

User's Manual



6V, 12V, 24V battery tester

KW710 Battery Tester can test all 6V, 12V, 24V automotive cranking lead acid battery, including ordinary lead acid battery, AGM flat plate battery, AGM spiral battery, and Gel battery, etc. it adopts the state-of-the-art conductance testing

technology in the world to easily, quickly and accurately measure the actual cold cranking amps capability of the vehicle starting battery, healthy state of the battery itself, and common fault of the vehicle starting system and charging system, which can help maintenance personnel to find the problem quickly and accurately, thus to achieve quick vehicle repair.

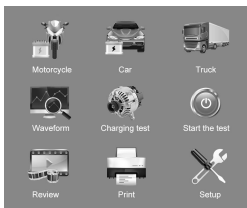
Other Feature include:

- The battery detection range is from 100 to 2000 CCA;
- Bad cell detection function;
- Polarity misconnection protection;
- Measure deeply discharged batteries;
- Various battery specifications testing (CCA, JIS, EN, DIN, SAE, IEC);
- Provide multiple language interfaces for selection: Chinese, English, German, French ,Japanese,Korean, Dutch, Russian, Spanish,Italian, Portuguese, Polish, Persian.



Noted : If test on the vehicle, please make sure to disconnect all loads, and don't out the key in the ignition position and must close the door . Connect the red clip to the positive (+) terminal of the battery and the black clip to the negative (-) terminal. After connecting, shake the clip back and forth to make the connection firm. Before testing the battery, two clips are required to connect the terminals firmly. The best test location is the connection port of the battery. If the battery cannot be connected from the wiring port, you can try to test on the jumper port, but the measured data may be lower than the actual value.

Menu Selection



- **Motorcycle menu**

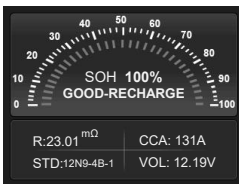
After entering motorcycle menu , select “ Battery Rating “ The screen will display the test result ,Press the up and down keys to switch between SOH and SOC

SOC:state of charge

SOH :state of health

Battery test result includes 5 types as following: (Good Battery / Good, Recharge / Replace / Bad cell, Replace / Charge, Retest)

Set Battery Rating	
51814	51913
53030	12N10-3A
12N10-3A-1	12N10-3A-2
1210-3B	12N11-3A-1
12N12A-4A-1	12N14-3A
12N16-3B	12N24-3
12N24-3A	12N5.5-3B



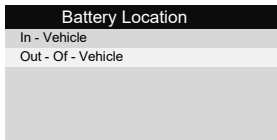
● Car menu

After entering car menu , Tester will display the following contents in a sequence, select accordingly:“ Battery In-vehicle or Out-of-Vehicle”

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

For Example ,Select “ Battery Test out-of- vehicle” , Then show battery type as shown : Regular Flooded,AGM Flat Plate,AGM Spiral,GEL,EFB.

Then select battery standard and input battery CCA value to get the test result .



Select Type

Regular Flooded
AGM Flat Plate
AGM Spiral
GEL
EFB

Select Standard

CCA
IEC
EN
DIN
CA
BCI

● Truck menu

After entering Truck menu , Tester will display the following contents in a sequence, select accordingly:

“ Battery In-vehicle or Out-of-Vehicle”

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

For Example ,Select “ Battery Test out-of- vehicle” , Then show battery type as shown : Regular Flooded,AGM Flat Plate,AGM Spiral,GEL,EFB.

Then select battery standard and input battery CCA value to get the test result .



Battery Location

In - Vehicle
Out - Of - Vehicle

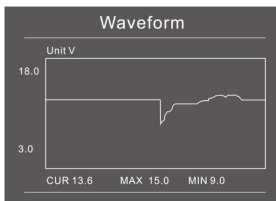
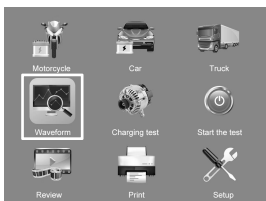
● **Waveform menu**

press WAVEFORM FUNCTION button, The screen will display the interface as shown below:

CUR: Current Voltage

MAX: Maximum Voltage during Ignition

MIN: Minimum Voltage during Ignition; The waveform will stay in static until there's changes in the voltage changes detected



Battery Test

1. Battery location: select inside or outside the car. During the in-vehicle test, the tester will further test the starting and charging system.

2. Important note: The performance of the starting and charging system depends on the health of the battery. It is necessary to check the starting and charging system after confirming that the battery is in good performance and fully charged.

1. Menu: select Car, Motorcycle, Truck

2. Battery type: select ordinary lead-acid battery, ordinary AGM battery, winding type AGM battery or gel battery.

3. Battery standard: Please check your own battery standard. The battery

usually uses one or more standard systems.

KW710 battery tester each battery according to the selected system and rating.

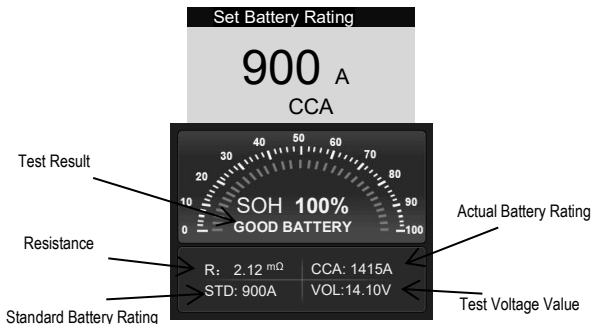
Use UP/DOWN key to select according to the actual system standard and rating marked on the battery.

Battery Standard	Description	Range
CCA	Cold Cranking Amps, specified by SAE&BCI, most frequently used value for starting battery at 0°F(-18 °C)	100-2000
JIS	Japan Industrial Standard, displayed on the battery as combination of the numbers and letters, e.g. 55D23, 80D26	26A17-245H2
EN	European Automobile Industry Association Standard	100-2000
DIN	German Auto Industry Committee Standard	100-1400
SAE	Society of Automotive Engineers Standard	100-2000
IEC	Internal Electron technical Commission Standard	100-1400
BCI	Battery Council international standard	100-2000
CA	Cranking Amps standard, effective starting current value at 0°C	100-2000
MCA	Marine Cranking Amps standard, effective starting current value at 0°C	100-2000

1.Battery rating: up/down button to select rating, press and hold the up/down button to speed up the scrolling speed.

2.Press the Enter key to start the test. After a few seconds, the tester displays the result of the battery test and the measured voltage.

3.The tester can also display the type and specifications of the battery tested.



Battery Tester Result

Result	Description
Good Battery:	The battery is without any problem, please be relaxed to use.
Good, Recharge	Good battery but low current, recharge before using
Good, Recharge	Good battery but low current, recharge before using. Note: If the battery is not fully charged before retesting, it may result in erroneous readings. If the display again after charging, test again after charging, please replace the battery.
Replace	The battery is near to or already reached the end of the using life, replace battery otherwise, bigger danger will be followed. The replacement of the battery may be due to a poor connection between the car's cable and the battery. After disconnecting the car battery cable and battery, please use the outdoor mode to test the battery again, and then decide whether it needs to be replaced.
Bad cell, Replace	Battery interior damaged, bad cell or short circuit, replace 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.

Cranking Test

Important note: Before starting the test, check the drive belt of the generator. If the belt is shiny or worn, or lacks proper tightness, the machine will not reach the speed level required for detection.

1. When the battery test in the car is completed, the battery test results and prompts will be displayed alternately. Press Enter to test and start the system.
2. Press the enter key to do cranking system test.
3. The tester will prompt to start the engine.
4. The KW710 tester will displays the test results : the max cranking voltage, the min the cranking voltage, and the cranking time in milliseconds, cranking lower / higher etc.

Cranking Test

TIME: 7554ms

MAX: 9.84V

MIN: 8.47V

CRANKING LOW

Cranking Test Result

in conclusion	Description
Normal cranking	The cranking voltage is normal and the battery is fully charged.
Cranking low	The cranking voltage is lower than the normal value, and the starter malfunction is diagnosed.
The battery must be charged	The battery state of charge is too low for the starter test. The battery must be fully charged before starting the system test. Re-test after charging the battery.
The battery must be replaced	Before starting the cranking system test, the battery must be replaced.
The engine does not start	It is detected that the vehicle cannot be started.

Charging Test

Once the cranking system test is completed, the screen will alternately display the cranking system test results and prompts. Press the Enter key to test the charging system. Press the Enter key to perform charging test.

Follow the instructions on the screen: Increase RPM to 2500 r/min and keep it 5 seconds, Press ENTER to continue

1. Increase the throttle when closing the load
2. The engine speed is detected and the engine is idling
3. Test the generator when the load is off and idling
4. Turn on the headlights and blower when the engine is idling
5. Test the generator when the load is clocked in and idling
6. Increase the throttle when opening the load

After the process is over, the tester displays the test results of the charging system

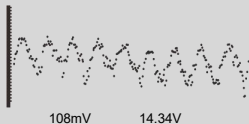
In - Vehicle

Battery Test

Cranking Test

Charging Test

Charging Test



Charging Test

Increase RPM to 2500 r/min and keep it 5 seconds, Press ENTER to continue

Charging Test

Loaded 14.44V
 Unloaded 14.0V
 Ripple 153mV
 CHARGING NORMAL

Charging Test Result

in conclusion	Description
The charging system is normal	The system shows that the generator output is normal
With output voltage	Generator output detected. √ Check the belt to ensure that the generator rotates with the engine running. Replace the broken or slipped belt and retest. Check all connections on the generator. Especially the connector connected to the battery. If the connector is loose or severely corroded, clean or replace the wire and retest. √ If the belt and joint are in good condition, replace the generator. (An external voltage regulator for old vehicles may only need to be replaced.)
Low output voltage	The generator does not provide enough current to load the circuit of the system, also it does not have enough current to charge the battery. √ Check the belt to ensure that the generator drives the engine to

	rotate. Otherwise, replace the damaged or smooth belt and re-test. √ Check the connection between the generator and the battery. If the connection is loose or severely corroded, clean or replace the cable and retest.
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in conclusion	Description
High output voltage	The voltage output from the generator to the battery exceeds the normal limit of the normal voltage regulator. √ Check to ensure that there is no loose connection and that the ground electrode is properly connected. If there is no connection problem, replace the regulator. Most generators have a built-in voltage regulator, and you must replace the generator. The external voltage regulator for old vehicles may only need to be replaced.
Excessive ripple	Excessive ripple was detected. √ If one or more diodes in the generator malfunction or the stator is damaged, these conditions will show that excessive AC or pulsating current is supplied to the battery.

- **Discharge Voltage:** When the ignition OFF, engine OFF (Over 20 Minutes), the Discharge Voltage should be around 12V. If the discharge voltage is lower than 11V, it will be hard to turn the ignition ON. If the discharge voltage continuously stay under 11V, it means the battery is aging and replacement is needed.
- **Starting Voltage:** During ignition, the voltage will drop to a certain point, at this minimum point is Starting Voltage (Around 7.5- 9.5V). If the Starting Voltage continuously stay under 7.5, it means battery capacity is low and needs to be replaced
- **Charging Voltage:** When the ignition ON, engine ON. The alternator will continuously charge the car battery, normally is around 14V

Battery Status corresponding with Battery Voltage (Before Ignition)

Battery Voltage	Battery Status	Effects and Measures
<10.8V	Too Low	Hard to start vehicles, replace battery
10.8V-11.8V	Slightly Low	Hard to start vehicles,

Battery Status corresponding with Battery Voltage

(After Ignition)

Battery Voltage	Battery Status	Effects and Measures
12.8V-13.2V	Too Low	Battery may not be charged; Check alternator or other electrical load
13.2-14.8V	Normal	Normal

Print Menu & Update

This function allows you to update and print the tool software through a computer .

To update and print your tool, you need the following items

1. KW710 tool;
2. A PC or laptop with USB ports;
3. USB cable

Step :

1)Downloading the applications from our website www.konnwei.com

2)Run btlink.exe in your computer(Windows 7 /8/10 /xp)

Noted : Mac OS and linux does not compatible

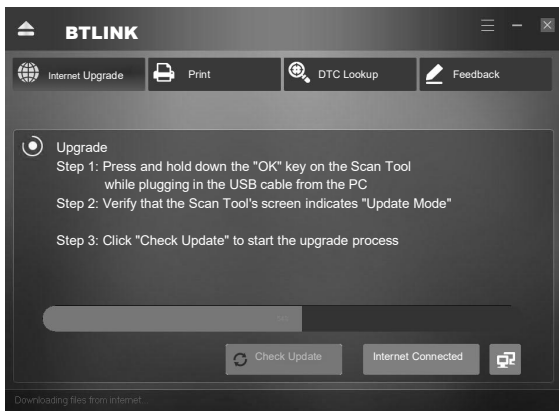
3)Press and hold any button until the USB cable is connected with computer and release it after the tool display a message "Update Mode"

4)Open the btlink software, click "Check update" button, will download the upgrade file from internet then update to tester tool

5)Wait for the update process finished, the scanner will be ready to go! we will update to latest version before shipping out, normally there is no need to update for a long while.

6)Restart tester tool finish the whole update .

Notice: Please turn off anti-virus software when installing the update tool, otherwise it will not be able to install the driver properly.



Service Procedures

If you have any questions, please contact your local store, distributor or visit our website at www.konnwei.com

If it becomes necessary to return the tool for repair, contact your local distributor for more information.

