



DFT-6600

Battery Charger-Discharger

Users Manual



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Introduction

The DFT-6600 Tester is specially designed for verification discharge testing, capacity testing, daily battery string maintenance, engineering acceptance and other DC power supply load capacity testing of battery string:

- Using the latest Wi-fi communication technology, the battery discharge process can be monitored in real time through the PC monitoring software, and the discharge process of each battery can be monitored.
- The power consumption part adopts the new efficient resistor as the discharge load, which completely avoids the red-heat phenomenon for more safe and reliable and nonpolluting.
- The whole tester is controlled by a microprocessor on LCD display & English menu.
- The host design is novel, small size, light weight and portable.
- The entire constant current discharge process is automatically completed after the various discharge parameters are set,
- Fully smart control to make the entire discharge process safer.

The DFT-6600 Tester is to make the discharge test work simple and easy, which is not only to greatly reduce the labor intensity of professional maintenance personnel, but also to improve the scientific and smart control discharge testing.

The DFT-6600 Tester combines battery testing technology, Wi-Fi communication technology, computer information processing and other technologies, to launch a new generation of discharge tester with Wi-Fi single-cell detection functions:

By the use of Wi-Fi transmission single-cell voltage acquisition system, it can be short distance Wi-Fi communication transmission data, data acquisition speed, high precision, strong anti-interference ability, easy operate, which can also record the battery discharge process of each time period of voltage changes, and effectively avoid the error caused by the connection and connection cable damage and other safety hazards.

The single-cell bridge voltage Wi-Fi collection between the battery connection wire is to ensure that even if individual connectors loose in the discharge process may cause large connection resistance, it can also monitor individual voltage abnormalities, Eliminate hidden dangers in time, and prevent major accidents such as fire caused by overheating at the joint, which enhance the stability and reliability of the system, and expand the use scope of the DFT-6600 Tester.

There are traditional main 2 ways to monitor the voltage of a single-cell: manual and wired automatic measurement.

Due to manual measurement inability to achieve continuous and synchronous in time with more human error and low precision, it is impossible to make a more accurate and objective judgment on the performance of the battery, and the workload is large.

Although the wired automatic measurement improves the speed and accuracy of data acquisition and reduces the workload relative to manual measurement, but there are more connections and complex operations, taking the detection of a string of 24 single-cells as an example, it is necessary to lead 25 single test cables from the host to connect to the battery string, and its length is less than one tester, more than ten tester, which not only increases the purchase cost of the users, but also because the connection cable is more and longer, it is easy to cause connection errors, and it is impossible to avoid the safety hazards such as connection cable damage.

The tester is used of single-cell detection & string dishing with Wi-Fi transmission single-cell voltage acquisition system, which effectively overcomes the shortcomings of the traditional single-cell battery voltage monitoring method. Wi-Fi transmission single-cell voltage acquisition system, each Wi-Fi transmission single-cell voltage acquisition system can simultaneously collect multiple sections of single-cell voltage, and Wi-Fi send the detection results to the host, convenient for the construction of the test environment and measurement control and data distribution.

So the use of new single-cell detection & entire string discharge tester to monitor the single-cell, without the need to connect the single-cell and the host, you can directly detect, easy use, reduce the purchase cost of users

Use notice & Reading tips

Use notice

This manual is intended to guide the user in operating the DFT-6600 Tester.

The operator must have the qualification of electrician or above.

- The operator should pay special attention to the safety of personnel and equipment during use.
- The DFT-6600 Tester belongs to the precision test equipment, in the process of use should be lightly handled, do not throw and throw, the result of the light will lead to the deformation of the shell, the heavy will lead to the failure of internal components, affecting normal use.
- Avoid splashing liquids onto the surface of the smart control discharge monitoring DFT-6600 Tester to avoid permanent damage caused by entering the system, and flammable gases may cause explosions.

For your safety, please read the entire contents of this manual before operating the DFT-6600 Tester. The surveyor should be familiar with the characteristics of the system under test. It is important to take the correct testing steps to avoid injury to yourself and others in the work area and to detect damage to your equipment.

Ensure that the operator has a comprehensive understanding of the battery, charging system and relative device starting before using this tester. Before using this tester, be sure to refer to and follow the relevant safety precautions and test procedures provided by the THOMSON of the equipment under test.

Safety Information: Security information is used to avoid casualties and damage to equipment.

Reading & understanding and comply with the safety information and instructions in this instruction manual, including follows:

Dangerous! Indicates a very urgent and dangerous situation that could result in serious casualties if not avoided.

Warning! Indicates a potentially dangerous situation that could result in serious casualties if not avoided.

Note! Indicates a potentially dangerous situation that may result in general personal injury if not avoided.

Significant! Indicates a potentially hazardous situation that could result in damage to the test equipment if not avoided.

Prompt! Do not operate the Air (Control) Switch during discharge

Important safety guidelines

Warning

- **Explosion hazard!** The gas produced by the battery is extremely explosive.
- Reading & understanding and follow all guidelines with the tester, battery, and any other equipment near the battery.
- No Smoking & No lighting matches, and placing metal tools near or creating sparks near the battery are prohibited.
- The terminals should be cleaned before using the tester. Take care to protect your eyes, nose and mouth when cleaning. Soda and water can be used to neutralize acidity to reduce the corrosiveness of the air.
- Do not place the tester in rain or snow or in a humid environment.
- Do not allow battery gas or sulfuric acid to touch the tester's housing.
- Never charging, testing, or loading to a frozen battery. The battery should be thawed and warmed to room temperature before performing the above operations. Charging or testing a frozen battery can cause the battery to explode and injure people.
- Before performing the test, confirm that all test connectors are connected according to the guidelines.
- Make sure that the two battery clips are securely connected to the battery.
- Battery explosions can cause casualties.

Warning!

Prevent burns

The current generated by the battery short circuit is enough to melt down various ornaments and make them weld to metal. So please remove various ornaments while working near the battery.

Any short circuit will result in injuries!!!

Chapter 1 Overview

1.1. DFT-6600 Tester Usage

This DFT-6600 Tester can charging, discharge, single body detection, online monitoring and activation as 5-in-1 multi-purpose, which Reduce the cost and reduce the labor intensity of maintenance personnel, and provide comprehensive scientific detection methods for battery and UPS power maintenance.

- This DFT-6600 Tester adopts new power consumption components, patented technology manufacturing, to achieve constant current discharge,
- smart 3-stage charging, equal-charge / float-charge, constant current / constant voltage automatic conversion function;
- Real-time online circuit detection of the voltage of each single-cell or the entire String of batteries,
- real-time online display, detection, recording of the voltage of a single-cell or the entire String of batteries,
- storing or transmitting the data to the PC; Large-screen LCD display, full English menu prompts, easy to operate, high degree of smart,
- set and control voltage, current, time, capacity and other parameters, automatically complete the test and monitoring of various parameters of the battery string;
- Automatic discharge/charging, which can activate the battery and extend the service life of the battery.
- After charging/discharging, the detected data can be directly uploaded to the PC through the RS232 interface or transferred to the U-disk on site;
- The supporting data processing software processes the data information collected by the discharge/charging, analyzes the remaining capacity of the battery, and generates various charts, which provides a scientific basis for analyzing the performance of the battery.

1.2. DFT-6600 Tester Functions

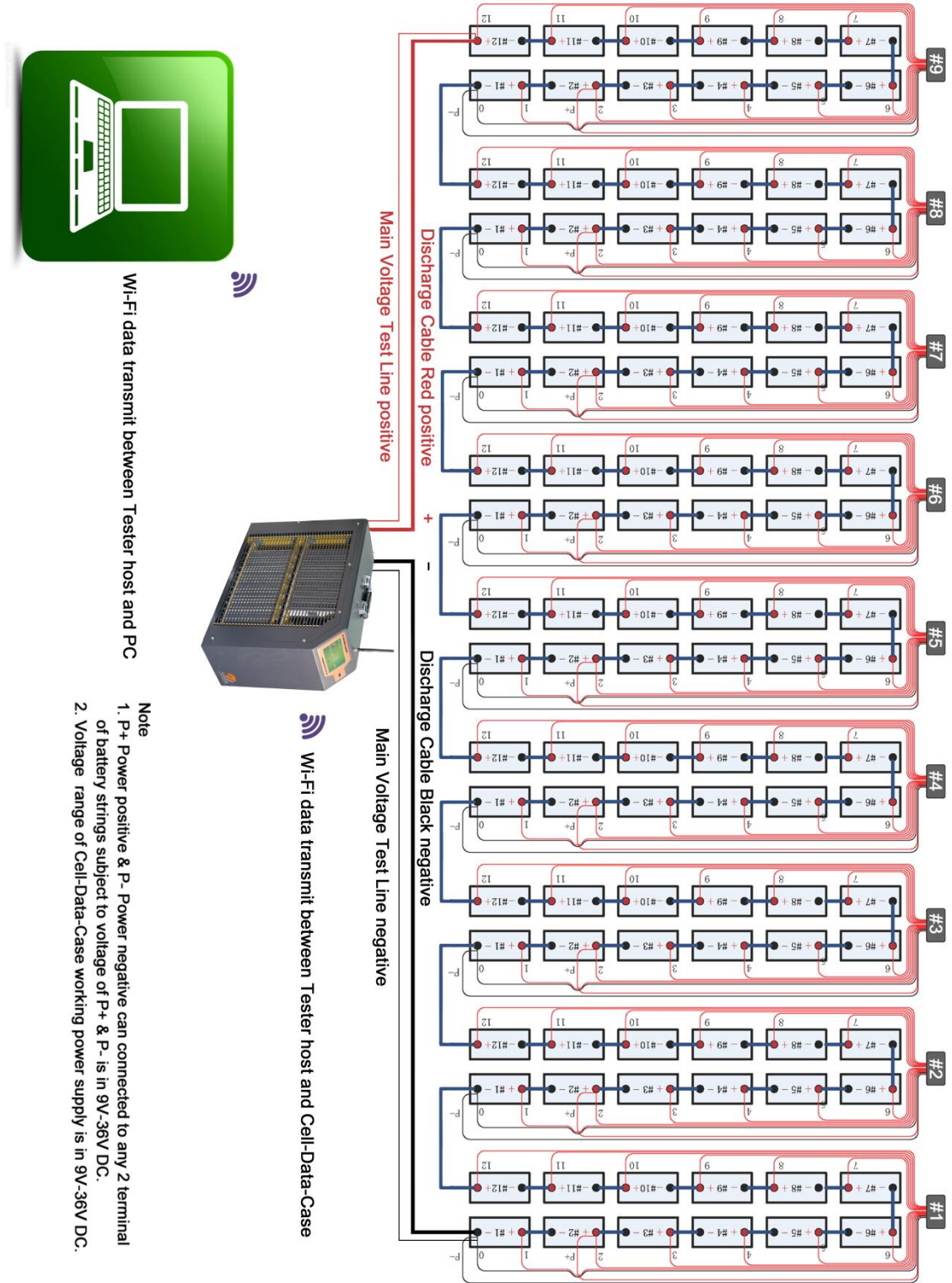
- LCD touch screen display with full English menu prompts, easy to operate with high automation, it can set the Parameters of voltage, current, Tim, capacity, cycles No. and etc, and automatically complete the test monitor of various parameters of the battery string.
- **Real-time online monitoring function:** real-time online monitoring, display all test data: current, battery string voltage, single-cell voltage, time, capacity, etc., while storing and transmitting the data to the PC, displaying and printing various charts.
- **Automatic discharge & charging function:** It can set the high limit and low limit of the current, duration, capacity and voltage of the discharge/charge, and can cycle the discharge and charging process.
- **Battery activation function:** Set the discharge and charging cycles No., and activate the battery string.
- **Automatic Stop function:** It can automatically stop discharging/charging when any of the following conditions are met: time to, capacity to, single-cell protection voltage to and the whole String of battery protection voltage to.
- **Protection function:** If there is a voltage abnormality, automatically stop charging or discharging.
- **Calibration correction function of voltage and current display value:** It mainly calibrates the total voltage, current and single-cell voltage of the battery string.
- **U-disk data transfer function:** charging, discharging, automatic discharge or after the end of battery activation, the collected data can be transferred to the U-disk, and then the U-disk will put / charge the collected data transferred to the PC, after the supporting data processing software processing, display, print a variety of charts. Provide a scientific basis for judging the advantages and disadvantages of whole Strings or Single batteries.

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1.3. DFT-6600 Tester Features

- 5- in-one of charging, discharging, single-cell detection, online monitoring and activation with complete functions as one DFT-6600 Tester for multi-purpose.
- Smart three-stage charging, constant current discharge, real-time online circuit detection of each single-cell parameters.
- The power consumption component adopts new efficient resistor, which is safe & redfree heat phenomenon and has a long life.
- The application of single-chip microcomputer to U-disk data transfer technology solves the problem of large-capacity data storage.
- After the end of charging/discharging, the data can be automatically generated after the data is transferred by the U-disk or uploaded by the RS232 interface to the computer background processing, and the battery performance is clear at a glance.
- Portable design, convenient for users with strong mobility.

1.4. Working schematic diagram



Note

1. P+ Power positive & P- Power negative can be connected to any 2 terminal of battery strings subject to voltage of P+ & P- is in 9V-36V DC.
2. Voltage range of Cell-Data-Case working power supply is in 9V-36V DC.

Wi-Fi data transmit between Tester host and Cell-Data-Case

1.5. DFT-6600 Tester series Technical index

Item	Models					
	48V150A	48V200A	110V50A	220V50A	220V150A	380V20A
Total discharge voltage(Rated)	48V	10~60V	98~121V	180~286V	180~286V	304~456V
Total charge voltage output	2~58V	43~60V	99~121V	180~286V	180~286V	304~456V
Charging current	0~150A	0~200A	0~50A	0~50A	0~150A	0~20A
Discharge current	0~150A	0~200A	0~50A	0~50A	0~150A	0~20A
Access load voltage	48V	48V	110V	220V	220V	380V
Host Size(mm)	178×380×403	225×418×425	638×500×600	178×380×403	525×732×980	706×500×522
Host Weight (Kg)	15	45	60	55	80	65
Sampling accuracy	Total voltage: resolution 10mV, accuracy 0.1V Single-cell voltage: resolution 1mV, accuracy 10mV Current: Resolution 0.1A, accuracy 1A					
Charging & discharging unit voltage	0.000V~16.00V					
Charge and discharge time	0~9 hours & 59 minutes					
Cooling method	Forced air cooling					
Discharge load	Efficient resistor					
Screen size	TFT 5 -inch color LCD					
Working power supply	AC 3P4W 380V					
Working environment	Temperature 0 ℃~50 ℃ Humidity5%~90%					
Communication interface	Data storage: USB parallel communication: WIFI					

Note: the DFT-6600 series tester current and voltage can be specially customized according to user's details needs,

Chapter 2 Shape and structure

2.1. The host schematic diagram



Figure 2-1 DFT-6600 series tester Host (images only for reference)

2.2. Package List

S/N		Release Date	
QC		QA	
Item	Parts Name		Quantity
1	Host		1
2	String Voltage line		1-Red + 1-Black
3	Charge and discharge cable		1-Red + 1-Black
4	U-disk		1
5	Power Lead		1
6	Ground wire		1
7	Instruction manual		1
8	Box		1
	Cell-Data-Case optional with PC Data Software		No. differ to 2V, 4V, 6V, 12V etc
9	Cell-Data-Case		N rationed according to actual conditions
10	Cell-Data-Case voltage line (12-Red Cell +1-Black)		N Kit
11	Cell-Data-Case ramp (12-Red +1 Black)		N x (12+1)
12	Antenna		1



Box



String Voltage line



Charge and discharge cable



Cell-Data-Case voltage line
(12-Red Cell +1-Black Ground)



Cell-Data-Case (2V, 6V, 12V)



Antenna



Cell-Data-Case ramp (12-Red +1 Black)



Power Lead 380V 6pin

Chapter 3 Connection

3.1. Preparations



Confirm that the voltage level of discharged battery string is consistent with the discharge tester!

Before connecting to the DFT-6600 Tester, first confirm that the discharged battery string has exited the operating state and has been disconnected from the charging power and load. Avoid accidents during discharge.

There is enough space around the battery string and the DFT-6600 Tester,

There are No flammable and explosive materials around the site

There are No flammable and explosive gases in the air.

Check that the DFT-6600 Tester is in good condition and that the power switch is in an open state.



There must be no inflammable and explosive materials around the work.

The air must not contain flammable and explosive gases to prevent the occurrence of explosions!

3.2. Host connection

- a) The Air (Control) Switch of the tester back should be in a closed position, if not, please close;
- b) The host power switch is in the off position;
- c) Plug in the host power lead;

3.2.1 Discharge cable connection

- a) Connect the host side first, insert and tighten the black quick plug at the convex alignment discharge tester black quick connect socket notch, and the red quick plug at the raised alignment discharge tester red quick connect socket notch inserted and tightened;
- b) Black discharge cable large test clip connected to the battery string negative, red large test clip connected to the battery string positive;
- c) Now Can turn on the host power on;

Note:

- a) If there is a spark found in the process of discharging the cable clip battery string electrode, please remove the clip, stop the discharge testing, and contact the THOMSON;
- b) When wiring, first connect the DFT-6600 Tester and then connect the battery, and first remove the clip at the battery end when disconnecting the wire;
- c) When the coupling connector is connected to the quick connecting socket, it needs to be rotated and tightened clockwise to prevent falling off! Rotate counterclockwise to remove at the end of discharge.
- d) It is forbidden to only operate the Air (Control) Switch on the back of the tester for stopping discharging, please disconnect the open circuit by removing the discharge cable clip!





When connecting the discharge cable and the voltage test cable, pay attention to safety to prevent electric shock and short circuit!

3.2.2 Voltage test line connection

Due to the large discharge current, in order to accurately measure the voltage of the battery string, a Special voltage test line is provided. One end of the voltage test line is connected to the voltage test socket of the DFT-6600 Tester, the other end of red clip is connected to the positive pole of the battery string (busbar), and the black clip is connected to the negative pole of the battery string (busbar).

Be careful that Positive and Negative Terminals not to reversed!

3.2.3 Others

Connect the host antenna reliably to the antenna socket of the host of the DFT-6600 Tester.

3.3. Cell-Data-Case connection

Cell-Data-Case is for each-cell voltage sampling of max 12-Cell, which is with magnetized screws for easy fixing standby.

3.4. Running

After checking that the wiring is correct, turn on the power switch; then the LCD screen should be displayed normally, now you can complete the setting of various test & discharge parameters according to the operating instructions

Chapter 4 Functions and operating procedures

4.1. Starting Boot

Press the power switch on the back of the tester to activate the tester and enter the main menu of the DFT-6600 Tester. The main menu is as follows:



4.2. Battery Discharge

In the main menu, press the icon "Discharge Test" to enter the discharge settings interface.

放电参数	放电信息	V-I趋势
站点编号: <input type="text" value="0003"/>	标称容量: <input type="text" value="123.4"/> Ah	
电池组号: <input type="text" value="0004"/>	放电容量: <input type="text" value="234.5"/> Ah	
电压等级: <input type="text" value="220 V"/>	终止电压: <input type="text" value="188.2"/> V	
电池类型: <input type="text" value="2 V"/>	单体终止电压: <input type="text" value="1.80"/> V	
单体数量: <input type="text" value="100"/> <input checked="" type="checkbox"/>	放电电流: <input type="text" value="10.0"/> A	
放电时率: <input type="text" value="自定义"/>	放电时长: <input type="text" value="1"/> 时 <input type="text" value="10"/> 分	
<input type="button" value="开始"/> <input type="button" value="退出"/>		

At this point, you need to set the site No., Battery string No., Voltage level, Battery type, batteries No., Nominal capacity. Discharge capacity; the parameters of the stop setting are automatically filled in, or you can also modify it yourself.

Finally, according to the actual situation, tick select to detect single-cell, or the single-cell is not monitored if not tick the single-cell means.

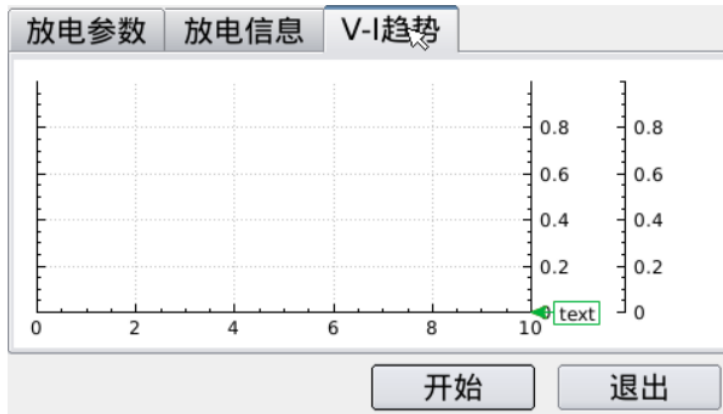
After set the discharge parameters and press the [Start] key to enter the discharge state.

Press the [Discharge Information] icon to enter the following interface

Press the [Discharge Info] icon to enter the following interface:



Press the [V-I Trend] icon to enter the following interface:



4.3. Battery Charge

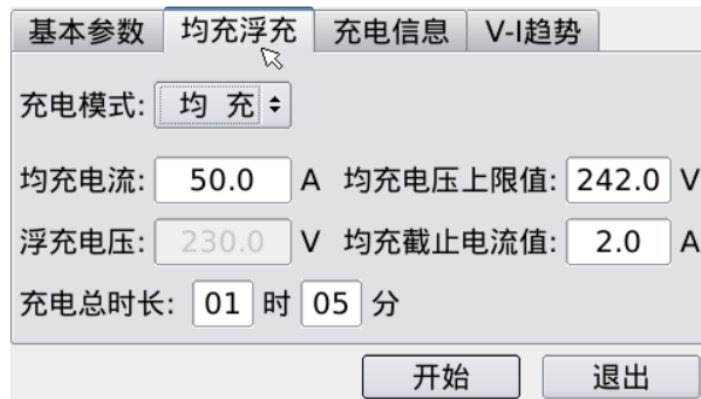
In the main menu, press the "Charging Test" icon to enter the charging settings interface. As shown in the following figure:

At this window, you need to set the site No. Battery string No., Voltage level, Battery type, Nominal capacity, single-cell test, single-cell No., and single-cell stop voltage.

If monitor the single-cell, it is necessary to determine whether the total positive or total negative of the battery string where the first No. 1 battery on the located site, and then tick the total negative or total positive option.

After setting the charging parameters, press the [Even or Float] button enters the charging mode selection: Even charge current, Float charge voltage, Total charge time, Max. even charge voltage and Even charge Stop current.

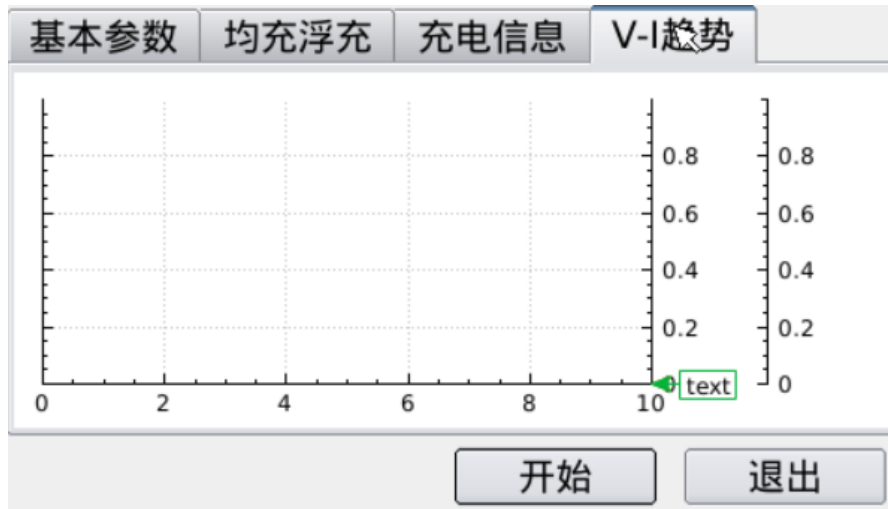
After the charging parameters are set, press the [Start] key to enter the charging state.



Press the [Charge Info] icon to enter the following interface:



Press the [V-I Trend] icon to enter the following interface:



- a) The Stop voltage set in the parameter setting plays a role in protecting the battery, which's correct setting of the stop voltage value can avoid overcharge or over-discharge of the battery and avoid damage to the battery.

Follows set value for reference:

2V battery - discharge cutoff voltage: 1.80V, charging cutoff voltage: 2.20V;

6V battery - discharge stop voltage: 5.40V, charging stop voltage: 6.60V;

12V battery - discharge stop voltage: 10.8V, charging stop voltage: 13.20V;

- b) For small capacity batteries, you should also pay attention to the setting of the working current. It is recommended to charge/discharge at a rate of 0.1C (i.e. the operating current is 0.1 times of the battery capacity value).

4.4. Discharge & Charge Cycle (optional)

You can also set the Discharge & Charge Cycle Nose for Automatically Discharging and Charging together in one.

4.5. Data management

Test results in the data management menu. Can be exported and delete.

Data management includes details discharge measurement data & charging measurement data.

4.5.1 Data viewing

Press "Data Management" in the main menu, and select the data type, select the data, then press the [Open] key,

display the measurement results

	名称	保存时间	类型
35	DCM00049.dat	01-01 01:24:41	
36	DCM00050.dat	01-01 01:25:27	
37	DCM00056.dat	08-11 15:28:43	
38			
39			
40			
41			
42			

删除 导出 退出

4.5.2 Save to the U-disk

In the data management menu, press the [Save U-disk] option to transfer the data, and there will be a prompt after the data is saved. Please plug in the U-disk first, and a green "U" symbol will appear in the upper right corner of the menu after plugging in.

Note: U-disk read and writes error

- a) See if the U-disk is plugged in well.
- b) It is strongly recommended that users use the newly formatted (that is, empty) U-disk for read and write operations, because U-disk many files may seriously affect the correctness of U-disk reading and writing. if the reading and writing U-disk error, please reformat the U-disk and try again.
- c) Please insert the U-disk first, and wait until the prompt light of the U-disk is no longer flashing before other operations.
- d) Do not plug in and unplug the U-disk while the U-disk is reading and writing,
- e) After the U-disk operation is completed, please wait until the prompt light of the U-disk is no longer flashing before plugging in the U-disk.
- f) If there is an error in the process of reading and writing the U-disk or there is no response for a long time, please format the U-disk with FAT again and try again;

4.5.3 Delete Data

In the Data Management menu, select the data, and press the Delete option to delete the selected data.

4.6. System settings

In the main menu, press "System Settings" to enter the system management interface, which includes 3 options of language selection, Time settings and Upgrade as follows:

4.6.1 Time settings

Time-calibration function and the each operation results are synchronized with memory and display in the data storage and results printing, so it is recommended to adjust the clock before using the tester operation to facilitate the correct output synchronized with the detected data.

Adjust clock path: Main menu → System Settings → Clock Settings. The clock setting interface is shown in the figure: After setting the time, press the "Save" button to upgrade to the desired time.



4.6.2 Version Information & System Upgrade

Press on the "System Info" menu item on the main menu page to view the DFT-6600 Tester system software version, as shown in the figure



When inserting a U-disk containing upgrade files, press the "Upgrade" button to upgrade the system.

Chapter 5 Routine maintenance

5.1. Cleaning maintenance

5.1.1 Host Cleaning and maintenance

Use a soft damp cloth with a mild cleaning agent to clean the host. Please do not use abrasive type. Dissolving cleaners or alcohol, etc., so as not to damage the text on the host computer.

5.1.2 Clamps Cleaning and maintenance

Wash the clamps with a soft damp cloth and a mild detergent. After cleaning, wash it with clean water and dry it. Do not scratch the metal part of the probe to avoid poor contact.

5.2. Storage

When used, the host of the DFT-6600 Tester should be placed in the alloy box in time. All parts and cables should be organized and placed in the appropriate position in the box.