna Instruments website.

For technical support, troubleshooting assistance, or to inquire about replacement parts and accessories, please contact Hanna Instruments customer service. Contact information can typically be found on the manufacturer's website or in the product packaging.

Note: Unauthorized repairs or modifications may void the product warranty.

Related Documents - HI 99121N

	HANNA HI 8424NEW Portable pH/mV/°C Meter Instruction Manual Comprehensive instruction manual for the HANNA HI 8424NEW portable pH/mV/°C meter. Learn about its features, specifications, operational guide, calibration procedures, maintenance, and troubleshooting. Includes details on automatic calibration and inductive charging.
	HI98164 Professional pH and Temperature Meter for Yogurt Products The Hanna Instruments HI98164 is a professional portable pH and temperature meter specifically designed for monitoring pH levels in yogurt production. It ensures consistent product quality by accurately measuring pH during the fermentation process, offering advanced features for reliable calibration and data logging.
	Manual de Instrucciones Hanna edge CE HI2003: Guía Completa Descubra cómo utilizar el medidor de conductividad Hanna edge CE HI2003 con este manual de instrucciones detallado. Incluye configuración, calibración, operación y especificaciones.
	Hanna Instruments HI98195 Multiparameter Waterproof Meter Specifications and Features Detailed specifications, features, and technical information for the Hanna Instruments HI98195 waterproof portable logging multiparameter meter, covering pH, ORP, EC, TDS, Resistivity, Salinity, and Temperature measurements.
	HANNA HI981954: Multiparameter Waterproof Meter for pH, ORP, EC, TDS & More Discover the HANNA HI981954, a rugged, waterproof multiparameter meter designed for accurate field measurements of pH, ORP, EC, TDS, Resistivity, Salinity, Seawater, and Temperature. Ideal for various water quality testing applications.
	Hanna Instruments HI98197 Waterproof Portable EC Meter for Ultrapure Water The Hanna Instruments HI98197 is a professional, waterproof, portable EC (conductivity) meter designed for ultrapure water applications. It features a high-resolution display, multi-point calibration, automatic temperature compensation, and data logging capabilities. The meter is IP67 rated and includes a four-ring platinum probe for accurate measurements across a wide range.