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Extech PH90

Extech PH90 Waterproof pH Meter Instruction Manual

Model: PH90

1. Product Overview

The Extech PH90 Waterproof pH Meter is a precision instrument designed for accurate pH measurement across various applications, including water quality testing, hydroponics, aquaculture, swimming pools, beverage production, and laboratory use. This device features a robust waterproof housing, a replaceable electrode, 3-point automatic calibration, and auto buffer recognition for ease of use and reliable results. Its compact design makes it suitable for both field and professional environments.

Figure 1: Extech PH90 Waterproof pH Meter. This image shows the compact, handheld pH meter with its digital display and control buttons, ready for use.

2. Key Features

- **Reliable pH Testing:** Provides quick and accurate pH measurements for various liquids and semi-solids.
- **Wide Measurement Range:** Covers a full 0-14 pH range, suitable for diverse applications.
- **Automatic Calibration:** Features 3-point automatic calibration with auto buffer recognition for consistent accuracy.
- **Durable & Waterproof Design:** Built to withstand wet conditions, ideal for fieldwork and outdoor use.
- **Replaceable Electrode:** Extends the device's lifespan and ensures long-term reliability.
- **Clear LCD Display:** Easy-to-read digital results, including pH and temperature, even in varying light conditions.
- **Integrated Temperature Measurement:** Built-in temperature sensor for accurate readings.

3. Setup and Preparation

3.1. Battery Installation

The PH90 meter requires two CR2032 Lithium Metal batteries (included). To install or replace batteries:

1. Unscrew the battery compartment cap located at the top of the meter.
2. Insert the two CR2032 batteries, ensuring correct polarity (+/-).
3. Securely screw the battery compartment cap back into place.

3.2. Electrode Preparation

Before first use, and after storage, prepare the electrode:

1. Remove the protective cap from the electrode tip. The cap contains a moist sponge to keep the electrode hydrated.
2. Rinse the electrode tip thoroughly with distilled or deionized water. Do not wipe the electrode, as this can create static charges.
3. Allow any excess water to drip off.

3.3. Initial Calibration

For optimal accuracy, perform a 3-point calibration before initial use and periodically thereafter. Calibration buffers (pH 4, 7, and 10) are sold separately.

1. Turn on the meter by pressing the **ON/OFF** button.
2. Immerse the electrode into a pH 7.00 buffer solution.
3. Press and hold the **CAL** button until "CAL" appears on the display. The meter will automatically recognize the buffer and calibrate.
4. Rinse the electrode with distilled water.
5. Repeat the process with pH 4.00 and pH 10.00 buffer solutions. The meter will automatically detect and calibrate to these points.
6. Once calibration is complete, the meter will return to measurement mode.

Figure 2: Close-up of the Extech PH90 display and control buttons, including ON/OFF, MODE, and CAL buttons.

4. Operating Instructions

4.1. Taking a Measurement

1. Ensure the meter is calibrated.
2. Rinse the electrode with distilled water and gently shake off excess.
3. Immerse the electrode tip into the sample solution, ensuring the sensor is fully submerged.
4. Gently stir the solution to ensure homogeneity and allow the reading to stabilize. This may take up to a minute, especially if the sample temperature differs significantly from the meter's previous environment.
5. Read the pH value displayed on the LCD screen. The temperature will also be displayed.
6. After measurement, rinse the electrode thoroughly with distilled water.

4.2. Hold Function

To freeze the current reading on the display, press the**HOLD** button (if available, typically integrated with MODE or a separate button). Press it again to release the hold and return to live measurement.

4.3. Automatic Temperature Compensation (ATC)

The Extech PH90 features Automatic Temperature Compensation, which adjusts pH readings based on the sample's temperature, ensuring accuracy across varying temperatures. The temperature is displayed alongside the pH value.

5. Maintenance

5.1. Electrode Care and Storage

Proper electrode care is crucial for maintaining accuracy and extending the life of your meter:

- Always keep the electrode tip moist. Store the meter with the protective cap filled with electrode storage solution or pH 7 buffer solution. Never store in distilled or deionized water, as this can deplete the electrode's electrolyte.
- Rinse the electrode thoroughly with distilled water after each use.
- If the electrode becomes dirty or readings are sluggish, clean it using a mild electrode cleaning solution. Follow the cleaning solution manufacturer's instructions.

Figure 3: Close-up of the Extech PH90's replaceable electrode tip, which requires proper care and storage.

5.2. Electrode Replacement

The PH90 features a replaceable electrode. If the electrode performance degrades significantly despite proper cleaning and calibration, it may need replacement. Refer to the Extech website or contact customer support for information on purchasing replacement electrodes (Part PH95).

5.3. Battery Replacement

When the battery indicator appears on the display or the meter fails to power on, replace the two CR2032 Lithium Metal batteries as described in Section 3.1.

6. Troubleshooting

Problem	Possible Cause	Solution
Inaccurate or unstable readings	◦ Electrode not calibrated ◦ Dirty or dry electrode ◦ Temperature not equilibrated ◦ Expired buffer solutions ◦ Damaged electrode	◦ Perform a 3-point calibration. ◦ Clean the electrode and ensure it is properly stored. ◦ Allow sufficient time for the meter's temperature sensor to equilibrate with the sample. ◦ Use fresh calibration buffer solutions. ◦ Replace the electrode.
Meter does not power on	◦ Dead batteries ◦ Incorrect battery installation	◦ Replace batteries with new CR2032 cells. ◦ Check battery polarity.
"CAL" error during calibration	◦ Incorrect buffer solution used ◦ Contaminated buffer solution ◦ Electrode issue	◦ Ensure correct pH buffer (4, 7, or 10) is used. ◦ Use fresh, uncontaminated buffer solutions. ◦ Clean or replace the electrode.

7. Specifications

Parameter	Value

Parameter	Value
Model Number	PH90
pH Range	0 to 14 pH
pH Accuracy	±0.01 pH
Temperature Range	(Not explicitly stated, but integrated for ATC)
Power Source	2 x CR2032 Lithium Metal batteries
Item Weight	2.88 ounces (approx. 81.6 grams)
Product Dimensions	6.7 x 1.4 x 1.4 inches (approx. 17 x 3.6 x 3.6 cm)
Included Components	Flat surface pH electrode, cap, batteries (pH buffers sold separately)
Manufacturer	Extech

8. Warranty and Support

For warranty information, technical support, or to purchase replacement parts and accessories, please visit the official Extech website or contact Extech customer service. You can also find more information and products at the **Extech Store on Amazon**.

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