

HZCF-400

Battery Load Bank

USER MANUAL



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PART I GENERAL

1.1 General Introduction

Battery Load Bank is a special instrument for the test of NiCD and Lead-acid storage battery string of the whole string voltage of 24V, 48V, 110V, 220V, and it adopts current advanced testing technology theory, and has obtained a series of breakthrough in research and application of new technology, new parts, new material and new techniques, which is designed in accordance with the requests of national related testing and maintenance regulations and it is a special detection instrument for the performance detection of stationary battery. Its big discharge power, small volume, light weight, complete function of data management software of upper computer could greatly reduce the work load of daily testing and maintenance of stationary battery.

1.2 Main Functions and Features

- The product is utilized color touch screen. It can be operated via finger or the touch pen with convenience and flexibility.
- Data save mode: Internal save and external save(SD Card)
- Enhanced over voltage protecting function ,
- Automatically recovery the over current protecting function
- Overheating protection .

Discharge Function:

Perform discharge of constant current taking advantage of intellectualized dummy load after the battery string is removed from system, set up the parameters of “discharge current”、 “discharge time ”、 “discharge capacity” 、 “final protective voltage of whole string” and “final protective voltage of cell”, and the tester could carry out discharge function automatically, display discharge current、 battery discharged capacity、 the whole string voltage, cell voltage, discharge time and etc at real time; when the string reaches setup value of final discharge voltage、 setup value of final discharge capacity、 setup value of final discharge time、 any cell voltage is below setup value of final cell voltage or manual final operation could stop discharge test.

- It could save 10 groups of discharge test data; the user could perform query, deletion, and export operation of SD card.

The computer could connect with instrument via the serial, perform test control and real-time monitor of instrument, and carry out graphic analysis.

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Automatic protection function:



- The tester would stop the test automatically when it could detect the abnormality of the whole battery string or cell, and the working abnormality of tester in order to make protection of battery during the test process.
- The host machine of tester adopts the design integrating the monitoring part with power part, the power part adopts new-type high-effective parts, and it is a storage battery comprehensive tester with small volume and high efficiency.
- Humanized operation interface, simple operation, clear flow, and each operation could have English cue. Aquamarine blue high-brightness, large-screen LCD, and the display effect are clear and beautiful.
- Powerful functions of upper computer data management software, friendly interface, which could offer data management, print, analysis, statistics of report forms, automatic creation of test report , etc

1.3 Test Procedure Introduction:

Discharge Test Procedure:

Step1: Pull“ On” on the discharge switch (to prevent reverse connection of the discharge cable and damage the tester , and also if misconnection, the warning will be given.)

Step2: Connect the discharge cable to the the host machine and battery bank respectively.) Note: Red line is + positive ; Black line : - Negative) reverse connection will be warning . (See details in section 2.5)

Step 3: Connect group voltage test line to the two poles of battery string.

Step 4: Plug in and switch on the tester.

Step 5 : Enter into discharge test parameters setup.(see details in 3.2)

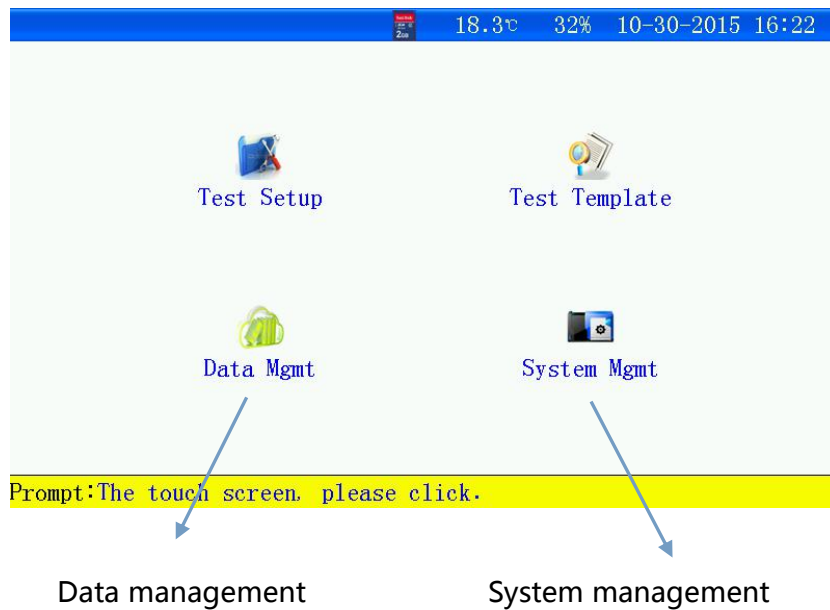
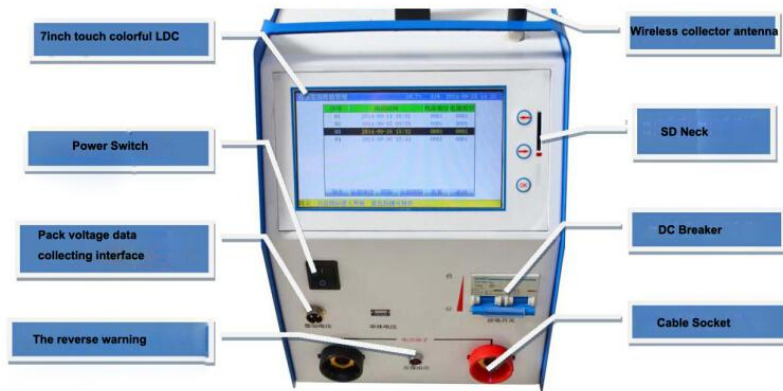
Step 6: Pull “ off”on the discharge switch .

Step 7: Press “ ok” start test



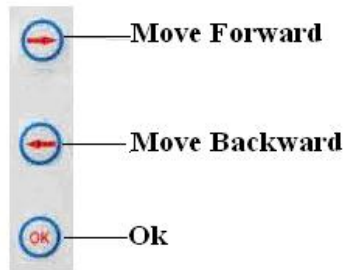
PART II Junction port and connection directions

2.1 Junction port introduction





2.3 Keys: (Touch screen and keys)



2.4 The host machine Wiring directions

2.4.1 Connection and disconnection rules

- Before test, wiring is in accordance with firstly connecting the tester, and then connecting the batteries.
- After finishing test, user should disconnect the lines on the battery string, then the lines of the tester.

2.4.2 Wiring of Discharge cable

- Connect “+”(red) with positive pole of a string of battery, and connect“-”(black) with negative pole of battery string. Prohibit to connecting contrarily!

2.4.3 Wiring of string voltage collection lines

- Connect string voltage lines to the corresponding poles of the battery string, Connect “+”(red) with positive pole of a string of battery, and connect“-”(black) with negative pole of battery sting. Prohibit to connecting contrarily!

2.4.4 Connect with 220V power cord of tester. The user should carefully View the wiring is right or not, and notice the positive and negative wiring of battery terminal and the terminal of voltage collection line are right or not, it is prohibited to connect contrarily!

2.4.5 Connect with power supply, and the tester could run after View.



Part III Operation Directions

3.1 Discharge Function

Perform discharge of constant current taking advantage of intellectualized dummy load after the battery string is removed from system. when the string reaches setup value of final discharge voltage、 setup value of final discharge capacity、 setup value of final discharge time could stop discharge test

3.1.1 Test preparation

- Firstly connecting discharge cable to the tester, then to the batteries. it adopts in parallel connection between battery string and the tester .

3.1.2 Parameters setup



Turn on the tester and enter into the interface below , choose “Test Setup” — “Discharge”, enter into interface of discharge parameters

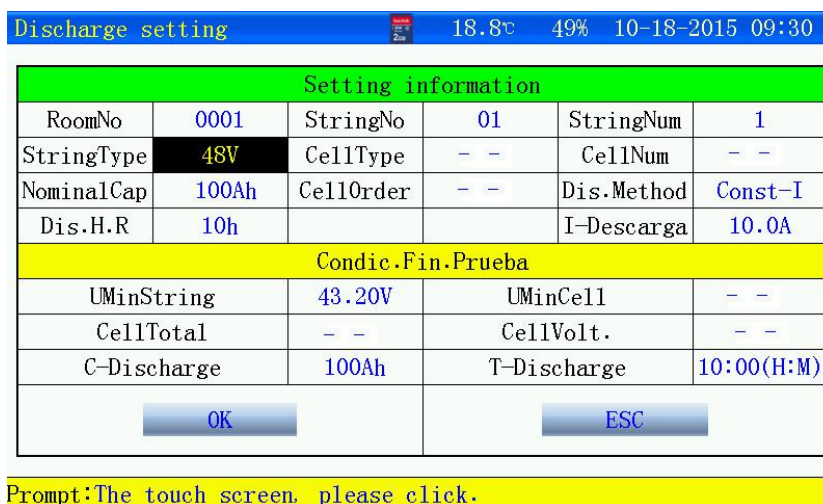


Figure 3.1.2 Interface of setup of discharge parameters

- Input parameters setup according to the prompt of the interface, if setup error,“ Flute. Flute, flute. "will be warned .
- Room No. 0001-9999
- No of battery string 01-99
- Number of Battery String: 1-2string
- StringType:Type of String Voltage,according to the type of string voltage you need to test, for example, 24V or 48V etc...
- Cell Type: The current parameter does not need to be set
- CellNum: The current parameter does not need to be set
- NominalCap:Rated Capacity,Rated capacity of individual battery
- Cellorder: The current parameter does not need to be setTest time:
- Dis.Method:Mode of Discharge
 - a、 Constant current: Value of current setup should not bigger than rated current.



b、 Constant Power: 48V: Max value of power setup =(Type of string *1.2* Max discharge current/1000) KW

- Dis.H.R:Discharge hour rate,0.5-10H optional
- I-Descarga: Discharge current or power setting
- UMinString: Set voltage lower limit,during discharging to battery, if don't need monitor string voltage , user need setup value of string voltage as "0" in terminal condition .
- UMinCell: The current parameter does not need to be set
- CellTotal: The current parameter does not need to be set
- CellVolt: The current parameter does not need to be set
- C- Discharge: Set discharge capacity
- T- Discharge:Test time: Hour: Minute; Min 1min, Max: 99h59min.
- After finishing setup and confirm the connection line again, Close the discharge switch and begin to discharge

Discharge setting				19.2v	49%	10-18-2015 09 31
Setting information						
RoomNo	0001	StringNo	01	StringNum	1	
StringType	48V	CellType	--	CellNum	--	
NominalCap	100	Information prompt		Method	Const-I	
Dis.H.R		Use external storage card. Yes to start the Discharge?		Charge	80.0A	
UMinString		Yes No			--	
CellTotal					--	
C-Discharge	100Ah	T-Discharge	10:00(H:M)			
OK			ESC			

Prompt:The touch screen, please click.

Figure 3.1.2-1 Interface of discharge

- Click"yes", start discharge

3.1.3 Interface of Test

Discharge Interface				19.2v	48%	10-18-2015 09:33
Discharging . . .						
Terminate Condition						
UMinString	UMinCell	C-Dis-Set	T-Dis-Set			
43.20V	--	100Ah	10:00 (H:M)			
Test information						
StringVolt	48.30V	I-Discharge	80.0A			
C-Discharge	1.5Ah	T-Discharge	0:01 (H:M)			
Cell information						
UMaxCell-1	--	UMinCell-1	--			
UMaxCell-2	--	UMinCell-2	--			
View Settings	View Cell	Mute	ESC			

Prompt:

Figure 3.1.3 Interface of Discharging

- If happen to warning for the data, it display " Red"



- View setup information: user can modify warning condition on test.
- Mute: If reach warning condition, the tester will display reason of warning and give off prompt tone “Flute. Flute, flute...”
- EQUIT : Stop monitoring.

3.1.4 Stop of discharge:

- below setup value of final cell voltage or manual final operation could stop discharge test, the tester proceed heat dissipation before turning off power supply of tester so as to prevent the damage of the tester .

Manual			
Terminate Condition			
UMinString	UMinCell	C-Dis-Set	T-Dis-Set
43.20V	--	100Ah	10:00 (H:M)
Test information			
StringVolt	48.30V	I-Discharge	80.0A
C-Discharge	1.7Ah	T-Discharge	0:01 (H:M)
Cell information			
UMaxCell-1	--	UMinCell-1	--
UMaxCell-2	--	UMinCell-2	--
View Settings		Mute	ESC

Prompt:The discharge stop

Figure 3.1.4 end of discharge

- End of test: View the test data and see in 3.3
- Turn off discharge switch and power supply of the tester and disconnect connection lines , firstly disconnecting connection line on the battery, then on the tester .

3.2 Test template function

- Main interface enter into  Test Template
- Each function of the tester can supply 10groups of template of test parameters, self-defined parameters.

3.3Data management function

- Data save mode: internal save and external save
- Main interface enter into “  Data Mgmt” , click the icon of discharge test.

3.3.1Mode of Data save:

- To use internal save mode, the time interval for one minute during the test. The tester automatically allocate the save time according to the test time.
- Max 10groups test data for internal save



Figure 3.3.1 Data internal save

- "Export" : Export of Data to choose one record, then click" Export" to SD Card .
- "Exp-All" : Export all the data: to click " Exp all" to SD card .
- Del-All : Delete all the data
- Del: delete one record
- View: View information: firstly choose one record and click " view information" for detailed data information

3.3.2 External Save (SD card) mode:

- Use external save, time interval of data save can be setup, Min data save time for 5s.
 - External save: Max 999groups test data
 - File name: Function code-Room No.-Battery string No.-battery No.-Date & Time
- a. F: Discharge data: F0001-01-150112135048.CFJ

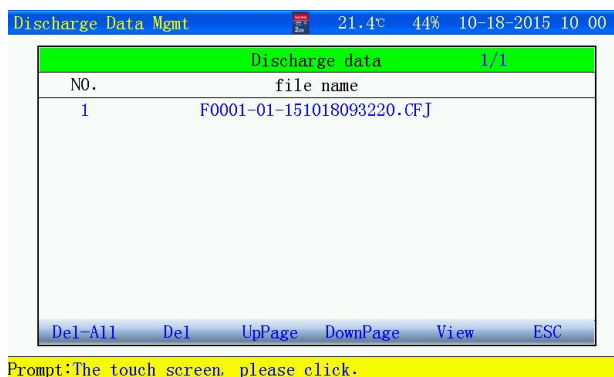


Figure3.3.2 Discharge test data

- Each page displays 9 records , to View through page up and page down
- Del-All :Delete all the data
- Del: delete one record
- View: firstly choose one record and click "view" for detailed data information.

3.3.3 View information

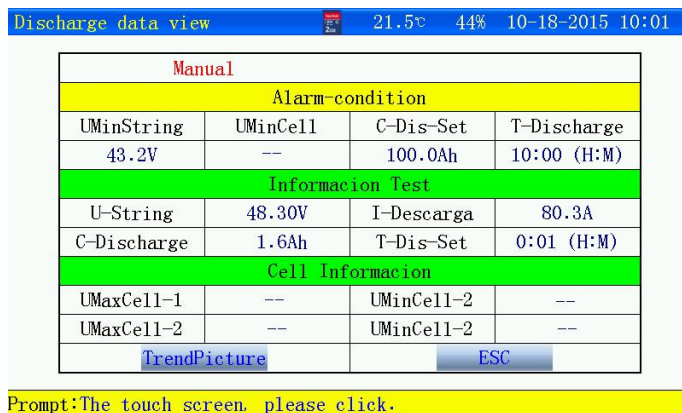


Figure3.3.3 End of test

- Graphs can't be Viewed if test time lower than 1min,
- TrendPicture: Graphs of data, View string voltage.

3.3.4 Graphs of data

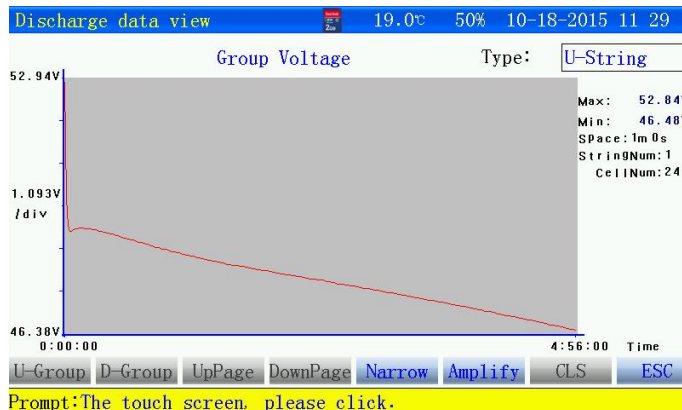


Figure 3.3.4 Graphic of string voltage

- View data fixed in time, click graphics field, the time and voltage will be displayed.

3.4 Date & Time setup



Enter into "System Mgmt—Date&Time" the interface of time setup

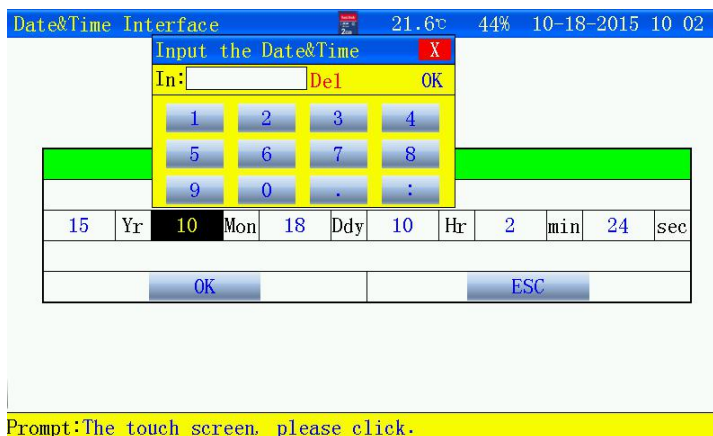


Figure 3.4 Interface of Data& Time setup

- After finishing setup, to click" confirm" and come into effect

3.5 Calibration of Touch screen



Enter into "System Mgmt—TP Calculate"interface of calibration

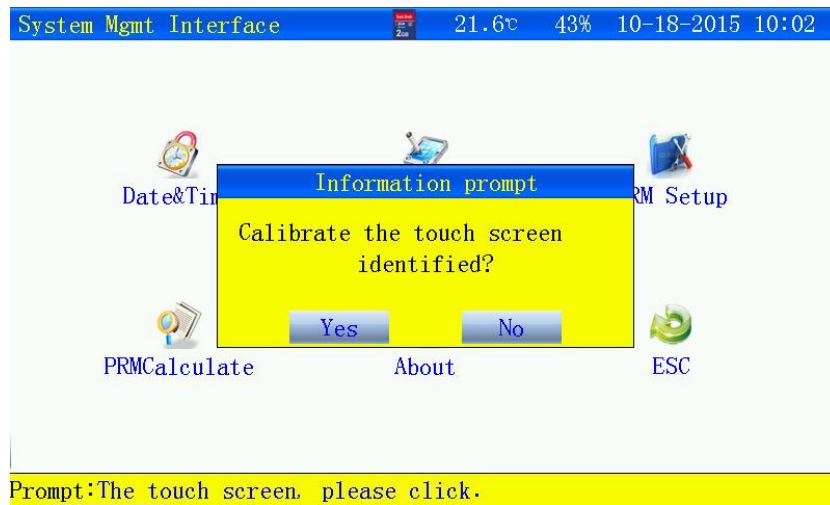


Figure3.5 Calibration of Touch screen

- To click" Yes" and begin calibrating

3.6 Restore factory settings



Enter into "System Mgmt—PRM Setup—FactoryReset" the interface of factory default



Figure3.6Restore factory settings



3.7 Setup of data save

Data save: internal save and external save (SD Card). To choose external save (SD Card), save interval: Min 5s for one time. internal save: the tester automatically setup according to test time.



Enter into “System Mgmt—PRM Setup—SystemSet ” the interface



Figure3.7 data save setup

3.8 Time Save Setup



Enter into “System Mgmt—PRM Setup—SystemSet ” the interface

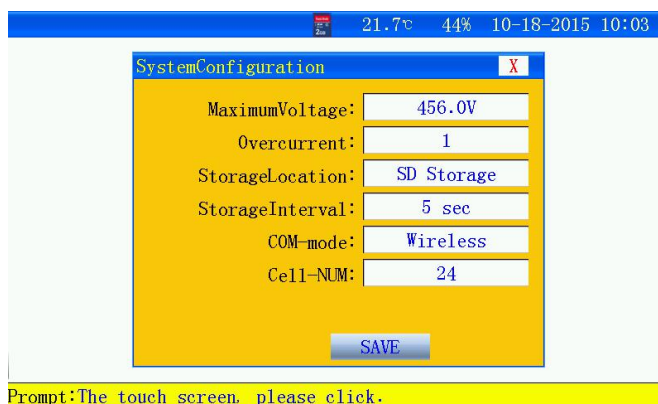


Figure 3.8 Interface of time save setup

3.9 Parameters calibration

Use under the guidance of manufacturers!



Enter into “System Mgmt” — “PRMCalculate” the interface of calibration.

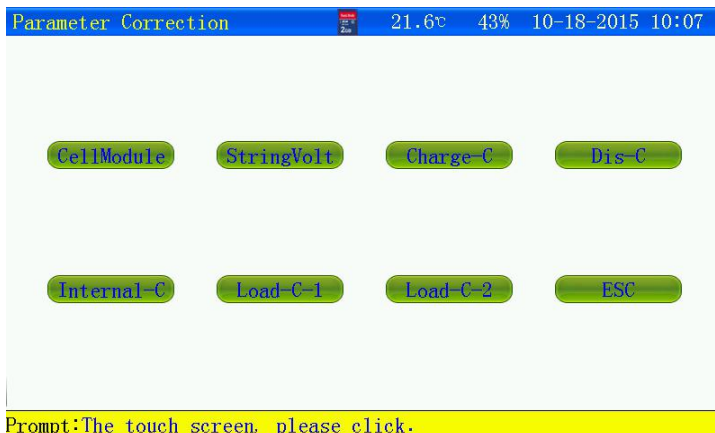


Figure 3.9 Interface of parameters calibration

。 Parameters have been calibrated out of factory.

3.10 About Product



Enter into " System Mgmt" — " About " the interface

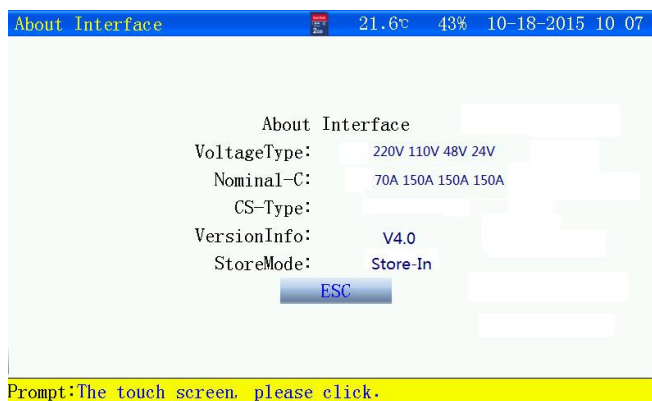


Figure3.10 Interface of product information

- Type of Voltage: Rated voltage of current sting voltage
- Rated current: Max current of corresponding to different voltage
- Communication mode: mode of communication for the host machine and cell voltage monitoring module.
- Save mode: Internal save and external save



PART IV PC Software Operation Directions

Chapter 1 General

4.1 Application

This software is data management software for stationary battery comprehensive tester.

4.1.1 System configuration

The lowest configuration request for the computer to use this software:

- All kinds of desktop computer and laptop computer with PENTIUM of standard serial、USB interface or 100% compatibility.
- One CD-ROM used for install the file.
- One HDD(for example :C:),at least 80M useable disc space
- EMS memory over 64M.
- Display resolution over 1024*768.
- WINDOW 2000\NT\ME\XP\2003 operation system.

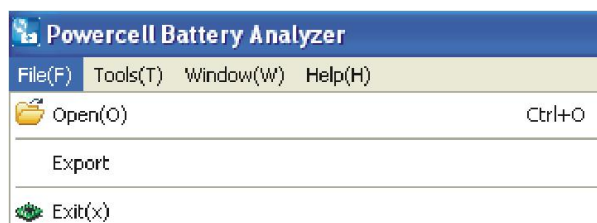
4.1.2 Setup

Click setup software SETUP .exe, carry out operation in light of interface prompt, and the user could finish the setup of data.

4.1.3 Startup

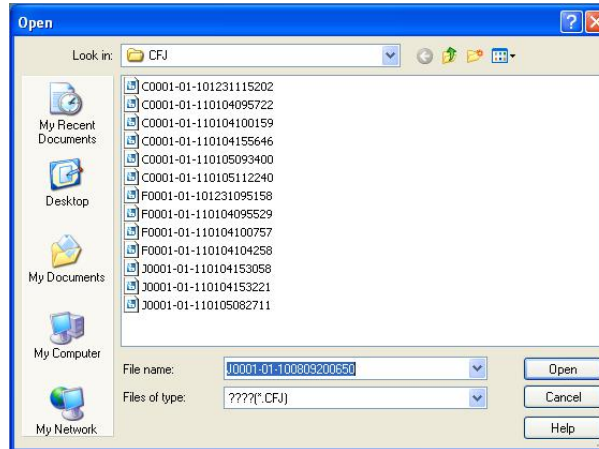
Run “desktop-icon” or run “start-program-icon” to enter into main menu.

4.2 Operation-file



- 4.2.1 Open

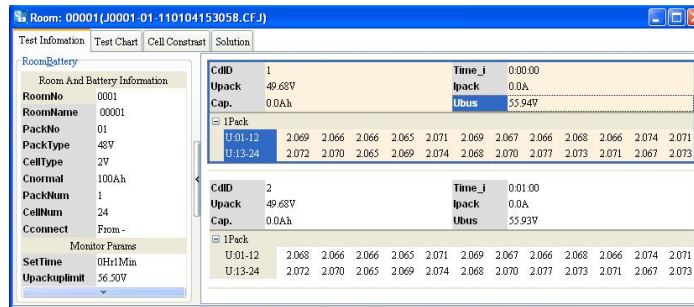
Select ”File-Open” in the menu to enter into test file interface, select one or several test files, click open, and the selected test file would be opened.



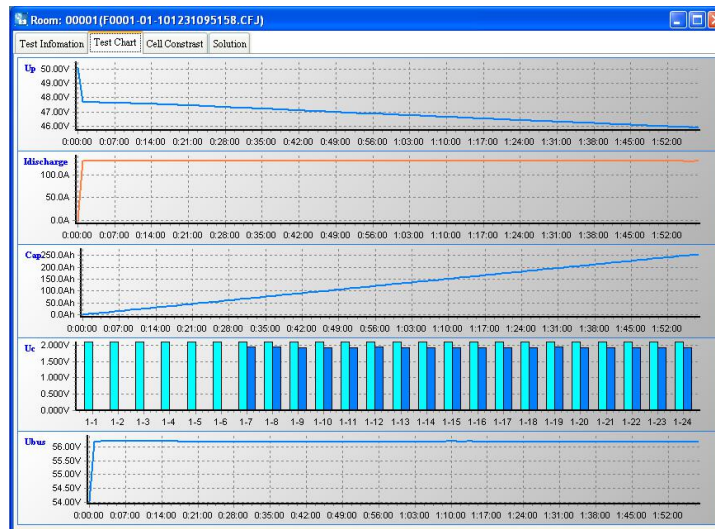
4.3 Data operation

discharge test could view test data, test pattern, cell contrast, maintenance solution.

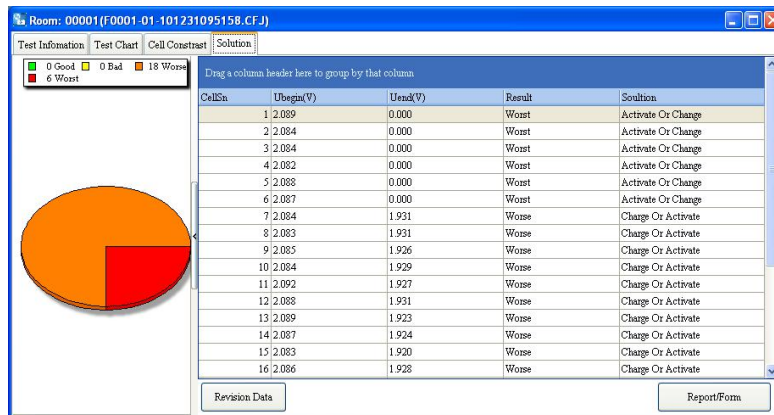
Test data



Test pattern



Maintenance solution



4.4 Generating Report

Click print under maintenances solution window, pop up report parameter dialog box, fill in parameters, if needs to create process data, select process parameters and interval of sampling, and the created report would include process data.

Parameters

Report Form

CellInfo: CellModel, InstallDate, Factory, Technics

ReportInfo: RoomName (00001), Addr, Reporter

Pack Chart: Upack, Inpack, Cap, Cell U Contrast, Ubus

Cell Curve: All, None

Contrast Curve(<=12):

Date:

OK, Cancel

Statement

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