KONVIO NEER EZ-9909SP

KONVIO NEER 5-in-1 Digital Water Quality Tester

MODEL: EZ-9909SP INSTRUCTION MANUAL

Introduction

This manual provides detailed instructions for the operation, calibration, and maintenance of your KONVIO NEER 5-in-1 Digital Water Quality Tester, Model EZ-9909SP. This device is designed to accurately measure pH, Total Dissolved Solids (TDS), Electrical Conductivity (EC), Salinity, and Temperature in various water sources.
Understanding water quality parameters is crucial for applications such as drinking water assessment, hydroponics, aquariums, swimming pools, and general water treatment. Please read this manual thoroughly before using the device to ensure optimal performance and accurate readings.

Product Overview

The KONVIO NEER EZ-9909SP is a multi-functional water quality testing device. Familiarize yourself with its components and controls:

Image Description: A detailed diagram of the KONVIO NEER 5-in-1 Digital Water Quality Tester. Key components are labeled, including the battery compartment, LCD backlight display, power button, HOLD/TEMP button, Mode/CAL button, protective cap, powerful long-life battery (internal view), and high-precision probe.

- **LCD Backlight Display:** Shows measurement readings and battery status.
- **Power Button:** Turns the device on or off.
- **HOLD/TEMP Button:** Press briefly to hold the current reading; long press to switch between Celsius (°C) and Fahrenheit (°F) temperature units.
- **Mode/CAL Button:** Press briefly to cycle through measurement modes (pH, TDS, EC, Salinity); long press to enter calibration mode.
- **Protective Cap:** Covers the electrode probe when not in use to protect it.
- **High-Precision Probe:** The sensor responsible for taking measurements.
- **Battery Compartment:** Houses the LR44 batteries.

Setup and Battery Installation

The device typically comes with batteries pre-installed or included in the package. If batteries need to be installed or replaced:

1. Locate the battery compartment at the top of the device (refer to Product Overview image).
2. Twist or slide open the battery compartment cover.
3. Insert three LR44 button cell batteries, ensuring correct polarity (+/-).
4. Securely close the battery compartment cover.

Before first use, remove the protective cap from the electrode probe.

Operating Instructions

General Measurement Steps:

1. **Preparation:** Ensure the probe is clean. Rinse it with distilled water and gently blot dry with a clean tissue.
2. **Power On:** Press the **Power Button** to turn on the meter.
3. **Select Mode:** Press the **Mode/CAL Button** repeatedly to cycle through the desired measurement mode (pH, TDS, EC, Salinity).
4. **Immerse Probe:** Dip the electrode probe into the water sample, ensuring the liquid level is below the plastic casing but above the electrode junction.
5. **Stabilize Reading:** Gently stir the meter in the solution and wait for the reading to stabilize on the display.
6. **Hold Reading (Optional):** Press the **HOLD/TEMP Button** briefly to freeze the current reading on the display. Press again to release.
7. **Record Reading:** Note down the stable measurement.
8. **Clean and Store:** After use, rinse the probe with distilled water, gently blot dry, and replace the protective cap. Turn off the device by pressing the **Power Button**.

Temperature Measurement and Unit Conversion:

The meter automatically compensates for temperature during measurements. The temperature reading is displayed simultaneously with the primary measurement.

Image Description: This image shows the water quality tester measuring water temperature. It highlights the automatic temperature compensation feature and explains how to switch between Celsius and Fahrenheit by long-pressing the HOLD/TEMP button. Illustrations of thermometers indicate automatic heating and cooling to reach a reasonable temperature.

- To switch the temperature unit between Celsius (°C) and Fahrenheit (°F), long-press the**HOLD/TEMP Button**. The display will change accordingly.
- The device features automatic temperature compensation (ATC) within its operating range of 0-60°C (32-140°F), ensuring accurate readings regardless of sample temperature fluctuations.

Calibration

Regular calibration ensures the accuracy of your meter. pH calibration is critical and should be performed using standard buffer solutions.

pH Calibration Procedure:

The meter supports 3-point pH calibration (pH 4.00, pH 6.86, pH 9.18). Use the provided pH buffer powders to prepare calibration solutions.

Image Description: The main product image showing the 5-in-1 water quality tester immersed in a glass of water, alongside three packets of pH buffer powder (pH 6.86, pH 9.18, pH 4.00) and three LR44 batteries. This illustrates the components used for pH calibration.

1. **Prepare Buffer Solutions:** Dissolve each pH buffer powder (4.00, 6.86, 9.18) separately in 250ml of distilled water. Stir until fully dissolved.
2. **Power On and Select pH Mode:** Turn on the meter and switch to pH measurement mode.
3. **Enter Calibration Mode:** Long-press the **Mode/CAL Button** until "CAL" appears on the display.
4. **Calibrate pH 6.86:**
    - Rinse the probe with distilled water and immerse it into the pH 6.86 buffer solution.
    - Wait for the reading to stabilize. The meter will automatically recognize the buffer and calibrate.
    - Once calibrated, the display will show "PASS" or a similar confirmation, then return to measurement mode.
5. **Calibrate pH 4.00:**
    - Rinse the probe with distilled water.
    - Immerse the probe into the pH 4.00 buffer solution.

- Long-press the **Mode/CAL Button** again to enter calibration mode.
- Wait for the reading to stabilize and for the meter to confirm calibration.

6. **Calibrate pH 9.18 (Optional, for alkaline range):**
   - Rinse the probe with distilled water.
   - Immerse the probe into the pH 9.18 buffer solution.
   - Long-press the **Mode/CAL Button** to enter calibration mode.
   - Wait for the reading to stabilize and for the meter to confirm calibration.
7. **Exit Calibration:** After completing calibration, rinse the probe and store it.

Image Description: This image visually demonstrates the pH calibration process. Three separate meters are shown, each immersed in a different pH buffer solution (pH 6.86, pH 4.00, and pH 9.18), with their displays showing the corresponding calibrated values. This illustrates the 3-point calibration method.

Note: TDS, EC, and Salinity measurements are typically factory calibrated and do not require user calibration. If readings appear inaccurate, ensure the probe is clean and consider recalibrating pH first, as it can influence other readings.

Understanding Water Quality Parameters

pH Levels:

pH measures the acidity or alkalinity of water on a scale from 0 to 14. A pH of 7 is neutral, below 7 is acidic, and above 7 is alkaline (basic).

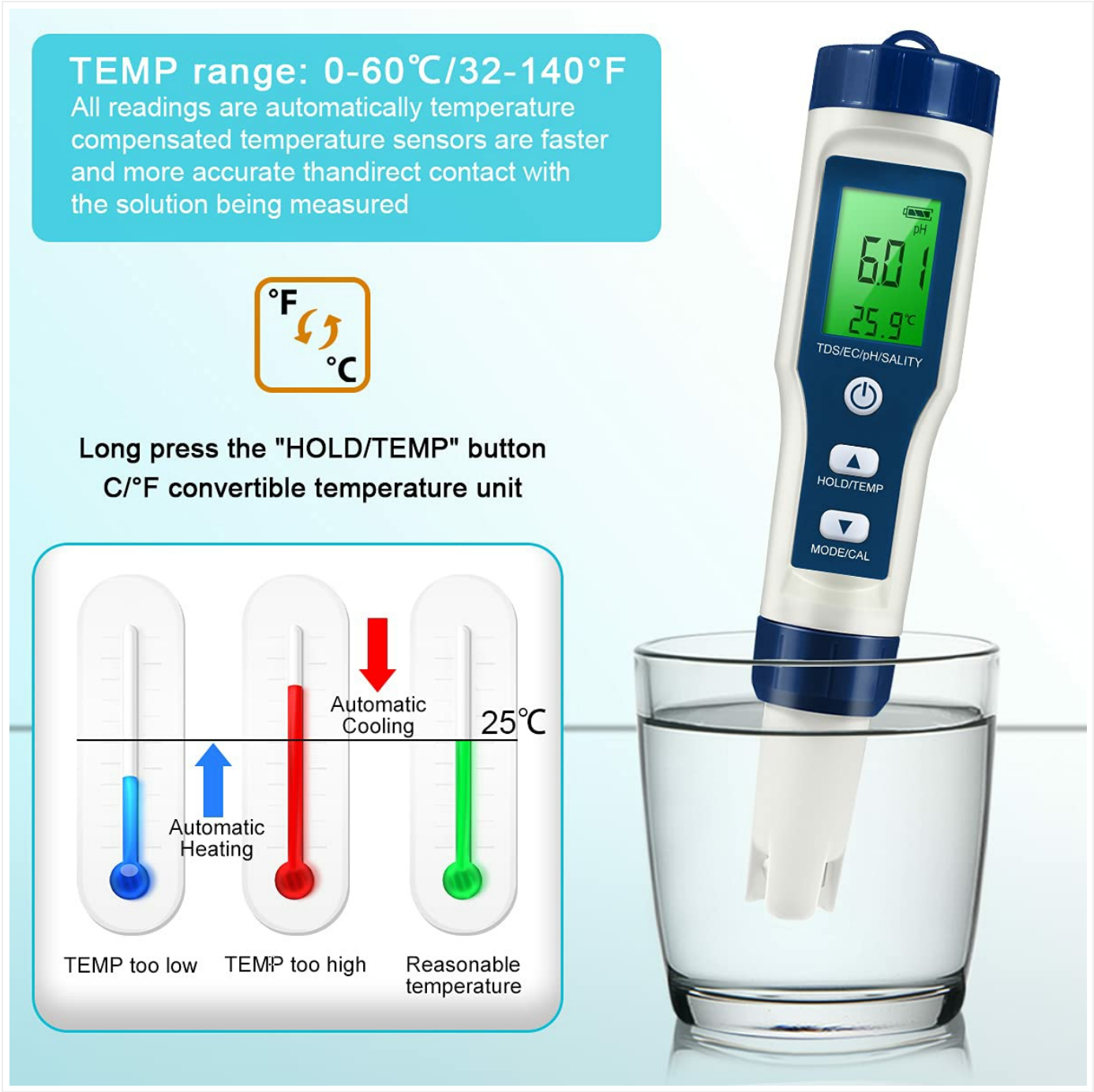

Image Description: A visual pH scale ranging from 0 (acidic) to 14 (alkaline), with 7 as neutral. Various common substances like battery acid, vinegar, orange juice, black coffee, water, seawater, baking soda, ammonia solution, bleach, and drain cleaner are plotted on the scale to illustrate their typical pH values. The water quality tester is shown alongside a glass of water, indicating its function in measuring pH.

- **Drinking Water:** EPA standards suggest a pH range of 6.5-8.5. Proper pH aids in mineral absorption.
- **Hydroponics/Plants:** Optimal pH levels are crucial for nutrient solubility and plant uptake.
- **Aquariums:** Maintaining specific pH levels is vital for the health and survival of aquatic organisms.

TDS (Total Dissolved Solids) and EC (Electrical Conductivity):

TDS measures the total concentration of dissolved substances in water, while EC measures the water's ability to conduct

electricity, which is directly related to the concentration of ionized solids. Higher EC generally means higher TDS.

Image Description: This image explains that conductivity is the total amount of dissolved solids and ions in water, reflecting water quality. It contrasts "Poor quality water" (depicted with unhealthy organs and skin) with "Quality water" (depicted with healthy organs and skin), implying the impact of water quality on health. The water quality tester is shown measuring a glass of water, with its display indicating a reading of 6.01 and 25.9°C. The measuring range for conductivity (0-10000uS/cm, 10.01-19.99ms, 20.1-400mS/CM) is also listed.

- **Drinking Water:** EPA recommends TDS below 500 mg/L (500 ppm). TDS levels between 50-500 ppm are generally considered suitable.
- **Hydroponics/Plants:** Specific TDS/EC ranges are required for different plants to ensure proper nutrient absorption.

Salinity:

Salinity measures the amount of salt dissolved in water.

- **Pools:** Ideal salt levels for saltwater pools are typically between 2700-3400 ppm (3.2 ppt optimal).
- **Aquariums:** Essential for marine aquariums to replicate natural habitats.

Image Description: A central image of the water quality tester surrounded by six circular icons depicting its various applications: Drinking Water, Hydroponic, Pool & SPA Water, Aquarium Water, Well Water, and Tap Water. This visually summarizes the versatility of the device.

Maintenance

- **Cleaning the Probe:** Always rinse the electrode probe with distilled water after each use to prevent contamination and residue buildup. Gently blot dry with a clean, soft cloth or tissue. Do not rub the electrode vigorously.
- **Storage:** Replace the protective cap after each use. Store the meter in a cool, dry place. For prolonged storage, ensure the electrode is kept moist (e.g., with a few drops of pH storage solution or distilled water in the cap, if recommended by manufacturer, otherwise keep dry).
- **Battery Replacement:** Replace batteries when the low battery indicator appears on the display or when the device fails to power on.
- **Avoid Harsh Chemicals:** Do not use abrasive cleaners or harsh chemicals on the meter or probe, as this can damage the sensors.

Troubleshooting

Problem	Possible Cause	Solution
Meter does not power on.	Dead or incorrectly installed batteries.	Check battery polarity. Replace with new LR44 batteries.
Inaccurate or fluctuating readings.	• Probe is dirty or damaged. • Meter requires calibration (especially pH). • Insufficient immersion of the probe. • Air bubbles around the probe.	• Clean the probe thoroughly with distilled water. • Perform pH calibration as per instructions. • Ensure the probe is fully immersed in the sample. • Gently stir the meter to dislodge air bubbles.
"CAL" does not appear during calibration.	Button not pressed long enough.	Long-press the **Mode/CAL Button** for several seconds until "CAL" is displayed.
Meter does not recognize buffer solution during pH calibration.	• Incorrect buffer solution used. • Buffer solution expired or contaminated. • Probe issue.	• Ensure correct pH buffer (6.86, 4.00, 9.18) is used. • Use fresh buffer solutions. • Clean the probe thoroughly. If problem persists, the probe may need replacement.

Specifications

Parameter	Range	Accuracy
pH	0.00 - 14.00 pH	±0.05 pH
TDS	0 - 200000 ppm (parts per million) 10.1 - 100 ppt (parts per thousand)	±2% F.S (Full Scale)
EC (Electrical Conductivity)	0 - 200000 µS/cm 10.1 - 200 mS/cm	±2% F.S (Full Scale)
Salinity	0.01% - 25% 0 - 10000 ppm 10.1 - 200 ppt	±0.1% (0.01%-5%) ±0.1% (5.1%-25%) ±2% F.S (Full Scale)
Temperature	0 - 60°C (32 - 140°F)	Not specified, typically ±1°C

- **Product Dimensions:** 7.28 x 1.46 x 1.57 inches
- **Item Weight:** 5.29 ounces
- **Model Number:** EZ-9909SP
- **Power Source:** 3x LR44 Button Cell Batteries
- **Automatic Temperature Compensation (ATC):** Yes

What's in the Box

- 1x KONVIO NEER 5-in-1 Digital Water Quality Tester (Model EZ-9909SP)
- 1x Instruction Manual (this document)
- 1x Color Box (packaging)
- 3x pH Calibration Powder packets (pH 4.00, pH 6.86, pH 9.18)
- (Batteries may be pre-installed or included separately)