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LiitoKala Lii-500S

LiitoKala Lii-500S Smart Universal Battery Charger

User Manual

Model: Lii-500S | Brand: LiitoKala

1. Introduction

The LiitoKala Lii-500S is a smart universal battery charger designed for a wide range of rechargeable batteries, including 1.2V Ni-MH/Ni-CD and 3.7V Li-ion cells. It features an intuitive LCD display that provides real-time information on voltage, current, time, and capacity for each of its four independent charging slots. With multiple operating modes (Charge, Discharge, and Test), the Lii-500S offers comprehensive battery management, allowing users to not only charge but also analyze the true capacity of their batteries. Its touch-button interface ensures ease of use, while built-in safety features protect against overcharge, over-discharge, short-circuit, and overheating.

2. Safety Information

To ensure safe and optimal operation of your LiitoKala Lii-500S charger, please adhere to the following safety guidelines:

- Use only the provided original power adapter.
- Do not charge non-rechargeable batteries.
- Ensure correct battery polarity (+/-) when inserting batteries into the charger slots.
- Avoid exposing the charger to water, high humidity, or extreme temperatures.
- Do not disassemble or modify the charger. This will void the warranty and may cause damage or injury.
- Keep the charger out of reach of children.
- The charger is equipped with multiple safety protections, including **over-heat protection**, **over-current protection**, **over-voltage protection**, **flame retardant casing**, **short-circuit protection**, and **over-charge protection**. However, always monitor the charging process.



Figure 2.1: Visual representation of the LiitoKala Lii-500S charger's built-in safety features, including protection against overheating, overcurrent, overvoltage, short circuits, and overcharging, all housed within a flame-retardant casing.

3. Package Contents

Upon opening the package, please verify that all items listed below are present and in good condition:

- 1 x LiitoKala Lii-500S Smart Universal Battery Charger
- 1 x AC Power Adapter (DC 12V/3A)
- 1 x Car Charger Adapter (optional, may vary by package)
- 1 x User Manual



Figure 3.1: The LiitoKala Lii-500S charger unit displayed alongside its standard accessories, including the AC power adapter and an optional car charger adapter, as typically found within the product packaging.

4. Product Overview

The LiitoKala Lii-500S charger features a compact design with four independent charging slots and a clear LCD display for easy monitoring.

4.1. Charger Layout



Figure 4.1: Front view of the LiitoKala Lii-500S Smart Universal Battery Charger, showcasing its four independent charging bays and the central LCD display with touch controls.

4.2. LCD Display

The LCD display provides comprehensive information for each battery slot. You can view the following parameters:

- **Mode Selection (1):** Indicates the current operating mode (Charge, Discharge, or Test).
- **Current Selection (2):** Shows the selected charging or discharging current (mA).
- **Battery Voltage Display (3):** Displays the real-time voltage (V) of the battery.
- **Recorded Battery Capacity Display (4):** Shows the accumulated capacity (mAh) during charging or discharging.
- **Time Display (5):** Indicates the elapsed time (h) for the current operation.
- **Battery Status Display (6):** A visual indicator of battery charge level. Flashes upwards during charging and downwards during discharging.
- **Operation Prompt (7):** Displays "END" when an operation is complete.
- **Corresponding Slot Display (8):** Indicates which channel (CH1, CH2, CH3, CH4) is currently selected or being displayed.

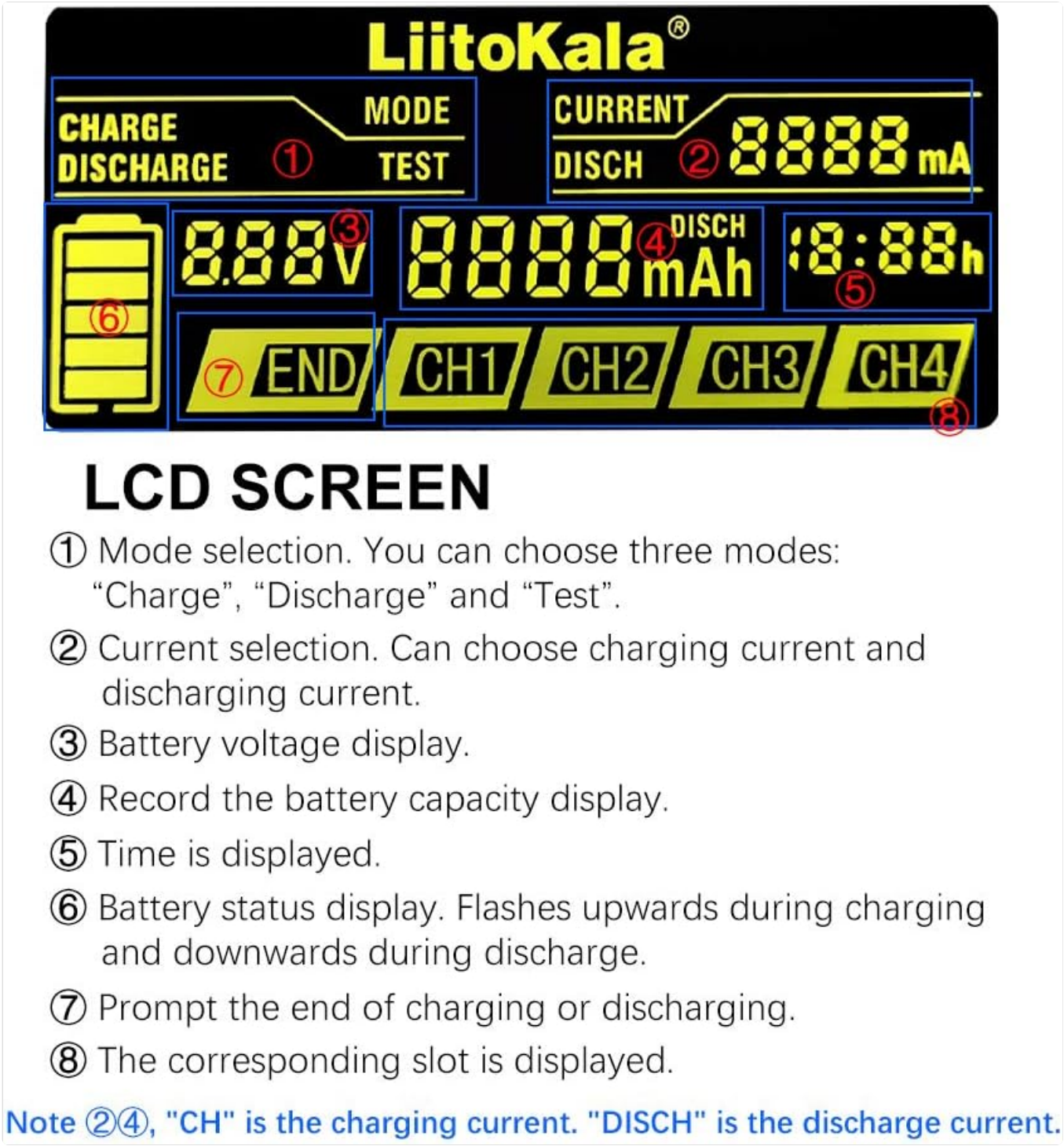


Figure 4.2: Detailed view of the LiitoKala Lii-500S LCD screen, highlighting each information segment and its corresponding function, such as mode, current, voltage, capacity, and time.

4.3. Touch Buttons

The charger operates using two main touch buttons and four individual channel selection buttons:

- **MODE Button:** Used to select the operating mode (Charge, Discharge, Test). A short press cycles through modes. A long press (approx. 2 seconds) on any of the 1-4 buttons will keep the display on continuously.
- **CURRENT Button:** Used to select the charging or discharging current.
- **1, 2, 3, 4 Buttons:** Individual channel selection buttons. Press to view information for a specific slot or to set its mode/current independently.



Figure 4.3: Illustration of the LiitoKala Lii-500S's touch-sensitive buttons, indicating the 'MODE' and individual channel selection buttons (1-4) for intuitive control.

4.4. Input/Output Ports

- **DC 12V Input:** Connect the provided AC power adapter here.
- **USB 5V Output:** Provides 5V/1000mA output for charging external devices (e.g., smartphones). This function is only active when the charger is connected to AC power.

5. Setup

Follow these steps to set up your LiitoKala Lii-500S charger:

1. **Connect Power:** Plug the DC 12V/3A AC power adapter into the charger's DC 12V input port, then plug the adapter into a wall outlet. The LCD display will light up.
2. **Insert Batteries:** Carefully insert one or more compatible rechargeable batteries into the charging slots, ensuring correct polarity. The charger will automatically detect the battery type (Li-ion or Ni-MH/Ni-CD) and display its current voltage.
3. **Initial Mode:** By default, the charger enters "Charge" mode. If no operation is performed within 8 seconds, it will automatically begin charging at 500mA.

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Video 5.1: This video demonstrates the unboxing of the LiitoKala Lii-500S charger, showcasing its components, and provides a visual guide on how to connect the power adapter and insert batteries for initial setup and operation.

6. Operating Modes

The LiitoKala Lii-500S offers three main operating modes: Charge, Discharge, and Test. Each mode can be set independently for each of the four battery slots.

6.1. Charge Mode

In Charge mode, the charger replenishes the battery's energy. The charging current can be adjusted.

1. Insert a battery. The charger will automatically enter Charge mode.
2. Within 8 seconds, press the **CURRENT** button to cycle through available charging currents: 300mA, 500mA, 700mA, 1000mA.
3. If charging 1 or 2 batteries, a 2000mA option becomes available by pressing the **CURRENT** button again. This 2000mA option is not available for Ni-MH/Ni-CD batteries.
4. After 8 seconds of no operation, the selected current will be locked, and charging will begin.
5. The LCD will display voltage, current, accumulated capacity, and elapsed time. The battery icon will flash upwards.
6. When charging is complete, the display will show "END", and the battery icon will be full.



Figure 6.1: The LiitoKala Lii-500S charger operating in 2000mA charge mode, demonstrating the high-speed charging capability when one or two Li-ion batteries are inserted.

6.2. Discharge Mode

Discharge mode drains the battery to a lower voltage level. This can be useful for conditioning Ni-MH/Ni-CD batteries to reduce

memory effect.

1. Insert a battery. Within 8 seconds, press the **MODE** button repeatedly until "DISCHARGE" is displayed.
2. Press the **CURRENT** button to select the discharge current: 250mA or 500mA.
3. After 8 seconds, the selected current will be locked, and discharging will begin.
4. The LCD will display voltage, current, accumulated discharged capacity, and elapsed time. The battery icon will flash downwards.
5. When discharging is complete, the display will show "END".

6.3. Test Mode (Capacity Test)

Test mode measures the actual capacity of a battery through a full charge-discharge-charge cycle. This is ideal for verifying battery health and performance.

1. Insert a battery. Within 8 seconds, press the **MODE** button repeatedly until "TEST" is displayed.
2. Press the **CURRENT** button to select the charging current for the initial charge (300mA, 500mA, 700mA, 1000mA, or 2000mA for Li-ion).
3. After 8 seconds, the selected current will be locked, and the test process will begin.
4. **Phase 1 (Charge):** The battery will be fully charged. The display will show "CH" and the charging current.
5. **Phase 2 (Discharge):** Once fully charged, the charger will automatically switch to discharge mode (250mA or 500mA, depending on the initial charge current). The discharged capacity (mAh) will be recorded. The display will show "DISCH" and the discharge current.
6. **Phase 3 (Charge):** After discharging, the charger will automatically recharge the battery to full capacity. The display will show "CH" and the charging current.
7. When the entire test cycle is complete, the display will show "END", and the recorded discharged capacity (mAh) will remain on the screen, indicating the battery's true capacity.

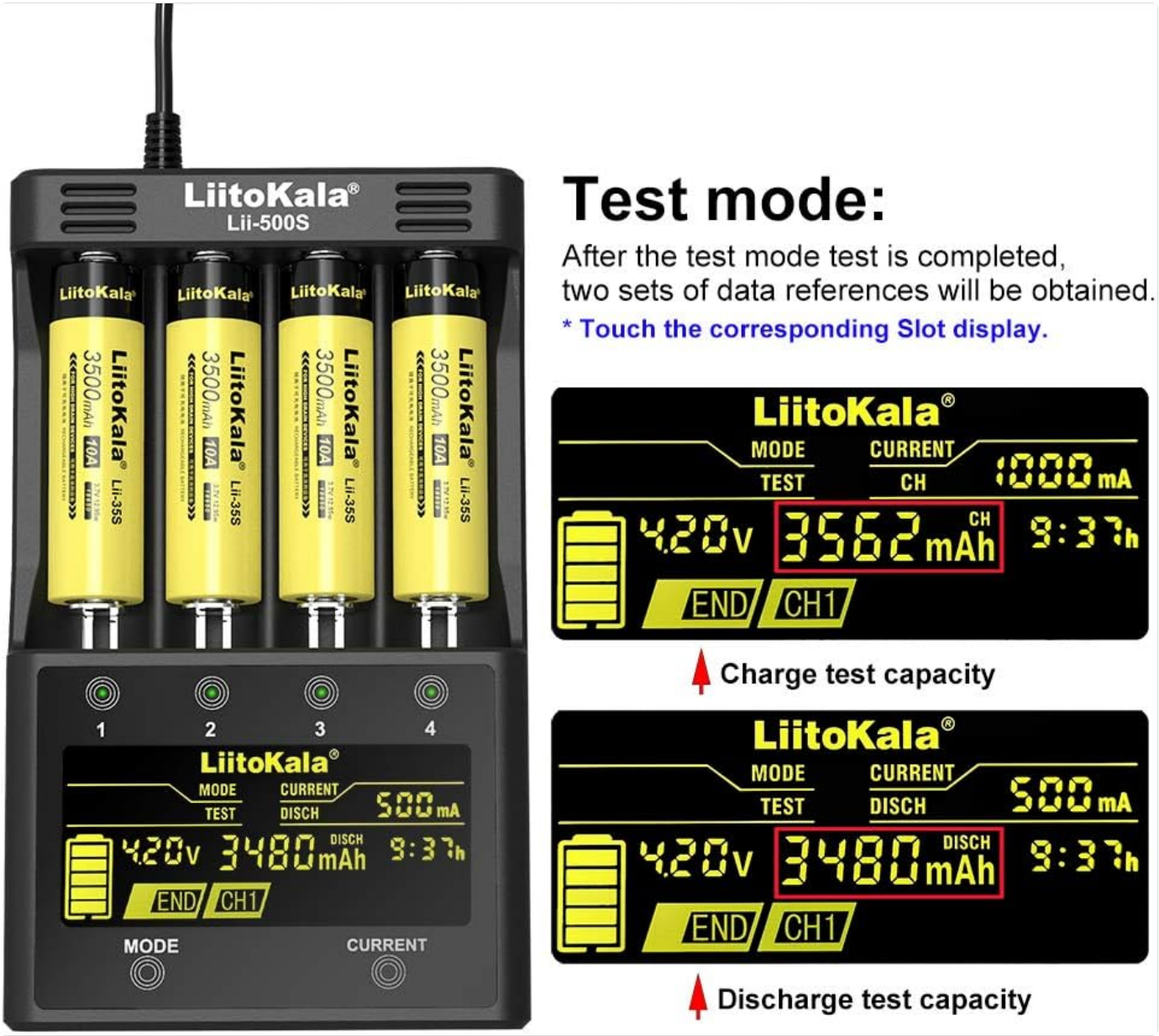


Figure 6.2: The LiitoKala Lii-500S charger's LCD display showing the results of a battery capacity test, including both charge and discharge capacity readings after the completion of the test cycle.

7. Battery Compatibility

The LiitoKala Lii-500S is compatible with a wide range of cylindrical rechargeable batteries:

- **1.2V Ni-MH / Ni-CD:** AA, AAA, A, SC, C sizes.
- **3.7V Li-ion:** 10440, 14500, 16340 (RCR123), 17500, 17670, 18350, 18650, 21700, 26650.

Note: This charger is not suitable for LiFePO4 3.2V batteries. Ensure the battery length is between 30mm and 72mm.



Figure 7.1: An overview of the various battery types and sizes compatible with the LiitoKala Lii-500S charger, including common Li-ion and Ni-MH/Ni-CD cells, with a note on unsupported battery chemistries.

8. Specifications

Feature	Specification
Input Voltage	DC 12V / 3.0A
Output Voltage (Li-ion)	DC 4.2V
Output Voltage (Ni-MH/Ni-CD)	DC 1.48V
Output Voltage (USB)	DC 5V / 1000mA
Charging Current (Li-ion)	500mA*4 / 700mA*4 / 1000mA*4 / 2000mA*2
Charging Current (Ni-MH/Ni-CD)	500mA*4 / 700mA*4 / 1000mA*4
Discharge Current	250mA*4 / 500mA*4

Feature	Specification
Compatible Battery Sizes	30mm - 72mm length
Dimensions (L x W x H)	162mm x 100mm x 36mm (6.38 x 3.94 x 1.42 inches)
Item Weight	1.23 pounds (approx. 558g)
Termination Method	Intelligent Voltage Monitoring

9. Troubleshooting

If you encounter issues with your LiitoKala Lii-500S charger, refer to the following common problems and solutions:

- **Display turns off too quickly:** The display is designed to dim or turn off after 15 seconds of inactivity to save power. To keep the display on continuously, press and hold any of the channel selection buttons (1, 2, 3, or 4) for approximately 2 seconds until you hear a beep.
- **Test mode cycles continuously:** Ensure that the battery is properly inserted and that the test mode was initiated correctly. The test cycle involves a full charge, then a full discharge, followed by another full charge. If the cycle does not complete and display the final capacity, try re-inserting the battery and restarting the test mode. Ensure the battery is not faulty.
- **Charger or batteries become excessively hot:** While some warmth is normal during charging/discharging, excessive heat can indicate a problem. Ensure the charger is placed in a well-ventilated area. Verify that the batteries are compatible with the charger and are not damaged. If overheating persists, discontinue use and contact support.
- **Charger does not detect battery or shows "NULL":** Check that the battery is inserted with correct polarity. Ensure the battery is a compatible type and size. If the battery is completely drained (0V), the charger has a 0V activation function, but some severely over-discharged batteries may not be recoverable.
- **Touch buttons are overly sensitive or unresponsive:** The touch buttons are designed for light presses. Ensure your fingers are dry and clean. If a button is unresponsive, try pressing it firmly.

10. Maintenance

Proper maintenance will extend the lifespan of your LiitoKala Lii-500S charger:

- **Cleaning:** Disconnect the charger from power before cleaning. Use a soft, dry cloth to wipe the surface. Do not use abrasive cleaners or solvents.
- **Storage:** Store the charger in a cool, dry place away from direct sunlight and extreme temperatures.
- **Avoid Impact:** Do not drop or subject the charger to strong impacts, as this can damage internal components.

11. Warranty and Support

The LiitoKala Lii-500S Smart Universal Battery Charger comes with a **12-month warranty** from the date of purchase. This warranty covers manufacturing defects and malfunctions under normal use.
For technical support, warranty claims, or any questions regarding your product, please contact LiitoKala customer service through the retailer where you purchased the product or visit the official LiitoKala website for contact information.

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