18650 Battery Cell Capacity Tester
User Manual

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1. Introduction

The USB-C 18650 Li-ion cell capacity tester is a compact, versatile device for testing individual lithium-ion rechargeable cells. It can charge, discharge and run test cycles, allowing you to assess the condition of your cells.

The 1.77-inch color display shows key test parameters: capacity, voltage, power, internal resistance and cycle duration. The tester is powered through USB-C or, optionally, by an 18650 cell in the left-hand holder, providing flexible operation.

2. Safety precautions

- Make sure the cells being tested are in good condition and show no signs of damage.
- Do not use the device in damp or dusty environments.
- Keep the tester away from heat sources and sunlight.
- Do not leave the tester unattended during operation.
- Always observe the correct polarity when inserting a cell.

3. Technical specifications

- Power supply: USB-C or an 18650 cell (left-hand holder)
- Number of cells tested: 1
- Operating modes: charge, discharge, cycle testing
- Charge/discharge current: up to 1 A
- Charging voltage: 4.2 V
- Discharge voltage: 2.5-3.5 V
- Capacity measurement range: up to 99999 mAh
- Energy measurement range: up to 99999 mWh
- Maximum test duration: 999 h
- Resistance measurement resolution: 1 mΩ
- Resistance measurement accuracy: approx. 10%
- Number of cycles: up to 9

4. Operating instructions

Getting started

1. Connect power through the left-hand USB-C port, or insert an 18650 cell in the left-hand holder for operation without an external power supply.
2. Insert the cell to be tested in the right-hand holder, observing the correct polarity.

3. The device starts automatically when power is supplied.

Navigating the menu

The device has three control buttons, numbered from left to right:

Button 1 - Select a field (MODE / STOP / LOOP) and turn the device on/off

Switches between three configuration parameters:

- **MODE** - select the operating mode:
  - CHG - charging
  - DSG - discharging
  - AUTO - full cycle: charge → discharge → charge
- **STOP** - set the discharge cutoff voltage (range: 2.5-3.5 V, in 0.1 V steps)

- **LOOP** - number of cycles in AUTO mode (1-9)

Press and hold:

- Turns the device off.
- Press and hold again to turn the device on.

Button 2 - Set the value of the selected parameter

- Changes the value of the active field:
    - In **MODE** - switches between CHG / DSG / AUTO
    - In **STOP** - adjusts the cutoff voltage from 2.5 to 3.5 V (in 0.1 V steps)
    - In **LOOP** - sets the number of repetitions (1-9)

Button 3 - Start / Reset

- Short press: starts the selected mode with the current settings.
- Press and hold: resets the current settings and measurement results.

Operating modes

Charging mode (CHARGE)

- Insert the cell.
- Select **CHARGE** mode.
- Press **START** to begin charging.
- The process ends automatically when 4.2 V is reached.

Discharging mode (DISCHARGE)

- Insert the cell.
- Select **DISCHARGE** mode.
- Set the end-of-discharge voltage.
- Press **START** - the tester discharges the cell and measures its **capacity**.

Cycle mode (CYCLE)

- Insert the cell.
- Select **CYCLE** mode.
- Set the number of cycles (up to 9) and the end-of-discharge voltage.
- Press **START** to run a full cycle:
    1. Charging
    2. Discharging
    3. Recharging
    4. Completion

Interpreting the results

- **Capacity (mAh)** - amount of energy stored in the cell
- **Energy (mWh)** - total energy transferred during the cycle
- **Internal resistance (mΩ)** - a higher value indicates a more worn cell
- **Voltage (V)** - the current cell voltage
- **Current (A)** - the current flowing during the test
- **Time (h:m:s)** - elapsed time of the active test

5. Changing the language

To switch the USB-C 18650 Li-ion cell capacity tester between English and Chinese, follow these steps:

1. **Disconnect the power supply** if it is connected.
2. **Press and hold button 2** (the middle button, used to set values).

3. **Connect the power supply** (e.g. a USB-C cable) while holding the button.
4. **Release the button after about 3 seconds** - the device interface switches to English or Chinese.

6. Additional features

- **Alternative power supply** - if you are not using USB-C, the tester can be powered by a cell in the left-hand holder.
- **Resistance measurement** - the most accurate results are obtained with a fully charged cell.

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