Apera Instruments AI521

Apera Instruments AI521 PH800 Laboratory Benchtop pH Meter Kit Instruction Manual

Model: AI521 PH800

1. Product Overview

The Apera Instruments PH800 Benchtop pH Meter is engineered for precise and reliable pH measurements in various water solutions, suitable for scientific research and quality control applications. This kit includes Apera's PC-body 201T-F pH/Temperature Electrode, enabling quick and accurate pH readings with automatic temperature compensation.

Key Features:

- Quick and easy 1 to 3 points automatic calibration with a calibration guide, automatically recognizing 5 types of pH standards (7.00, 4.00, 10.01, 12.45, 1.68).
- High-quality 201T-F pH/temperature combination electrode ensures stable and accurate measurements for general water solutions.
- GLP data management with 500 groups of data storage and USB data output.
- Electrode slope display between calibrations to monitor the health and performance of your pH electrode.
- Large backlit LCD displays pH and temperature simultaneously, along with icons for stable readings and completed calibrations.
- ORP (Redox) measurement mode available with an optional ORP electrode (sold separately).
- IP54 splash-proof design for enhanced durability.

2. Package Contents

The Apera Instruments PH800 Benchtop pH Meter Kit includes the following components:

- PH800 Benchtop pH Meter
- 201T-F pH/Temperature Electrode
- Flexible Electrode Arm and Holder
- USB Cable
- PC-Link Software Flash Drive (for Windows-based systems only)
- DC9V (120V) Power Adapter

- Calibration Solutions: 3 bottles (7.00, 4.00, 10.01, 50ml each)

3. Initial Setup

Follow these steps to set up your PH800 Benchtop pH Meter for first use:

1. **Unpack Components:** Carefully remove all items from the packaging and inspect for any damage.
2. **Assemble Electrode Holder:** Attach the flexible electrode arm and holder to the meter base. Ensure it is securely fastened to provide stable support for the electrode.
3. **Connect pH Electrode:** Plug the BNC connector of the 201T-F pH/Temperature Electrode into the corresponding BNC port on the back of the meter. Connect the temperature probe into the TEMP port.
4. **Connect Power:** Plug the DC9V power adapter into the meter's power input port and then into a standard electrical outlet.
5. **Optional USB Connection:** If you plan to use the GLP data management features, connect the USB cable from the meter to your computer. Install the provided PC-Link software from the flash drive (Windows only).

Figure 3.1: The Apera Instruments PH800 Benchtop pH Meter fully assembled with the electrode in a beaker, demonstrating a

typical setup for measurement.

Figure 3.2: Rear view of the PH800 meter, highlighting the REF, pH/mV, TEMP, USB, and DC 9V connection ports for various probes and power.

Figure 3.3: Close-up of the flexible electrode holder, designed for easy positioning and secure support of the pH electrode during operation.

4. Operating Instructions

4.1. Powering On/Off

Press the **POWER** button (usually marked with a circle and vertical line icon) to turn the meter on or off. The large backlit LCD will illuminate upon startup.

Figure 4.1: Top-down view of the PH800 meter's control panel, showing the power button, mode/setup, enter, unit, calibration, and measurement buttons.

4.2. Calibration

Accurate calibration is crucial for reliable pH measurements. The PH800 supports 1 to 3 points automatic calibration.

1. **Prepare Buffer Solutions:** Use fresh Apera calibration solutions (pH 7.00, 4.00, 10.01 are commonly included). Ensure the electrode and beakers are clean.
2. **Initiate Calibration:** Press the **CAL** button. The meter will enter calibration mode.
3. **First Point Calibration:** Rinse the electrode with distilled water and immerse it in the pH 7.00 buffer solution. Stir gently and wait for the reading to stabilize. The meter will automatically recognize the buffer and confirm calibration.
4. **Second and Third Point Calibration (Optional):** For higher accuracy, repeat the process with pH 4.00 and pH 10.01 buffer solutions. The meter will guide you through the process.
5. **Calibration Reminder:** The meter features a calibration reminder function to ensure regular calibration for optimal performance.

6. **Electrode Condition:** The self-diagnosis function provides slope data between calibration points, allowing you to monitor the condition and performance of your pH electrode.

4.3. Measurement

After successful calibration, you can proceed with measurements.

1. **Rinse Electrode:** Rinse the electrode thoroughly with distilled water before and after each measurement.
2. **Immerse Electrode:** Immerse the electrode into the sample solution. Ensure the sensing part of the electrode is fully submerged.
3. **Wait for Stabilization:** Allow the reading on the large backlit LCD to stabilize. A stable reading icon (often a smiley face) will appear when the measurement is ready. The display shows both pH and temperature simultaneously.
4. **Record Reading:** Note down the pH and temperature values.

Figure 4.4: The large backlit LCD screen of the PH800 meter, clearly displaying pH and temperature readings, along with stabilization and calibration success icons.

4.4. Data Management (GLP & USB Output)

The PH800 meter offers advanced data management capabilities.

- **Data Storage:** The meter can store up to 500 groups of measurement data, adhering to GLP (Good Laboratory Practice) standards.
- **USB Data Output:** Connect the meter to a Windows-based computer via the USB cable to transfer stored data.
- **PC Software:** Use the provided PC-Link software to view, analyze, and export data to spreadsheets for further analysis.
- **Auto-Timing Data Log:** Utilize the auto-timing data log mode for professional measurements requiring timed data collection.

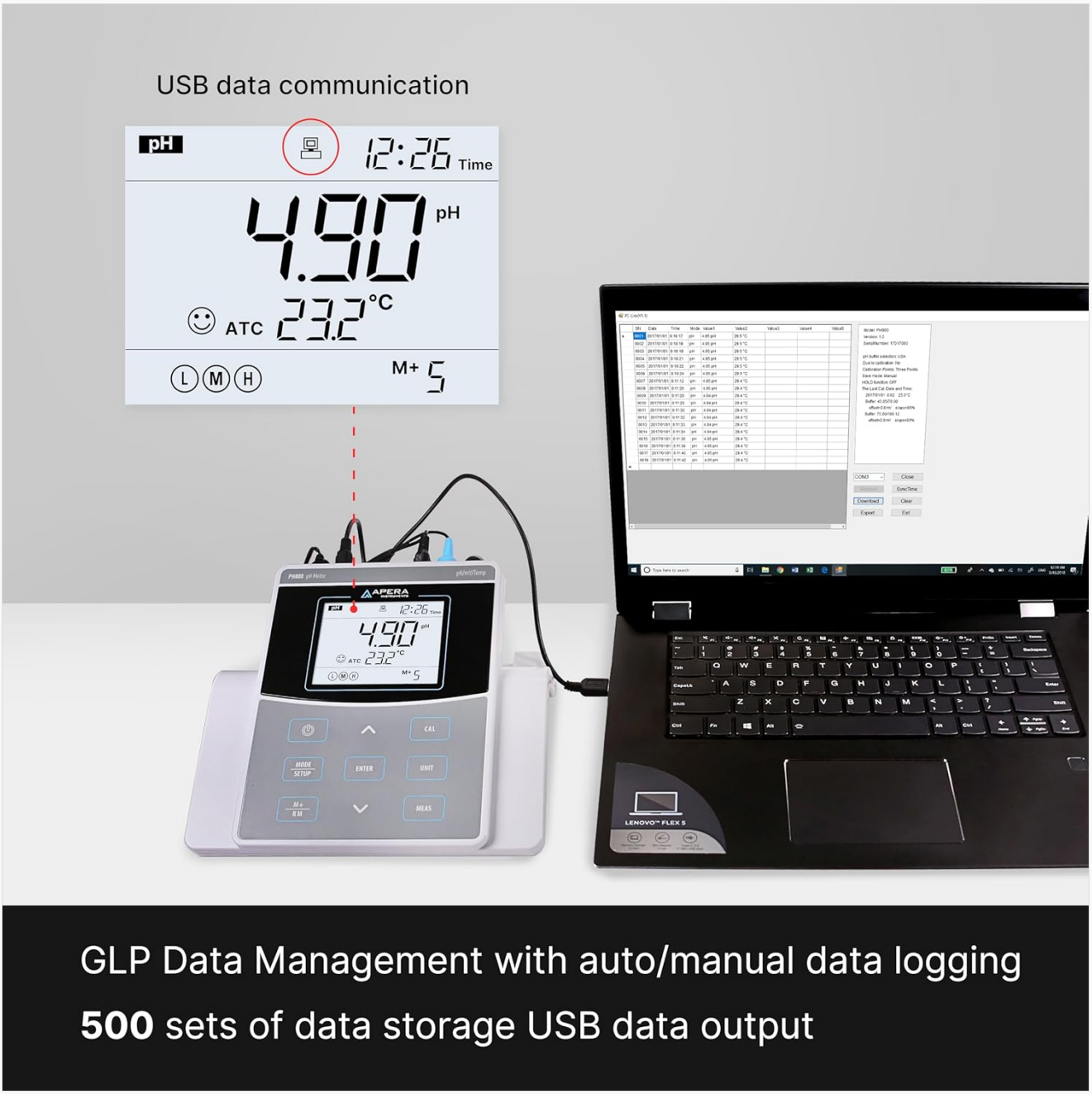


Figure 4.5: The PH800 meter connected to a laptop via USB, illustrating its GLP data management capabilities with auto/manual data logging and 500 sets of data storage.

5. Maintenance

Proper maintenance ensures the longevity and accuracy of your PH800 pH meter and electrode.

- **Electrode Cleaning:** Regularly clean the pH electrode with distilled water. For stubborn residues, use a mild

cleaning solution recommended for pH electrodes.

- **Electrode Storage:** When not in use, store the pH electrode in its protective cap filled with a suitable electrode storage solution (e.g., 3M KCl solution). Never store the electrode dry or in distilled water.
- **Meter Cleaning:** Wipe the meter's surface with a soft, damp cloth. Avoid using abrasive cleaners or solvents. The meter is IP54 splash-proof, but avoid direct water exposure.
- **Calibration Solutions:** Keep calibration solutions sealed when not in use and replace them regularly to ensure accuracy.

6. Troubleshooting

This section addresses common issues you might encounter with your PH800 pH meter.

- **Inaccurate Readings:** Ensure the electrode is properly calibrated. Check the electrode's slope data in the self-diagnosis function; a low slope indicates an aging or faulty electrode. Clean the electrode thoroughly.
- **Slow Response:** This can be due to a dry or contaminated electrode. Rehydrate the electrode in storage solution or clean it.
- **No Display/Power:** Check the power adapter connection and ensure the outlet is functional.
- **Calibration Errors:** Ensure you are using fresh, correct buffer solutions. Follow the calibration steps precisely. The self-diagnosis function can help identify specific calibration issues.
- **Data Transfer Issues:** Verify the USB cable connection and ensure the PC-Link software is correctly installed on a compatible Windows system.

For persistent issues, refer to the detailed troubleshooting guide in the full user manual or contact Apera Instruments customer support.

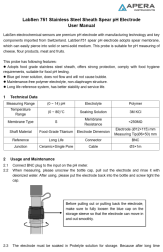
7. Technical Specifications

Specification	Value
Model Number	AI521
pH Accuracy	0.01 pH ± 1 digit
pH Range	-2.00 to 19.99 pH
pH Resolution	0.1/0.01 pH
Temperature Compensation	0 - 100°C Automatic
Data Storage	500 groups (GLP compliant)
Output	USB
Connector Type	Standard BNC
Ingress Protection	IP54 Splash-proof
Product Dimensions	9.5 x 8 x 4 inches
Product Weight	5.5 Pounds
Certifications	CE, RoHS, ISO 9001:2015

8. Warranty and Support

The Apera Instruments PH800 Benchtop pH Meter is manufactured under an ISO 9001:2015 certified quality system and is CE and RoHS certified, ensuring high standards of quality and safety.
For specific warranty information, technical assistance, or service inquiries, please contact Apera Instruments directly through their official website or authorized distributors. Please have your model number (AI521) and purchase date available when contacting support.

Related Documents - AI521

	[APERA INSTRUMENTS PC950 Benchtop pH/Conductivity Meter Instruction Manual] Comprehensive instruction manual for the APERA INSTRUMENTS PC950 Benchtop pH/Conductivity Meter, covering specifications, operation, calibration, maintenance, and troubleshooting for laboratory use.
	[Apera PH700 Benchtop pH Meter Instruction Manual] Comprehensive instruction manual for the Apera PH700 Benchtop pH Meter, covering features, specifications, operation, calibration, maintenance, and troubleshooting.
	[Apera PH700 Benchtop pH Meter Instruction Manual] Comprehensive instructions for operating, calibrating, and maintaining the Apera PH700 Benchtop pH Meter. It covers technical specifications, instrument description, measurement procedures for pH and ORP, parameter settings, electrode care, and troubleshooting.
	[LabSen 751 pH Electrode User Manual - Apera Instruments] User manual for the Apera Instruments LabSen 751 Stainless Steel Sheath Spear pH Electrode, detailing features, technical specifications, usage, maintenance, and warranty for food pH testing.
	[Apera Instruments PC60 Premium 5-in-1 Tester User Manual] Comprehensive user manual for the Apera Instruments PC60 Premium 5-in-1 Tester, covering pH, Conductivity, TDS, Salinity, and Temperature measurements. Includes setup, calibration, operation, maintenance, and troubleshooting.

[Apera SX823-B pH/Conductivity Portable Meter Instruction Manual]

This instruction manual provides detailed information on the Apera SX823-B portable pH/Conductivity meter, covering its features, specifications, operation, calibration procedures, maintenance, and troubleshooting.