Quick start instructions (factory default):

1. Full charged the test battery (or power bank), positive and negative electrodes are respectively connected to the blue terminal of the bat+ and bat-, the connection line is recommended as far as possible short and thick! using DC 12V operating voltage, power on the test instrument display discharge current.

2. Press the S -- or S++ button can change the setting current within 0.1-2.6A, when the current is correct, press SK button to start test (such as fault code Err* please refer to the following content), the tester can intelligent selection of cell types and formulate termination voltage, start testing “RUN” indicator lights, digital tube display values from ah capacity, energy wh, voltage V and A current take turns display. When the test is completed, the digital tube stays in the Ah fast flashing with a voice reminder, “RUN” indicator lights off.

3. After the completion can press the “SK” button to make the tester stop flashing alarm, you can also press the S -- or S++ button switch check battery capacity Ah, energy Wh and discharge plateau voltage V, when pressed “SK” button again, tester returned to the startup current of the setting state, can be repeated previous operation to next battery test.

Note: during test alarm state, must be carried out one key operation, the backup data will be cleared, if not doing one button operation, the backup will always save the results, even if the power is cut off!

The meaning and processing method of error code Err*:

Err1: the battery voltage is too high, please confirm that the battery voltage is lower than 8.5V before test.

Err2: the battery voltage is too low (below the set value of the termination voltage), please confirm the battery voltage and reset. If the battery is connected reversed and the four wire mode voltage measurement is not connected or connected to the reverse is also display Err2.

Err3: the battery does not support setting discharge current or circuit resistance is too high, please use a smaller current to test battery, and to ensure that the cell line is thick and short, between the electrode contact is good.

Err4: power tube damage, the problem generally occurs after the bad transformation, can replace the power tube, substitute models have P75NF75, etc..

Err5: beyond the test power constraints! this status is only possible when the power limit function is turned on (LPon), under on behalf of the set conditions the discharge power is more than 12W, the tester to prevent heat overheating and take protective measures. Users can DIY yourself (to increase the heat sink or installation of fans), and enter the function setting menu to close the power limit (LPoF), now you can use more than 12W power.

Err6: the power supply voltage is out of range, when the power supply voltage is lower than 11V or higher than 14V, the test instrument under booting will show the error code, please replace the appropriate voltage power supply!!

Note: when display the Err1-Err5, press any key to return to the initial state.

Full function detailed instructions for use:

First, the test operation:

1. the battery must be charged with battery charger.

2. will be tested battery anode and cathode are connected to the battery input terminal & "BAT+" and "BAT-" & to ensure that the connection is reliable, the connection is short! If the four - line test mode is enabled, the & of the voltage test line of the clamp is connected to the BV port of the positive and negative poles; "+" & "-". To test instrument through the work of 12V power supply (microusb loan 5V supply), after the tester starts normally enter the current setting, digital tube display setting current (e.g. 1.00a), press the "S++" or "S--" to adjust setting current (long press of the button can increase rapidly), adjust the appropriate press "SK" button.

3. automatic identification mode (factory default for this mode): the tester automatically identifies the type of test battery, and select the best termination voltage and discharge mode, showing the 2 seconds after the termination of the voltage into the test program.

3. The manual termination voltage setting mode: this mode need to manually set the termination voltage, press the "S++", "S--" buttons to change the battery end voltage (long time press the buttons can quickly increase and decrease digital), which P*.*u table continuous current mode test, b*.*u classic intermittent current test pattern (mainly for 2 line test battery offset line resistance effects, such as P4.5u represents a continuous current test, termination voltage of 4.5V. Setting range for b1.0u-b6.0u and P1.0u-P6.0u, note that when the four wire test is turned on, the test mode is not supported! Set the voltage after the termination of the & "SK" start test.

4. test during the early stage of tester lines and battery diagnosis, if the line or the battery is not appropriate, the tester will not be tested, showing diagnostic trouble codes Err* (specific code meaning and the methods of processing see described earlier). Diagnosis by will enter a normal part of the test, run lamp is lit, the tester to test normal discharge, digital tube will to A.H was 2 seconds, one second W-H, a second battery voltage, a second discharge current time and

sequence round of significant numerical unit indicating lamp synchronous changes. At the end of the battery test, run the light will go out, digital tube display will stay in A.H was numerical and flash buzzer also issued a short alarm (buzzer open).

5. The test is completed, press the A "SK" button to stop flashing and alarm, press the "S++" or "S--" keys refer to the three basic results of the test battery: battery capacity (ah), a battery energy capacity (WH) and battery discharge process platform voltage (constant pressure), once again pushed the "SK" a button will clear display back to the initial current setting state.

Two, RES-V test (the internal resistance of the battery voltage test):

Using the RES-V test must be a standard four wire test stand or a Kelvin test clip! In accordance with the test operation section four of the 2 wire test wiring will be connected to the test stand and the tester.

Hold the keys of the S - - to test device is powered on, the tester into RES-V test functions, in accordance with the polarity of the battery into the battery, the tester display internal resistance of the battery r*** (* * * is the resistance of the m& omega; and for example is r065 65m& Omega;), at this time if SK button is pressed, the tester into v test, display battery voltage "*.**u" again SK press the button back to resistance test hellip;, such as the need to exit RES-V test function, the need to test instrument power.

Three, testing instrument working parameters setting:

Hold "SK" buttons at the same time to test instrument communication power supply, tester into working parameters setting, press the "S++" or "S--" modify the parameters, press the "SK" press enter a, you can set various parameters in the following order:

1. "2& LJ; rdquo; use second line test (factory setting); & "4" LJ; use four line mode.

2. "Auon" automatic identification function of battery (factory setting), & "AuoF" automatic recognition function of the battery is closed, and the termination voltage needs to be manually set.

3. "bEon" buzzer opening (factory setting); & "bEoF" buzzer off.

4. "LPon" power limit opening (factory setting); & "LPoF" power limit off. Warning: the power limit can be shut down so that more than 12W of the discharge is allowed, but before the use of heat must be strengthened, otherwise the power tube may be burned!

5. "SF00" "SF01"....; "SF10" fan control open power value: behind the two values represent when the discharge power more than this value (W), fan control switch will open, "SF00"

mean that as long as the beginning of the discharge fan control can be opened.

The fifth set a project after the completion of the press "SK" keys, tester will save all parameter settings and restart in normal working condition.

Four, about the parameters, the results of the automatic save and backup:

1 the current and the termination voltage parameters are automatically saved at the time of each set current and termination voltage (automatic mode shutdown), and the next time it is used is the default for the last time.

2. When the tester in the discharge process, if working power supply of a sudden power failure, the tester will automatically save the current set value, work status, and the test results, re when the working power supply is switched on, tester will automatic reset discharge process.

After testing the flash an alarm condition, test results will advance in the backup to prevent unread lost 3 tester in the, if not the key operation, even to pass electrical tester will not withdraw from this state! Any key operation that value has been read, backup storage will be cleared, after once again pushed the "SK" button or re power, you can return to the initial current setting.

The above 2.3 can guarantee that a test process will not be affected by the interruption of the middle! But in testing mobile power, due to the mobile power in no load will automatically shut down, test instrument and re power will enter after the completion of the police state, if need to continue the test, please self recording the results and re test. Finally, the results of their own stack.

Five, the test process to withdraw from the middle of the current or halfway:

Discharge testing process, press "S--" button to exit the test and clear results, if need midway discharge current modification or termination voltage, you can press the "S++" button to exit the test but not clear results, after setting Press "SK" press any key to continue testing.

Six, how to use the fan:

Tester with an expansion fan control function, the 12V fan negative pole is connected to the digital tube in the lower right corner has a tag "F-" welding tray, fan cathode connected to 12V power supply cathode above can enable the fan control, control parameter setting details see front.

Seven, how to calibrate their own test equipment operating parameters (please determine their ability to calibrate, self calibration procedures are considered to give up free warranty):

Press and hold "S--" "S++" case to board power, electric buzzer immediately began ringing,

the buzzer ringing period (2 seconds), loosen the "S--" and "S++" and immediately press the "SK" keys, digital tube displays 2 sec calibration procedure running records (factory shall be 0.001 run time will automatically add 1), after enter the calibration procedure, digital tube display J1.0u. To the input terminals of the battery and four wire voltage input bv terminals of the positive and negative poles and access 1.00v DC standard voltage (polar), press the "SK" keys, tester were 1V benchmark records, after the completion of the display J5.0u. Same with above J1.0u method access 5.00V standard voltage, then press the "SK" button, the tester for 5.0V reference recording. Upon completion of J0.1A. Power 4-5V series a current meter connected to input terminal of battery test on, press the "S++" or "S--" trimming or current (continuous press can quickly adjust), the current is adjusted to 0.100A, press the "SK" button to confirm, enter to J2.6A (2.6a) calibration mode, repeat above the current is adjusted to 2.600A (due to the current temperature and fluttering in may change a little, the adjustment suggestion to 2.603-2.605A). After the completion of the re pressing "SK" key confirmation calibration is done! Test instrument to determine the effectiveness of calibration parameters, such as the effective, will be 2 seconds interval display 6 calibration storage parameters automatically update the data and exit, such as invalid, then abandon the data directly.

Feature:

Supply voltage: DC12V

Working current: <35mA

Maximum battery input voltage: 8.5V

Maximum error of discharge current: 1%+2mA

Voltage measurement error: 1%-3D

The maximum error of the overall measurement results: 0.1-0.2A 2.5%, 0.3-0.5A 1.6%, 0.6-1.0A 1.2%, 1.1A-2.6A 1%

Circuit board size: (no copper feet): 97 x 62 x 38mm

Weight (with copper feet): 47g

Common using problems:

1. Q: I test 18650 lithium batteries, select 1A, it should be said that the discharge after the termination of the battery voltage is 3V, why do I have to test after the termination of the battery voltage 3.8V?

A: This phenomenon is known as the battery voltage rise, because in the selected 1A current will discharge the battery to below 3V, tester termination of the discharge, when the battery is not completely clean, and part of the residual capacity, just this part of the charge has not in the 1A current long time maintain battery voltage large from a 3V, as in tester is connected in parallel with a voltage meter, a test, when the load current of battery, will see voltage decreased rapidly.

Tips: the same types of batteries, in the same set of discharge mode, after the termination of the battery voltage rises, the lower the better, this mean that the battery can emit capacity closer to the internal chemical capacity and high quality new 18650 battery, 1A discharge after the battery voltage rise to 3.2-3.4V, and inferior 18650 batteries often will rise to 3.7V, scrapped laptop battery removed the battery, even rose to 4.0V!

2. Q: why is my meter measuring terminal voltage is 3.60V, the test is the wheel of the display voltage is 3.85V?

A: ZB206+ in default mode automatic recognition and the battery used is intermittent discharge mode, each discharge 5 seconds will cut off a discharge current, and at this time of detecting the battery voltage, this voltage approximately equal in the discharging process of the battery internal chemical voltage (test methods for intellectual electronic 2010 original), the voltage than the load state voltage to high, multimeter can not be measured (unless you use an oscilloscope). The test method can effectively avoid the influence of the voltage loss of the circuit resistance and contact resistance on the test result, and can get the accurate result in the most efficient way. If need to round of significant voltage with the multimeter test voltage is consistent, then please with reference to the full version for use, turn off the automatic recognition mode, manually set the termination voltage for P*.*u state can be, but this test results by line impact bias may will be great! In general is mainly used to test the power supply (mobile power test is P4.5u), such as the need for high precision measurement of battery performance, it is recommended to cooperate with the four wire test frame using four wire mode test.

3. Q: I use the same section of the battery, charging with a charger, and choose the same discharge mode, but the two results are not the same, and sometimes even different, which is how the case?

A: The effective capacity of the single battery discharge process in addition to and termination voltage and current of, and charging condition, storage time and temperature in the process of discharge and cell activation of many factors about, take temperature, the same 18650 battery, charged in 25 degrees Celsius and 0 degrees Celsius with patterns of the same discharge, the result will be a very different, especially old 18650 battery, the differences are even up to 2-5 times!

4. Q: I use the tester 2A current test cell phone batteries, why only measure a few mAh capacity on the termination of the?

A: Non smart battery typically support only 0.6-1A discharge current, large screen smartphone battery can support the current 1.5-2.0A. If the discharge current over the General Assembly lead

to battery protection board over-current protection, so in the mobile phone battery tests, non intelligent machines please select less than 0.5A current testing, big Zhi Ping can machine to choose 0.5-1.5A discharge current can be.