

AB ANALYZER

APP Automotive Battery Analyzer

User Manual

Important

When using the product, please pay attention to the following points to ensure an accurate Battery Cranking Power analysis of a 12V battery:

A. This product is designed only to perform analysis on 12V lead-acid batteries of vehicles under 6,000CC; tests performed on other batteries such as deep-cycle batteries, would give inaccurate results.

B. In the meantime, these conditions should be met for accurate results:

1. Tests should be performed at around 25°C, temperature that is both too high or too low affects the accuracy.
2. Battery should be fully charged.
3. Before performing a test, turn off engine for at least half an hour; or wait for at least half an hour after battery is fully charged.
4. Make sure the CCA value (EN, or JIS) input is correct.

CCA value (EN, or JIS) is usually marked on the battery casing; if not, please look it up on the Internet with the model no.



For batteries without both model no. and CCA value (EN, or JIS) marked on casing, refer to the table below.

Engine displacement	CCA value range
0.8Liter~1.6Liter	300~400
1.6Liter~2.5Liter	400~600
2.5Liter~4.0Liter	600~750
4.0Liter and up	750~1000

High CCA value (EN, or JIS) read by the product indicates that the battery is performing well.

C. Tests should be at least 30 seconds apart.

Features

1. Patented EMP technology. Alternating signals used to accurately analyze batteries.
2. Suitable for 12V automotive batteries such as AGM style, flooded lead acid...
3. APP available on both IOS and Android systems.
4. Multi-language UI, new languages can be added.
5. Saves up to 30 test results. Share one or all results with clients and friends via email, other messenger apps, and/or social sites.
6. Reverse polarity protection.
7. Safe and reliable. No damage on battery when multiple tests are performed.

Instructions

A. Connect the clips to the battery posts

Open product by removing the lid, connect the red clip to the positive battery post(+), and the black clip to the negative battery post(-)

1. A tone and blue LED light indicate that product is working.
2. Repeating tone indicates that battery is low, with voltage below 8V. Please remove product from battery and charge it first.
3. No tone or lit LED light indicates that battery is empty or damaged. Please remove product from battery and charge it first. (In the case of a damaged battery, charging would not be possible)

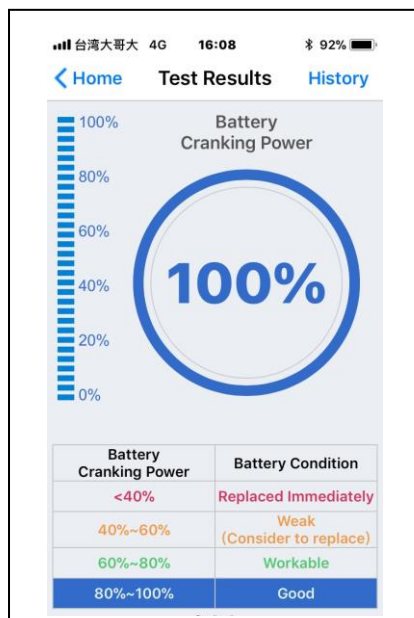
B. APP instructions

1. Open App and select "Language"
2. Enter "License Plate Number", then refer to user manual (corresponding language) or video (English only) for more information.
3. Turn on Bluetooth on smart device, then connect to "AB Analyzer".
4. Click "Start" to enter testing page.
5. Select either "CCA" "EN" or "JIS".
6. Enter corresponding "CCA" "EN" or "JIS" values, then press "Start" button to start testing. Test time is between 3-5 secs.
7. Test results:

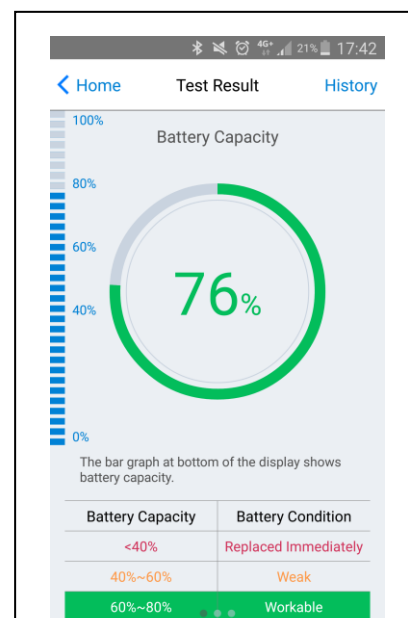
(A) Cold Cranking Power

The most important function of car batteries is to start the engine. If they fail to do so, cars become scrap metal. Battery lives may vary between brands, quality, and usage. They usually last about 2 to 3 years. Cold cranking power is correlated to battery life.

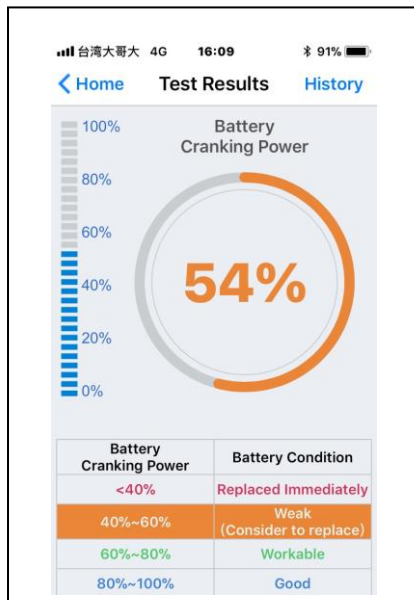
★The following are test results of a 2-year car battery.



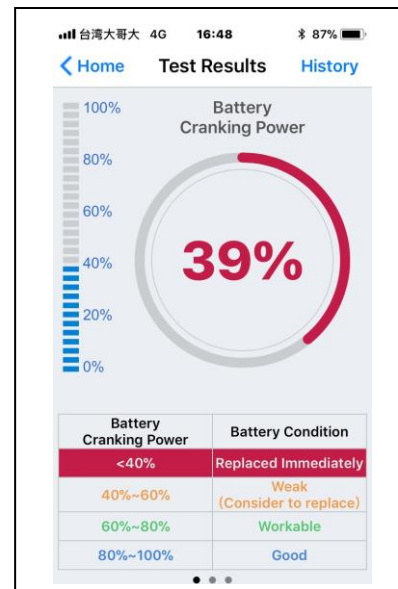
0-6 months,
about 80% -
100%, Battery
Condition:
Good



6-18 months,
about 60% -
80%, Battery
Condition:
Acceptable



18-24 months, about 40% - 60%, Battery Condition: Weak, consider replacing



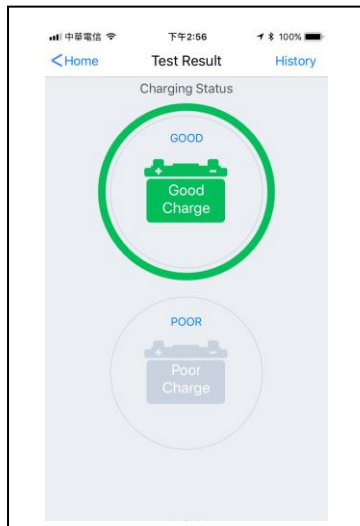
24 months and up, below 40%, Battery Condition: It could fail at any time, replace it immediately.

Note : Batteries are greatly affected by temperature. At room temperature, 26°C (80°F), if battery CCR is 100%, it'll drop to 40% at 0°C (32°F). AB Analyzer can test the battery at any temperature, and therefore can provide important information to avoid a battery failure on the road.

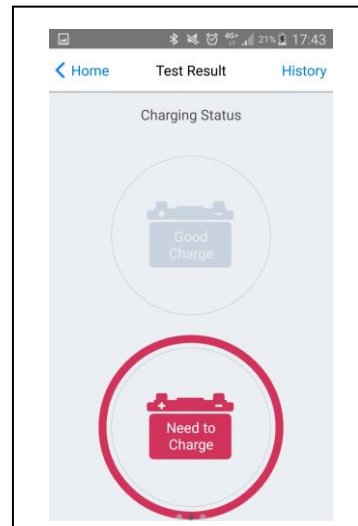
(B) Charging Status

The fuller the batteries, the more they can send power to headlights, stereo system, dashboard, etc. A freshly charged battery has a voltage of 14.4V, but after sitting for half an hour or more, the voltage drops to 13.2V. Old batteries can also be charged to a voltage of 13.2V, but die faster. Like old phones, they can be charged fully, but discharge very quickly.

★The picture below is an example of the charging status page when using the product.



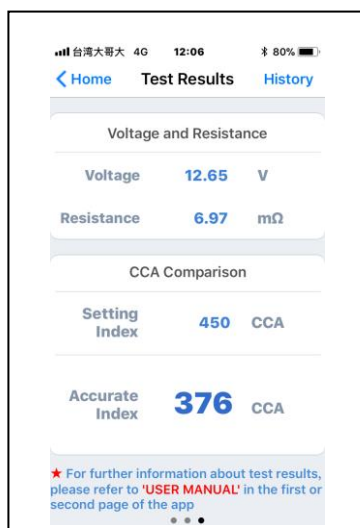
At 12.1V or higher, you'll see a green light, indicating good charging status



If it shows a voltage lower than 12.1V, please charge your battery immediately; If below 10V, the battery should be replaced. (there are 6 cells in a battery, each provides 2V)

Note : Cars usually come with a generator, which charges the battery while driving. However, if the car is rarely used or used for mostly short distance drives, it might result in a poorly charged battery. In such cases, go for a longer drive on a highway or charge the battery at home.

(C) Testing results and comparison



1. Voltage: 12.65V => Battery condition is Good. If the voltage is lower than 12.1V, charge immediately; if lower than 10V, the battery should be replaced. (There are 6 cells in a battery, each provides 2V)
2. Resistance: 6.97Ω => Ω (ohms) is used to measure resistance. Usually the lower the value, the better the battery condition.
3. CCA(or EN or JIS) value => The CCA value marked on the battery, inputted as a reference.
4. CCA(or EN or JIS) tested value => The actual CCA value picked up by AB Analyzer. Usually the higher the CCA, the better the battery condition.

☆ Information on "Test Results"

1. When testing brand new batteries, the tested CCA value might be higher than the CCA value marked on them, since manufacturers mark the average value instead of the highest. Usually after 2-3 months of use, the tested CCA value will be lower than the marked value. All batteries are subjected to the aforementioned changes.

2. Battery Cranking Power and charging status are not directly related. For example, after putting a new battery in a car that has been sitting for 1 to 2 months without being driven (or rarely driven), due to self-discharge, the test result might indicate that the "Battery Cranking Power" is 92%, but "charging status" would say 'Need to charge'.

3. After 2 or 3 years of regular use, batteries deteriorate, and the cranking power decreases. However, when fully charged, results of "Battery Cranking Power" might indicate 55%, but "charging status" might be "Good charge".

Like your cell phone batteries, after a couple years, performance drops, and even though they can still be fully charged, the discharge cycle shortens. It's recommended that the battery be changed.

8. History

Click the "History" button on top right corner

(1) Up to 30 test results are stored, when over 30, old results will be replaced by newer ones.

(2) Each test results contain the following information:

- a. Testing result (1 – 30)
- b. Date and time
- c. License plate number of test car
- d. Battery capacity
- e. Charging status
- f. Voltage
- g. Resistance
- h. Enter "CCA" "EN" or "JIS" value
- i. Tested "CCA" "EN" or "JIS" value

(3) Export test results

- a. Exporting a single result

Click the share button



to share via email and other messenger apps.

- b. Exporting all results

Click the "Export" button on top right corner to share via email and other messenger apps.

C. Extra information

1. AB Analyzer can only be connected to one smart device at a time. To connect it to a different device, please turn off Bluetooth on the connected smart device, then connect to the second device.
2. To delete test result history, please go to “settings,” select delete history. You’ll be prompted to confirm your action, simply press okay to complete the deletion.
3. If clips are removed from the battery posts, connection will break in 3 seconds.
 - (1) To test the same battery, simply re-connect clips to the battery posts to carry on testing.
 - (2) To test another battery, connect the clips then press the “Reconnect” button to allow APP to scan for new device, then enter new license plate number.
4. To change language on your current device (eg. From English to Spanish), please go to home page, “settings”, then select desired language.
5. User interface might appear different on Android devices, but it doesn’t affect test results.
6. As regulated by the international environmental protection act, a recycle symbol is printed on the plastic casing.

Specs

Functions	Battery Cranking Power Charging Status Voltage Resistance CCA, EN, JIS conversion Shareable test results
Power source	12V car battery(battery being tested)
Top diameter	71mm
Bottom diameter	80mm
Height	156mm
Weight	230g (7.4oz)
Cable length	200mm
Clip length	88mm
Clip width	55mm
Max. clip angle when spread	35°

Information

A. What is CCA value?

CCA is a rating used in the battery industry to define a battery's ability to start an engine in cold temperatures. The rating refers to the number of amps a 12V battery can deliver at 0°F for 30 seconds while maintaining a voltage of at least 7.2 volts. For example, if a 12V battery has a CCA rating of 600, it means that it delivers 600 amps at 0°F for 30 seconds while maintaining a voltage of at least 7.2 volts. The higher the CCA rating, the greater the starting power of the battery.

B. How temperature affects batteries?

In cold weathers, the fluidity of electrolyte decreases, slowing down the reaction with battery plates, resulting in inefficient charges. Therefore, when starting an engine in cold weathers, the motor runs slower. This is not due to an empty battery. Simply increase the temperature and the power will be regained.

°F	°C	Cranking power from battery	Cranking power required
80°F	26.7°C	100%	100%
32°F	0.0°C	65%	165%
0°F	-17.8°C	40%	250%
-20°F	-28.9°C	25%	350%

C. Battery capacity

Battery capacity is measured in Amp Hours(AH) or Watt Hours(WH)

1. AH:

Generally, a 20-continuous discharge is used to measure battery capacity. Calculation: discharge a fully charged battery with a fixed amp load at 80°F for over 20 hours. After 20 hours, a 6V battery have the voltage of 5.25V; and a 12V battery, 10.5V. Multiply amp by 20, and the result will be the battery capacity. Eg. A 12V battery, after discharging with a 6 amp load for over 12 hours, has a voltage of 10.5V, the battery has the battery capacity of $6 \times 20 = 120$ AH.

2. When measuring battery capacity in WH:

Watt hours(WH) is the product of voltage and AH. Eg. A 12V, 120AH battery has a 1440 WH. ($12V \times 120AH = 1440$ WH)

D. Battery functions

There are 4 main functions of a battery

- (1) To provide power to the motor and ignition system when starting up
- (2) When the generator fails to produce enough power, car batteries provide power for accessories
- (3) When the generator produces enough power, extra power is stored in batteries, also known as being charged
- (4) To stabilize voltage of the electric system, keeping car parts undamaged during voltage swings while engine speed changes.

E. Battery malfunction factors

(1) Sulfation :

When discharging, the build-up of lead sulfate crystals on the plates decreases the efficiency of a battery, eventually resulting in a dead battery.

(2) Low electrolyte:

Low electrolyte level exposes the plates in air, which facilitates the sulfate crystal build-up. As a result the battery won't be able to be charged.

(3) Internal short

Internal short can be caused by lead powder build-up as a result of broken/worn battery separators.

(4) High self-discharge

High self-discharge results in decreasing current, voltage, and specific weight of a battery. After being fully charged, still produces no power. In such cases, charge with low amp load over a period of 36 hours.

1 Year Warranty

We offer a 1-year limited from the date of purchase against defects and workmanship that are not results from misuse or abuse.

This warranty does not include products subjected to electronic or physical damage.

We do not offer warranty to any products outside the aforementioned ones.

FCC Warning

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna.

-Increase the separation between the equipment and receiver.

-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-Consult the dealer or an experienced radio/TV technician for help. The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.

FCC ID : 2AOLM-BLE5168

