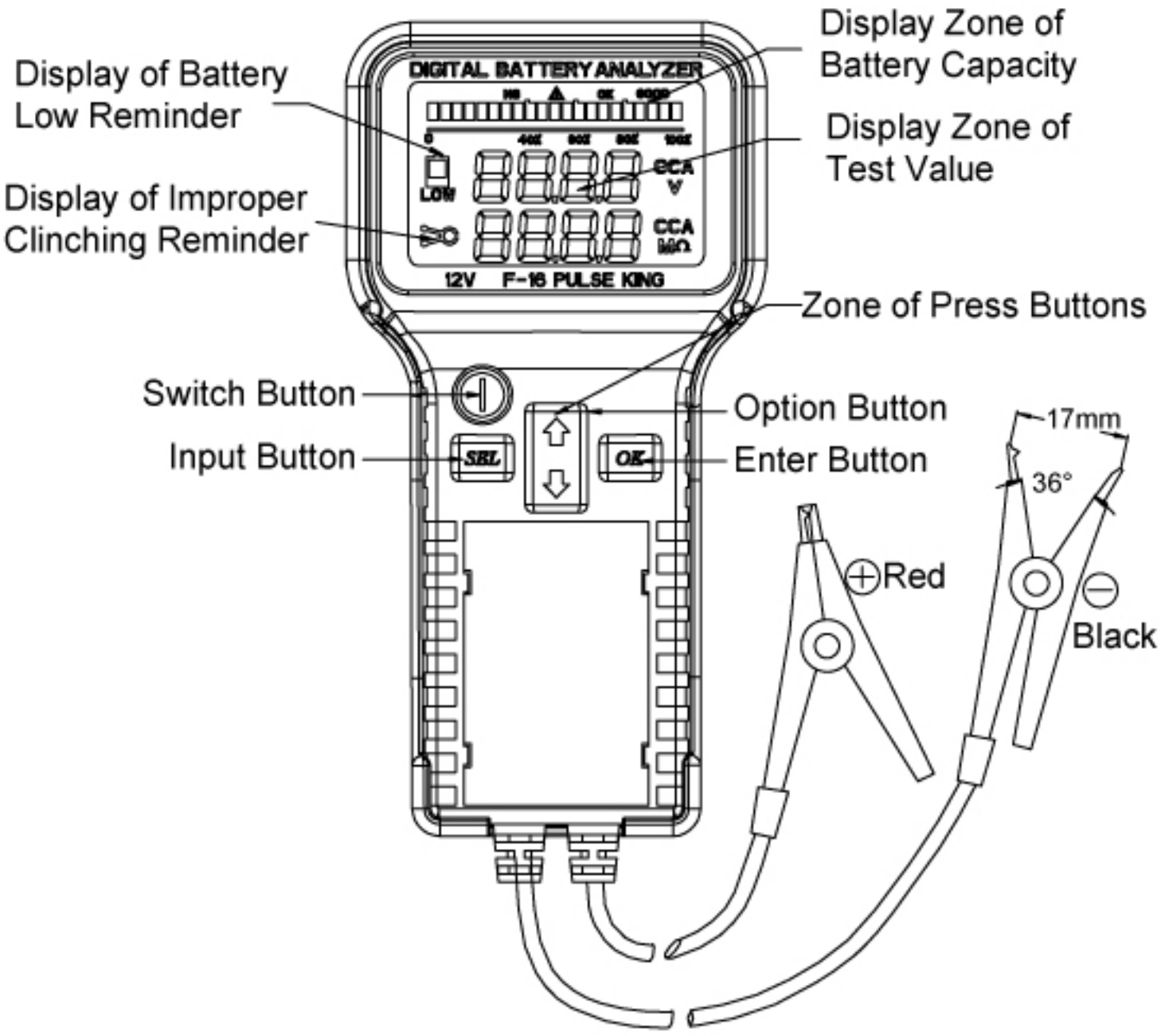
1108

Digital Battery Analyzer

Operation Instruction

12V Digital Battery Analyzer



Specification of 12V Digital Battery Analyzer

Product length : 150mm
Product width : 80mm
Product thickness : 35mm
Product weight : 330g
Clincher length : 75mm
Clincher width : 18mm
Leading wire length : 480mm
Widest open angle degree of the clinchers : 36°

Operation Procedure

1. Power of the analyzer is supplied by the vehicle battery. For testing, the clinchers of the analyzer should be clinched correctly on the battery during its testing. (Red clincher means ⊕ (positive) terminal and black clincher means ⊖ (negative) terminal which should be clinched correspondingly on the terminals of the battery.)

* If the clinchers are not correctly clinched, after turning on the analyzer, the clincher sign " " at the lower left corner on the screen will blink, and Bee alarm keeps emitting "B" sounds. Re-clinch the clinchers correctly and turn on the analyzer again for test. Test can go to next step when the clinchers are correctly clinched.

2. Turn on and input :
   a. Press the button ⏻ for 1 second.
   b. The screen gets lightening and Bee alarm will emit a "B" sound. The screen shows moving digits, all test indexes and low battery caution index.
   c. Press [OK] , it gets into the step of CCA (Cold Cranking Ampere) value input.
   d. The third digit on the right of the four-digits number index blinks, it means the indication digit is changeable by [↕] (increasing-decreasing) function button. Press the [↕] (increasing-decreasing) function button until the correct digit shows and move to next digit place for value-input by pressing [SEL].
   e. The units digit on the right of the four-digits number carries each time 5 units in adding, the other digits carry once an unit in adding.
   f. After input steps are completed, press [OK] , the analyzer will start testing mode for 10 seconds. The Bee alarm keeps emitting "Be" sounds when the testing mode is closed. Press any button to stop the "Be" sounds.

* If the voltage of battery is too low, the

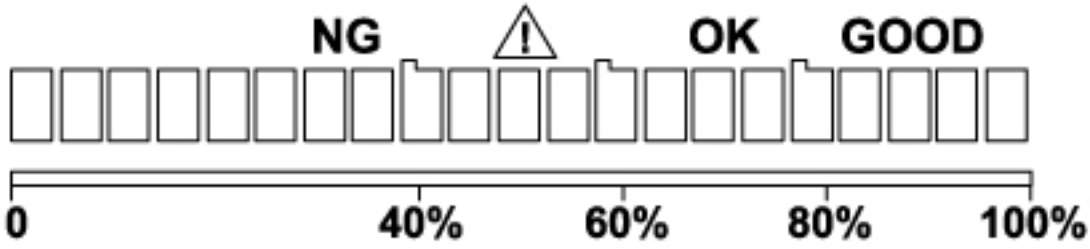
sign at the central left position on the screen will blink, please recharge the battery and test it again.

Operation Procedure

3. Checking results display
   i. Values display:
   First column: the voltage of the battery
   Second column: the mΩ → resistance of the battery

   Press [SEL], the screen shows next values display
   First column: the input CCA value for the battery
   Second column: the test CCA value of the battery

   ii. The index below the bar graph on the display screen shows the capacity of the battery which has the indication range from 0~100%.



The left indication below the bar graph shows lower than 40%,
the battery should be replaced.→ (1) The battery plate is broken.
(2) The battery is too old.

Indication shows between 40% to 60 %,
the battery is old, replacement could be under consideration.

Indication shows between 60% to 80 %, the battery is workable.

Indication shows between 80% to 100 %, the battery is in good condition.

4. Press the ⏻ button for 1 second, the analyzer will be turned off.

★ What does the CCA value of the battery mean? What's its significance?

CCA (Cold Cranking Ampere) values are indicated on the battery housing of all vehicles which signifies the capacity of the battery. It defines that under the circumstance of 0°F (17.8°C minus zero), the current released in continues 30 seconds from the 12 V battery before its voltage drops to 7.2 V. For example, when the indication of CCA value marks 600 on one 12V battery, it defines that the battery supplies 600 Ampere in 30 continues seconds at 0°F before its voltage drops to 7.2 V.
The higher the measured CCA value by the analyzer is, the better will be the battery performance.

★ How's the influence of temperature on battery?

During cold weather the fluidity of electrolyte reduces.
Its interacting with the battery plates slows down which causes worse charging and discharging performance of the battery.
It's the reason of slower speed of the motor during cold weather to start engine. Battery power is available but harder to be released during cold weather.

(°F) Fahrenheit	(°C) Celsius	Starting engine ability of battery	Required starting engine ability of battery
80°F	26.7°C	100%	100%
32°F	0°C	65%	165%
0°F	-17.8°C	40%	250%
-20°F	-28.9°C	25%	350%

★ The capacity of battery

The capacity of battery can be indicated by Ampere hour (AH) or Watt hour (WH). For example:

(1) Ampere hour (AH) indication:
Generally the capacity of battery will be measured by continues discharge for 20 hours. Calculation method goes as following: Discharge the at 80°F fully charged battery for 20 hours by fixed ampere until the voltage of the 6V battery drops to 5.25V, and the voltage of the 12V battery drops to 10.5V. Multiplied the fixed ampere value by 20 (hours) is then the capacity value of the battery.
Takes an example:
After 20 hours continues discharge in 6A current, the voltage of the 12V battery drops to 10.5V, the capacity of the battery will be 6 x 20 = 120 AH.

(2) When the capacity of the battery is indicated with WH, it signifies the battery energy. WH comes out Voltage multiplied by AH. Example here: For the battery of 12V and 120AH, its battery energy value WH will be 1440WH which comes from 12V x 120 AH (voltage multiplied by ampere hour).

★ 4 main functions of battery:

(1) Supplies a lot of electric current to starting motor and ignition system at the starting stage.

(2) When the electricity of the generator is not enough available, battery will supply electricity to all electric apparatuses of the vehicle.

(3) When the electricity of the generator is enough available to all electric apparatuses, the surplus electricity of the generator will be stored – which means charged - in the battery.

(4) Stabilizes the voltage of the electric system. This protects the apparatus components from damage when the voltage is strongly changed by engine speed change or large power-consuming in short moment.

★ The factors of battery fault:

(1) Sulfates accumulation
In the process of charging and discharging of the battery, the sulfates will build up on the battery plates which causes efficiency reduction of the battery and the battery finally unusable.
(2) Insufficient electrolyte:
Lead-sulfates will build up on the battery plates if the battery plates are long-term exposed to the open air without sufficient electrolyte.The battery will be not capable of charging under this condition.
(3) Short- circuit of the battery plates
When the isolation plates do not work properly or the lead powder keeps dropping, it will lead to short-circuit of the adjoining battery plates.
(4) Over-discharge of the battery
Over-discharge of the battery will reduce the voltage, current and their proportion. After fully charging if it's still no battery, the battery may need to be charged with weak current for more than 36 hours.

⁎ Other Information for product usage:

(1) Vehicles must be turned off over half hour for the battery testing. Freshly fully charged battery should be tested after half hour.
(2) The clinchers of the analyzer should be clinched correctly on the positive and negative terminals of the battery.
(3) The analyzer is designed for single 12V battery. Please don't use on series connected batteries.
(4) CCA value of one new battery must be higher than the value of one old battery of the same model.For example: If the CCA value of the new battery indicates 550, it may decline to 420 after one year usage.
(5) Keep from heavy falling and breaking. No assembling or disassembling of the product by non-professional staffs. Suppliers are not in charge of the product repair when the damage is caused by improper usage.

Product Features

1. With the special hook design on back side, the analyzer can be hung on the wall or placed standing on the table.

2. Product is covered with a gray soft case. The case can be removed from the analyzer and is washable.

3. The clinchers of the product can be opened maximum 36 degrees of angle, by which the analyzer can be installed on different kinds of vehicle battery for testing.

4. The product has stable quality, is shaking-resistant and portable.

5. Based on sonar reflection principle, all the indexes of battery are analyzed by special alternating current signals which lead to very accurate testing results.

6. Continuous testing won’t damage battery, its safety is guaranteed.