EBC-A20 Battery Tester

（User Manual）

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1. Features

EBC-A20 supports charge and discharge of lithium and lead-acid batteries. You can use this tester for charge or discharge or circle tests. When connect the tester with a computer, you will find even more functions with the help of the software.

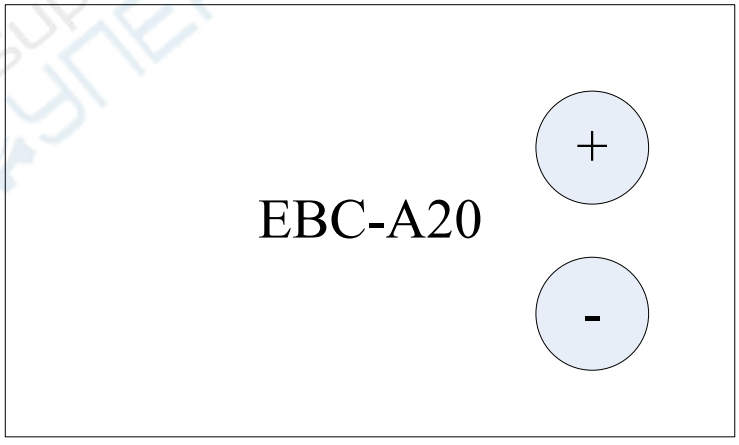
2. Specifications

EBC-A20 30V-20A-85W	
Power supply	DC 19V-20V, 3.5A or above
Voltage setting range	0.00-30.00V, stepper 0.01V (In charge mode, the maximum voltage is18V)
Current setting range	In discharge, 0.10-20.00A, stepper 0.01A (current adjusted automatically when power exceeding limits)
	In charge, 0.10-5.00A, stepper 0.01A (max current depends on power current)
Manual mode	DSC-CC (constant current discharge): discharge current remains constantly the same, recommended for battery capacity test
	DSC-CP (constant power discharge): discharge power remains constantly the same, recommended for simulation of constant power equipment
	CHG-CV (constant voltage charge): charge voltage remains constantly the same, recommended for lithium and lead-acid batteries test
Auto mode	The tester supports charge-discharge-charge auto circle tests, recommended for capacity test
Voltage accuracy	Between 0-4.5V, 0.003V, ± 0.5%; between 4.5-30V, 0.01V, ±0.5%
Current accuracy	0.10-20.00A, 0.01A, ± 0.5%
Capacity accuracy	< 10Ah,0.001AH; 10-100Ah,0.01Ah; >100Ah,0.1Ah
Cable connection	Voltage and current channels separated for high test accuracy
LCD display	Voltage, current, time, capacity, energy and etc
Computer connection	The tester can connect to a computer through a designated USB-TTL cable for more functions, like graphs, calibration, firmware upgrade

3. Connecting patterns

3.1 Battery connecting ports

On the front panel there are two aviation sockets where you can plug in cables.

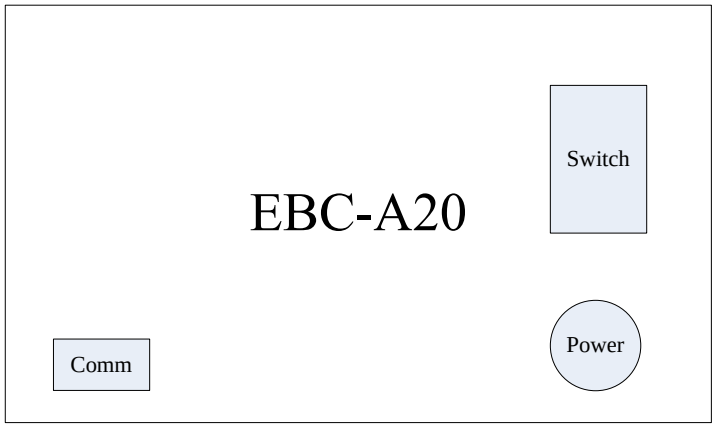


3.2 Computer connection

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

3.3 Input Power

The tester works on a power supply of DC 19-20V, 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、stop

SET —— Set、switch

INC —— Page up、increase

DEC —— Page down、decrease

4.2 Testing interface

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

The first line shows testing mode (CC/CP/CV), voltage and current.

- ✧ CC —— constant current discharge
- ✧ CP —— constant power discharge
- ✧ CV —— constant voltage charge

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 auto mode charge-discharge-charge, 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 the second line switch to show energy and power

(mWh/Wh) .

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

In the auto mode “charge-discharge-charge” , you can check testing result of each step by quickly press “INC” or “DEC” button:

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

Press “On” button when you see testing interface to start testing and press it again to stop . In the stop state press “SET” knob 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 swith to next setting option.

1) Constant current discharge

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

First line: mode and discharge current

Second line: Cut-off voltage and maximum time

Discharge testing stops when the voltage reaches lower than cut-off voltage.

Testing time can be changed between 0-999 munites and to set it 0 means no limitation.

2) Constant power discharge

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

First line: mode and discharge power

Second line: Cut-off voltage and maximum time

Discharge testing stops when the voltage reaches lower than cut-off voltage.

Testing time can be changed between 0-999 munites and to set it 0 means no limitation.

3) Constant voltage charge

```
CHG-CV    00.00A
00.00V 0.00 NOR
```

First line: mode and charge current

Second line: constant voltage, cut-off current and auto mode

Charge testing stops when current reaches lower than cut-off voltage. Cut-off current can set 0.1A or above.

When the right part of the second line shows NOR, it means you select normal mode and testing ends when charge process finishes. But if you change NOR to AUTO (press INC or DEC), it means testing won't stop until it finishes charge-discharge-charge circle automatically.

When you switch to AUTO and cursor stops at AUTO, press "ON" button longer to set discharge parameters for the AUTO test.

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

Second line: discharge current, cut-off voltage and waiting time (between discharge and charge we recommend you to set 5-10 minutes waiting time to cool batteries)

After completes settings, press "SET" button for a long time to save data and return to the upper-level interface. Press "SET" button again to save data and return to the testing interface.

Press "ON" button to start tests.

4.4 Setting examples

1) Setting steps

- ✧ Plug in power cable and turn on the tester.
- ✧ Connect the tester with batteries and you can read the voltage on the LCD screen.
- ✧ Press "SET" button for more than 2 seconds to open setting interface.
- ✧ Set testing parameters.
- ✧ Press "SET" button for more than 2 seconds to ruturn to testing interface.
- ✧ Press "ON" button to start tests.
- ✧ Check test results in testing interface after testing finishes.
- ✧ Remove batteries and switch off the tester.

2) Setting discharge at a constant current (discharging 3.7V LiPo to 2.8V at 5A):

```
DSC-CC    05.00A
02.80V    000Min
```

3) Setting charge at a constant current and voltage (charging 3.7V LiPo at 2.5A to 4.2V, cut-off current 0.11A):

```
CHG-CV  02.50A
04.20V 0.11 NOR
```

4) Setting charge-discharge-charge (charging 3.7V LiPo at 2.5A and then discharging at 5A, waiting time is 5 minutes)

```
CHG-CV  02.50A
04.20V 0.11 AUTO
AUTO Discharge
2.00A  02.80V 05
```

5. Precautions

1) Positive and negative connections should not be reversed.

2) Always use the tester within the allowed range.

3) For batteries with a voltage higher than 10V, the maximum charging current should be lower than power current-0.5A.

4) PC connection software: EB Tester Software, download it from www.zketech.com.

5) PC connection: follow EB Tester Software User Manual.

6) Technical support: tech@zketech.com

7) Business consultant: sale@zketech.com

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