DANOPLUS KIB-242

DANOPLUS 5-in-1 Water Quality Meter (Model KIB-242)

Instruction Manual

1. Introduction

The DANOPLUS 5-in-1 Water Quality Meter is a multi-parameter device designed for continuous monitoring of water quality. It accurately measures pH, Electrical Conductivity (EC), Conductivity Factor (CF), Total Dissolved Solids (TDS), and Temperature. This instrument is suitable for a wide range of applications, including aquariums, hydroponic systems, laboratories, spas, and swimming pools, providing essential data for maintaining optimal water conditions.

2. Package Contents

Verify that all items listed below are present in your package:

- 1 x Multiparameter Water Quality Tester (Main Unit)
- 1 x pH Electrode with BNC connector
- 1 x EC Electrode with BNC connector
- 3 x Calibration powder packets (pH 4.01, pH 6.86, pH 9.18)
- 2 x Calibration solution packets (EC 12.88, EC 1413)
- 1 x Metal Hanging Bracket
- 2 x Mounting Plastic Brackets
- 1 x Mini Screwdriver for calibration
- 1 x Power Adapter
- 1 x English User Manual (This document)

Figure 1: Complete package contents of the DANOPLUS 5-in-1 Water Quality Meter.

3. Product Overview

The DANOPLUS 5-in-1 Water Quality Meter features a main unit with a triple display for simultaneous readings of pH, Temperature, and EC/CF/TDS. It includes dedicated electrodes for pH and EC measurements, designed for continuous monitoring.

Figure 2: The DANOPLUS 5-in-1 Water Quality Meter and its primary accessories.

3.1 Main Unit Components

Figure 3: Labeled diagram of the meter's controls and input terminals.

- **Power Supply Socket:** For connecting the DC6V power adapter.
- **Display:** Triple LCD display showing pH, Temperature, and EC/CF/TDS readings.
- **ON / OFF Switch:** To power the device on or off.
- **pH7 Calibration Knob:** Used for pH calibration at pH 7.00.
- **EC/CF/TDS Action Function Switch (MODE):** Toggles between EC, CF, and TDS display modes.
- **EC/CF/TDS Calibration Knob (CAL):** Used for EC/CF/TDS calibration.
- **pH Electrode Input Terminal:** BNC connector for the pH electrode.
- **°C / °F Action Function Switch:** Toggles between Celsius and Fahrenheit temperature units.
- **EC/CF/TDS/Temp Probe Input Terminal:** BNC connector for the EC/Temperature electrode.

3.2 Electrodes

Figure 4: pH and EC electrodes.

- **pH Electrode:** Measures the acidity or alkalinity of the water.
- **EC Electrode:** Measures electrical conductivity, which is used to determine EC, CF, and TDS levels. This electrode also integrates the temperature sensor.

4. Setup

Follow these steps to set up your water quality meter:

1. **Connect Electrodes:** Carefully connect the pH electrode to the BNC connector labeled 'pH' and the EC/Temperature electrode to the BNC connector labeled 'EC/CF/TDS/Temp'. Ensure connections are secure.
2. **Power Connection:** Plug the provided power adapter into the power supply socket on the side of the main unit, then connect it to a suitable power outlet. The device is designed for continuous operation with the power adapter and includes a rechargeable battery for backup.
3. **Mounting (Optional):** Use the metal hanging bracket or the plastic mounting brackets to secure the meter to a desired location.
4. **Initial Power On:** Flip the ON/OFF switch to the 'ON' position. The display should illuminate.

5. Calibration

Accurate calibration is essential for reliable measurements. Calibrate the meter regularly, especially before critical measurements or if readings appear inconsistent.

5.1 Preparing Calibration Solutions

Figure 5: pH buffer powder preparation guidelines.

- **pH Buffer Powders:** Each packet is designed to make 250ml of calibration solution. Dissolve the contents of one packet into 250ml of distilled water. Stir until fully dissolved. Prepare fresh solutions as needed.
- **EC Calibration Solutions:** The provided EC 12.88 and EC 1413 solutions are ready to use.

5.2 pH Calibration

1. Ensure the meter is powered on.
2. Rinse the pH electrode with distilled water and gently blot dry.
3. Immerse the pH electrode into the pH 6.86 buffer solution.
4. Wait for the reading to stabilize.

5. Using the mini screwdriver, carefully adjust the 'pH7' calibration knob until the pH display reads 6.86.
6. Rinse the pH electrode again with distilled water.
7. For two-point calibration, immerse the pH electrode into either pH 4.01 or pH 9.18 buffer solution (depending on your expected measurement range).
8. Wait for the reading to stabilize. If necessary, fine-tune the reading using the 'pH7' calibration knob, though typically only one point is adjusted directly. The meter's internal circuitry handles the slope adjustment.

5.3 EC/CF/TDS Calibration

Figure 6: Using the mini screwdriver for calibration adjustments.

1. Ensure the meter is powered on.
2. Rinse the EC electrode with distilled water and gently blot dry.
3. Immerse the EC electrode into the EC 12.88 solution.
4. Press the 'MODE' button to select the EC display.
5. Wait for the reading to stabilize.
6. Using the mini screwdriver, carefully adjust the 'CAL' knob until the EC display reads 12.88.

7. Rinse the EC electrode with distilled water.
8. Repeat the process with EC 1413 solution if a different calibration point is required for your application.

6. Operating Instructions

After proper setup and calibration, the meter is ready for use.

Figure 7: Meter in operation, measuring water parameters.

1. **Power On:** Ensure the meter is switched on.
2. **Immerse Electrodes:** Submerge both the pH and EC electrodes into the water sample you wish to test. Ensure the electrode tips are fully immersed and there are no air bubbles around them.
3. **Read Measurements:** Allow a few moments for the readings on the display to stabilize. The meter will simultaneously show pH, Temperature, and the selected EC/CF/TDS value.
4. **Change Temperature Unit:** Press the '°C / °F' button to switch between Celsius and Fahrenheit temperature displays.
5. **Change Conductivity Unit:** Press the 'MODE' button to cycle through EC, CF, and TDS readings.
6. **Continuous Monitoring:** For continuous monitoring, leave the electrodes submerged and the unit

powered on. Periodically check readings and recalibrate as needed.

7. **Power Off:** When finished, switch the meter off and follow maintenance procedures.

7. Maintenance

Proper maintenance ensures the longevity and accuracy of your meter.

- **Electrode Cleaning:** After each use, rinse both electrodes thoroughly with distilled or deionized water to remove any residue. Do not wipe the pH electrode bulb, as this can damage it.
- **Electrode Storage:** Always keep the protective caps on the electrodes when not in use. The pH electrode tip should ideally be kept moist in a storage solution (e.g., KCL solution or pH 4.0 buffer solution). Do not store the pH electrode dry.
- **Unit Cleaning:** Wipe the main unit with a clean, damp cloth. Do not use abrasive cleaners or immerse the main unit in water.
- **Calibration Solutions:** Store calibration solutions in a cool, dark place. Replace them regularly, as they can degrade over time.
- **Battery:** The meter has a rechargeable battery. Ensure it is charged periodically, especially if the unit will be stored for an extended period without being connected to power.

8. Troubleshooting

If you encounter issues with your meter, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
Inaccurate pH/EC readings	Electrodes are dirty or damaged; Meter is out of calibration; Calibration solutions are expired or incorrect.	Clean electrodes thoroughly; Recalibrate the meter using fresh calibration solutions; Inspect electrodes for physical damage and replace if necessary.
No display or meter does not power on	Power adapter not connected or faulty; Rechargeable battery is depleted; ON/OFF switch is off.	Ensure power adapter is securely connected and functional; Charge the unit for several hours; Flip the ON/OFF switch to 'ON'.
Readings fluctuate excessively	Air bubbles around electrodes; Electrical interference; Damaged electrode cable.	Gently agitate electrodes to remove air bubbles; Ensure meter is away from strong electrical fields; Check electrode cables for damage.
Temperature reading is incorrect	EC electrode (which contains the temperature sensor) is not fully submerged or damaged.	Ensure the EC electrode is fully submerged; Inspect the EC electrode for damage.

If the problem persists after attempting these solutions, please contact customer support.

9. Specifications

Detailed technical specifications for the DANOPLUS 5-in-1 Water Quality Meter:

Figure 8: Specifications label on the back of the meter.

- **Measurement Range:**
  - pH: 0.00~14.00pH
  - EC: 0.00~19.99EC
  - CF: 0.0~199CF
  - TDS: 10~19990ppm
  - Temperature: 0~55°C (32~131°F)
- **Resolution:**
  - pH: 0.01pH
  - EC: 0.01EC
  - CF: 0.1CF
  - TDS: 10ppm
  - Temperature: 0.1°C (0.2°F)
- **Accuracy:**
  - pH: ±0.1pH

- Temperature: ±1°C (±2°F)
- EC/CF/TDS: ±2% F.S. (Full Scale)

- **Automatic Temperature Compensation (ATC):** 0~50°C
- **Operating Temperature:** 0~50°C (32~122°F)
- **Power Supply:** DC6V with rechargeable battery installed
- **Dimensions:** 152 x 80 x 20mm (6 x 3.15 x 0.79 inches)
- **Weight:** 223g (0.49 lbs)

Figure 9: Physical dimensions and weight of the meter.

10. Warranty and Support

This product is manufactured by DANOPLUS. While specific warranty details are not provided in this manual, it is recommended to retain your proof of purchase for any warranty claims.
For technical assistance, troubleshooting beyond this manual, or warranty inquiries, please contact DANOPLUS customer service through their official channels or the retailer from whom the product was purchased.
Please refer to the manufacturer's website or product packaging for the most up-to-date contact information.

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