Electronic Battery Tester 12/24V with Start / Charge Analyser
Part 0-524-74

WARNINGS

This battery tester is designed to test 12 and 24 volt automotive lead acid batteries including maintenance free and sealed for life batteries, it can also help analyse 12 and 24 volt starter and charging systems. These instructions must be followed for its safe and efficient use:

• Battery acid is corrosive, any contact with the skin should be immediately rinsed with copious amounts of water. If in contact with the eyes rinse immediately and seek medical assistance.

• Batteries can produce explosive gases so always work in a well ventilated area. Do not work near naked flames, lit cigarettes etc., and avoid any action which may cause sparking.

• If the battery to be tested has a damaged or cracked case do not use the tester; replace the battery.

• Protect the tester from dampness and never use in a damp or wet environment.

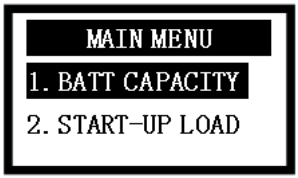
• Only use this product to test lead/acid automotive batteries of the appropriate voltage. Do not test batteries connected in parallel.

• Make sure the clamps are connected to clean battery posts to ensure a solid connection and accuracy while analysing the battery.

PRODUCT OPERATION

Introduction of button and clamp
<UP ARROW><DOWN ARROW>: increase, decrease, scroll up/down the page
<ESC>:cancel, undo, return
<ENTER>: select, enter, test
Red clamp to positive connection and Black clamp to negative connection.
Before testing, set the voltage according to the type of battery voltage. Select 12V mode for a 12V battery. Select 24V mode for a 24V battery. Then choose one of the following testing procedures: **Battery capacity test, Start-up load test, Maximum load system test, Charging system test.**

Battery Capacity Test:
Connect the red clamp to the positive polar , and the black to the negative. Make sure all connections are well contacted in order to avoid a false result.
Press <UP ARROW> <DOWN ARROW> button to select test function, and then press <ENTER>

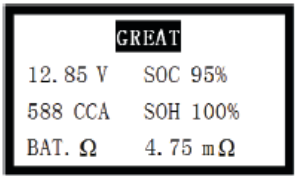


Press<UP ARROW> <DOWN ARROW> button to select he type of battery. Then press <ENTER>

Press <UP ARROW> <DOWN ARROW> button to select quick test or accurate test.

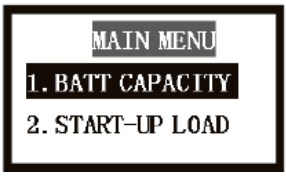
Enter the battery capacity, Press <UP ARROW> <DOWN ARROW> to adjust value.

Press <ENTER> to start the test. When testing is complete the result will be displayed on the LCD. Press <ESC> to return to select test function of the battery.



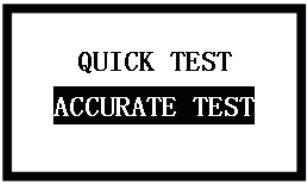
Accurate Test:

Connect the red clamp to the positive terminal and the black clamp to the negative. Press <UP><DOWN> button to select test function, and then press <ENTER> See the below picture:

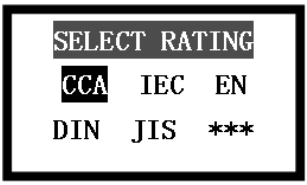


Press<UP><DOWN>button to select the type of the battery. Press <ENTER> See the below picture:

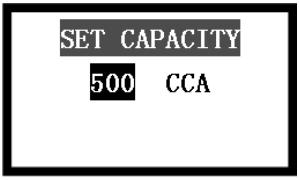
According to the label of the battery, press <UP> <DOWN> button to select quick test or accurate test. The below picture is the selection of accurate test, press <UP> <DOWN> further. See the picture:



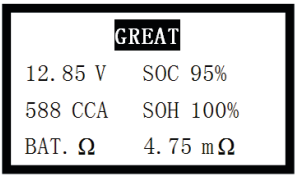
Press<UP><DOWN>button to select test standard according to the standard of storage battery. If it is JIS standard, need to check CCA with the comparison table. Then select CCA(SAE) as the test standard to press <ENTER> further. See the picture:



According to the label on the battery, press <UP> <DOWN> button to adjust the CCA rated value. See the picture:

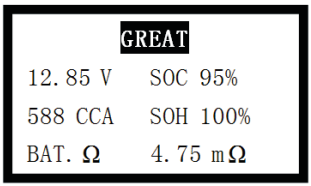


Press <ENTER> to start the test.
When the test is completed, the test results will be displayed in the LCD screen.



Press <ESC> to return to select other test functions.

Instruction of test result:



Voltage of the battery: 12.85V
Fully charged 100% 12.78V
75% 12.54V
50% 12.30V
25% 12.12V

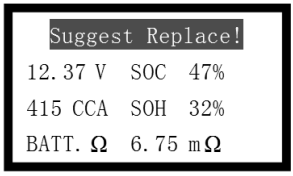
Totally discharged 11.94V CCA value 588CCA
Check the condition of battery

When selecting 24V test, CCA equals half of the sum of two groups 12V batteries in series. Internal insulation 4.75mΩ
The higher the CCA value , the lower the internal resistance normally.

Remark: Different material of the battery produced by various manufacturers can cause different internal resistance. So there is no fixed standard. But there is little difference among the internal insulation of the battery with the same model from the same manufacturer.
When selecting 24V test, internal resistance equals the sum of two groups 12V batteries in series.
Life: Display the condition of the battery.
Suggest replacing the battery when it shows below 45%.

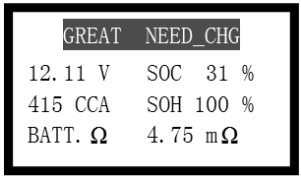
Life	Test Result	Condition of the battery
>80%	good	Very good
>60%	OK	Good
>45%	pay attention	need to pay attention, nearly use out
<45%	replace	use out, need to replace

Suggest replacing



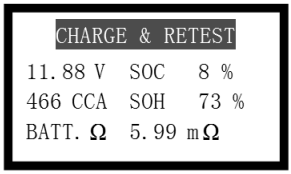
The result indicates the battery is bad and has 32% life. It is suggested to replace the battery.

Life check OK, and voltage check low.



The result indicates the battery is good and full of 100% of life. But only 12.11V left. So suggest charging.

Life check OK, and voltage check over low

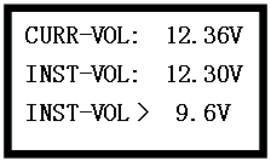


The result indicates the battery is OK and remains 73% of life. But only 11.88V left and over low voltage, which can affect the result. At this time it is better to charge the battery and retest.

Start up load test

Please swich off the engine before testing. Connect the red clamp to the positive polar , and the black to the negative. Make sure all connections are well contacted in order to avoid a false result. Press <UP ARROW> <DOWN ARROW>to select start up load test as the picture below:

After selecting the test item, press <ENTER> to display the start up load test screen as the picture below:



As can be seen in the picture current test voltage is 12.36V, standard voltage is 9.6V,(for 24V system, standard voltage is 16V), the lowest voltage is 12.30V.

Start the engine to make the tester automatically record the lowest voltage in this process. Normally the voltage of battery will be higher than 9.6V in this process.(for 24V systems, the voltage should be higher than 16V when starting up the engine)

Press <ESC> to return.

Instruction of engine start up test

-The lowest voltage higher than 9.6V (for 24V system, the reading is over 16V) this is good.

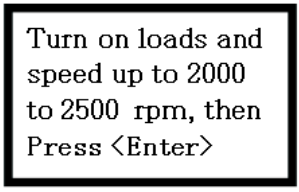
-The lowest voltage lower than 9.6V (for 24V system, the reading is under 16V) means the system must be checked. Please check the relative connections, wires and engine. Also the terminals of the battery should be checked to see if oxidised.

Data Reference Table (12V system)		
Activation Voltage	Discharge Performance	Suggestion
>10.7V	good	continue to use
10.2~10.7V	normal	pay attention
9.6~10.2V	no good	replace soon
<9.6V	bad	replace immediately

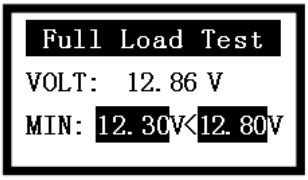
Maximum load system test

Firstly, start the engine. Connect the red clamp to the positive polar, and the black to the negative. Make sure all connections are well contacted in order to avoid a false result. Press <UP ARROW> <DOWN ARROW> to select maximum load system test as the picture below:

After selecting to get access to the below screen:



After operating, press <ENTER> to display the maximum load system test screen as the picture below: As can be seen in the picture current test voltage is 12.86V, standard voltage is 12.80V,(for 24V system standard voltage is 25.60V), the lowest voltage is 12.30V

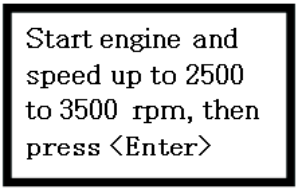


Read the lowest value. If it is higher than 12.80V,(for 24V system, the voltage is over 25.60V), the system is running normally. Press <ESC> to return. There are some problems in the system if the value is lower than 12.80V,(for 24V system, the voltage is under 25.60V), please check if the engine belt is damaged and the suporting wires for a short circuit.

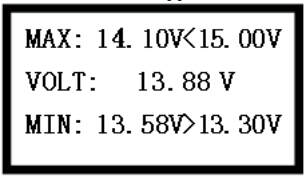
Charging system test

Please turn off the engine before testing. Connect the red clamp to the positive polar , and the black to the negative. Make sure all connections are well contacted in order to avoid a false result. Press <UP ARROW> <DOWN ARROW>to select charging system test as the picture below:

After getting access to the below screen please start engine:



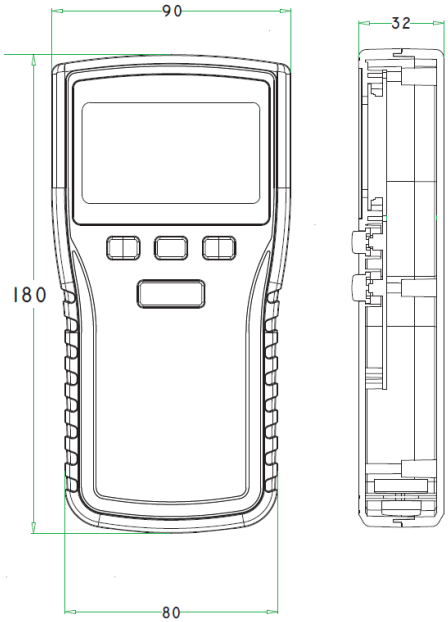
After operating, press <ENTER> to display the maximum load system test screen as the picture below. The current test voltage is 13.88V, standard maximum voltage is 15.00V(for 24V system, standard maximum voltage is 30.00V), tested maximum voltage is 14.10V. The other value indicates the current test voltage is 13.88V, standard minimum voltage is 13.30V(for 24V system, standard minimum voltage is 26.60V), tested minimum voltage is 13.58V.



Press <UP ARROW> <DOWN ARROW> to select highest output screen and lowest output screen.
Press <ESC> to return.
There are some problems in the system:
- If the voltage is higher than 15.00V,(for 24V system, the reading 10 is over 30.00V), please check the voltage regulator.
- If the voltage is lower than 13.30V,(for 24V system, the reading is under 26.60V), please check the connections, wires and the engine.

Data Reference Table (12V system)		
Status	Voltage	Condition
Headlights and air-condition off (need to step on the gas pedal when checking)	>13.5	normal
	13.2~13.5	general
	13.0~13.2	pay attention
	<13	check immediately
Headlights and air-condition on (need to step on the gas pedal when checking)	13.4~14.6	normal
	13.2~13.4	pay attention
	<13.2	check immediately
The result can be affected by the defective battery.		

DIMENSIONAL DRAWING



SPECIFICATION

Suitable for CCA Capacity:

SAE 100 to 1700
DIN 100 to 1000
IEC 100 to 1000
EN 100 to 1700
AH 3Ah to 200Ah

Type	12 and 24 volt battery tester with 12 and 24 volt start/charge analyser
Voltmeter	9 to 35 volt dc
Battery capacity (CCA)	SAE: 100-1700, DIN: 100-1000, IEC: 100-1000, EN: 100-1700, JIS, AH 3-200
Tolerance	± 3% volt, ± 5% CCA
Status of charged(SOC)	0~100%
Status of health(SOH)	0~100%
Display	LCD, resolution 128px*64px
Printer	N/A
Paper	N/A
Spare Roll	N/A
Internal batteries	N/A
Protective case	Full rubber holster
Test lead length	0.8 m
Clip material	Part insulated steel
Clip jaw opening	23 mm (max)
Operating temperature	0˚C to 50˚C
Weight	400g
Dimensions	(L)180 x (W)90 x (H)32mm
Compliance	CE, RoHS