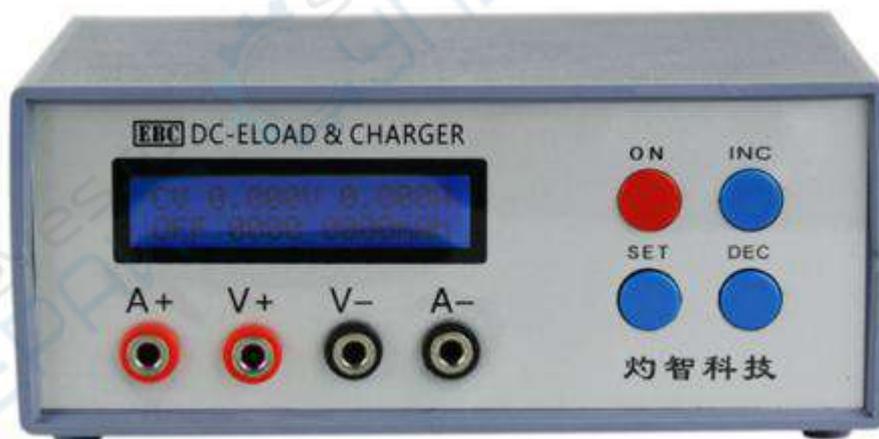


Multifunction Electronic Load (EBC-A01)



1. Features

1.1 Battery capacity test

This tester is designed for discharging and capacity tests of a wide range of batteries and battery banks, like LiPo and LiFe batteries (packs) within 10V, low capacity batteries (packs) within 30V, dry cells (AAA) and button cell batteries.

1.2 Power performance test

This tester supports performance and aging tests of various kinds of low current DC power supplies.

2. Specifications

1) Power supply: DC 12V, 2A or above

2) Voltage range: 0-30.00V, stepper 0.01V (maximum voltage is 10V during charging)

3) Current range: 0.001-1A, stepper 0.001A

4) Charging mode:

- CHG-CV: charging at a constant current and voltage, applicable only for LiPo and LiFe)

5) Discharging mode:

- DSC-CC: Discharging batteries at a constant current, support testing battery capacity or current of power supplies
- DSC-CP : Discharging batteries at a constant power, for constant power equipment-like use or testing power

6) Automatic charging/discharging: The tester supports “charging-discharging-charging” circles for capacity tests.

7) Voltage accuracy: between 0-4.5V, 0.003V, $\pm 0.2\%$, between 4.5-30V, 0.01V, $\pm 0.2\%$.

8) Current accuracy: 0.001-1A, 0.001A, $\pm 0.2\%$.

9) Capacity detection: < 10Ah, 0.001AH; 10-100Ah, 0.01Ah

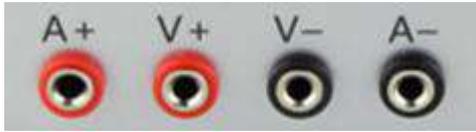
10) Four lines: voltage and current channels separated for high test accuracy

11) LCD display: voltage, current, time, capacity, and etc.

12) PC connection: the tester can connect to a computer through a designated USB-TTL cable for more functions, like graphs, calibration, firmware upgrade, and test circulation.

3. Connecting patterns

3.1 Testing ports



The tester has four banana jacks which connect with A+/V+/V-/A-. A+ and A- ports are connected with the positive and negative ends of the test objects, working as the current channel in charging and discharging. V+ and V- ports are connected with the positive and negative ends of the test objects, working as the voltage channel in voltage tests. This way of using four individual cables will help eliminate the effect of wires on the test result and improve the test precision.

3.2 PC connection

The tester can be connected with a computer through a designated USB-TTL cable (with Mini port).

3.3 Input power:

The tester works on a power supply of DC 12V, 3.5A or above and interface specification of 5.5/2.1 (inside positive and outside negative).

4. Display and setting

4.1 Buttons

ON — start and stop

SET — set up and switch

INC — page up and increase

DEC — page down and decrease

4.2 Testing interface

```
CC 00.00V 0.000A
DSC 0000 0000mAh
```

The first line shows testing mode, voltage and current. Testing modes include:

CC — discharging at a constant current

CP — discharging at a constant power

CV — charging at a constant current and voltage

The second line shows working state (it shows OFF when the tester stops working and it turns DSC or CHG at working. It reads ATI when you choose automatic charging-discharging-charging mode, and 1 refers to current working step), working time

(minutes) and capacity (automatically switches between 0000mAh, 00.00Ah and 000.0Ah).

A short press on the “SET” button can switch between power (W) and capacity.

```
CC 00.00V 0.000A'  
DSC 00.0 0000mWh'
```

In the automatic “charging-discharging-charging” mode, you can check testing result of each step with a short press on the “▲” or “▼” button:

```
Auto Test:  
AT2: CC 2600mAh
```

Open the testing interface and press “ON” button to start testing and press again to stop it. In the halted state press “SET” button for two seconds or longer to open the setting interface (this function disabled when the tester connects to a computer).

4.3 Setting interface

The cursor sets automatically on the testing mode and you can move it to the option you want to change. One press on the “SET” button to move one step to right. Press “INC” or “DEC” to change the parameter. The parameter will change automatically if parameters set exceed limitation. Press the “ON” button to switch to next setting option.

1) Discharging at a constant current – DSC-CC

```
DSC-CC 0.000A  
00.00V 000Min
```

The first line shows testing mode and discharging current.

The second line shows cut-off voltage (testing stops automatically when voltage reaches below the set parameter) and the testing time (0-999 minutes, no limitation when it's set 0).

2) Discharging at a constant power – DSC-CP

```
DSC-CP 00.0W  
00.00V 000Min
```

The first line shows testing mode and discharging power.

The second line shows cut-off voltage (testing stops automatically when voltage reaches below the set parameter) and the testing time (0-999 minutes, no limitation when it's set 0).

3) Charging at a constant current and voltage – DSC-CV

```
CHG-CV 0.000A  
00.00V 0.000NOR
```

The first line shows testing mode and charging current.

The second line shows constant voltage, cut-off current (charging stops automatically when testing current reaches below this parameter, it could be set above 0.1A) and auto mode settings:

- 2 NOR – normal mode, testing stops when charging completes.
- 2 AUTO – automatically complete the “charging-discharging-charging” process.

When the cursor is on AUTO, a long press on “ON” and you will open the second step of automatic discharging and it allows you to set discharging parameters.

```
AUTO Discharge
0.000A 00.00V 00
```

The first parameter: discharging current; the second parameter: cut-off voltage; the third parameter: waiting time between step switches (a 5-10 minute waiting time is suggested between charging and discharging to cool the battery).

After completes settings, press “SET” button for a long time to save data and return to the upper-level interface.

Press “SET” button for a long time in the main setting interface to save data and return to the testing interface. In the testing interface press “ON” button to start testing.

4.4 Setting examples

1) Setting steps

- Ø Turn on the battery tester.
- Ø Connect battery and you can read the battery voltage on the testing interface on the screen.
- Ø Press “SET” button for more than two seconds to open the setting interface.
- Ø Set testing parameters.
- Ø Press “SET” button for more than two seconds to return to testing interface.
- Ø Press “ON” button to start testing.
- Ø When testing completes you can read results in the testing interface.
- Ø Remove the battery and turn off the tester.

2) Setting discharging at a constant current (discharging a button cell battery to 2V at 0.005A)

```
DSC-CC 0.005A
02.00V 000Min
```

3) Charging at a constant current (charging 3.7V LiPo to 4.2V at 0.1A, cut-off current sets 0.05A)

```
CHG-CV 0.100A  
04.20V 0.050NOR
```

4) Automatic charging-discharging-charging (charging and discharging 3.7V LiPo at 0.1A and waiting time sets 5 minutes)

```
CHG-CV 0.100A  
04.20V 0.050AUTO  
AUTO Discharge  
0.100A 02.80V 05
```

5. Precautions

- 1) Positive and negative connections should not be reversed.
- 2) Always use the tester within the allowed range.
- 3) PC connection software: EB Tester Software, download it from www.zkotech.com.
- 4) PC connection: follow EB Tester Software User Manual.
- 5) Technical support: zke2006@163.com
- 6) Taobao store: zke2006.taobao.com

We always focus on innovation and improvement and will keep upgrading the software. Please frequently visit our official website: www.zkotech.com to download the latest manuals.