

ArtiBattery 101 Quick Start Guide

**NOTE: Red clamps hold the “+” ,
Black clamps hold the “-” .**

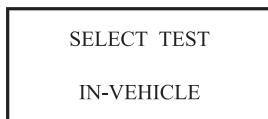
IN-VEHICLE or OUT-OF-VEHICLE Selection

Key Description

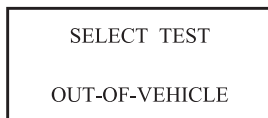
▲ / ▼ Up / Down keys	Select upwards or downwards via white UP and DOWN keys.
↶ Return key	Return to previous menu via white RETURN key.
OK key	Confirm the selection via white OK key.

Press UP/DOWN key to select the battery location, in vehicle or out of vehicle, then press OK key to confirm.

IN-VEHICLE: Means battery is connected with vehicle generator or vehicle electrical appliance.



OUT-OF-VEHICLE: Means battery is not connected with any of the vehicle loaded, i.e. battery connection is cut off.



Tester Startup

Tester automatically starts up after the clamps are correctly connected, and displays the Topdon startup interface (Default voltmeter is ON) refer to figure 1.

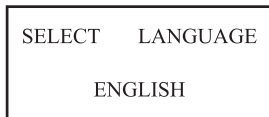
At the middle bottom of the startup interface, it displays the Voltmeter value, which can be used as DC Voltmeter. DC Voltmeter test range is 8-16VDC. Out of which will damage the tester.



Figure 1, Startup Interface with Voltmeter on

Language Selection

Press UP/DOWN key to select the Language, Including English, Russian, Spanish, French, German, Italian.

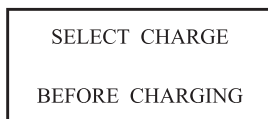
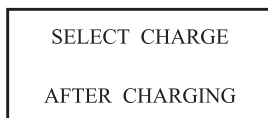


Battery Charge State Selection

After the battery location is selected, tester will prompt to select the battery charge state, i.e. Before Charge or After Charge.

Press UP/DOWN key to select battery charge state, then press OK key to confirm. In this way, it ensures a more accurate test result.

In Vehicle, select Before Charge for Cold Vehicle and After Charge for Hot Vehicle.



Battery Type Selection

After the battery charge status selected, tester will prompt to select battery type, i.e. Regular Flooded, AGM Flat Plate or AGM Spiral, and Gel battery. Press UP/DOWN key to select battery type, then press OK key to confirm.

SELECT TYPE
REGULAR FLOODED

SELECT TYPE
AGM FLAT PLATE

SELECT TYPE
GEL

SELECT TYPE
AGM SPIRAL

Battery System Standard and Rating

ArtiBattery101 battery tester will test each battery according to the selected system and rating.

Use UP/DOWN key to select according to the **actual system standard and rating** marked on the battery. Use UP/DOWN key to select according to the actual system standard and rating marked on the battery.

CCA	Cold Cranking Amps, specified by SAE&BCI, most frequently used value for starting battery at 0°F (-18°C).
BCI	Battery Council International standard
CA	Cranking Amps standard, effective starting current value at 0°C

MCA	Marine Cranking Amps standard, effective starting current value at 0°C.
JIS	Japan Industrial Standard, displayed on the battery as combination of the numbers and letters, e.g. 55D23,80D26.
DIN	German Auto Industry Committee Standard
IEC	Internal Electro technical Commission Standard
EN	European Automobile Industry Association Standard
SAE	Society of Automotive Engineers Standard of American
GB	China National Standard

SELECT INPUT
CCA

Rating range as following:

Testing Standard	ArtiBattery Testing range
CCA	100-2000
BCI	100-2000
CA	100-2000
MCA	100-2000
JIS	26A17-245H52
DIN	100-1400
IEC	100-1400
EN	100-2000
SAE	100-2000
GB	30Ah-200Ah

SET RATING
500A CCA

Input correct test standard and rating, press OK key, tester starts to test, and dynamic interface "TESTING" prompted. See below:

TESTING

It takes around 3 seconds to display the battery test result.

Battery Test Result

Battery test result includes 5 types as following:

① Good Battery

SOH:96%	SOC:98%
12.64V	490A
Rating	500A
GOOD BATTERY	

The battery is without any problem, please be relaxed to use!

NOTE: SOH means State of Health
SOC means State of Charge

② Good-Recharge

SOH:78%	SOC:30%
12.20V	440A
Rating	500A
GOOD-RECHARGE	

Good battery but Voltage Low, recharge before using.

③ Replace

SOH:46%	SOC:80%
12.68V	340A
Rating	500A
REPLACE	

The battery is near to or already reached the end of lifetime, replace battery, otherwise, bigger danger will be followed.

④ Bad Cell-Replace

SOH:0%	SOC:20%
10.60V	0A
Rating	500A
BAD CELL-REPLACE	

Battery interior damaged, broken cell or short circuit, replace battery.

⑤ Charge-Retest

SOH:39%	SOC:20%
12.08V	310A
Rating	500A
CHARGE-RETEST	

Unstable battery shall be recharged and retested to avoid error. If same test result appears after recharge and retest, the battery is regarded as damaged, replace the battery.

Attention: If "Replace" resulted from IN-VEHICLE mode, it might be the reason that vehicle cable is not well connected with the battery. Ensure to cut off the cable and retest the battery under OUT-OF-VEHICLE before making a decision to replace battery.

NOTE: After testing, if need to return, press RETURN key to directly return to the startup interface.

After testing: if it's "IN-VEHICLE" test state, press OK key will bring to Cranking Test.

Cranking Test

Tester prompts as following:

CRANKING TEST
START ENGINE

Starting the engine as prompted, tester will automatically complete the cranking test and display the result.

RPM DETECTED

Normally, cranking voltage value lower than 9.6V is regarded as abnormal and it is OK if it is higher than 9.6V.

Test result of the tester includes actual cranking voltage and actual cranking time.

TIMES	780ms
CRANKING	NORMAL
	10.13V

When cranking test is abnormal, battery test result will also be displayed at the same time.

TIMES	1020ms
CRANKING	LOW
REPLACE	9.12V

This is for the convenience of the mechanics to quickly know the whole state of the starting system according to the data.

After testing finished, do not shut down the engine, press OK key to enter Charging Test.

Charging System and Rectifier Diode Test

When enter the charging test, tester will prompt "Charging Test?"

CHARGING TEST ?

Press OK key again to start the charging test.

NOTE: Do not shut down the engine during the test. All electrical appliance and device are in OFF state. Turn on/off any electrical appliance in the vehicle during the test will affect the accuracy of the test result.

LOADED TESTING

Loaded Volt Test takes approx. 3 seconds, then it hints "Step on accelerator to increase engine rotating speed"

INCREASE REV

Operate accordingly to increase the engine rotating speed to 2500 turns or above, and keep for 5 seconds.

Tester starts the charging volt test after increase rev detected.

TESTING

After the test finished, tester displays the effective charging volts, ripple test result and charging test result.

CHARGING	NORMAL
LOADED	14.18V
LOADED	14.36V
RIPPLE	NORMAL

NOTE: If no increase rev detected, it shall be the fault of generator regulator or connection with battery failed. Tester will try 3 times to further detect, if still failed, it will skip the increase rev detect and the test result displays "No Volt Output". See below:

NO VOLT OUTPUT	
LOADED	12.81V
LOADED	12.81V
RIPPLE	NORMAL

Check the connection between generator and battery, then retest.

Charging Test Result:

1. Charging Volt: Normal

Charging system shows the generator output normal, no problem detected.

CHECK
CONNECTION

2. **Charging Volt: Low**

Charging volt of the charging system is low. Check drive belt of the generator whether slip or running off. Check the connection between generator and battery is normal or not.

If both of the drive belt and the connection are in good condition, follow the manufacturer's suggestion to eliminate generator fault.

3. **Charging Volt: High**

Generator output volt is high.

Since most of the vehicle generators are using internal regulator, the generator assembly has to be replaced.(Some old style cars are using external regulator, then directly replace the regulator.)

The normal high volt of the voltage regulator is maximum $14.7\pm 0.5V$.If charging volt is too high, it will overcharge the battery. Therefore the battery life will be shortened and troubles will be caused.

4. **No Volt Output:**

No generator volt output is detected. Check the normality of generator connection cable and the belt.

5. **Diode Test:**

Through the test of charging current ripple, tester will find out whether the diode is normal or not. When ripple volt is too high, it proves at least one diode is damaged. Check and replace the diode.

Till now, all tests have been done.

Eliminate Common Fault

No Indicator of the Screen

1. Check connection with the battery whether it's well or reverse connected.

2. Check the test cable whether break off or drop down.

Caution: Shake the clamps back and forth to make sure they are well connected. Tester requires the two clamps are well connected with the battery poles, otherwise, the test cannot go on. When enter the battery test program, screen prompts "**Check Connection**", do clean the poles and re-connect in the right way.