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> 150W 4-Wire Electronic Load Tester 2.4 inch DC Tester APP Electronic Adjustment Constant Load Lithium Battery Capacity Monitor Discharge Charge Power Meter Supply Checker User Manual

JUWEIAT DL24 150W

150W 4-Wire Electronic Load Tester User Manual

Model: DL24 150W | Brand: JUWEIAT

INTRODUCTION

The JUWEIAT DL24 150W 4-Wire Electronic Load Tester is a versatile device designed for comprehensive testing of various power supply equipment. It is compatible with USB chargers, power banks, batteries, and power adapters. This tester allows for precise measurement and analysis of voltage, current, power, capacity, energy, temperature, and discharge resistance. It also features time-limited discharge settings and cutoff voltage settings for enhanced control and battery protection. With its 2.4-inch high-definition color screen and support for both 2-wire and 4-wire systems, the DL24 provides accurate and detailed testing results.

KEY FEATURES

- **Comprehensive Testing:** Compatible with discharging and aging testing of various USB chargers, power banks, batteries, and power adapters. Measures voltage, current, power, capacity, energy, temperature, discharge resistance, time-limited discharge settings, and cutoff voltage settings.
- **Multiple Connectivity Options:** Supports four major online APPs (Android, Apple, PC computer Bluetooth wireless, and data wired connection APP). Compatible with both Bluetooth wireless and wired connection modes.
- **Four-Wire System Advantage:** The 4-wire system (also supports 2-wire) ensures voltage measurement is not affected by wire voltage drop, providing more accurate battery detection.
- **High-Definition Display:** Features a 2.4-inch high-definition wide color screen for a clear and visually appealing interface.
- **Advanced Discharge Control:** Enables accurate discharge termination to protect batteries. Utilizes a high-power large discharge tube for robust testing.
- **Smart Temperature Control:** Incorporates an intelligent temperature control fan design and a built-in large discharge tube for reliable and efficient operation during continuous load discharge aging tests.

PRODUCT OVERVIEW AND COMPONENTS

The image below highlights the key components and connection points of the DL24 150W Electronic Load Tester.

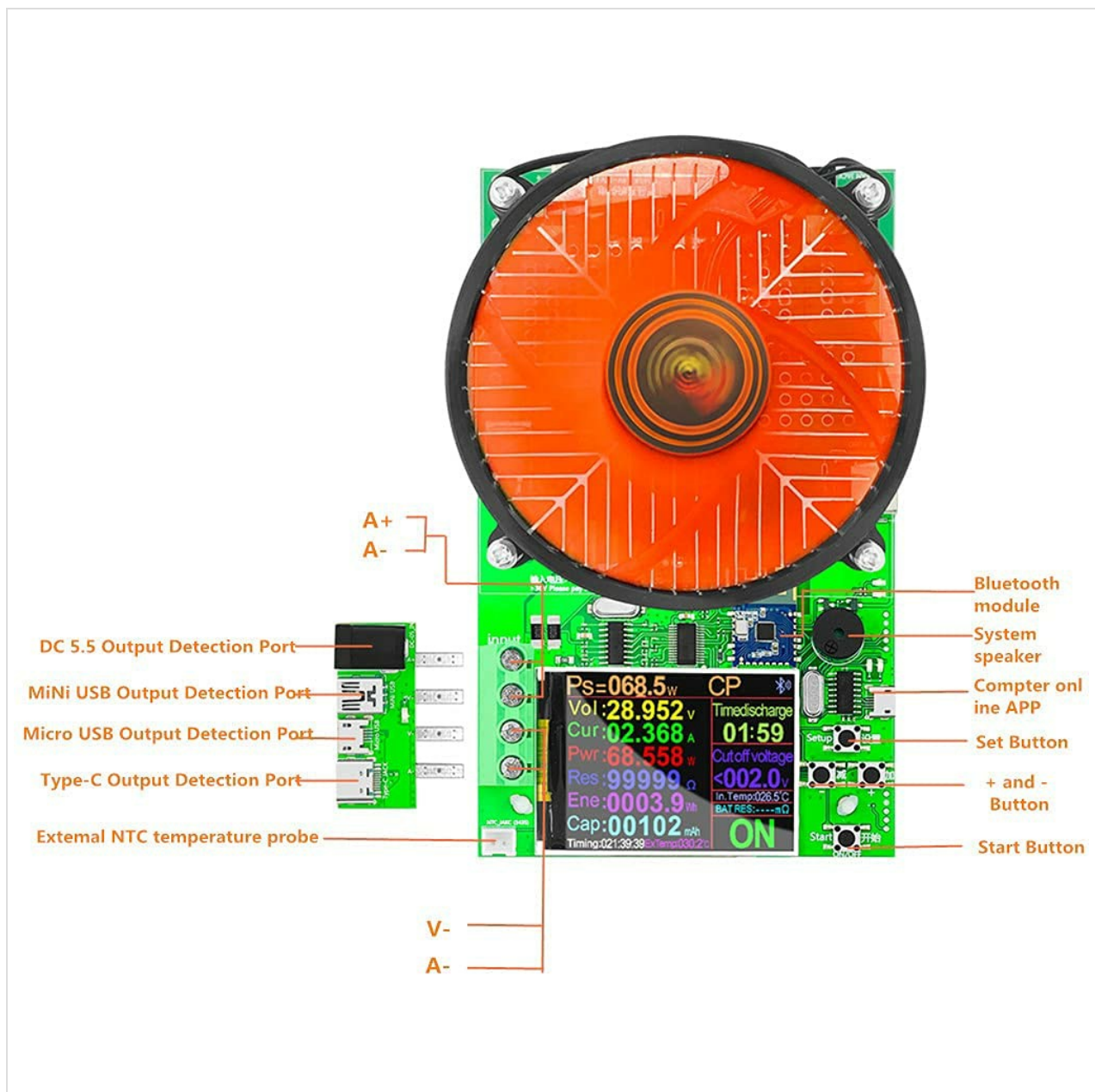


Figure 1: DL24 150W Electronic Load Tester with labeled components.

- **A+ / A- Terminals:** Main input terminals for connecting the device under test (e.g., battery, power supply).
- **V+ / V- Terminals:** Voltage sensing terminals for 4-wire measurement, ensuring accurate voltage readings by compensating for cable resistance.
- **DC 5.5 Output Detection Port:** For testing devices with a DC 5.5mm barrel jack.
- **Mini USB Output Detection Port:** For testing devices with a Mini USB port.
- **Micro USB Output Detection Port:** For testing devices with a Micro USB port.
- **Type-C Output Detection Port:** For testing devices with a USB Type-C port.
- **External NTC Temperature Probe:** Connects an external temperature sensor for precise temperature monitoring.
- **Bluetooth Module:** Enables wireless connection to Android, Apple, and PC applications.

- **System Speaker:** Provides audible alerts.
- **Set Button:** Used to navigate menus and confirm selections.
- **+ and - Buttons:** Used to adjust values and navigate options.
- **Start Button:** Initiates the discharge test.
- **ON/OFF Button:** Toggles the discharge function.

SETUP AND CONNECTIONS

Proper connection of the electronic load tester to your device under test is crucial for accurate results. The DL24 supports both 2-wire and 4-wire connection methods.



Figure 2: Example of a 4-wire connection for battery testing.

Wiring Diagram



Figure 3: Electronic Load Wiring Diagram.

1. Two-wire system: Connect the positive and negative terminals of your power source or battery directly to the A+ and A- input terminals of the load tester. This method is simple but may be affected by voltage drop in the wires, leading to slightly less accurate voltage readings.

2. Four-wire system: For more accurate voltage measurement, especially when testing batteries, use the 4-wire method. Connect the main current-carrying wires to A+ and A- terminals. Additionally, connect separate voltage sensing wires from the positive and negative terminals of your device to the V+ and V- terminals on the load tester. This method isolates voltage measurement from current path resistance, providing higher accuracy.

Powering On and Initial Setup

The following video demonstrates the physical setup, powering on the device, and initial adjustments.



Video 1: Overview of the DL24 150W Electronic Load Tester, demonstrating physical handling, power connection, and initial screen display.

OPERATING MODES

The DL24 150W Electronic Load Tester supports four primary discharge modes: Constant Current (CC), Constant Resistance (CR), Constant Power (CP), and Constant Voltage (CV). These modes allow for flexible testing scenarios.

1 Voltage accuracy evaluation



2 Current accuracy evaluation



3 Packing List

150W DL24



4 Side display



Figure 4: Display interfaces for the four operating modes.

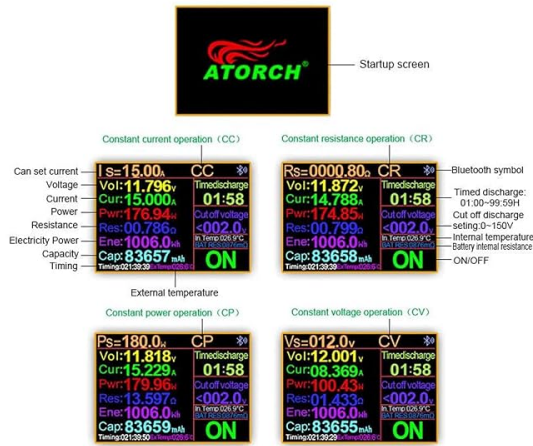
- **Constant Current (CC) Operation:** In this mode, the load tester maintains a constant current draw from the device under test, regardless of voltage fluctuations. This is ideal for testing battery capacity and discharge rates.
- **Constant Resistance (CR) Operation:** The load tester simulates a fixed resistance, meaning the current drawn will vary with the voltage of the device under test (Ohm's Law: $I = V/R$). Useful for testing power supplies under varying load conditions.
- **Constant Power (CP) Operation:** The load tester maintains a constant power dissipation, adjusting current as voltage changes to keep the power ($P = V \cdot I$) constant. This mode is suitable for testing power supplies or batteries under a specific power demand.
- **Constant Voltage (CV) Operation:** In this mode, the load tester attempts to maintain a constant voltage across its terminals, adjusting the current draw as needed. This is less common for discharge testing but can be useful for specific power supply regulation tests.

Application Connectivity

The DL24 can be controlled and monitored via dedicated applications on PC (wired or Bluetooth) and mobile devices (Android, Apple) using Bluetooth. This allows for remote control, data logging, and graphical analysis of test results.

150W High Power PD charger and Power Bank Aging Detection Bluetooth Data Transmission Load

1. Interface Display

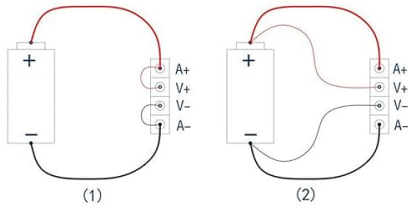


3. Protection settings

1. Overload protection
2. Overcurrent protection
3. High temperature protection



2. Electronic load wiring diagram



- (1) **Two-wire wiring method:** this method is relatively simple and convenient. Note: It must be connected to the 2 terminals [A+] and [A-].
- (2) **The four-wire wiring method:** the voltage measurement is not affected by the voltage drop of the wire, so that the voltage measurement. The quantity is more accurate, and it is recommended that buyers with a certain circuit basis use this method!

4. Four operating modes of operation

1. Constant current operation (CC)
2. Constant resistance operation (CR)
3. Constant power operation (CP)
4. Constant voltage operation (CV)

Figure 5: DL24 connectivity with PC and mobile applications.

BASIC OPERATION

This section provides step-by-step instructions for common operations, referencing specific timeframes within the provided video for visual guidance.

Setting Discharge Current (CC Mode)

To set the desired discharge current in Constant Current (CC) mode:

1. Ensure the device is powered on and in CC mode.
2. Press the 'Set' button to highlight the current setting (I_s).
3. Use the '+' and '-' buttons to adjust the current value to your desired level.
4. Press 'Start' to begin the discharge.

Refer to Video 1, timestamp 00:40 - 01:07, for a visual demonstration of setting the discharge current.

Starting and Stopping a Discharge Test

Once your parameters are set, you can start and stop the discharge test:

1. After setting your desired current/power/resistance/voltage, press the 'Start' button to initiate the discharge. The display will show "ON".
2. To stop the discharge at any time, press the 'ON/OFF' button. The display will show "OFF" and the test will conclude.

Refer to Video 1, timestamp 01:07 - 01:13, for a visual demonstration of starting and stopping a discharge test.

Changing Operating Modes

To switch between Constant Current (CC), Constant Resistance (CR), Constant Power (CP), and Constant Voltage (CV) modes:

1. Ensure the discharge is OFF.
2. Repeatedly press the 'Set' button until the desired operating mode (CC, CR, CP, CV) is highlighted or displayed.
3. Once the mode is selected, you can adjust its specific parameters (e.g., current for CC, resistance for CR).

Refer to Video 1, timestamp 02:29 - 02:42, for a visual demonstration of cycling through the operating modes.

Testing a Power Adapter

The DL24 can also be used to test power adapters. Connect the power adapter to the appropriate input port (e.g., USB-C, Micro USB, etc.) on the load tester. Then, set your desired load parameters and initiate the test.

Refer to Video 1, timestamp 03:00 - 03:29, for a visual demonstration of testing a power adapter.

PROTECTION SETTINGS

The DL24 150W Electronic Load Tester incorporates several protection mechanisms to ensure safe operation and prevent damage to both the device and the unit under test.

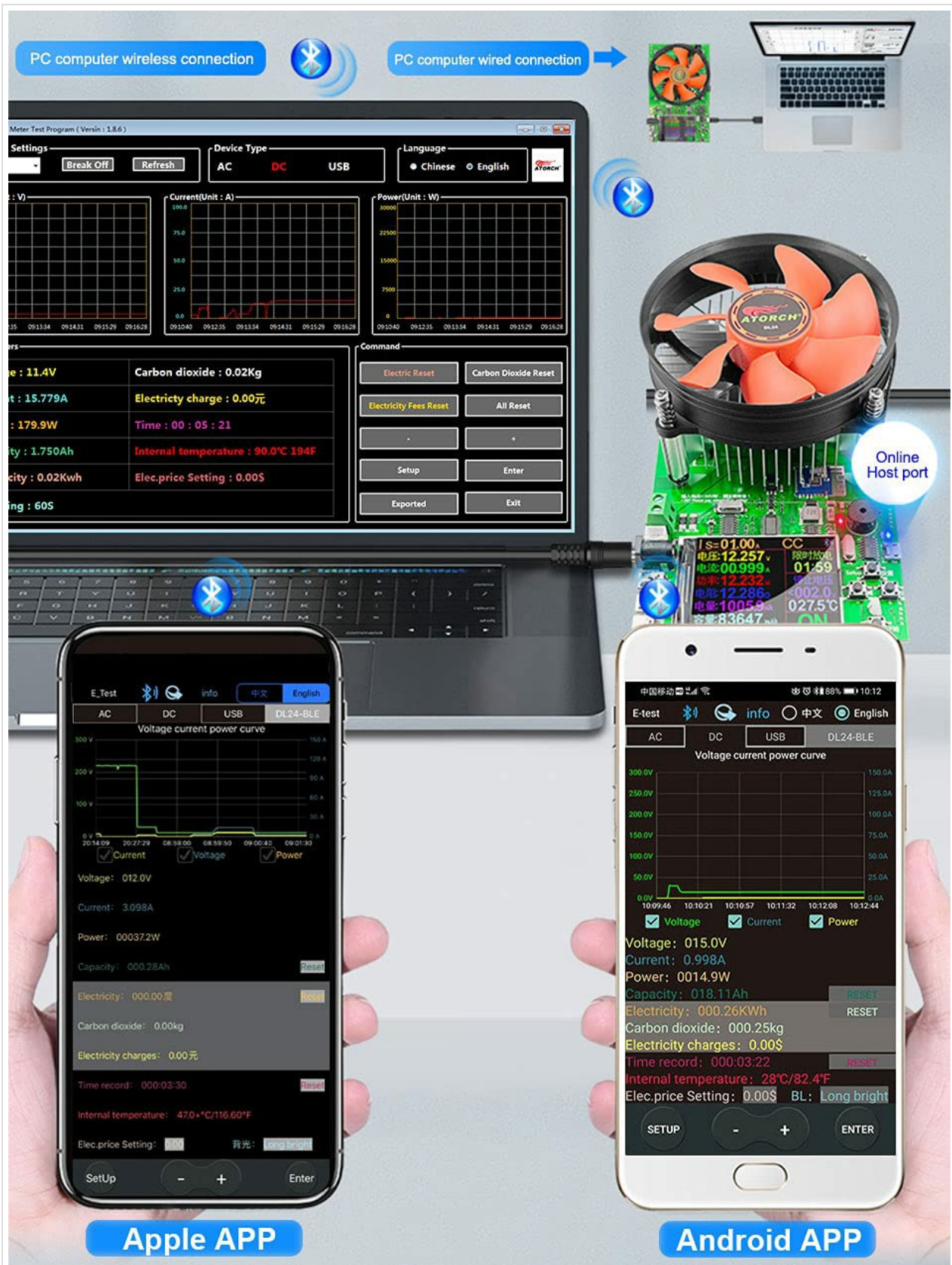


Figure 6: Display warnings for various protection triggers.

- **Overload Protection:** The device will automatically stop discharging if the power drawn exceeds its maximum rated power (150W).
- **Overcurrent Protection:** If the current drawn exceeds a safe limit, the device will halt the discharge to prevent damage.
- **High Temperature Protection:** An intelligent temperature control fan helps dissipate heat. If the internal temperature rises above a safe threshold, the device will activate high temperature protection and stop the test to prevent overheating.

Always monitor the device during operation and ensure proper ventilation to avoid triggering protection mechanisms unnecessarily.

SPECIFICATIONS

Feature	Value
Model Number	DL24 150W
Brand	JUWEIAT
Power Source	Corded Electric DC
Min. Operating Voltage	2 Volts
Color	Red, Green, Black
Package Dimensions	7.8 x 7.44 x 4.61 inches
Item Weight	1.43 Pounds
Date First Available	July 9, 2021
Manufacturer	ATORCH

TROUBLESHOOTING

If you encounter issues with your DL24 150W Electronic Load Tester, please refer to the following common troubleshooting steps:

- **Device Not Powering On:**

- Ensure the power adapter is correctly connected to the DC input port.
- Verify the power adapter is supplying the correct voltage and current.
- Check for any visible damage to the device or power cable.

- **Inaccurate Readings:**

- Confirm that the wiring is correct, especially if using the 4-wire system. Loose connections can affect accuracy.
- Ensure the device under test is stable and within the operating voltage and current ranges of the DL24.
- Consider recalibrating the device if significant discrepancies persist (refer to advanced settings in the user interface or app).

- **Discharge Not Starting/Stopping:**

- Verify that the 'ON/OFF' button is pressed to initiate discharge.
- Check if any protection mechanisms (overload, overcurrent, high temperature) are active, which would prevent or stop discharge.

- Ensure the cutoff voltage is set appropriately and has not been reached prematurely.

- **Bluetooth/APP Connectivity Issues:**

- Ensure Bluetooth is enabled on both the DL24 and your connecting device (phone/PC).
- Restart both the DL24 and the connecting device.
- Verify that you have the latest version of the application installed.
- Check if the device is already paired with another device.

- **Fan Not Operating:**

- The fan is temperature-controlled and may not operate at low loads or temperatures. It will activate automatically when needed.
- Ensure there are no obstructions to the fan.

If these steps do not resolve the issue, please contact customer support for further assistance.

MAINTENANCE

To ensure the longevity and optimal performance of your DL24 150W Electronic Load Tester, follow these maintenance guidelines:

- **Cleaning:** Regularly wipe the device with a soft, dry cloth to remove dust and debris. Do not use liquid cleaners or solvents, as they may damage the electronic components.
- **Storage:** Store the device in a cool, dry place away from direct sunlight, extreme temperatures, and high humidity. Keep it in its original packaging or a protective case when not in use.
- **Ventilation:** Ensure the fan and ventilation openings are clear of obstructions during operation to allow for proper heat dissipation.
- **Cable Care:** Inspect all connecting cables regularly for signs of wear, fraying, or damage. Replace damaged cables immediately to prevent electrical hazards and ensure accurate measurements.
- **Avoid Drops and Impacts:** Handle the device with care to prevent physical damage, which can affect its internal components and accuracy.

WARRANTY AND SUPPORT

For information regarding the product warranty, please refer to the warranty card included with your purchase or contact the retailer where the product was acquired. For technical support, inquiries, or service requests, please reach out to JUWEIAT customer service through their official website or the contact information provided in your product documentation. Please have your model number (DL24 150W) and purchase details ready when contacting support.