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Real Instruments JQ-006

Real Instruments JQ-006 Digital Multi-Parameter Water Quality Tester User Manual

Model: JQ-006

1. Introduction

The Real Instruments JQ-006 is a comprehensive digital water quality tester designed for accurate measurement of multiple parameters. This device integrates the functions of a pH meter, TDS (Total Dissolved Solids) meter, ORP (Oxidation-Reduction Potential) meter, EC (Electrical Conductivity) meter, and a temperature sensor into a single, portable unit. It is ideal for monitoring drinking water, aquariums, hydroponics, pools, and various laboratory applications.

2. Product Overview

The JQ-006 tester features a clear LCD display for easy reading of measurements and an ergonomic design for comfortable handling. It comes with essential accessories for calibration and immediate use.



Figure 2.1: The JQ-006 Digital Multi-Parameter Water Quality Tester and its accompanying buffer solution powders.



Figure 2.2: Detailed diagram of the JQ-006 tester, highlighting its components such as the LCD display, control buttons, and probe.

Key Components:

- **LCD Display:** Shows measurement readings and temperature.
- **Power Button:** Turns the device on/off.
- **HOLD/TEMP Button:** Freezes the current reading or switches between temperature units.
- **MODE/CAL Button:** Switches between measurement modes (pH, TDS, ORP, EC, TEMP) and initiates calibration.
- **Probe:** The sensor responsible for taking measurements.
- **Protective Cover:** Protects the probe when not in use.
- **Battery Compartment:** Houses the power source.

3. Setup

3.1. Battery Installation

The JQ-006 typically uses button cell batteries. To install or replace batteries:

1. Locate the battery compartment at the top of the device.
2. Open the compartment cover.
3. Insert the batteries, ensuring correct polarity (+/-).
4. Close the battery compartment cover securely.

3.2. Initial Preparation

Before first use, remove the protective cap from the probe. If the probe appears dry, rinse it with distilled water and gently blot dry. It is recommended to perform a calibration before the first measurement for optimal accuracy.

4. Operating Instructions

4.1. Power On/Off

Press the **Power** button to turn the device on. Press and hold the **Power** button for a few seconds to turn it off.

4.2. Switching Measurement Modes

Press the **MODE/CAL** button repeatedly to cycle through the different measurement modes: pH, TDS, ORP, EC, and Temperature. The active mode will be indicated on the LCD display.

4.3. Taking a Measurement

1. Ensure the device is powered on and the desired measurement mode is selected.
2. Immerse the probe into the liquid sample up to the immersion line. Do not immerse the entire device.
3. Gently stir the probe to remove air bubbles and allow the reading to stabilize.
4. Read the stable value on the LCD display.
5. Press the **HOLD/TEMP** button to freeze the reading for easier recording. Press it again to release.
6. After measurement, rinse the probe with distilled water and replace the protective cap.

4.4. Understanding TDS Readings

Total Dissolved Solids (TDS) indicate the amount of dissolved substances in water. Higher TDS generally means more impurities. Refer to the following table for general purity guidelines:



Figure 4.1: TDS Numerical Reference Table, providing guidelines for water purity based on ppm values.

4.5. Applications

The JQ-006 is suitable for a wide range of applications, including:

- Drinking Water Quality Monitoring
- Hydroponics and Plant Nutrient Solutions
- Aquarium Water Testing
- Swimming Pool and Spa Water Analysis
- Laboratory and Industrial Water Testing



Figure 4.2: The JQ-006 tester is versatile, suitable for various applications such as hydroponics, aquarium water, drinking water, and swimming pools.



Figure 4.3: The device can measure salinity, useful for aquaculture, seawater, swimming pools, and aquariums.



Figure 4.4: The JQ-006 can also be used for salinity detection in food, relevant for various culinary and processing applications.



Figure 4.5: The meter assists in determining nutrient concentration in solutions, crucial for plant growth in hydroponics.

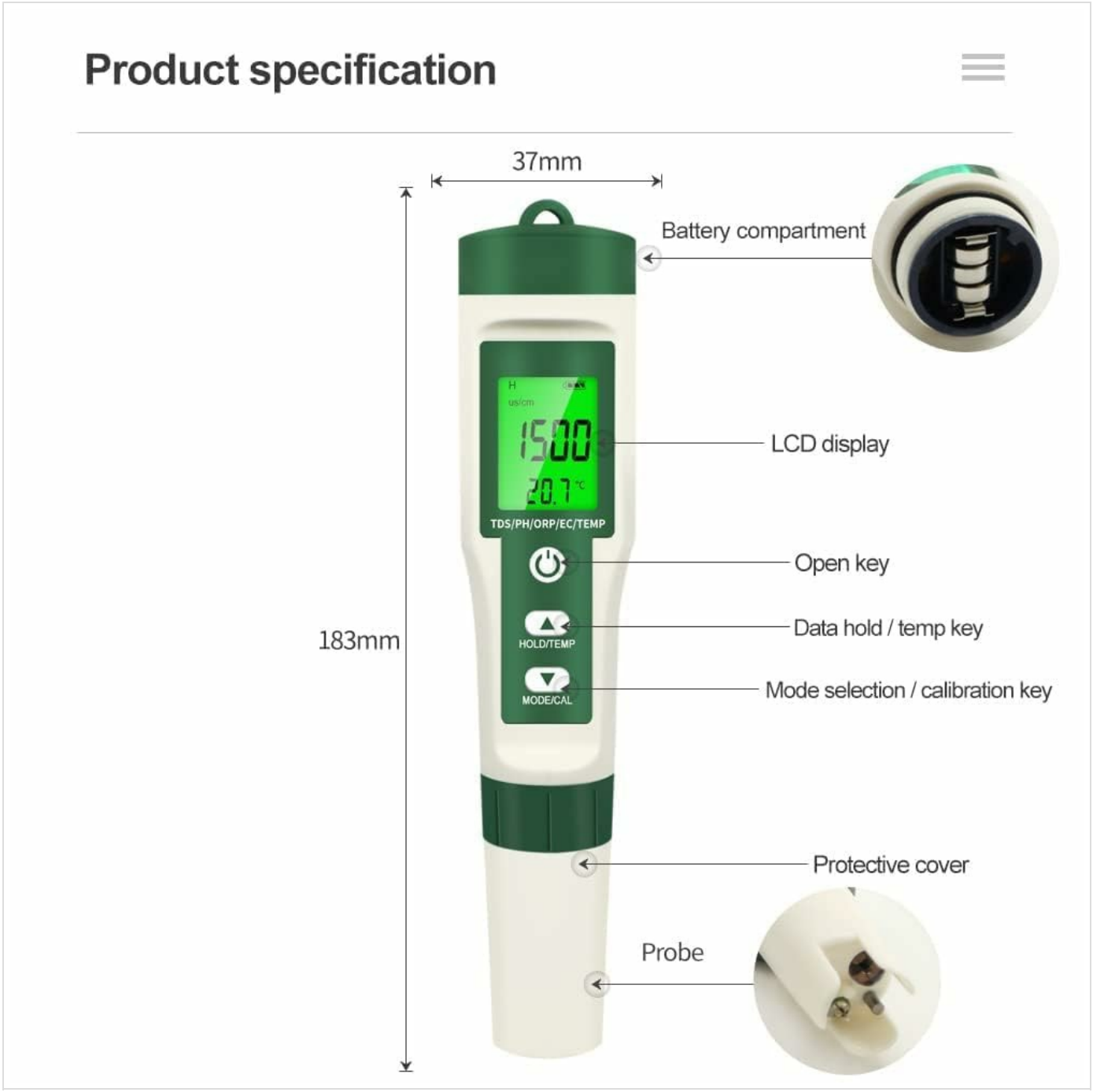


Figure 4.6: The JQ-006 is capable of testing H2 (hydrogen) levels in water, with a measuring range of 0-2400 PPb.

5. Calibration

Regular calibration ensures the accuracy of your JQ-006 tester. The device comes with four buffer solution powders (pH 4.01, pH 6.86, pH 9.18, and ORP 256mV) for precise calibration.

5.1. Preparing Buffer Solutions

1. Dissolve each buffer powder packet in 250ml of distilled water.
2. Stir until the powder is completely dissolved.
3. Store solutions in airtight containers and label them clearly.

5.2. pH Calibration

It is recommended to calibrate pH at two or three points (e.g., 6.86 and 4.01, or 6.86, 4.01, and 9.18) depending on your typical measurement range.

1. Turn on the meter and switch to pH mode.
2. Rinse the probe with distilled water and blot dry.
3. Immerse the probe into the pH 6.86 buffer solution.
4. Press and hold the **MODE/CAL** button until the display shows 'CAL' or starts flashing.
5. The meter will automatically recognize the buffer and calibrate. Wait for the reading to stabilize and indicate successful calibration (e.g., 'END' or 'PASS').
6. Rinse the probe with distilled water.
7. Repeat the process for pH 4.01 and/or pH 9.18 buffer solutions.

5.3. TDS/EC Calibration

TDS/EC calibration typically uses a single standard solution. Refer to the specific instructions provided with your calibration solution for the exact value.

1. Turn on the meter and switch to TDS or EC mode.
2. Rinse the probe with distilled water and blot dry.
3. Immerse the probe into the standard TDS/EC calibration solution.
4. Press and hold the **MODE/CAL** button until 'CAL' appears.
5. The meter will automatically calibrate. Wait for stabilization.
6. Rinse the probe with distilled water.

5.4. ORP Calibration

ORP calibration uses a specific ORP standard solution (e.g., 256mV).

1. Turn on the meter and switch to ORP mode.
2. Rinse the probe with distilled water and blot dry.
3. Immerse the probe into the ORP 256mV buffer solution.
4. Press and hold the **MODE/CAL** button until 'CAL' appears.
5. The meter will automatically calibrate. Wait for stabilization.
6. Rinse the probe with distilled water.

6. Maintenance

6.1. Cleaning the Probe

After each use, rinse the probe thoroughly with distilled or deionized water to prevent contamination and residue buildup. Do not use tap water or abrasive materials.

6.2. Storage

Always replace the protective cap after use. For long-term storage, ensure the probe is kept moist. If the cap contains a sponge, keep it saturated with a few drops of pH storage solution or 3M KCl solution. Never store the probe dry or in distilled water.

6.3. Battery Replacement

If the display becomes dim or the device fails to power on, replace the batteries as described in Section 3.1.

7. Troubleshooting

Problem	Possible Cause	Solution
Inaccurate readings	Probe is dirty or dry; Calibration is needed; Expired buffer solutions.	Clean the probe; Perform calibration; Use fresh buffer solutions.
Display is dim or blank	Low or dead batteries.	Replace batteries.
Reading fluctuates excessively	Air bubbles on probe; Contaminated sample; Damaged probe.	Gently stir to remove bubbles; Use a clean sample; Contact support if probe is damaged.
Cannot calibrate	Incorrect buffer solution; Probe not fully immersed; Damaged probe.	Ensure correct buffer; Immerse probe fully; Contact support.

8. Specifications

Parameter	Value
Brand	Real Instruments
Model Number	JQ-006
Measurement Functions	pH, TDS, ORP, EC, Temperature
pH Range	Typically 0.00 - 14.00 pH (Calibration points: 4.01, 6.86, 9.18 at 25°C)
TDS Range	0 - 200000 ppm (as per image)
Temperature Range	0 - 60°C (32 - 140°F)
Item Weight	200 g
Product Dimensions	8 x 4.5 x 3 cm
Included Components	1 x Water Quality Tester, 4 x Buffer Solutions, 1 x User Manual

9. Warranty and Support

Real Instruments products are manufactured with quality and reliability in mind. For warranty information, technical support, or service inquiries, please contact the manufacturer or your point of purchase. Keep your purchase receipt as proof of purchase. Manufacturer: True Sense Technologies

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