

## DROK LD25

# DROK LD25 USB Load Tester Instruction Manual

Model: LD25

## 1. INTRODUCTION

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The DROK LD25 USB Load Tester is an intelligent temperature-controlled electronic load module designed for testing USB and Type-C power sources and cables. It features high power, high current, and high voltage capabilities, along with intelligent control for precise measurements. This device is ideal for verifying charger output capacity, testing cable quality, and performing bulk aging tests.

It provides a constant current discharge task up to 4A, 25V, and 25W, offering a user-friendly interface and robust performance for diverse testing requirements.

## 2. IMPORTANT SAFETY INFORMATION

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**WARNING:** This product does not have reverse connection protection. The input polarity cannot be reversed. Reversing the input polarity will cause permanent damage to the product and it cannot be repaired. Always ensure correct polarity before connecting the device.

Ensure the operating voltage, current, and power do not exceed the rated maximums to prevent damage to the device or the power source being tested.

## 3. PRODUCT FEATURES AND COMPONENTS

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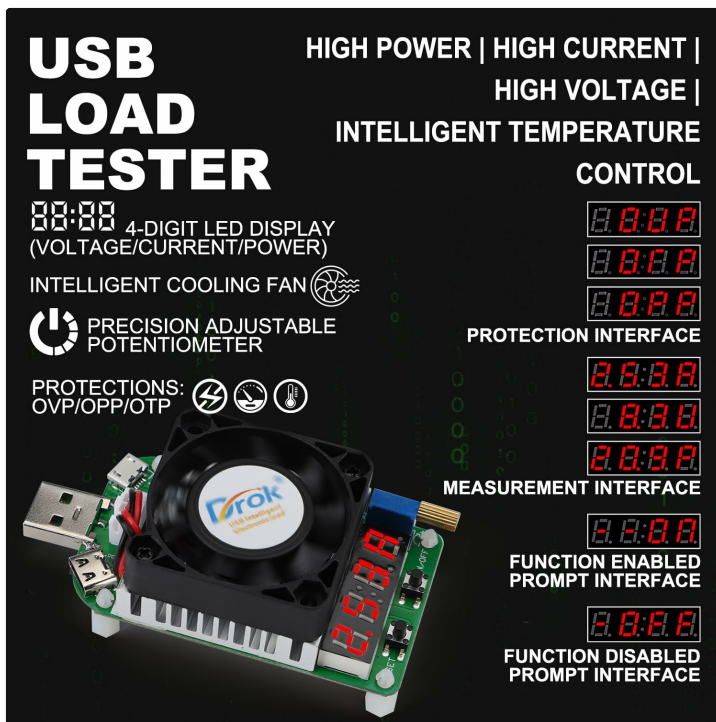


Figure 3.1: Key Features Overview

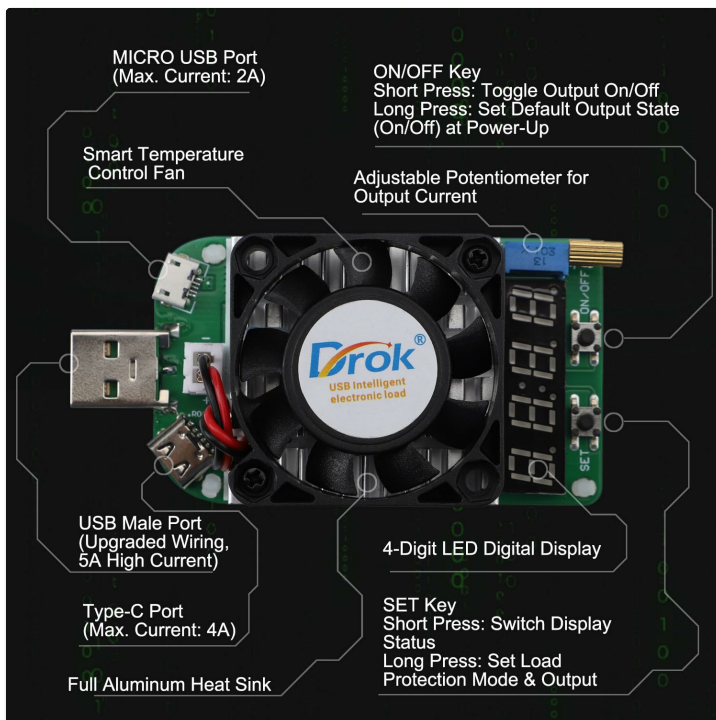



Figure 3.2: Component Identification

- **4-Digit LED Digital Display:** Shows voltage, current, and power values.
- **Intelligent Cooling Fan:** Oil bearing fan with intelligent temperature control, speed up to  $5800 \pm 10\%$  RPM. Activates automatically when current exceeds 2A or temperature exceeds  $40^{\circ}\text{C}$ .
- **Precision Adjustable Potentiometer:** Allows fine-tuning of the output current.
- **USB Male Port:** For connecting to USB power sources.
- **Micro USB Port (Max. Current: 2A):** For testing Micro USB cables and devices.
- **Type-C Port (Max. Current: 4A):** For testing Type-C cables and devices.
- **ON/OFF Key:** Short press to toggle the load output on or off. Long press to set the default boot state (output on or off) for future use.
- **SET Key:** Short press to cycle through the display modes: Voltage (V), Current (A), and Power (W). Long press to enter the protection setting menu.

- **Full Aluminum Heat Sink:** Efficient heat dissipation for stable operation.
- **Protection Features:** Over-voltage protection (OVP), Over-power protection (OPP), Over-temperature protection (OTP).

## 4. SPECIFICATIONS

# SPECIFICATION



Operating Voltage: Dc 4-25.0v	Operating Temperature: -10°C to 40°C
Discharge Power: 25w	Potentiometer: Precision Multiloop Adjustable Potentiometer
Operating Current: 0.25-4.00a (Min. 0.05a When Fan Is Off)	Display Type: 4-Digit LED Digital Display
Fan Speed: Large-Size Smart Temperature-Controlled Fan (Speed: 5800±10% Rpm)	Product Interfaces: Micro USB Port / Type-C Port
Constant Current Accuracy: ±(1% + 3 Digits)	Product Weight: 57g
Cooling Method: Smart Temp-Controlled Fan + Full Aluminum Heat Sink	Product Dimensions: 83.8×41.1×27.9mm

Note: Incorrect Input Polarity Will Cause Permanent Damage and is Irreparable.

Figure 4.1: Product Specifications

Parameter	Value
Rated Operating Voltage	DC 4-25.0V
Max Discharging Power	25W
Rated Operating Current	0.25-4.00A (Min. 0.05A when fan is off)
Fan Speed	Oil bearing intelligent temperature control fan, 5800±10% RPM
Constant Current Resolution	±(1%+3 digits)
Heat Dissipation Method	Intelligent temperature control fan + Aluminum heat sink
Working Temperature	-10°C~+40°C
Adjustable Potentiometer	Precision multiloop adjustable potentiometer
Display Mode	4-bit LED tube
Expansion Ports	Micro USB port, Type-C port

Parameter	Value
Product Dimensions	84 x 41 x 28mm
Product Weight	57g



Figure 4.2: Product Dimensions

## 5. SETUP

- 1. Prepare Power Source:** Ensure the power source (e.g., USB charger, power bank) you intend to test is within the operating voltage range of DC 4-25.0V.
- 2. Connect the Load Tester:**
  - For standard USB power sources: Plug the USB male port of the LD25 directly into the USB output port of your charger or power bank.
  - For Micro USB or Type-C cables/devices: Connect the Micro USB or Type-C port of the LD25 to the respective cable or device.
- 3. Verify Connection:** Once connected, the 4-digit LED display should illuminate, indicating the device is powered on. If it does not power on, check the connection and ensure the power source is active.
- 4. Initial Current Setting:** Before applying a load, ensure the adjustable potentiometer is set to a low current or off position to avoid sudden high current draw.

## 6. OPERATING INSTRUCTIONS

### 6.1 Basic Operation

- 1. Power On/Off:**
  - Short press the **ON/OFF Key** to toggle the load output on or off.
  - Long press the **ON/OFF Key** to set the default boot state (output on or off) for future use.
- 2. Adjusting Current:** Rotate the **Adjustable Potentiometer** to increase or decrease the discharge current. The current value will be displayed on the LED screen. Adjust gradually to the desired load.

3. **Display Modes:** Short press the **SET Key** to cycle through the display modes: Voltage (V), Current (A), and Power (W).
4. **Setting Protection Modes:** Long press the **SET Key** to enter the protection setting menu. Refer to Section 7 for details on protection functions.

## 6.2 Intelligent Cooling Fan Operation

The intelligent cooling fan will automatically activate under the following conditions to maintain optimal operating temperature:

- When the discharge current exceeds 2A.
- When the internal temperature of the device exceeds 40°C.

The fan supports continuous 25W discharge and ensures uninterrupted operation by efficiently dissipating heat.

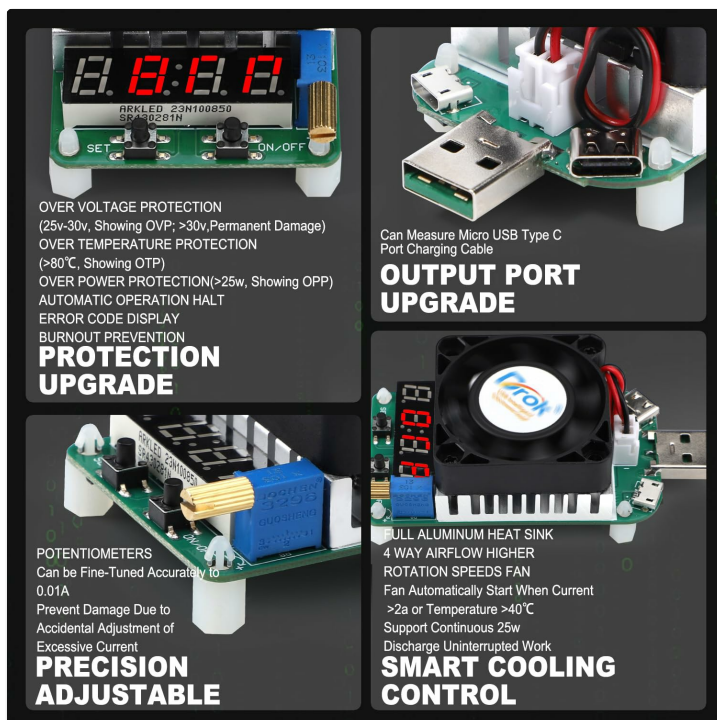


Figure 6.1: Protection and Cooling Details

## 7. PROTECTION FUNCTIONS AND TROUBLESHOOTING

The LD25 USB Load Tester incorporates several protection mechanisms to ensure safe operation and prevent damage to the device and connected equipment.

- **OVP (Over-Voltage Protection):**
  - Activates if the input voltage exceeds 25V (up to 30V).
  - The digital display will show "OVP".
  - **Caution:** Voltages exceeding 30V can cause permanent damage.
- **OTP (Over-Temperature Protection):**
  - Activates if the load temperature exceeds 80°C.
  - The device will stop working, and the digital display will show "OTP".
- **OPP (Over-Power Protection):**

- Activates if the discharge power exceeds 25W.
- The device will stop working, and the digital display will show "OPP".

When a protection condition is met, the device will halt operation. To resume, address the underlying issue (e.g., reduce voltage, allow cooling, reduce power draw) and then manually or automatically reset the load as configured.

## 8. APPLICATIONS

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The DROK LD25 USB Load Tester is a versatile tool for various testing scenarios:

- **Charger Testing:** Measure the actual output current capacity of USB chargers and power banks.
- **Cable Quality Testing:** Evaluate the quality and performance of Micro USB and Type-C charging cables by observing voltage drop under load.
- **Bulk Aging Tests:** Suitable for factory quality control and aging tests of chargers and power supplies.
- **Power Delivery Verification:** Confirm stable power output from various USB power sources.

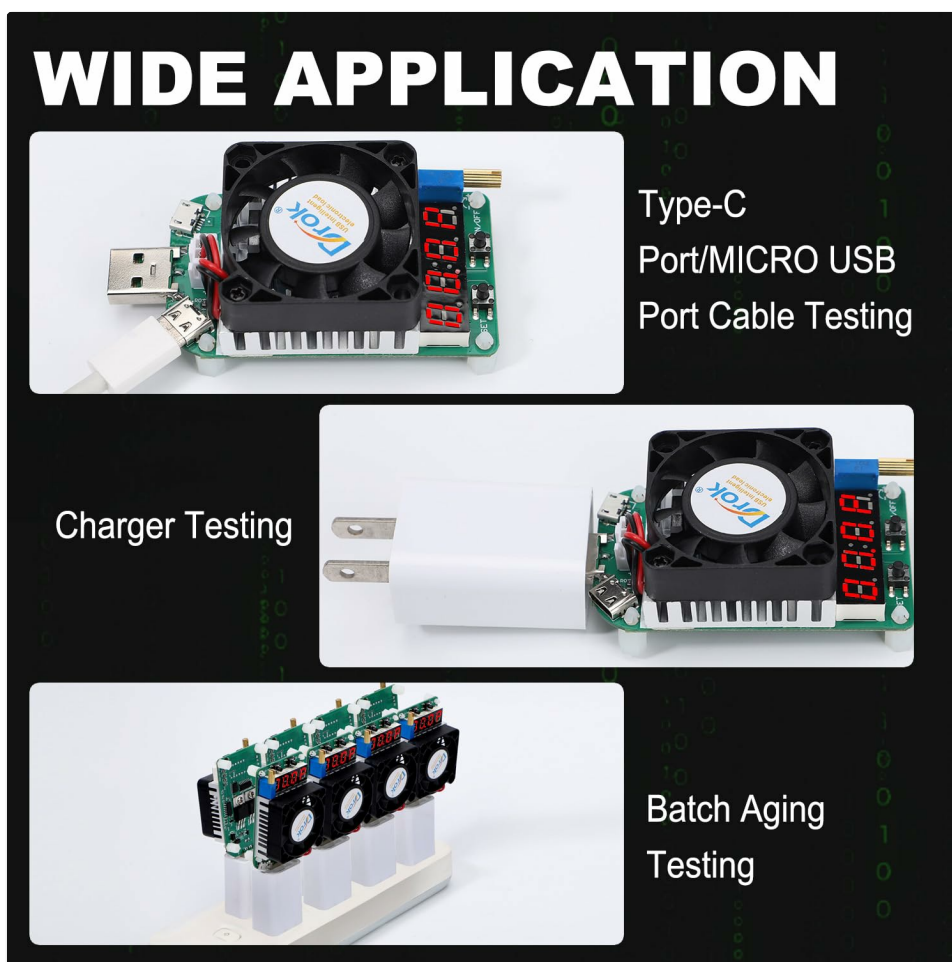


Figure 8.1: Wide Application Examples

## 9. MAINTENANCE

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To ensure the longevity and accurate performance of your DROK LD25 USB Load Tester:

- **Cleaning:** Use a soft, dry cloth to clean the device. Do not use liquid cleaners or solvents.
- **Storage:** Store the device in a cool, dry place away from direct sunlight and extreme temperatures.
- **Handling:** Avoid dropping or subjecting the device to strong impacts.
- **Ventilation:** Ensure the cooling fan and heat sink are free from dust and obstructions to maintain efficient heat

dissipation.



## **WARRANTY AND SUPPORT**

For warranty information and technical support, please refer to the documentation provided with your purchase or contact DROK customer service directly.