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1 Important Safety Instructions

- ◆ Before using the machine, please read the User's Manual carefully, and operate the machine per the manual which should be kept properly for future reference.
- ◆ Because of the technology upgrading, the appearance and function of the product described in this manual may be different from the final product. Please refer to the actual product, please in kind prevail.
- ◆ Please take attention to the sections start with “Caution” and “Warning”.
- ◆ The machine should be operated and stored in indoor environment with good ventilation, avoid prolonged exposure outdoors.
- ◆ The machine should be stored in safe, clean, dry, and moderate temperature environment, and covered with a rain cover to be waterproof, dustproof, avoid moisture inside the machine.
- ◆ The machine should be operated in environments without corrosive, acid, alkali, inflammable and explosive dangerous goods. Check if the machine is in good condition. If there is water or dust at site, do some cleaning before putting into use.
- ◆ The machine should work on a flat, clean, dry, well-ventilated, moderate temperature, open space. There should be no obstructions within 3-5 meters from air inlet and outlet.
- ◆ When the unit is working, avoid the hot sun, thunder, lightning, raining, water, vibration, wind, or other unsafe environment to avoid damage the unit.
- ◆ Please use the original cables, plugs or other accessories that is available. Using incompatible accessories may damage the equipment.
- ◆ Make sure correctly connect the positive and negative polarity to battery bank.
- ◆ Power input/output, power supply and terminal blocks are closely related to systems security, do not turn on the power until make correct connection.
- ◆ After powering on, do not touch any inside components or electric objects. After powering on, do not touch the internal components, or any conductive objects. Do not

uninstall or install any cables or accessories on power, to avoid electric shock or equipment damage.

◆ Please let the fan continue to run 3-5 minutes after use, and shutdown the machine after the remaining heat is dissipated.

◆ After shutdown, remove all cables and store the unit.

Dangerous

Please strictly following the instructions during the operation, any losses caused by the contravention of the correct operation methods, precautions or warnings will not be covered under the warranty!

2 Product Overview

2.1 Foreword

Thank you for using our **LB Constant Current Smart DC Load Bank**. This unit is designed for testing battery that used in electricity, telecommunication, railway, battery manufacturer, etc. This newly designed unit is easy to operate, with high performance and reliability. Unit can automatically make the capacity testing after setting parameters. After testing, testing data could be transferred to PC by communication cable or saved in U-disk. Various kinds of curves or charts can be generated by our data processing software, thus providing scientific evidence for battery performance analysis.

2.2 Main Functions and Features

- ◆ Display: LCD screen displays battery bank voltage, current, time, capacity and unit temperature.
- ◆ Control type: Single chip microcomputer control. Set voltage, current, capacity and time of battery bank using the keyboard.
- ◆ Automatic stop: Automatically stop discharging when time out, capacity out, battery group protective voltage out.
- ◆ Protection: The unit will give alarm or cut off load when emergency happens such as high temperature, battery bank disconnection.
- ◆ Online real-time monitoring: Displays all the real-time testing data: current, battery group voltage, time, capacity, etc.
- ◆ Record and Query: the unit can save 8 groups data (each 10 hours), user can query if needed.
- ◆ Data transfer: It has standard LAN, USB and RS232 interface, by USB and RS232, data can be transferred to PC.

- ◆ Data processing function: With our data processing software, the data can automatically form various kinds of curves and charts which can be printed.
- ◆ PC control: User can set and modify discharging parameters, start, and stop discharging by PC.
- ◆ Parallel function: 2 sets of same models can make parallel operation.
- ◆ Correction of displayed voltage and current: User can correct the battery bank voltage and current.

2.3 Technical Parameters

Discharge Current Range:	0 – 2,000A
Discharge Voltage Range:	0 – 600V
Accuracy:	Discharge Current: 0.1A Voltage: 0.1V Control Precision: $\pm 0.3\%$ / +0.2A
Display:	Backlit numeric LCD
Operating Environment:	10 – 40 °C (14 – 104 °F) 0 – 90% relative humidity
Power Requirements:	110/220 VAC 50/60 Hz
Safety Features:	Over-voltage protection Automatic timed fan operation after discharge test

3 Installation

3.1 Appearance



(1) LCD screen: Display parameters and setting items.

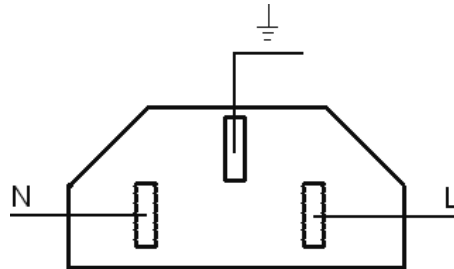
(2) Keyboard: Set parameters.

(3) Emergency Stop: During emergency, press this switch to immediately stop loading. After getting rid of the emergency, rotate rotary switch clockwise to unlock it, then continue discharging.

(4) Power supply switch: Based on the on-site available power supply, choose the closest voltage, and then connect power supply to power on the unit.

(5) Switch: After connecting power supply, press it upward to power on the machine.

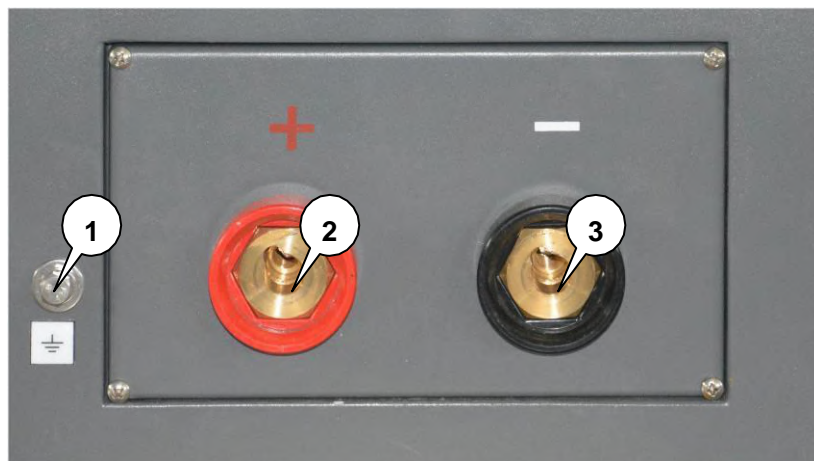
(6) POWER: 3-pin socket of single phase, below is the diagram:



(7) RS-232 interface: Connect this machine and PC with RS232 communication cable to make intelligent control by PC.

(8) USB interface: Insert U-disk to transfer testing data.

3.2 Wiring Area



(1) \equiv Ground terminal: Ground the unit through this.

(2) +: Battery bank testing cable quick jack, connect battery positive pole with testing cable.

(3) -: Battery bank testing cable quick jack, connect battery negative pole with testing cable.

3.3 Inspection

Ventilation check: Please make sure that all the vents are in normal condition, there is no obstruction and no sundries around the machine and the surrounding environment is clean and tidy, please make sure that the air duct is unhindered.

Dangerous!

Please be sure to keep the wind channel unobstructed, otherwise there will be overheating risk!

Switch and interface check: Check all the switches and interfaces to make sure that all the switches are closed to avoid abnormal start after power-on. If there is moisture or damage to the interface, please get rid of the hidden dangers, and then carry on processing.

Working conditions check: Check whether the working conditions can meet the requirements for work. Prepare well all the tools which may use, ensure that the equipment (for example battery bank) are in normal and the power supply is stable, which could meet the requirements for the maximum voltage and current. Besides, the environment temperature and humidity should be controlled within normal range.

3.4 Wiring Methods

(1) Install testing cable: Connect this machine to battery with quick plug, and then insert one end with quick plug of the testing cable into corresponding jack, rotate clockwise and lock it so as not to fall off. Connect red plug to **Positive pole (red)** and connect black one to **Negative pole (black)**.

Then connect the other terminal of the testing cable to battery in the same way as red-positive pole and black-negative pole, fix it with screws.

Dangerous!

Wiring is forbidden during power on!

(2) Install power cords: Insert one end of 3-pin plug of power cord into 3-pin socket in the unit. Insert the other end into socket to provide electricity for this unit.

Dangerous!

Terminals must be connected firmly, otherwise overheat would happen.

Cable must connect the correct voltage, frequency, polarity and phase sequence.

The cable must withstand the current passing through it during working.

(3) Install the data transmission line: This machine can communicate with PC through RS232 interface. Insert one end of the RS232 data transmission line into RS232 interface and insert the other end to PC. Use the USB to RS232 converter to connect it if PC does not have RS232 interface.

3.5 Simple Operation

Starting up: After connecting all the cables, press the power switch upward to power on the unit. After a few minutes' self-inspection, LCD begins to working. Then operation could be done through keyboard.

Operation mode: Can set and operate by keyboard. Real-time data can be displayed through data processing software in PC. The detailed operation methods will be shown in following chapters.

Select task: Select tasks, for example discharging, press **<RUN>** in keyboard to start working, and then LCD will display parameters, press **<↑>** and **<↓>** to display data of last page and next page.

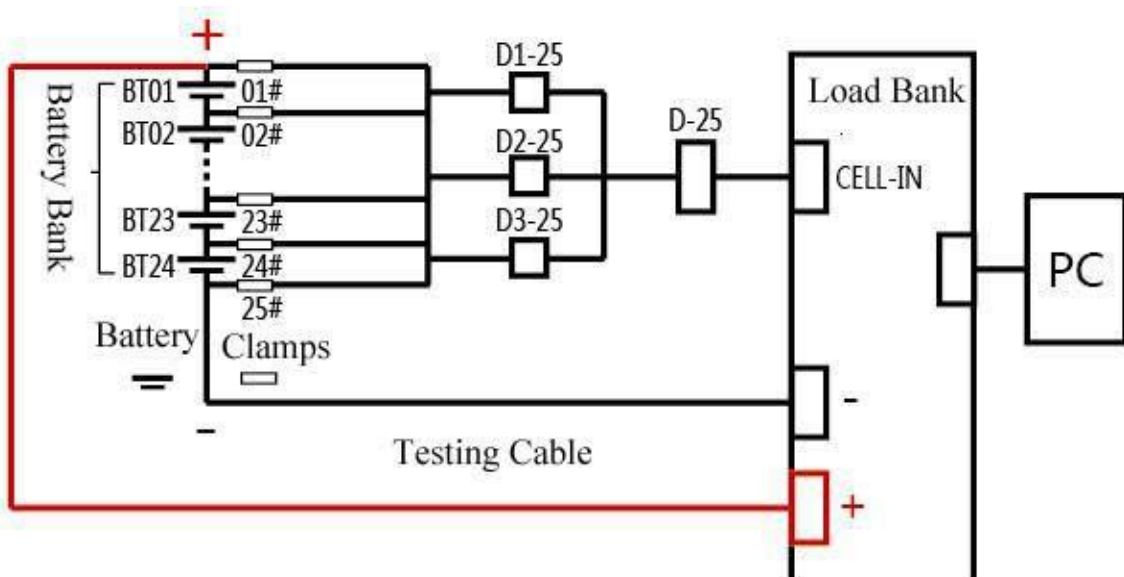
Stop task: The tasks will automatically stop when the parameters such as voltage, time and capacity achieve the default value. Or you can press **<STOP>** to stop it manually.

Read data: Insert U-disk, read the data in U-disk through the software in PC. Or connect the unit to PC with data transmission line, and then read the data through software in PC.

3.6 Connect Battery Cell

3.6.1 Install battery cell testing cables: The load bank and battery cells are connected by the 25-pin battery cell testing cable(s).

One end of the battery cell testing cable is 25-pin interface; the other end is 25 pcs of clamps. Fix the clamps on terminal blocks of battery bank in order. Clip the clamp that is marked #01 to positive pole of the first cell. Then #02 clamp to the positive pole of the 2nd cell, #03 clamp to the positive pole of the 3rd cell, and so on. Connect #24 clamp to the positive pole of the 24th battery, and finally #25 clamp to the NEGATIVE pole of the 24th battery. Then insert the 25-pin terminal of the cell testing cable into the CELL-IN interface. If there are more than 24 cells, continue this process with another set of cell testing cables (CELL-IN 2,3,4 etc) until reaching the last cell of the system. The last cell should always have the final positive and negative connections, if there are any unused cell cables these should be left at the end (not connected). For example, if connecting to 40 cells total, CELL-IN 2 - clamp #16 will connect to the positive pole of cell 40 and CELL-IN 2 - clamp #17 will connect to negative of cell 40, with the rest of the clamps unused. Connection diagram is shown as follows:



3.6.2 Cell Wiring Table (example for 48V systems, 24c or 40c):

Battery Cell Collect Interface	CELL-IN 1								
Clamp Number	01#	02#	03#	04#	05#	06#	07#	08#	09#
Battery Cell Number	01# Positive	02# Positive	03# Positive	04# Positive	05# Positive	06# Positive	07# Positive	08# Positive	09# Positive
Battery Cell Collect Interface	CELL-IN 1								
Clamp Number	10#	11#	12#	13#	14#	15#	16#	17#	18#
Battery Cell Number	10# Positive	11# Positive	12# Positive	13# Positive	14# Positive	15# Positive	16# Positive	17# Positive	18# Positive
Battery Cell Collect Interface	CELL-IN 1								
Clamp Number	19#	20#	21#	22#	23#	24#	25#	Non	
Battery Cell Number	19# Positive	20# Positive	21# Positive	22# Positive	23# Positive	24# Positive	24# Negative	Non	

Battery Cell Collect Interface	CELL-IN2								
Clamp Number	01#	02#	03#	04#	05#	06#	07#	08#	09#
Battery Cell Number	25# Positive	26# Positive	27# Positive	28# Positive	29# Positive	30# Positive	31# Positive	032# Positive	33# Positive
Battery Cell Collect Interface	CELL-IN 2								
Clamp Number	10#	11#	12#	13#	14#	15#	16#	17#	None
Battery Cell Number	34# Positive	35# Positive	36# Positive	37# Positive	38# Positive	39# Positive	40# Positive	40# Negative	None

3.7 Shutdown

Shutdown: After testing, please keep fan running for 3-5 minutes to dissipate the remaining heat. Then put downward the power supply switch and shutdown.

Remove cables: After shutdown, please remove power cord, then rotate the quick plug counterclockwise, finally remove other cables.

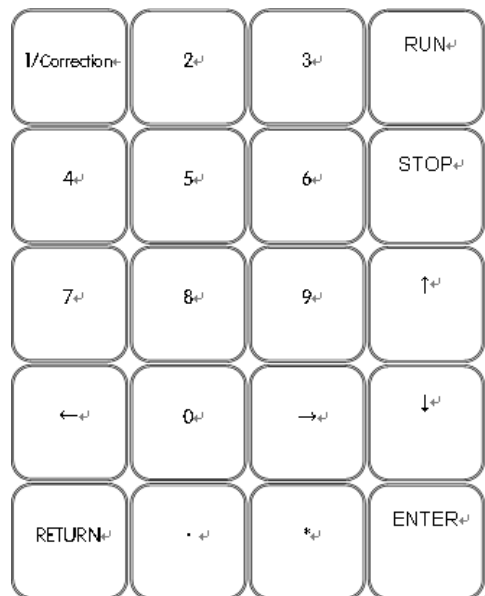
4 Control Keyboard

4.1 Keyboard function Introduction

In this chapter, [] represents a screen menu option;

< > refers to the keyboard button;

"" refers to screen information displayed.



In keyboard, number 0~9 can be used to select menu operation or parameter setting.

<↑>: Upward button, each pressing can make cursor moving upper one grid, also can be used to page up on the screen.

<↓>: Downward button, each pressing can make cursor moving lower one grid, also can be used to page down on the screen.

<←>: Left shifting button, each pressing can make cursor moving left side one grid, also can be used for parameter setting.

<→>: Right shifting button, each pressing can make cursor moving right side one grid, also can be used for parameter setting.

<ENTER>: Enter button, after parameter setting using this button to save the data, it is also used to go through to the next interface when function selected on the menu interface.

<RETURN>: Return button, go back to the last interface, or cancel part of the operation.

<RUN>: Run button, after parameter setting using this button to start discharging operation on the start discharge interface.

<STOP>: Stop button, during discharging operation press this button to terminate this operation.

<•>: Will be used on certain functions.

<*>: Will be used on certain functions.

4.2 Main Menu

After power on, the main menu will be displayed as follow:

```

1. Discharge
2. On-line Monitor
3. Search
4. Parameter Set
          XX-XX-XX  XX:XX:XX
  
```

4.3 Discharge

In main menu, press **<1>** to enter parameter setting interface of battery discharging.

Press **<↑>**, **<↓>** to choose the item, press number button or **<←>**, **<→>** to modify the parameters.

The current parameter displays as reverse white, for example, **[Rating Capacity]** has been selected in the following figure, and then user can modify the parameter by pressing numbers. The number will be automatically corrected to the nearest value when the insert value exceeds system limits.

```

Rating Capacity:      xxxxAh
Discharge Rate:      xx
Voltage Lower Limit:  xxx.xV
Discharge Current:    xxx.xA
Discharge Time:      xxHxxM
Discharge Capacity:   xxxxAh
  
```

Descriptions of the discharge parameters are below:

Rating Capacity: The rating capacity of the storage battery bank.

Discharge Rate: Can choose 3-hour rate, 5-hour rate, 10-hour rate or User-Def. When select "User- Def", can freely set discharge current, time, etc. When choose other hour rate, relative parameters will be automatically figured out, can't be set.

Voltage Lower Limit: Auto stops discharging when voltage is lower than the limit value.

Discharge Current: Set the current value during discharging.

Discharge Time: Auto stops discharging when the discharging time out.

Discharge Capacity: Auto stops discharging when the cumulative capacity reach the setting value.

After setting the discharge parameters, press **<ENTER>** to save the settings and go to the discharge interface. Press **<RUN>** to start discharging. Press **<RETURN>** will go back to previous interface.

Start Discharge	
Cancel	Start

During discharging, real time parameter will be shown in screen, see below.

To.Cul:-xxx.xA	Cur.V1: xxx.xV
Cur.TMP: xx.xx℃	Acc.Cap: xxxxAh
Sta.Time: xx:xx: xx	
Acc.Time:xx:xx: xx	
Cur.Sta:Discharge	

During discharging, user can manually stop testing by pressing **<STOP>** at any interface and then press **<ENTER>** to stop discharging and back to main menu; press **<CANCEL>** to continue discharging.

MANUALLY SHUT DOWN	
Cancel	Enter

4.4 Automatic Stop

During discharging, besides pressing **<STOP>** to stop task, the unit will automatically stop and display reasons. Press **<ENTER>** or **<RETURN>** to the previous interface.

(Stop Reasons)	
Cancel	Enter

Over-all Voltage Low: The total voltage is lower than voltage lower limit.

Time Up: Time out.

Exceed Capacity Protection: Discharge capacity reaches preset value.

Cable Connect Fault: Unit is not correctly connected to battery.

4.5 On-line Monitor

In the main menu interface, press **<2>** to enter on-line monitor interface in which displaying voltage, current, temperature, etc.

To.Cul:-xxx.xA	Cur.Vo1: xxx.xV
Cur.TMP: xx.xx℃	
Cur.Date:xx-xx-xx	
Cur.Time:xx:xx:xx	
Cur.Sta:Monitor	

4.6 Data Query

In main menu, press **<3>** to enter query interface. First displays the last operation information, using **<↑>**, **<↓>** button page up or down to check rest of the data one by

one. From "Run" to "Stop" is an operation cycle, the system will automatically save as one group of data. Maximum 8 groups of data can be saved.

Working:xxxx	Count:xxxx
Over Type:xxxx	
Acc.Time:xxHxxMxxS	
Current:xxx.A	TMP:xx.xx℃
Voltage:xxx.xV	Acc.Cap:xxxxAh
USB Operational Key: 1	

The new task data will overwrite the oldest data, to avoid the loss of important data, first insert U-disk, and then press <1> to save data in the record interface. Transfer progress bar appears, until the progress bar reaches 100%, the record will be saved successfully. Press <ENTER> to re-transfer data, press <RETURN> to the previous interface.

⚠ Attention: During the running of the U drive, DO NOT remove it to avoid U-disk damage or data lost.

4.7 Parameter Set

In main menu, press <4> to enter Parameter Set interface. Using <↑> and <↓> button to set more parameters.

System Set	
Address: xx	T.limit:xx.xx℃
Alarm: ON	Mem.Cycle:xxx
Date: xx-xx-xx	
Time: xx:xx:xx	

The meaning for each option is below:

Address: Can set 01~09 for different units when make parallel operation.

T.limit: The machine will stop and give alarm when temperature reaches this value.

Mem.Cycle: Can set 6 seconds to 600 seconds, indicating how often data will be stored. The shorter of the interval time, the more accurate of the data, the larger storage space will be used. If the discharging time was setting too long, the system will automatically adjust the storage interval time to ensure that the data can be stored completely. It is recommended to set interval to at least 30s or greater for longer duration testing (4-8 hrs), if set lower than 30s the interval will likely need to auto-adjust to higher intervals as the test goes on to save necessary storage space.

Alarm: When it is set ON, the alarm will work and sound on; when OFF it will switch off the alarm.

4.8 Delete Data

If you wish to delete the previous history of data or alerts on your load bank, follow these steps:


First, change the system date to 07-06-98, then press **<ENTER>** and go to the discharge parameter interface, set the Discharge Capacity to 9876. Then, go to the Search menu and you will see option **<3>** Data Erase.

1.Alarm Search
2.Data Search
3.Data Erase

From this screen you can select between “Delete history data” or “Delete history alerts”.

1. Delete history data
2. Delete history alerts

4.9 Correction

 **Attention: Be careful to use this function, wrong operation will cause the system to stop working; please call our sale service before using this function.**

If the displayed voltage and current have noticeable differences from the real values during the testing, please press **<*>** button, when “**S**” show in the lower right corner in the screen, press **<1>** in 3 seconds to enter the correction interface.

On the correction interface, right side value is displayed value, please input the right testing value on the left side, the system will automatically calculate and correct all the parameters, press **<ENTER>** to save. If no change or input 0 on the left side, after press **<ENTER>**, correction is not made. Press **<RETURN>** button to exit correct interface.

Correction	
Current 1: xxx.xA	xxx.xA
Voltage 1: xxx.xV	xxx.xV

5 Data Management Software

5.1 System Configuration

In this chapter description, [] represents quote menu item or option;


"" represents a quote the screen prompt indicates.


By using the data management software, data can be interpreted and processed. The recommended configuration to run data management software is as follows:

PC (personal computer, laptop)	Microsoft Windows 98/2000/Me /XP/ Vista/7/10
Resolution of 1280*960 or above	CPU 300MHz or more
64M RAM or above	50M or higher hard disk
RS232 or USB interface	Color or black and white printer
Keyboard, mouse, or compatible input device	

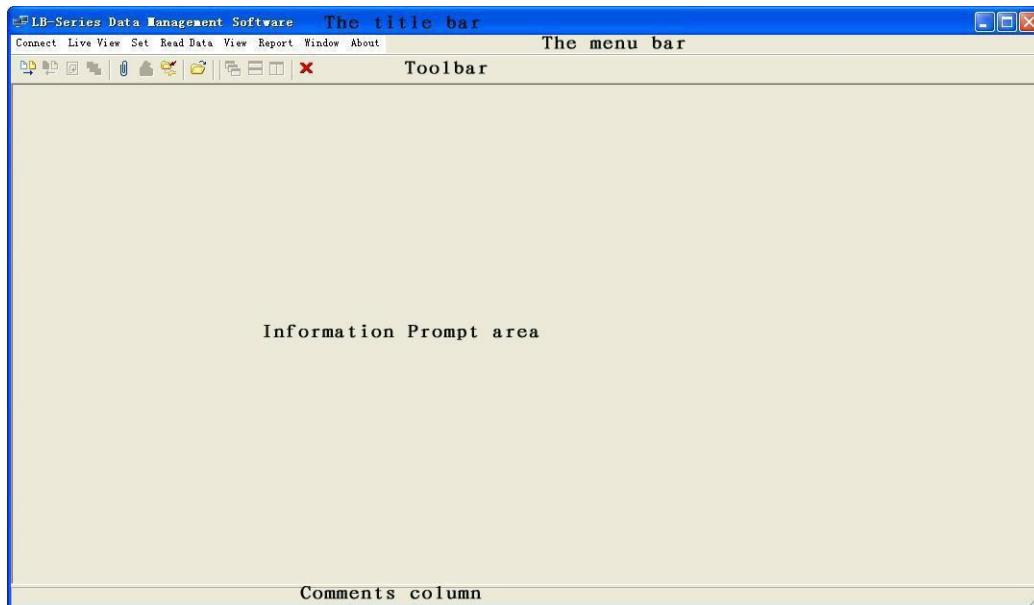
5.2 Software Installation

Installation files of the data management software are stored in a U-disk. Before installing this program, it is suggested to exit the other operating systems, then insert the U-disk into the USB interface of your desktop or laptop computer (hereinafter abbreviated to PC), through the "My Computer" into the U-disk root directory,

double-click the program icon  to open file named **LB-Series Data Management Software** , and enter the installation interface.

Follow the instructions in the screen, continuously click **[Next]** to complete the software installation, by default the software is installed in the Program Files directory in the C drive, and creates the same name shortcut on the desktop. Users can double click the software program icon on desktop  , start the application data management software to enter the main interface.

5.3 Main Interface



Title Bar: Displays the host name and test information tips.

Menu bar: Contains the main operation option, click the drop-down menu pop-up menu option to display the sub-menu.


Toolbar: Contains the main function of the shortcut key, click the appropriate icon to quick start. Corresponding function of each icon as shown below:

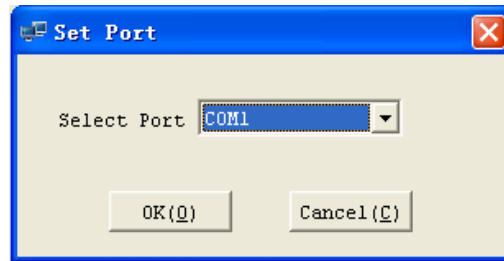


Comment Column: Information tips for shortcut key, task details tips and other information.


Information Prompt Area: Mission area, mainly displays the task of displaying charts, parameters, information boxes and other information.


5.4 Communication Settings

After PC connected to the machine with data transmission line, the first step is communication settings. Clicking **[Set]**, and then click drop-down menu **[Set Port]**, or click icon on the toolbar  the following dialog box appears, select the appropriate communications interfaces (COM1-COM9) in the dialog and click **[OK]**. First, you should use the default port, if fail to be online, look for available port on your PC (in "My Computer" right click - Properties - Hardware - Device Manager - Port) and choose it.




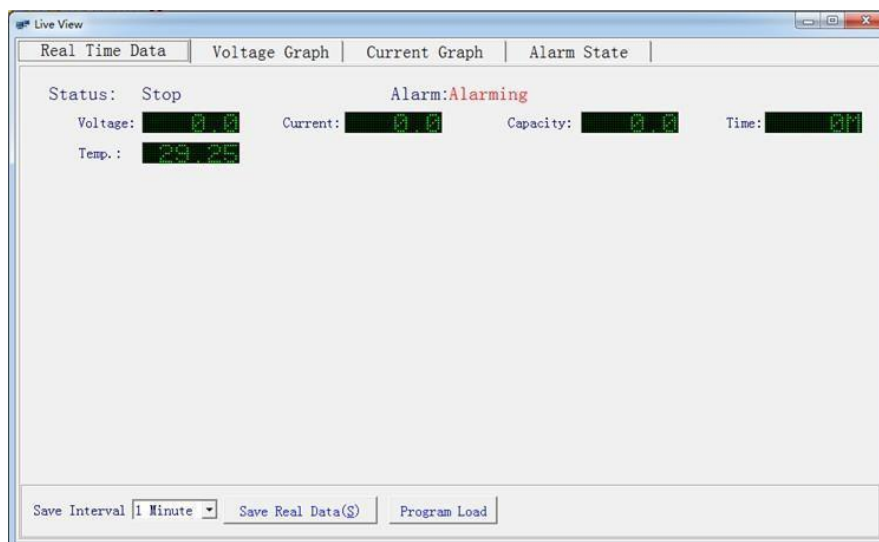
5.5 Connection

Start Connection: Click **[Connect]** and drop-down menu **[Connect]** or press the icon  on the toolbar. Prompting a new machine after connection, click **[OK]** to begin to connect between PC and machine. If you do not find a new device, please change the communication port setting, or pull up the cable and try again.

Stop Connection: After working, click **[Connect]**, then click **[Disconnect]**, or click the  to disconnect the PC and machine. Now only can read the saved data via software, cannot display the real time data.


5.6 Real-Time Data

Click **[Live View]** and drop-down menu **[Live View]**, or click the , data window appears. Click the labels on top of the window to read the changes of real-time data, voltage curve, current curve, and alarm information.

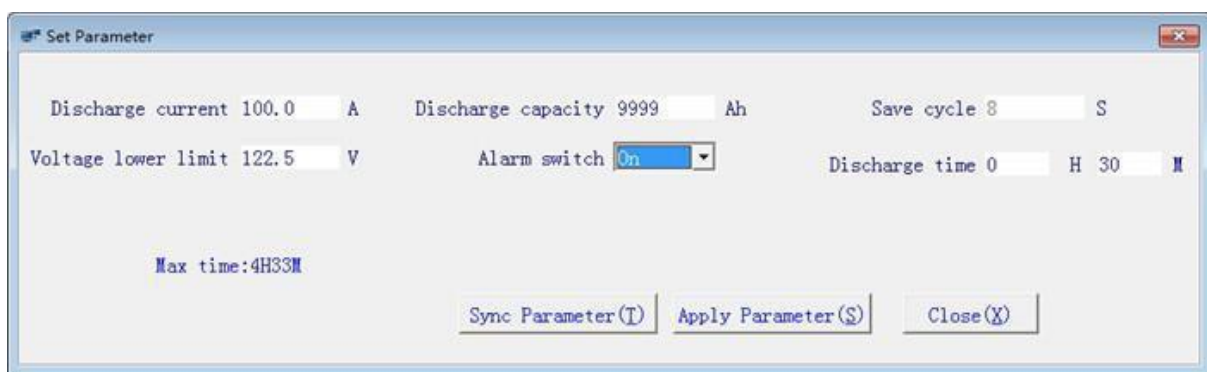


After setting save interval, click **[Save Real Data]** to save data.

5.7 Parameter Setting

In connection status, parameters can be set and modified by PC, click **[Set]** and then click **[Set Parameter]**, or click the , then window of setting parameter appears. Choose the working parameter and modify, the mean of parameter is same as the **4 Control Panel**.

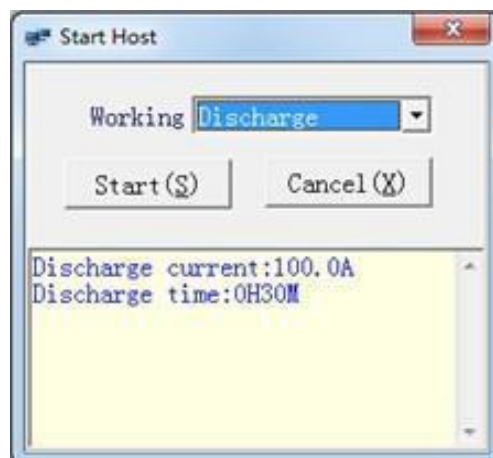
After setting parameter, click **[Apply Parameter]**, the parameters of the machine can be replaced by the present parameters in the software after confirmation.



If you want to get the present parameters, click **[Sync Parameter]**, the parameters in the software can be replaced by that of lower position computer.

5.8 Control


Start: After setting the parameters, user can control the machine to start or stop. Press **[Control]**, choose **[Start Host]**, a dialog appears; click **[Start]** to start according the previous setting parameters.




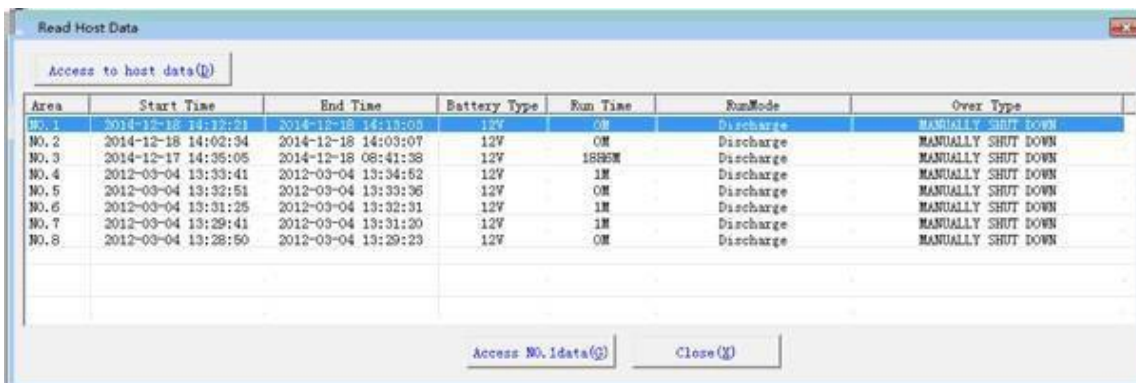
Stop: The machine will automatically stop discharging when ending parameters such as voltage, capacity, time, etc reach the preset value. User can also stop it manually, press **[Control]** and choose **[Stop Host]** to stop the task.

5.9 Import Data

After testing, there are two ways to import the data:

(1) U-disk saving data: Save the data in U-disk, then transfer to PC. Press **[Read Data]**, choose **[Read U Disk Data]**, or press the icon  in the toolbar, choose the data you want, press **[OK]**. Or copy U disk to host then import data.

(2) Integrate host data directly: Press **[Read Data]** menu, choose **[Read Host Data]**, or press the  in the toolbar, appearing the data dialog. Press **[Access to host data]**, display the following dialog. The code in this interface is corresponding to that when U-disk is transferring. Choose the data need to be read, press **[Access X data]**, confirmation dialog box appears, press **[OK]**. In the pop-up dialog box, enter the relevant information, and then press **[OK]** to get data.



Area	Start Time	End Time	Battery Type	Run Time	Run Mode	Over Type
No.1	2014-12-18 14:12:21	2014-12-18 14:13:05	12V	ON	Discharge	MANUALLY SHUT DOWN
No.2	2014-12-18 14:02:34	2014-12-18 14:03:07	12V	ON	Discharge	MANUALLY SHUT DOWN
No.3	2014-12-17 14:35:05	2014-12-18 08:41:38	12V	16H5M	Discharge	MANUALLY SHUT DOWN
No.4	2012-03-04 13:33:41	2012-03-04 13:34:52	12V	1M	Discharge	MANUALLY SHUT DOWN
No.5	2012-03-04 13:32:51	2012-03-04 13:33:36	12V	ON	Discharge	MANUALLY SHUT DOWN
No.6	2012-03-04 13:31:25	2012-03-04 13:32:31	12V	1M	Discharge	MANUALLY SHUT DOWN
No.7	2012-03-04 13:29:41	2012-03-04 13:31:20	12V	1M	Discharge	MANUALLY SHUT DOWN
No.8	2012-03-04 13:28:50	2012-03-04 13:29:23	12V	ON	Discharge	MANUALLY SHUT DOWN

Access NO.1data(g) Close(g)

No matter which way the data is imported, user can query and print by **[View]**.





5.10 Analysis

Data is saved in this menu no matter if imported through U-disk or PC; user can check test record, read all kinds of graphs and charts.

(1) Open Testing Data: Click **[View]** and choose **[Open Test Data]**, or press the

icon  in the toolbar, showing the following interface:

Open Test Data				
Test Name	Test Time	Working	Battery Count	Corp Name
▶ rtt	2014-06-23 15:58:44	Charge	24	rrr
xsssss	2014-04-18 9:20:13	Auto	24	s
nu88888	2014-04-18 9:20:13	Auto	24	8
lkiiii	2014-04-17 16:46:54	Discharge	48	i
eeeeeeee	2014-04-17 15:35:25	Discharge	48	r
Total	33			





Open (O)
Delete (D)
 Import (I)
 Export (E)

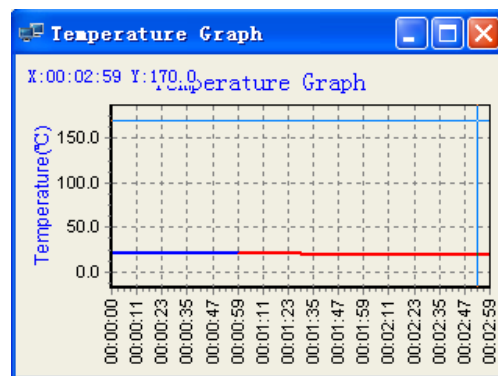
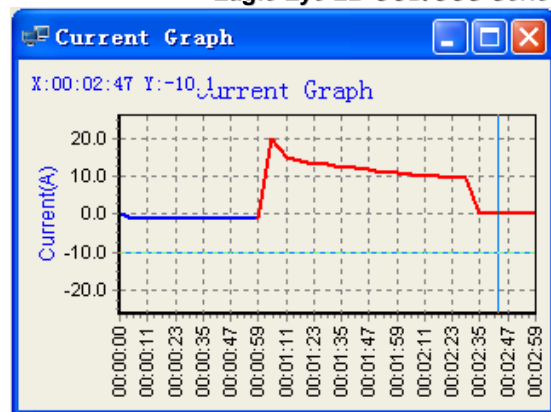
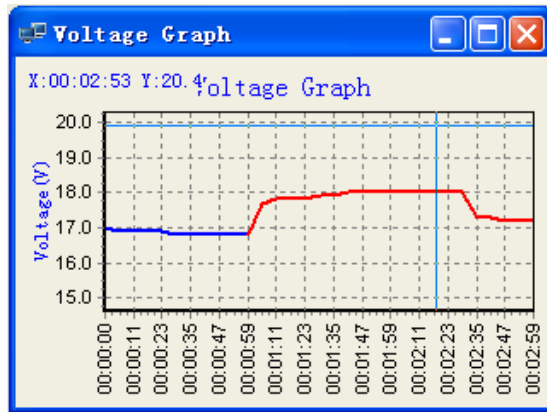
Open: Double click the test record which you want or press **[Open]**. Some icons will appear in toolbar after opening one of the test records, the present curves and testing information are the data of the record.


Delete: Choose the test record which you want to delete and press **[Delete]**. After imported data is deleted, the original data is also saved in this unit or U-disk.

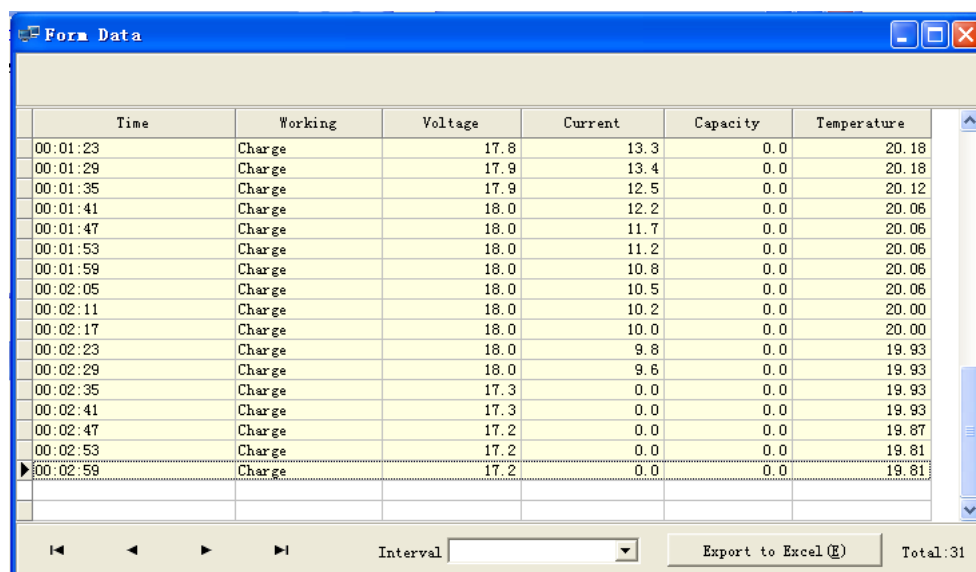
Import data: Press **[Import]** and choose the test record which you want in the dialog box of shown. Press **[OK]**.

Export data: Choose the test record which you want to export, press the button **[Export]**, press **[Save]** in the save as window.

(2) Charts Display: Click any one test record, choose **[View]**, choose and read the graphs or histograms: voltage curve, current curve, temperature curve, feature comparison chart.



(3) Check Data: Click **[View]**, press **[Form Data]** or press the icon  in the toolbar to view all the parameters including battery bank voltage, group current, temperature, test time and so on.




Time	Working	Voltage	Current	Capacity	Temperature
00:01:23	Charge	17.8	13.3	0.0	20.18
00:01:29	Charge	17.9	13.4	0.0	20.18
00:01:35	Charge	17.9	12.5	0.0	20.12
00:01:41	Charge	18.0	12.2	0.0	20.06
00:01:47	Charge	18.0	11.7	0.0	20.06
00:01:53	Charge	18.0	11.2	0.0	20.06
00:01:59	Charge	18.0	10.8	0.0	20.06
00:02:05	Charge	18.0	10.5	0.0	20.06
00:02:11	Charge	18.0	10.2	0.0	20.00
00:02:17	Charge	18.0	10.0	0.0	20.00
00:02:23	Charge	18.0	9.8	0.0	19.93
00:02:29	Charge	18.0	9.6	0.0	19.93
00:02:35	Charge	17.3	0.0	0.0	19.93
00:02:41	Charge	17.3	0.0	0.0	19.93
00:02:47	Charge	17.2	0.0	0.0	19.87
00:02:53	Charge	17.2	0.0	0.0	19.81
00:02:59	Charge	17.2	0.0	0.0	19.81

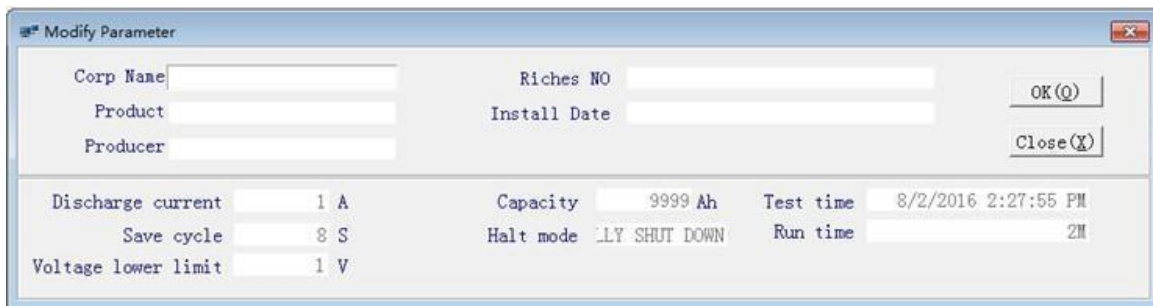
Interval: Export to Excel(E) Total:31

Press **[Interval]** to choose interval number, the larger the number, the fewer items display. Press **[Export to Excel]**, the current data record is exported to Excel spreadsheets.


5.11 Print

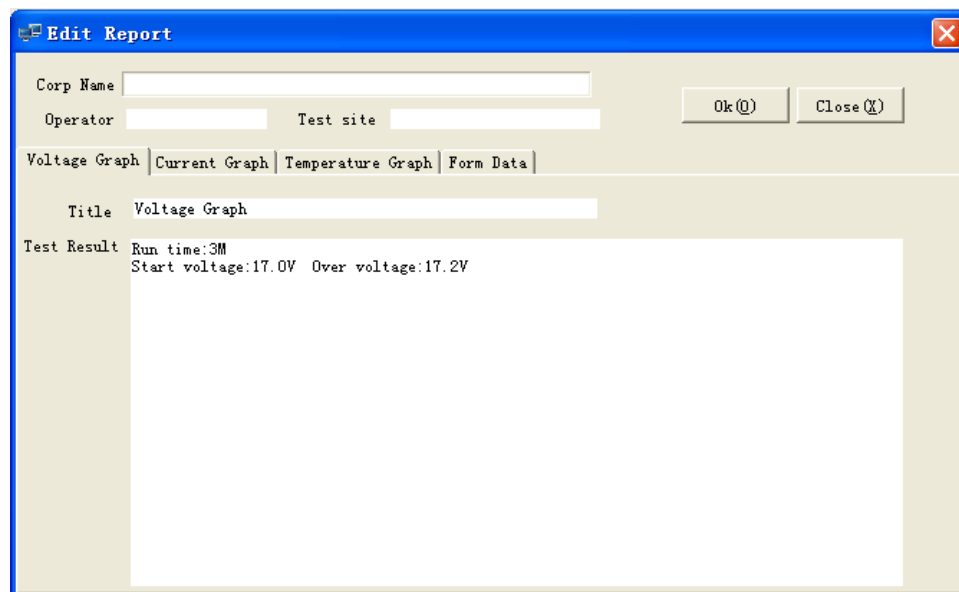
Modify Test Information: Click **[Report]**, then choose the drop-down menu

[Modify Parameter], or press the icon  in the toolbar directly to modify the parameters, press **[OK]**. This interface to modify the additional information will be printed in the report.




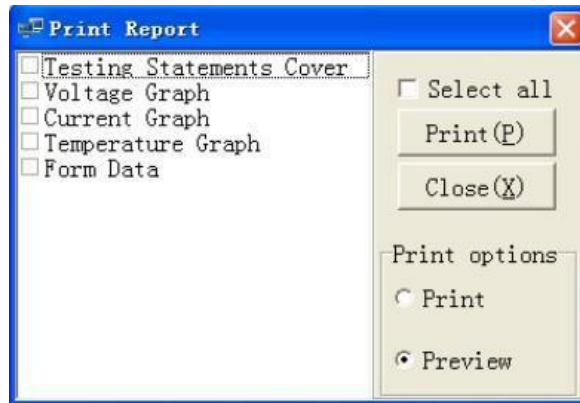
Corp Name				Riches NO				OK(O)
Product				Install Date				Close(Y)
Producer								
Discharge current	1 A	Capacity	9999 Ah	Test time	8/2/2016 2:27:55 PM			
Save cycle	8 S	Halt mode	LY SHUT DOWN		Run time	2M		
Voltage lower limit	1 V							

Edit Report: Click **[Report]** and choose **[Edit Report]** or click the icon  in toolbar, input results and click **[OK]**. This interface to modify the additional information will be printed in the report.



Corp Name				Ok(O)	Close(Y)
Operator		Test site			
Voltage Graph Current Graph Temperature Graph Form Data					
Title	Voltage Graph				
Test Result	Run time:3M Start voltage:17.0V Over voltage:17.2V				

Print: Click **[Report]** and choose **[Print Report]**, or press the icon  in toolbar and choose the charts or reports, click **[Preview]** and confirm, click **[Print (P)]** to print.



5.12 Exit

Click **[Connect]**, choose **[Exit]**, or click icon , and click **[Y]** to shutdown.

After done working, first exit operation windows, then shutdown computer. Do not cut off power directly, otherwise it may cause data lost.

6 Maintenance

6.1 Routine Maintenance

◆ **Cleaning:** When doing system maintenance, operators should do thorough cleaning, especially the dust and debris that adhere to the vents which can be swept out by brush or compressed air. Operators should be careful when cleaning, don't open the enclosure, don't touch internal components. After cleaning, confirm everything is good, connect power source, observe the display and fan, if everything goes well, then start to test.

◆ **Ventilation:** Operator should turn on the power to check the performance of fan. If cooling fan is abnormal or air duct blockage, it will cause internal over-temperature for the machine which may affect reliability.

◆ **Dehumidification:** Before use, must confirm there is no water or moisture on joint interface of cables. If there is moisture, it should be dry and then put into use, so as not to cause a short circuit after power on.

◆ **Cover:** After the machine stops working, please put away all the parts, and properly keep, do not make cables long exposure in the sunlight, the plug should be covered. The machine needs a dust cover after using. If outdoor use, the load bank should be covered up by rainproof cloth to avoid corrosion and dampness.

◆ **Storage:** If the machine is idle for a long time, the machine and accessories should be stored in a cool, dry indoor environment, away from high temperature and damp environment.

◆ **Consultation:** If the machine fails in operation or maintenance, and cannot accurately judge equipment failure reason, please do not hesitate to call our after-sales service/support line, to consult to our technicians.

Dangerous!	<p>Disconnect all the wires when cleaning!</p> <p>Do not open the protective enclosure; otherwise the warranty will be not available! Contact the after-sale service if repairing internal elements is needed!</p>
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6.2 Fault Handling

Please see the below table, for common faults and solutions in working. If the problem you encountered is not one of them, please contact the service/support line to get support and give feedback.

Fault performance	Possible reasons	Solutions
The machine cannot start	Power supply is not connected	Check the device wiring is correct, and check whether the local power supply is powered.
Automatic shutdown after starting	Power anomalies	Check if the voltage of input working power supply is correct.
Blurred screen	Outside Interference	Restart the machine. If still abnormal, check the surrounding electromagnetic interference.
Key no response	Keyboard is damaged	Confirm the damaged key, contact our service.
Cannot discharge	Test cable is connected incorrectly	If indicating wrong connections, please connect again.
Current cannot reach the set value	Cable is loose or voltage is abnormal	Check the cable connect, fix the cable. Check the voltage value, if too low, the current will be low.
U-disk cannot save data	Connection is abnormal	Pull up U disk or restart the machine store. If still not work, change the U drive to FAT, or change the U drive.
Software cannot connect machine	Cable connect abnormal or port problem of communication	Connect the communication cable again, or change the address setting of communication port.
Software cannot display data	Data wrong or reading wrong	Check the extension of data file is right. If store data by U drive, reading data in "open test record " is not "import record"

7 Warranty

- ◆ The machine is under warranty for one year.
- ◆ If you have any issues, please contact Eagle Eye for support.
- ◆ Do not open the machine without prior instruction, or the warranty will be void.

Contact Us

If you have any questions or comment, please contact Eagle Eye Power Solutions. You can reach our team any of the following ways.

Phone: 1-877-805-3377

Email: info@eepowersolutions.com

Website: www.eepowersolutions.com

Fax: 414-962-3660

Mailing address:

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Milwaukee, WI 53209