

IT9000 Control Software

PV6400 User Manual



Model: IT9000-PV6400

Version: V1.1 / 6, 2020

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NOTE

A NOTE sign denotes important hint. It calls attention to tips or supplementary information that is essential for users to refer to.

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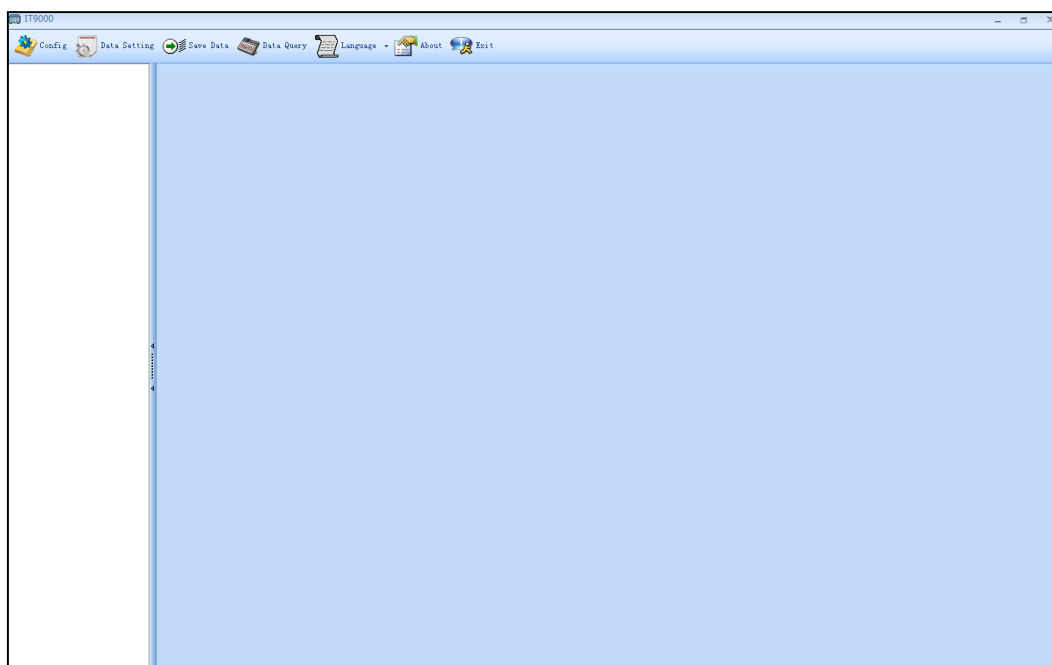
Chapter1 Brief Introduction

1.1 Software Introduction

IT9000-PV6400 is a kind of easy-to-use and practicable control software designed by Itech Electronics Co., Ltd. It is applicable to Itech IT6400 Series electronic loads. With this software, you can take all operations for load front panel via computer control and enjoy great convenience in remote control. This software supports RS232, USB, GPIB and Ethernet serial port communication.

1.2 IT9000 Interface Introduction

After run IT9000, the software will initialize, in about 2 seconds, the below interface will appear:



The interface is described as follows:



- **Config**
Configuration function, to configure hardware information for control load device of IT9000 software control, including load device alias, device interface and interface parameter, and to configure sub-devices (e.g., channels) for each device.
- **Data Setting**
Data setting, mainly to select numeric field to be saved, device alias and save interval before data saving.
- **Save Date**
Data saving, mainly to save current test data. Before data saving, please set data at first.
- **Date Query**

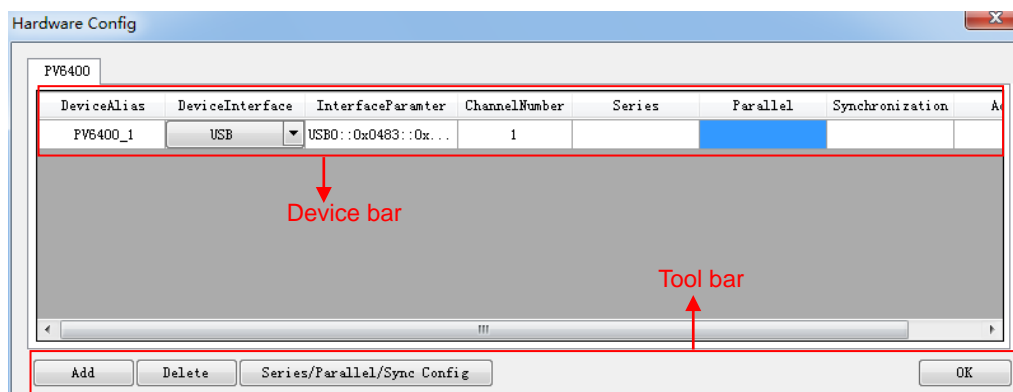
- Data query, to open the data file saved before.
- **Language**
To select software language version, including Simplified Chinese, Chinese-traditional and English.
- **About**
To list related information of software, including Company website.
- **Exit**
To exit IT9000 software.

Chapter2 Basic Operation

2.1 Hardware Configuration

2.1.1 Function Introduction

The hardware configuration interface of IT9000 software is as shown below.



- The “Device bar” includes settings for device alias, device interface, interface parameter and channel number:
 - ◆ Device Alias: the alias of a device, used to distinguish devices of same model.
 - ◆ Device Interface: drop-down options include RS232, GPIB, USB and Ethernet.
 - ◆ Interface Parameter: the interface parameter corresponding to device interface.
 - ◆ Channel Number: to set the channel number of sub-device.
 - ◆ Series: to display series configuration name in series connection of devices.
 - ◆ Parallel: to display parallel configuration name in parallel connection of devices.
 - ◆ Synchronization: to display synchronization configuration name in synchronization of devices.
 - ◆ Address: to set load communication address (used for devices with frame format protocol).
- Main toolbar functions:
 - ◆ Add: to add hardware device.
 - ◆ Delete: to delete specific device.
 - ◆ Series/Parallel/sync Config
 - ◆ OK: to confirm hardware configuration information.

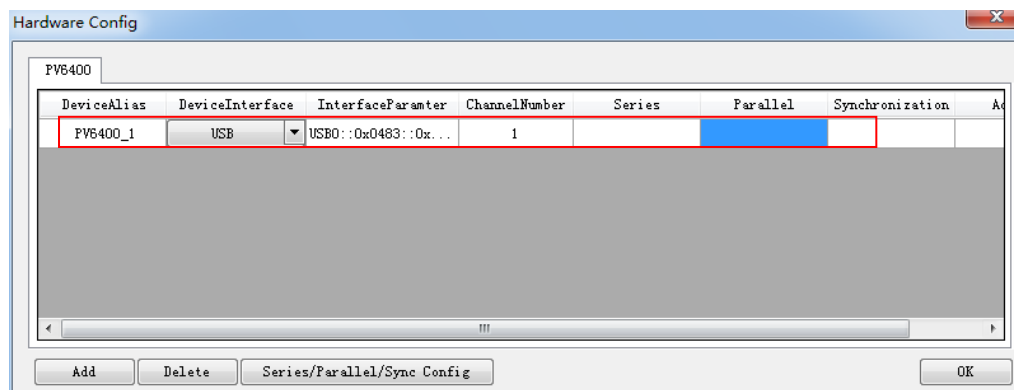
2.1.2 Configuring Hardware

This function enables the user to create new hardware information or modify existing hardware device information. Detailed operation steps will be given

below taking creation of new device information as example.

Operation steps

1. Run IT9000 software and click “Configure” icon.
2. Click “Add” button in the Configuration Interface and display the currently added hardware device information and default parameter of device in the “Device bar” at top. As shown below.



To change default parameter of hardware device (e.g., device interface, interface parameter and channel number), you may click the parameter for change.

- Device Alias: double click to edit device alias.
 - Device Interface: to select from the drop-down box.
 - Interface Parameter: double click to configure in the Configure Dialog. For details, refer to Section 2.1.3 “Communication Interfaces of Configuration Device”.
 - Channel Number: set the channel number of sub-device. The channel number is changeable.
3. Click “OK” to save the configuration information of current hardware device. At this time, the device name (device alias @ channel number) will be displayed at top left of the interface. To pop up the Control Interface, you need to double click the Device Name.



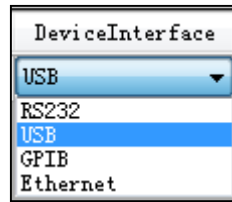
2.1.3 Configuring Interface of Device

IT9000 software is installed in PC and interacts with matching hardware devices via different communication interfaces. This software supports interfaces like USB, RS232, GPIB and Ethernet interface. When configuring the hardware device, configure different interface types based on actual needs and set corresponding interface parameters for different interfaces.

Operation steps

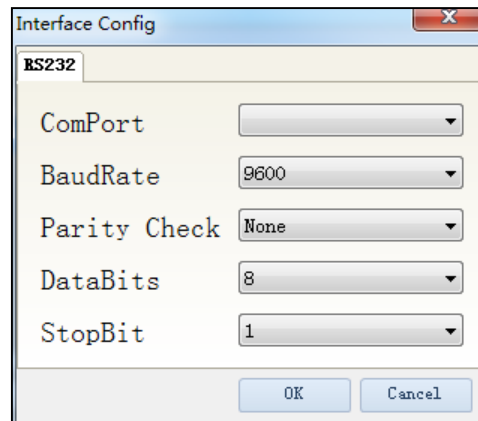
1. Select the device interface corresponding to the hardware device to be edited from the Hardware Configuration Interface, and select the interface

type from the drop-down list.



- After selecting the device interface, double click corresponding "Interface Parameter" column. The system will pop up "Interface Configuration" window.

- RS232 Interface Parameter Configuration

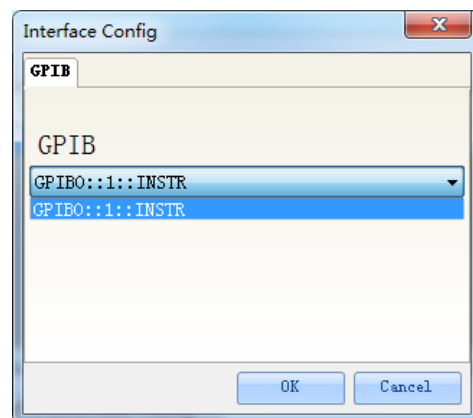


Serial interface: to select serial interface, i.e., the serial interface number occupied by RS232 communication cable interface.

Baud rate, parity check bit, data bits and stop bit must be configured consistently with those in menu setup.

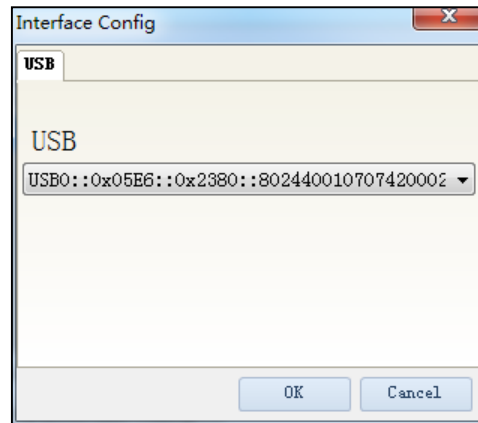
IT6400 series power supply does not support RS232 communication.

- GPIB Interface Parameter Configuration



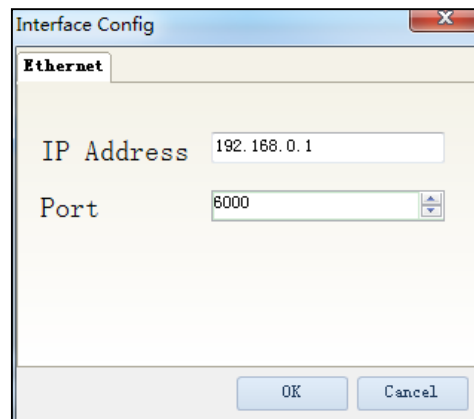
During GPIB communication of load device, the address setting range is: 1-30.

- USB Interface Parameter Configuration



- LAN Interface Parameter Configuration

If LAN interface is used for communication, both computers and device are connected via HUB (or, the device and computer are directly connected via cross network cable). The computer and device IP setting should be in a same network segment.



Port: 30000.

When IT6400 series power supply communicate via LAN interface, you need to restart the power supply to make the communication successful.

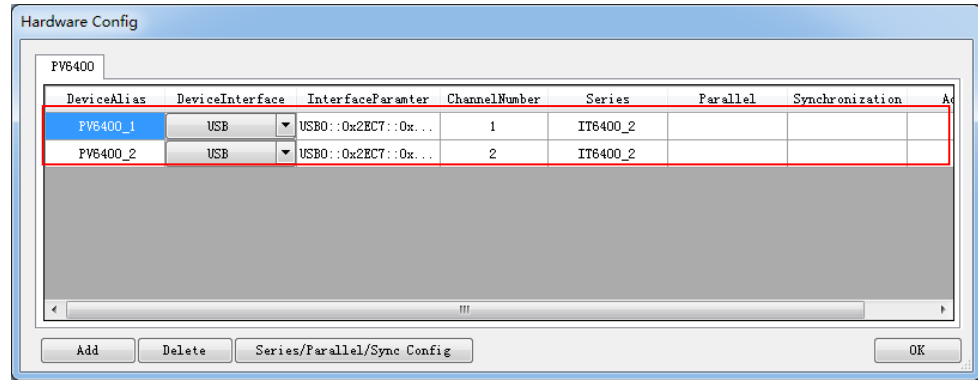
3. After interface parameter configuration, click “OK”. Finish interface parameter configuration.

2.1.4 Series Configuration

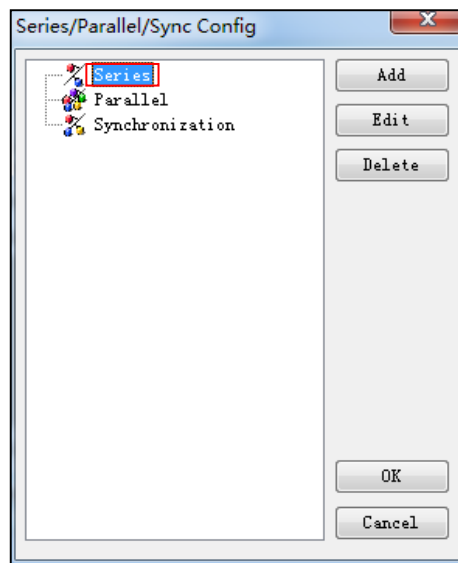
This configuration is used when several devices or several channels are connected. Setting types include series, parallel and synchronization. Parallel and synchronization configuration are not applied to IT6400 series power supply, and series configuration is only peculiar to IT6402, IT6411, IT6411S, IT6412 and IT6412S.

Series configuration

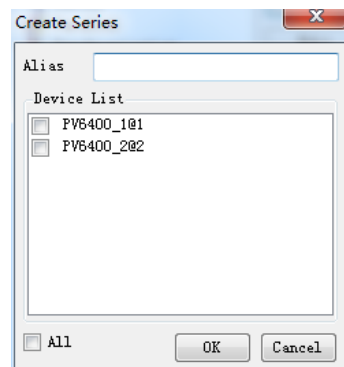
1. Follow the above steps to configure and connect 2 sets of IT6400 devices.



- Click “Series/Parallel/Synchronization” button and click “Series” in the figure below.



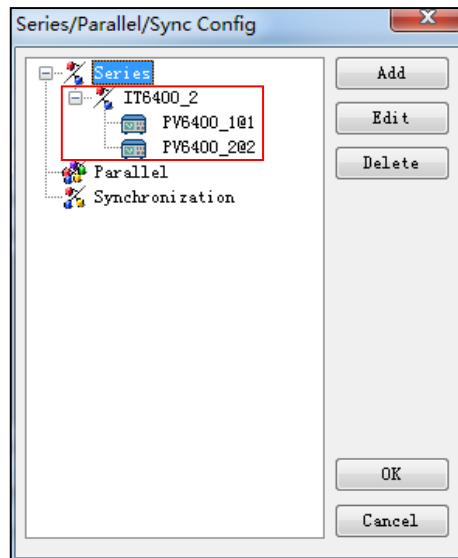
- Click “Add” button to create Series.



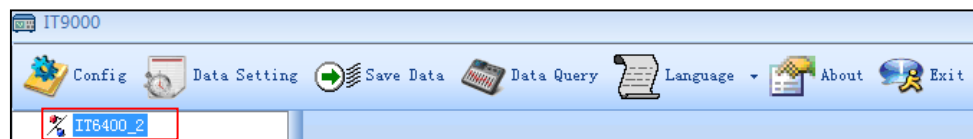
- Name alias: IT6400_2. Click the box at front of PV6400_1 and PV6400_2 and select the devices for Series.



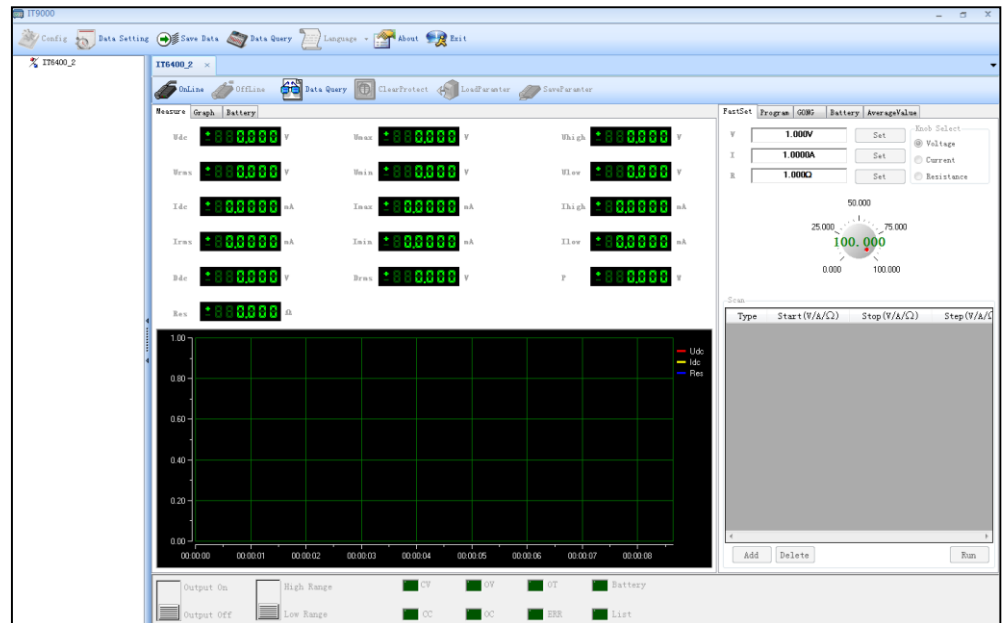
5. Click “OK” button. The Series Configuration Interface will display configured device.



6. Click “OK” to save the current Series configuration information. At this time, the Series configuration name “IT6400_2” will be displayed at the left top of the interface.



7. Double click IT6400_2 to display the Series Control Interface.

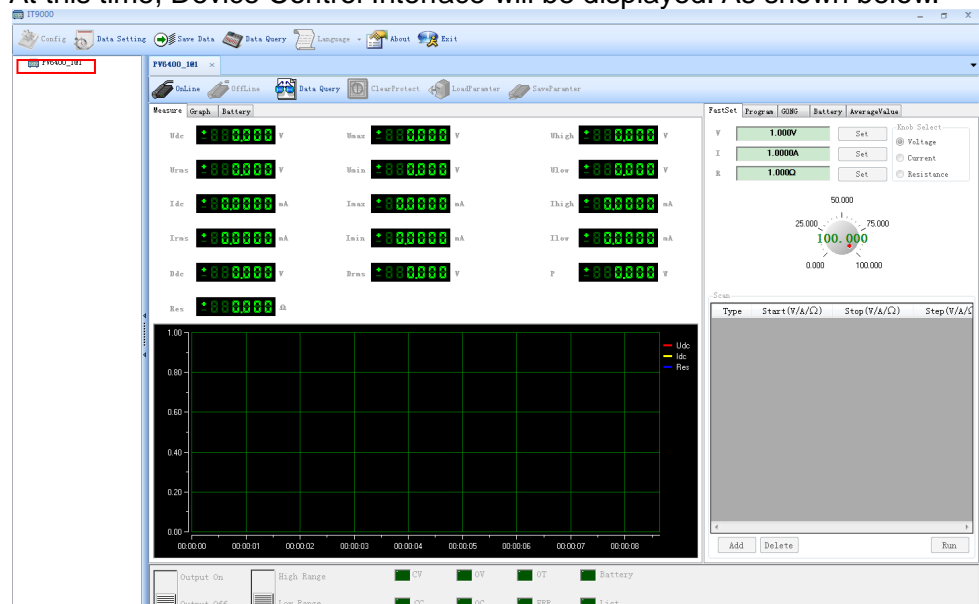


2.2 Data Setting and Saving

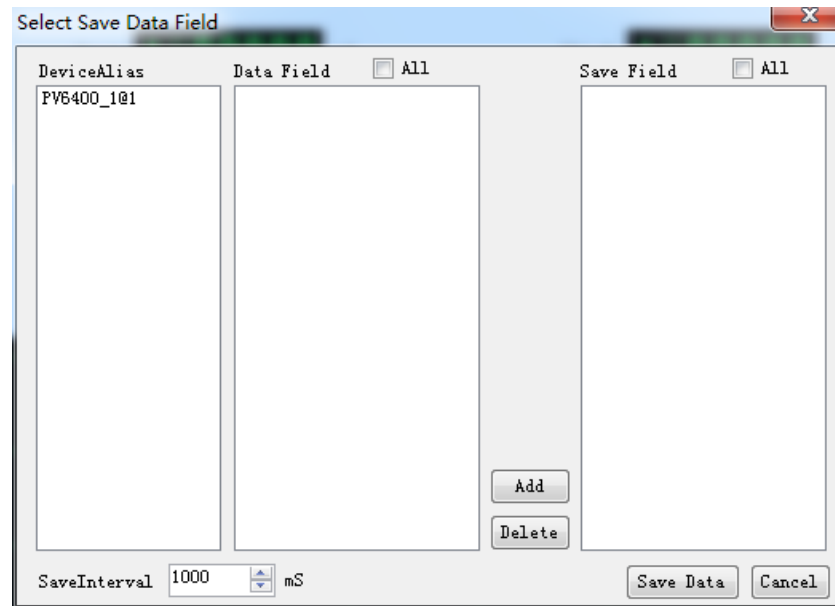
IT9000 can save test data. Before data saving, select the data field to be saved. Select the device alias for saving and the save interval.

Operation steps

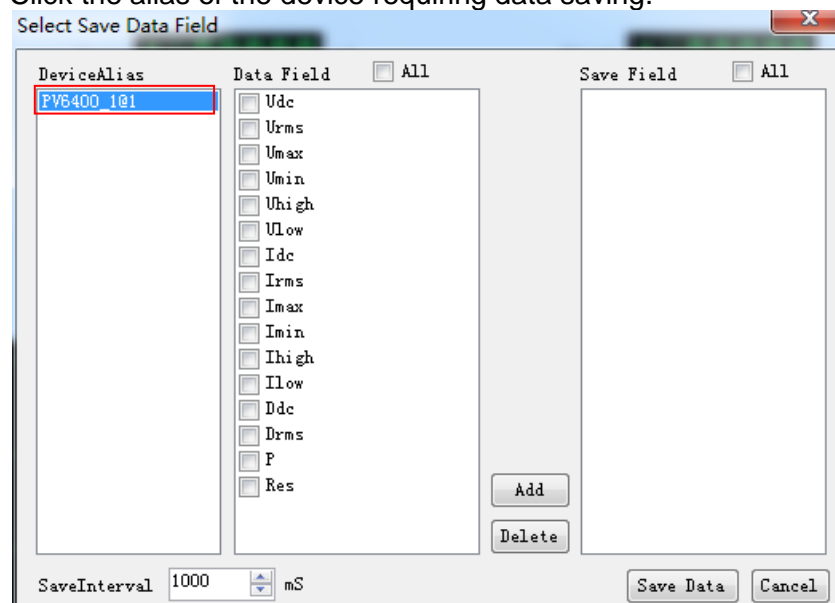
1. After device hardware configuration is finished, double click the device name (device alias @ channel number) displayed at top left of the interface. At this time, Device Control Interface will be displayed. As shown below.



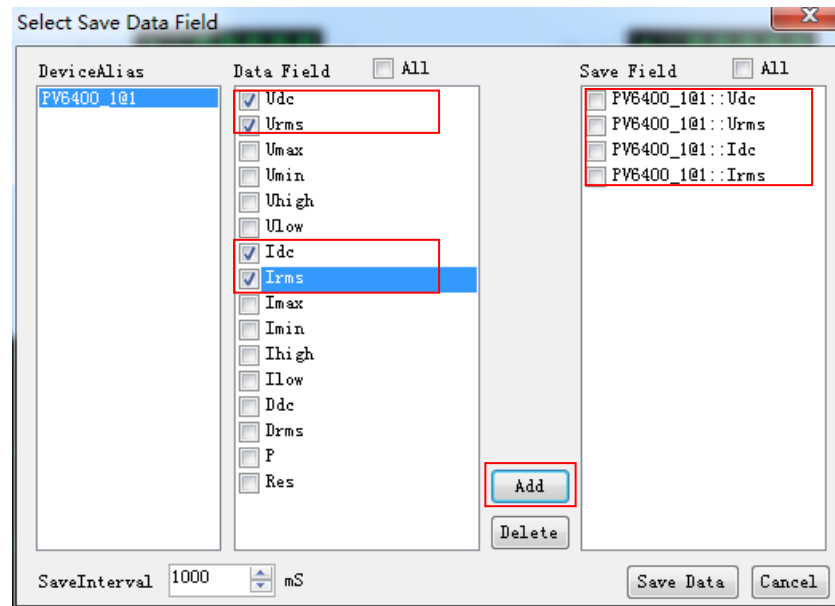
2. Click "Data Setting" icon to enter the Data Setting Interface.




3. Click the alias of the device requiring data saving.

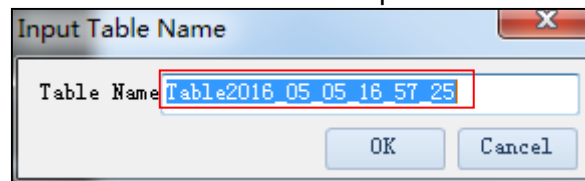




4. In "Data Field" bar, check the box at front of Data Field (Udc, Urms, Idc, Irms), and click "Add" button to enter the "Save Field" bar.



You may also click the Field Name in the Save Field bar. Click “Delete” button to delete the saved field.

5. Set “Save Interval”.
6. Click “Save Data” button to save data setting.
7. In the Control Interface, click  icon to appear the interface as shown below. You need to input Save File Name.




8. Click “OK” button in the figure above to start data save. Then, the icon will change to , and “Data Setting” and “Data Query” will be grayed out. Click  icon to stop saving.

2.3 Data Query

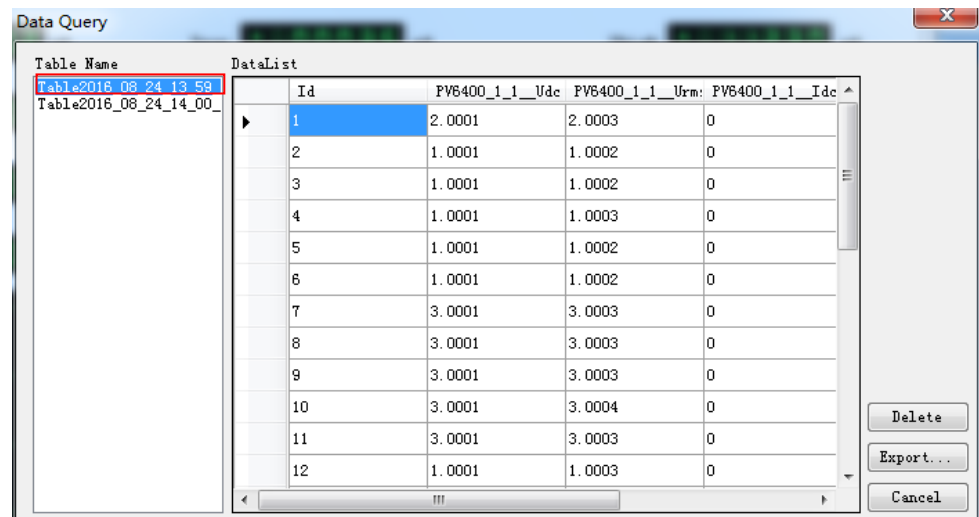
IT9000 software provides query function for measured data. You can query measured data at different periods of time and export and save these measured data.

Operation steps

1. Click  icon to enter the Data Query Interface.



- In Data Query Interface, select and click the “Table Name” of data saving, and the test data will be displayed in the data list. As shown below.

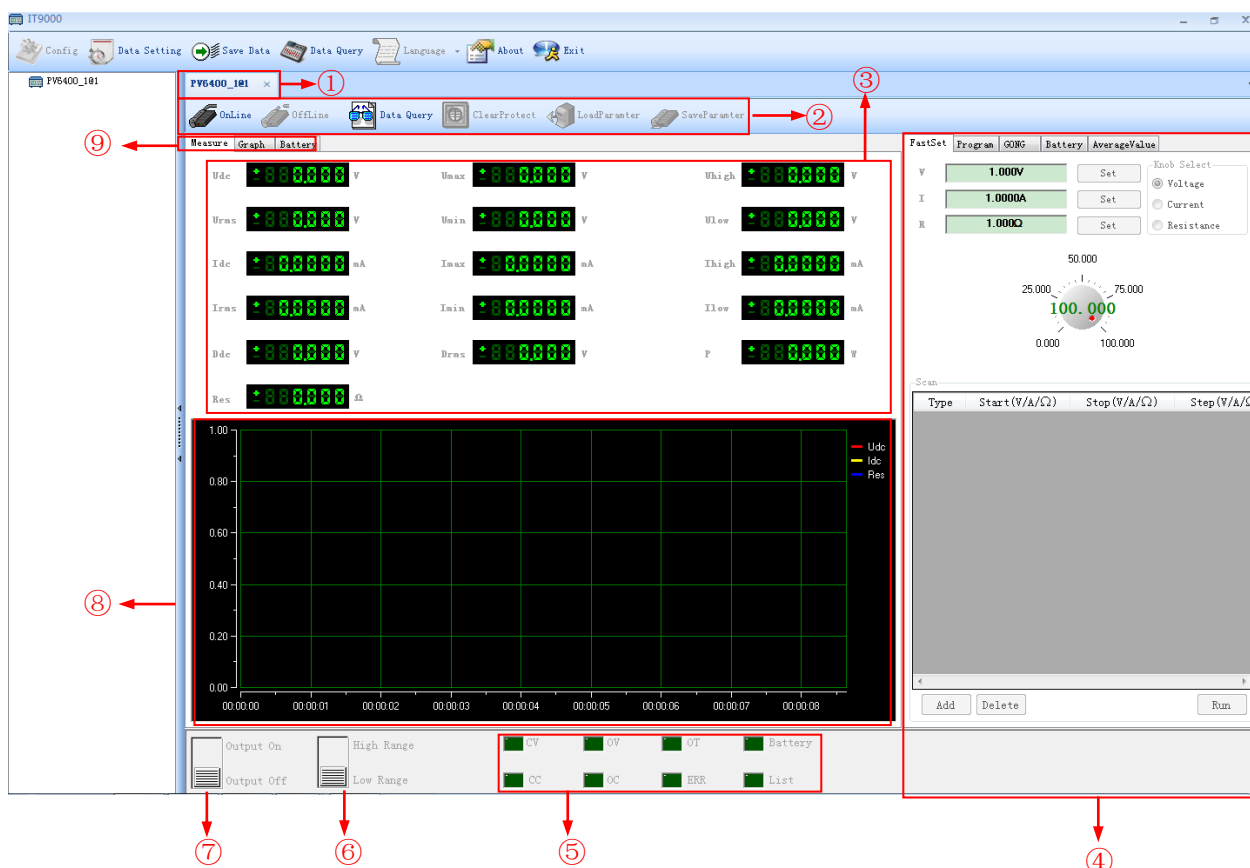


- Delete: to delete the data in current data list.
 - Export: Click Export to export the data in current data list to EXCEL table. Saving path is optional.
 - Cancel: to exit the Data Query Interface.
- Click “Cancel” in the Data Query Interface to exit.
 - Click “Export” to export the current data to EXCEL table. Saving path is optional.

Chapter3 PV6400 Control Interface

3.1 Introduction of Control Interface

The PV6400 Control Interface of IT9000 software is as shown below.

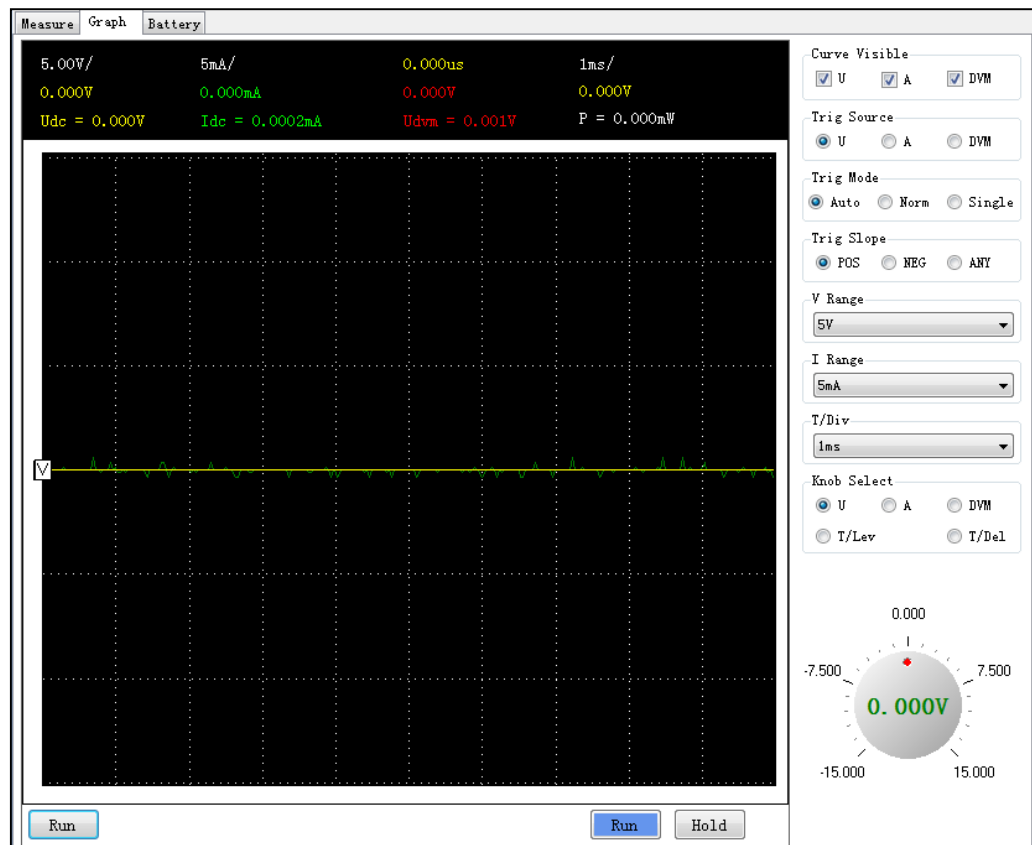


1. Tab bar, to switch the display of Control Interfaces of different devices.
2. Toolbar, main functions include:
 - Online:** remote control, to set the load to Remote Control mode.
 - Offline:** local switch, to return the load back to Local Mode from Remote Mode.
 - Data Query:** to query the test data of the battery function.
 - Clear Protect:** to clear load protection status.
 - Load Parameter:** to call test parameters saved before, including fast setting, dynamic, scan, program and test parameters.
 - Save Parameter:** to save fast setting, dynamic, scan, program and test parameters, for fast access and usage by the user.
3. Display real-time value of the power supply voltage/current/resistance/power.
4. Fast setting, program, test battery, Average Value and operation area.
5. Display power supply status (constant voltage (CV), constant current (CC), over voltage (OV), over current (OC), over temperature (OT),)

6. Set the measurement range: High Range/Low Range. (IT6400 series dual range power supply with high and low range.)
7. Output status: On/ Off
8. Current/Voltage/Resistance curve graph
9. Switch tab for Measure, Oscilloscope and Battery.

Waveform Display Interface

Click “Graph” tab to enter the waveform display interface.



Curve Visible: Select the waveform to be displayed on the interface: voltage/current/DVM.

Trig Source: Select the trigger source, voltage signal, current signal or DVM signal.

Trig Mode: Select the trigger mode: Auto, Norm or Single.

Trig Slope: Select trigger slope: rising edge (\uparrow), descending edge (\downarrow) or either edge ($\uparrow\downarrow$).

V Range: Select the voltage range.

I Range: Select the current range.

T/Div: Select the horizontal calibration.

Knob Select: Set the parameters to be adjusted by the Knob. When the Knob is rotated, corresponding parameter value on the interface will be changed. The following five types of parameters can be adjusted by Knob:

- U: grounding level of voltage channel;
- A: grounding level of current channel;

- DVM: grounding level of DVM channel;
- T/Lev: trigger level;
- T/Del: trigger delay.

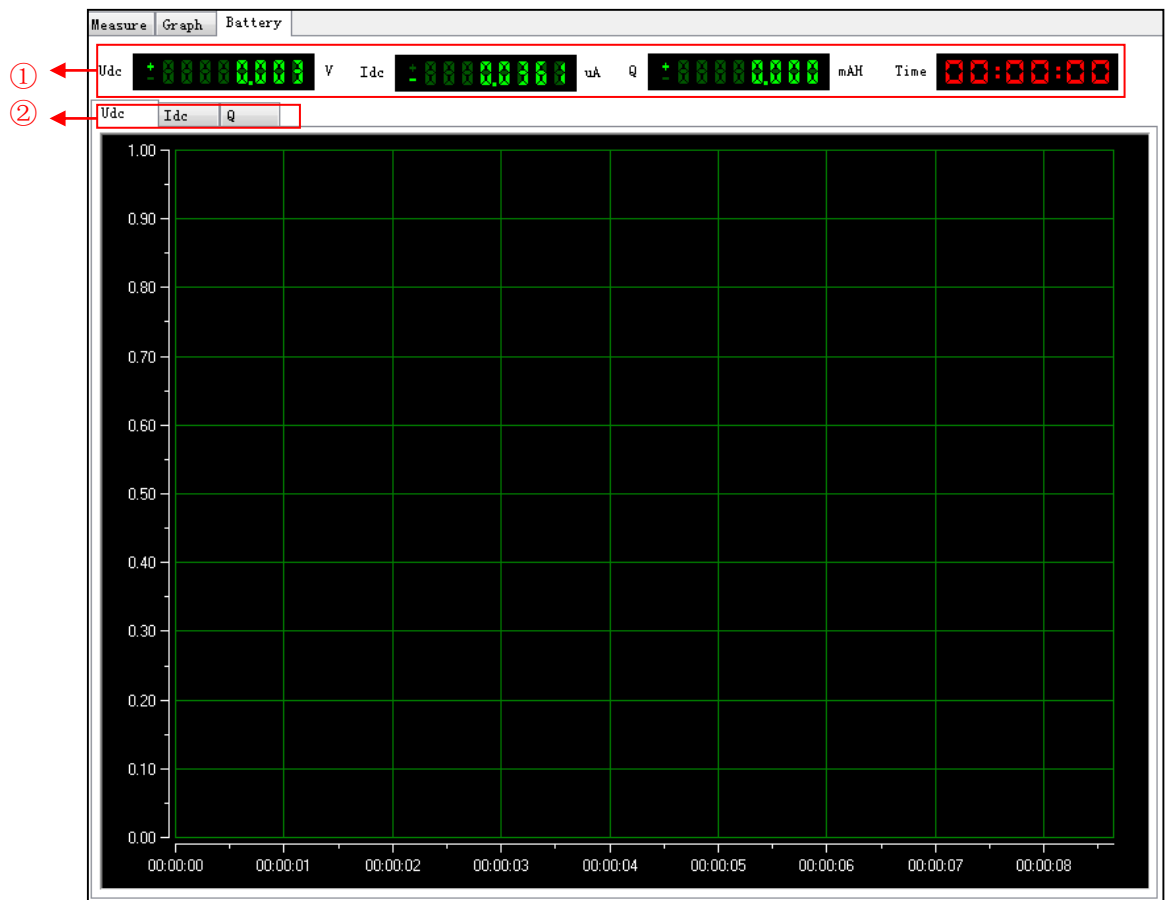
Run: Click this button to run wave.

Hold: Click this button to stop wave.

Run(Page left): Click Run to read wave; click Stop to stop reading.

Battery Function Interface

Click “Battery” tab to enter the battery function interface.



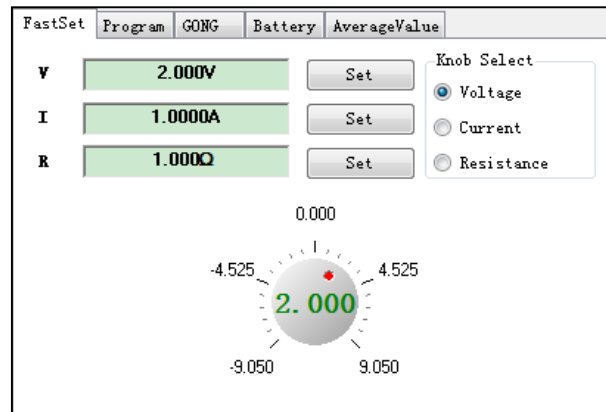
1. Display real time measurement of parameters Udc, Idc, Q, Run Time.
2. Switch tab for wave display screens of parameters Udc, Idc and Q.

3.2 Setting Voltage, Current and Resistance

You can set voltage, current and resistance via Simulated Pulsating Knob (not so accurate setting) or Fast Setting Function (accurate setting).

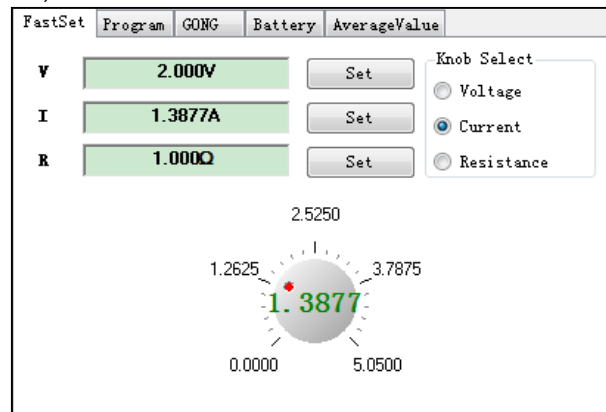
Setting Voltage

1. Select voltage with the knob. Click the circle at front of “Voltage”.
2. Move the mouse to Simulated Pulsating Knob. Click and rotate the mouse to set the output voltage value.
3. Or, double click the box at front of “Set” button to set precise voltage value..



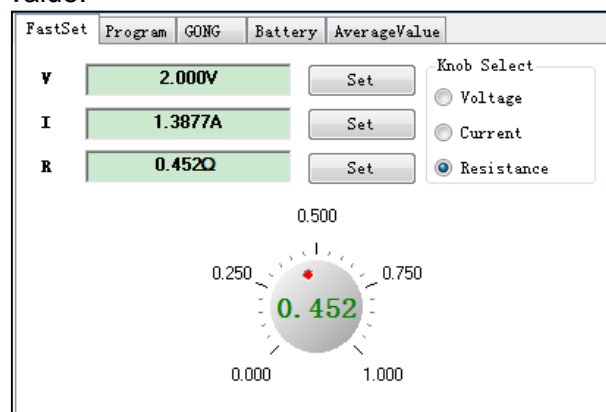
Setting Current

1. Select current with the knob. Click the circle at front of “Current”.
2. Move the mouse to Simulated Pulsating Knob. Click and rotate the mouse to set the output current value.
3. Or, double click the box at front of “Set” button to set precise current value.



Setting Resistance

1. Select resistance with the knob. Click the circle at front of “Resistance”.
2. Move the mouse to Simulated Pulsating Knob. Click and rotate the mouse to set the output resistance value.
3. Or, double click the box at front of “Set” button to set precise resistance value.





Note

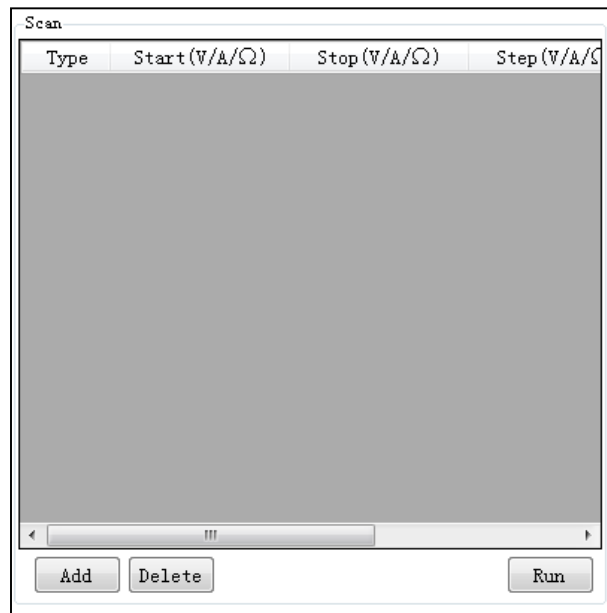
When setting the set value with software, be sure that you have clicked to make it gray out. Set the power supply to Remote Control status.



icon

3.3 Fast Set

Scan



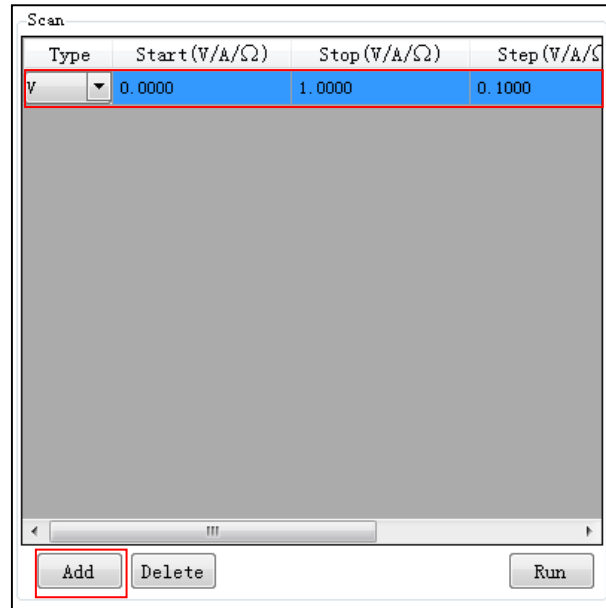
→ Scan edit area

Scan Voltage:

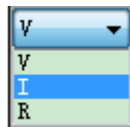
Set a series of voltage values. For example: Start value=1V, stop value=10V, step value=1V, delay=2s. Click “Run” and power supply will be run based on those scan values.

Under scan operation, be sure to select one operation type (V, I, R). Scan operation steps will be described below taking scan voltage as an example.

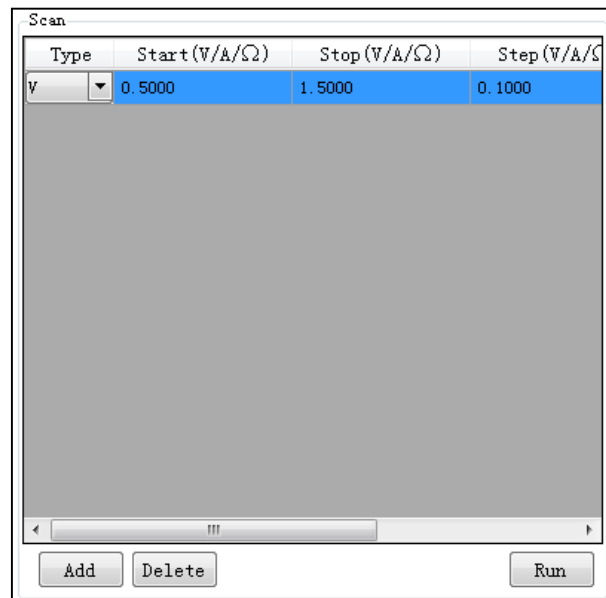
1. Click “Add” button and add a group of scan data in the scan edit area.



2. Select scan type. Click the drop-down arrow under the Type bar to pop up the Type List as shown. Click and select required type.



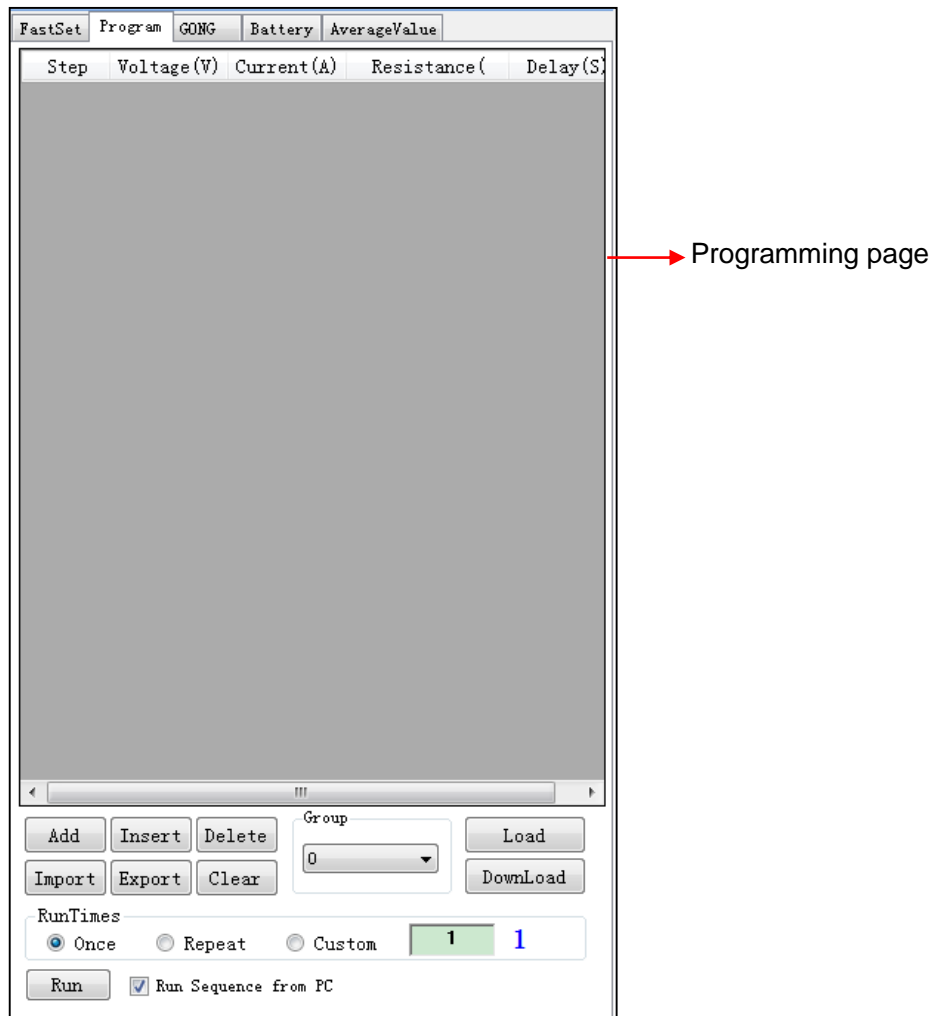
3. Double click the value corresponding to scan data (Start, Stop, Step, Delay, Loop). Set them to required values and click OK.
4. Click "Run" button to execute scan operation.



5. Click "Stop" button to stop scan operation.

3.4 Program

The User can edit the test procedures composed of several steps through the application (List) function.



Introduction of List display

Add: Add a step. Click this button to add 1 step.

Insert: Insert a step. Click this button to insert 1 step before current step.

Delete: Delete a step. Click this button to delete current step.

Import: Import external List documents.

Export: Export List file being edited.

Run Times: Run times of List programs, which can be set as Once/Repeat or Custom.

Group: Select List file number (0~19), for loading and downloading.

Load: Call the edited List file content from the device based on selected file number and display it on the software interface for PC operation.

Download: Download the editing List file on the current Software Interface to the selected number file for local running by power supply.

Run: Run List program.

Run sequence from PC: If the box in front of “Run sequence from PC” is checked, it means that test is done via PC and you can check which step is running now.

Edit List

1. Click “Program” tab to enter Fast Programming page.
2. At the bottom of Programming page, click “Add” button to add the first step of program.

FastSet	Program	GONG	Battery	AverageValue
Step	Voltage (V)	Current (A)	Resistance (Delay (S)
1	1.000	1.0000	1.000	1.000

3. Double click the value corresponding to program step (Voltage, Current, Resistance, Delay). Set them to required values and click OK.
4. Repeat step 2-3 to set other four steps in List file.

FastSet	Program	GONG	Battery	AverageValue
Step	Voltage (V)	Current (A)	Resistance (Delay (S)
1	1.000	1.0000	0.100	5.000
2	2.000	1.0000	0.100	5.000
3	3.000	1.0000	0.010	5.000
4	4.000	1.0000	0.200	5.000
5	5.000	1.0000	0.200	5.000

Import List file from externals

IT9000 software supports import function of list files. The user can finish the editing of List file in Excel and import it into the software. This function simplifies the List file edit and facilitates user operation. Detailed operation steps are as below:

1. Create a new Excel document on local PC and name it List 1.
2. Open the Excel document and save it as in “other formats” i.e. “(*.csv)”.
3. Open the List 1.csv document and edit the List. Set every step of the List and corresponding parameters.

	A	B	C	D	E
1	Voltage(V)	Current(A)	Resistance(Ω)	Delay(S)	
2	3	1	0.1	5	
3	2	0.5	0.1	5	
4	1	1	0.5	5	
5	4	0.7	0.2	5	
6	5	1	0.11	5	
7					

- Click "Import" button. Select and open List 1.csv file. Finish import of the List file.

FastSet	Program	GONG	Battery	AverageValue	
	Step	Voltage(V)	Current(A)	Resistance(Delay(S)
	1	3.000	1.0000	0.100	5.000
	2	2.000	0.5000	0.100	5.000
	3	1.000	1.0000	0.500	5.000
	4	4.000	0.7000	0.200	5.000
	5	5.000	1.0000	0.110	5.000

Load local List

IT9000 software supports loading local List file of the device. The user can load the local List file to the software. Detailed operation steps are as below:

- Manually edit the List file in power supply local and save it under List5.

Step	Voltage(V)	Current(A)	Resistance(Ω)	Delay(S)	Run Times
1	1	1	0.1	5	1
2	1.5	0.5	0.1	5	
3	2	0.5	0.2	5	
4	2	1	0.3	5	

- In the Group Select area of Program Interface, click the drop-down arrow under the group and select 5.
- Click "Load" button, and the Programming Interface will display the power supply local List5 file.

Step	Voltage (V)	Current (A)	Resistance (Ω)	Delay (S)
1	1.000	1.0000	0.100	5.000
2	1.500	0.5000	0.100	5.000
3	2.000	0.5000	0.200	5.000
4	2.000	1.0000	0.300	5.000

Add
Insert
Delete

Group
5

Load

Import
Export
Clear
DownLoad

RunTimes
 Once
 Repeat
 Custom
 | 1

Run Sequence from PC

Run List

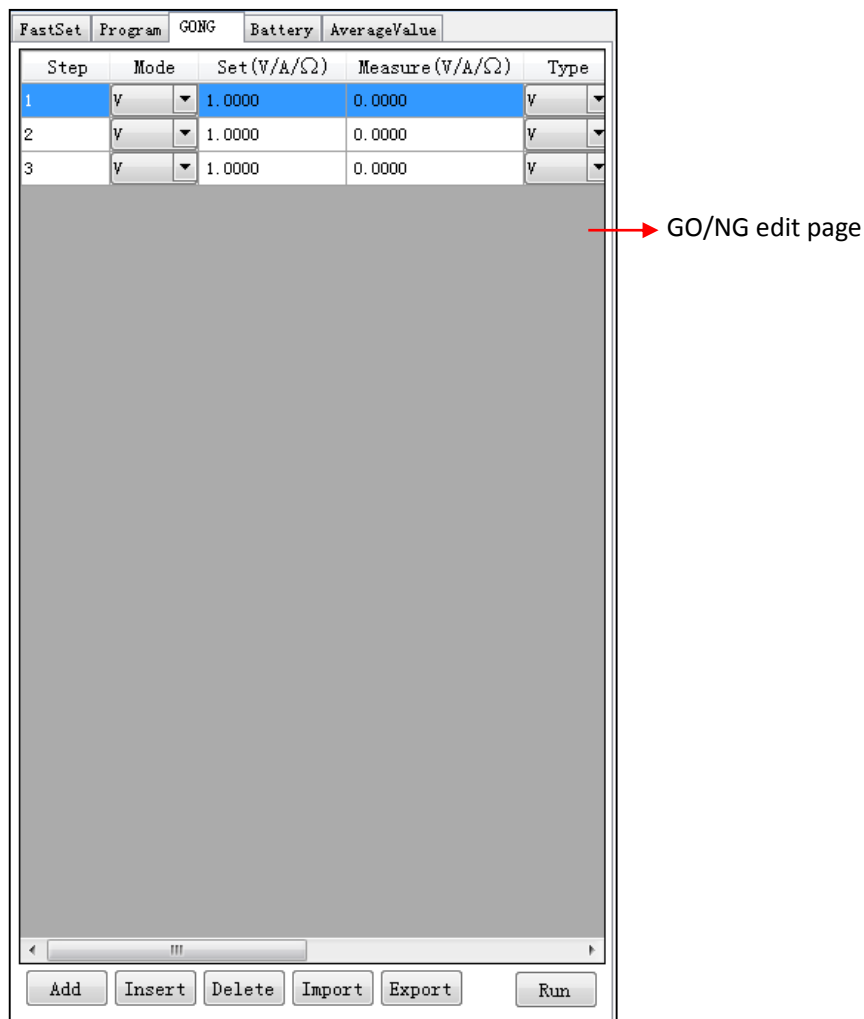
1. Follow the steps above to edit List file.
2. Set Run Times, including Once/Repeat or Custom. When Custom is selected, you may set the repetition count of programs.

RunTimes
 Once
 Repeat
 Custom
 | 1

3. Select PC or Local Running LIST program.
 - Run sequence from PC
If the box in front of “Run sequence from PC” is checked, it means that test is done via PC. You may record the run times.
 - Local Run
If the box in front of “Run sequence from PC” is not checked, it means that List is run via local device. At first, select the number of current editing List file (0~19) and click “Download” button to download the editing List file on the current Software Interface to the selected number file for local running by power supply.
4. Click “**Run**” to run program file. Click “**Stop**” to stop operation.

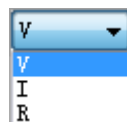
3.5 GO/NG

With this function, you can test whether the selected power supply meets required specifications.



Introduction of GO/NG interface

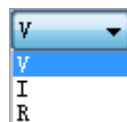
Mode: to select mode. Click the drop-down arrow in Mode bar to pop up the mode list as shown. Select the required mode.



Set(V/A/Ω): to set the set value under specific mode, like I 3A.

Measure(V/A/Ω): this option is a read-back value and requires no setting.

Type: This option is measured value type. Setting method is same as mode selection. Options include V, I, R.



Max(V/A/Ω): to set maximum read-back value.

Min(V/A/Ω): to set minimum read-back value.

Delay(S): to test the delay time of each step.

Pass: to judge test results. This option cannot be set.

Edit GO/NG program

1. Click “GO/NG” tab to enter Test page.
2. At the bottom of Test page, click “Add” button to add the first step of Test procedure.

Step	Mode	Set (V/A/ Ω)	Measure (V/A/ Ω)	Type
1	V	1.0000	0.0000	V

3. Set mode and type.
4. Double click the value corresponding to test program step (Set, Max, Min, Delay). Set them to required values and click OK.
5. Repeat steps 2-4 to set other four steps of Test Procedure.

Step	Mode	Set (V/A/ Ω)	Measure (V/A/ Ω)	Type
1	V	2.0000	0.0000	V
2	I	1.0000	0.0000	I
3	R	0.1000	0.0000	R
4	R	0.5000	0.0000	R
5	V	3.0000	0.0000	V

External import of GO/NG program

1. Create a new Excel document on local PC and name it Test 1.
2. Open the Excel document and save it as in “other formats” in “(*.csv)”.
3. Open the Test 1.csv document and edit the Test. Set every step of the Test and corresponding parameters.

	A	B	C	D	E	F	G	H
1	Mode	Set (V/A/ Ω)	Measure (V/A/ Ω)	Type	Max (V/A/ Ω)	Min (V/A/ Ω)	Delay (S)	PASS
2	I	1	0	I	1.01	0.99	5	
3	V	2	0	V	2.01	1.99	5	
4	R	0.1	0	R	0.11	0.09	5	
5	V	3	0	V	3.01	2.99	5	
6	I	0.5	0	I	0.51	0.49	5	
7								

4. Click “Import” button. Select and open Test 1.csv file. Finish import of the Test file.

FastSet	Program	GONG	Battery	AverageValue	
Step	Mode	Set (V/A/Ω)	Measure (V/A/Ω)	Type	
1	I	1.0000	0.0000	I	
2	V	2.0000	0.0000	V	
3	R	0.1000	0.0000	R	
4	V	3.0000	0.0000	V	
5	I	0.5000	0.0000	I	

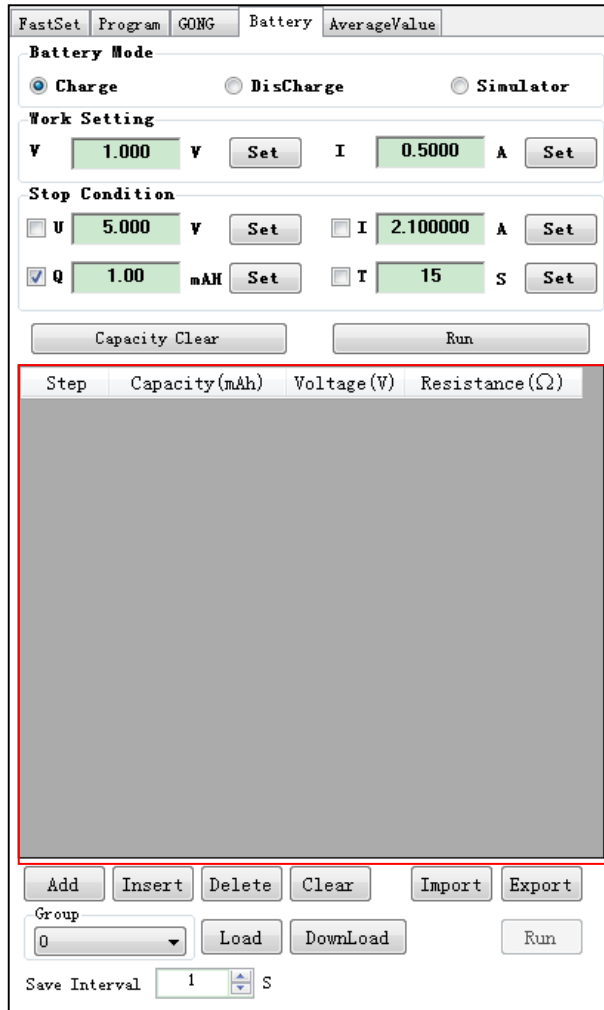
Run GO/NG Program

1. Follow the steps above to edit Test file.
2. Click **“Run”** to run program file. Click **“Stop”** to stop operation.
3. After running is completed, click **“Export”** to save the test results to Excel.
4. Name the file as **Test**. Open **Test** to display measured value and test result.

	A	B	C	D	E	F	G	H
1	Mode	Set (V/A/Ω)	Measure (V/A/Ω)	Type	Max (V/A/Ω)	Min (V/A/Ω)	Delay (S)	PASS
2	I	1	3.66E-07	I	1.01	0.99	5	NOPASS
3	V	2	1.99986	V	2.01	1.99	5	PASS
4	R	0.1	0.1	R	0.11	0.09	5	PASS
5	V	3	2.9999	V	3.01	2.99	5	PASS
6	I	0.5	3.66E-07	I	0.51	0.49	5	NOPASS
7								

3.6 Battery

The battery function interface of IT9000 software is as shown below.



Battery characteristic data edit page

Introduction of Battery Interface

Battery Mode: Select mode: Charge (battery charge mode), Discharge (battery discharge mode), Simulator (battery characteristic simulation).

Work Setting: Set the Voltage and Current.

Stop Condition: Set stop condition.

Capacity Clear: Capacity Clear.

Add: Add a step. Click this button to add 1 step.

Insert: Insert a step. Click this button to insert 1 step before current step.

Delete: Delete a step. Click this button to delete current step.

Clear: Clear the battery characteristic data being edited.

Import: Import the external battery characteristic data.

Export: Export battery characteristic data being edited.

Group: Select battery file number (0~19), for loading and downloading.

Load: Call the edited battery file content from the device based on selected file number and display it on the software interface for PC operation.

Download: Download the editing battery file on the current Software Interface to the selected number file for local running by power supply.

Run: Run battery file.

Save Interval: set the interval time of saving test data.

Battery Charging Function

1. Select battery mode. Click the circle at front of “Charge”.
2. Under “Work Setting”, set charging voltage and charging current.
3. Configure the stop conditions for battery charging test.

Parameter	Parameter description
U	Configure shut-off voltage, stop when voltage reaches set value.
I	Configure shut-off current, stop when current reaches set value.
Q	Configure shut-off capacity, stop when capacity reaches set value.
T	Configure time for configuring battery charging/discharging/simulation, stop when run time reaches set value.

4. Click “**Run**” to start battery charging test.
5. Click “**Stop**” to Stop battery charging test.

Battery Discharging Function

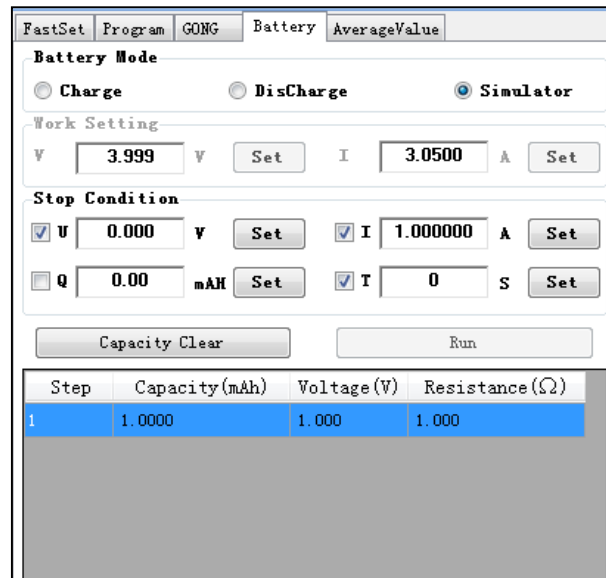
1. Select battery mode. Click the circle at front of “Discharge”.
2. Under “Work Setting”, set discharging voltage and discharging current.
3. Configure the stop conditions for battery discharging test.

Parameter	Parameter description
U	Configure shut-off voltage, stop when voltage reaches set value.
I	Configure shut-off current, stop when current reaches set value.
Q	Configure shut-off capacity, stop when capacity reaches set value.
T	Configure time for configuring battery charging/discharging/simulation, stop when run time reaches set value.

4. Click “**Run**” to start battery discharging test.
5. Click “**Stop**” to Stop battery discharging test.

Edit the battery characteristic data

1. Click “Battery” tab to enter Battery Function page.
2. At the bottom of Battery page, click “Add” button to add the first step of battery characteristic data.



FastSet Program GONG Battery AverageValue

Battery Mode

Charge
 DisCharge
 Simulator

Work Setting

V V I A

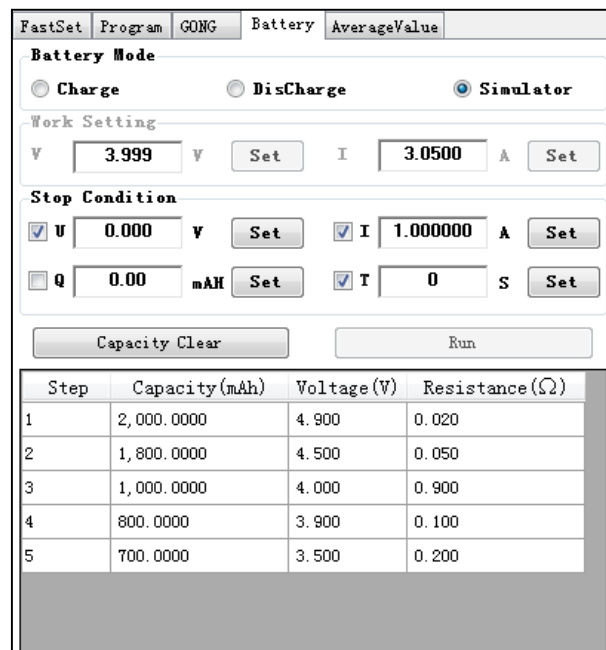
Stop Condition

V V
 I A

Q mAh
 T S

Step	Capacity(mAh)	Voltage(V)	Resistance(Ω)
1	1.0000	1.000	1.000

3. Double click the value corresponding to program step (Capacity, Voltage, Resistance). Set them to required values and click OK.
4. Repeat step 2-3 to set other four steps in battery characteristic data.



FastSet Program GONG Battery AverageValue

Battery Mode

Charge
 DisCharge
 Simulator

Work Setting

V V I A

Stop Condition

V V
 I A

Q mAh
 T S

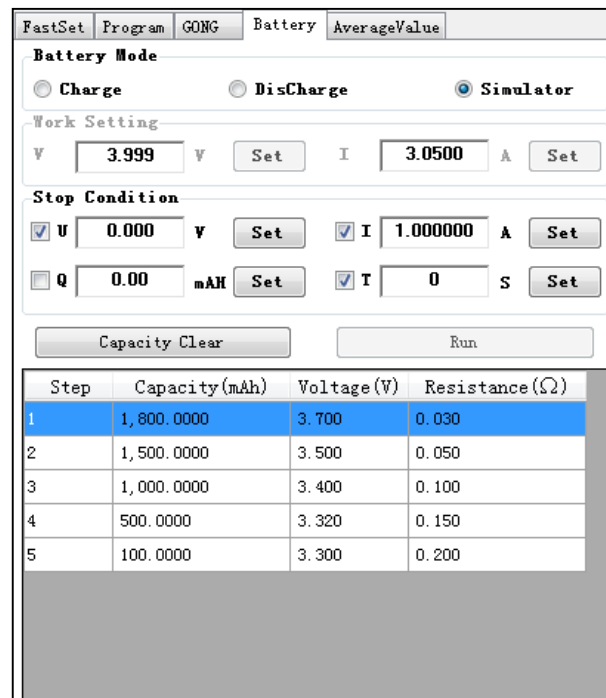
Step	Capacity(mAh)	Voltage(V)	Resistance(Ω)
1	2,000.0000	4.900	0.020
2	1,800.0000	4.500	0.050
3	1,000.0000	4.000	0.900
4	800.0000	3.900	0.100
5	700.0000	3.500	0.200

Import the external battery characteristic data

1. Create a new Excel document on local PC and name it Battery 1.
2. Open the Excel document and save it as in "other formats" i.e. "(*.csv)".
3. Open the Battery 1.csv document and edit the Battery. Set every step of the Battery and corresponding parameters.

	A	B	C	D
1	Capacity(mAh)	Voltage(V)	Resistance(Ω)	
2	1800	3.7	0.03	
3	1500	3.5	0.05	
4	1000	3.4	0.1	
5	500	3.32	0.15	
6	100	3.3	0.2	
7				

- Click "Import" button. Select and open Battery 1.csv file. Finish import of the Battery file.



The screenshot shows the 'Battery Mode' interface with the following settings:

- Battery Mode:** Charge, DisCharge, Simulator (selected)
- Work Setting:** V = 3.999, I = 3.0500
- Stop Condition:**
 - V = 0.000
 - I = 1.000000
 - Q = 0.00
 - T = 0
- Buttons:** Capacity Clear, Run

The data table at the bottom of the interface is as follows:

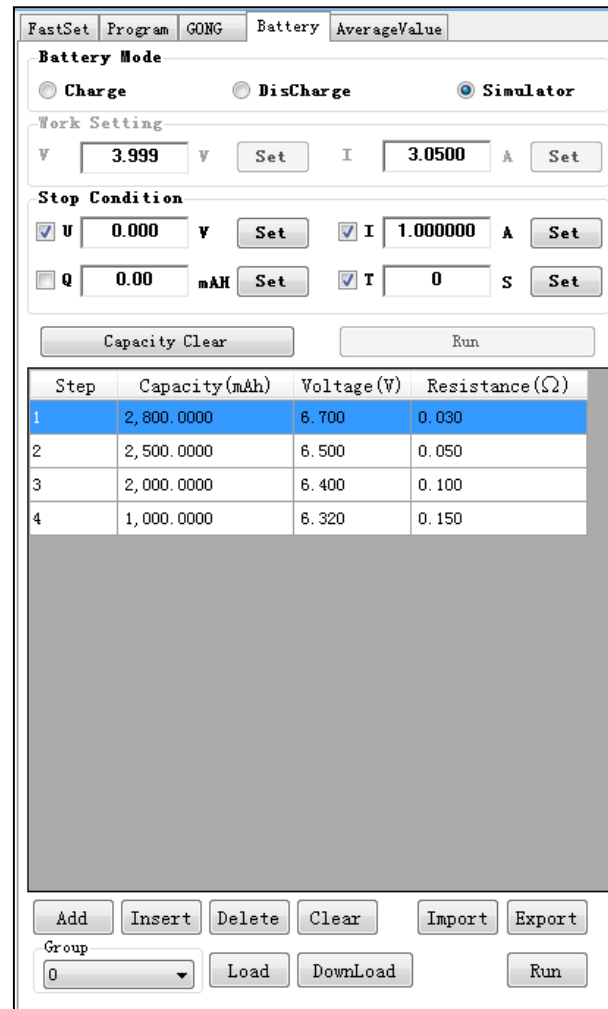
Step	Capacity(mAh)	Voltage(V)	Resistance(Ω)
1	1,800.0000	3.700	0.030
2	1,500.0000	3.500	0.050
3	1,000.0000	3.400	0.100
4	500.0000	3.320	0.150
5	100.0000	3.300	0.200

Load local Battery file

- Manually edit the Battery file in power supply local and save it under Group 5.

Step	Capacity(mAh)	Voltage(V)	Resistance(Ω)
1	2800	6.7	0.03
2	2500	6.5	0.05
3	2000	6.4	0.1
4	1000	6.32	0.15

- At the selection area of Battery Function Interface Group, click the drop-down arrow under Group and select 5.
- Click "Load" button, and the Battery Interface will display the power supply local Group 5 file.



Step	Capacity (mAh)	Voltage (V)	Resistance (Ω)
1	2,800.0000	6.700	0.030
2	2,500.0000	6.500	0.050
3	2,000.0000	6.400	0.100
4	1,000.0000	6.320	0.150

Battery characteristic simulation operation

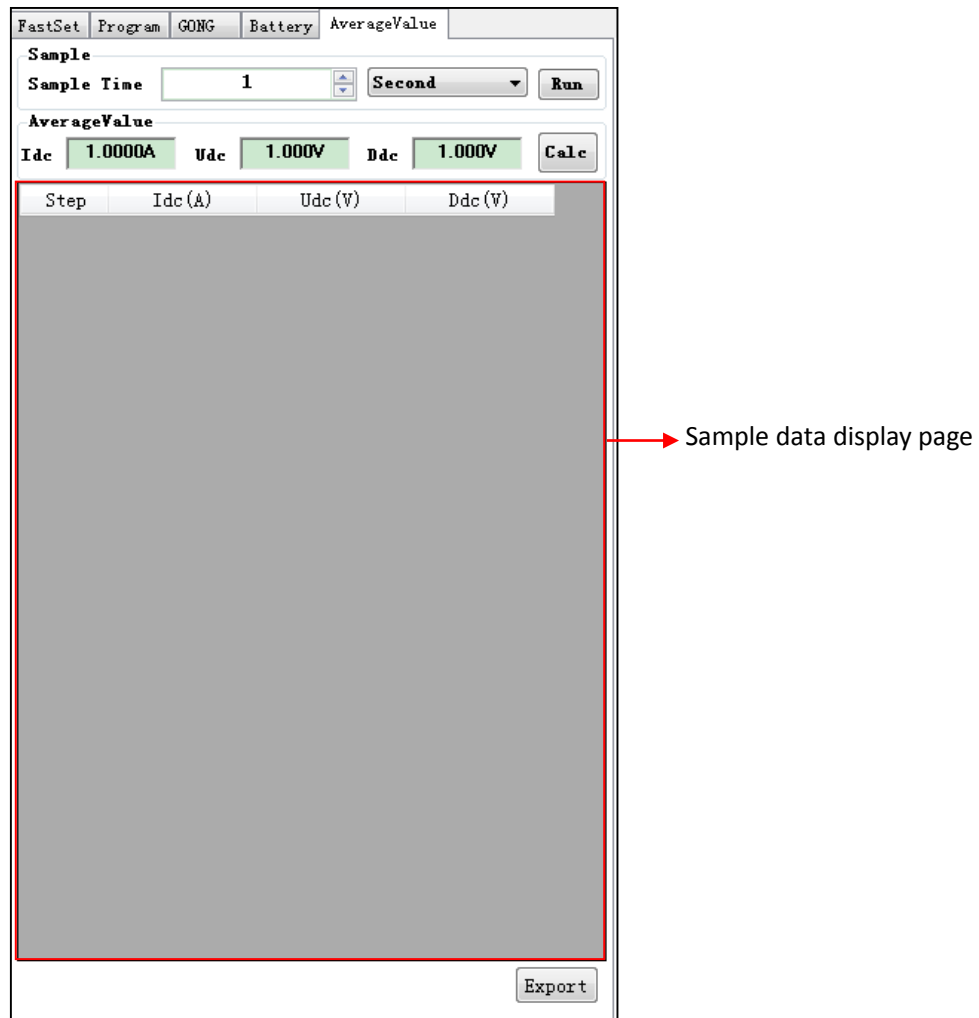
1. Select battery mode. Click the circle at front of “Simulation”.
2. Configure the stop conditions for battery simulation test.

Parameter	Parameter description
U	Configure shut-off voltage, stop when voltage reaches set value.
I	Configure shut-off current, stop when current reaches set value.
Q	Configure shut-off capacity, stop when capacity reaches set value.
T	Configure time for configuring battery charging/discharging/simulation, stop when run time reaches set value.

3. Edit or import battery characteristic data based on the steps above.
4. Select Group Number (0-19) for editing Battery file and click “Download” button. At this time, download the Battery file on the current Software Interface to the selected group number file for local running by power supply.
5. Click “Run” to start battery simulation test.
6. Click “Stop” to stop battery simulation test.

3.7 Average Value

With this function, you can average the measured Idc, Udc and Ddc under specific sample time and running time, and display specific measured values of each sampling point.



1. Set the sample time.
2. Set sample time unit. Click the drop-down arrow to pop up the unit list as shown below. Click and select required sample time unit.



3. Click "Run" to start sample test.

Step	Idc (A)	Udc (V)	Ddc (V)
1	0.0000	1.000	0.002
2	0.0000	1.500	0.002
3	0.0000	2.000	0.002

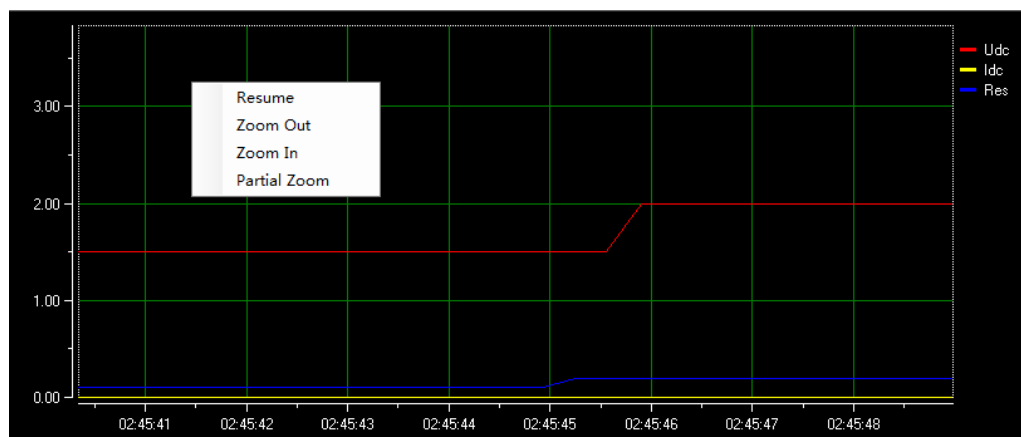
4. Click “**Stop**” to stop operation.
5. Click “Calculate” button and calculate average.

Step	Idc (A)	Udc (V)	Ddc (V)
1	0.0000	1.000	0.002
2	0.0000	1.500	0.002
3	0.0000	2.000	0.002
4	0.0000	2.000	0.002
5	0.0000	0.244	0.002
6	0.0000	0.023	0.002
7	0.0000	0.005	0.002
8	0.0000	0.003	0.002

- Click “Export” button to export specific measured value of each sample point.

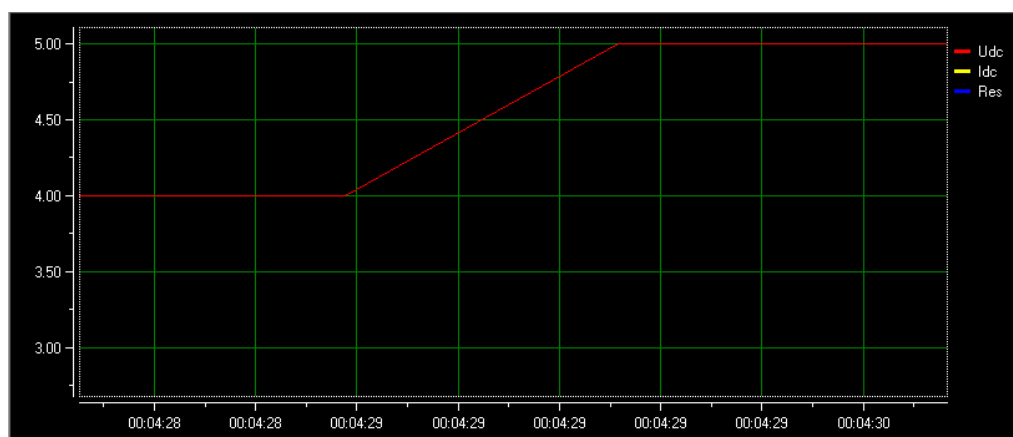
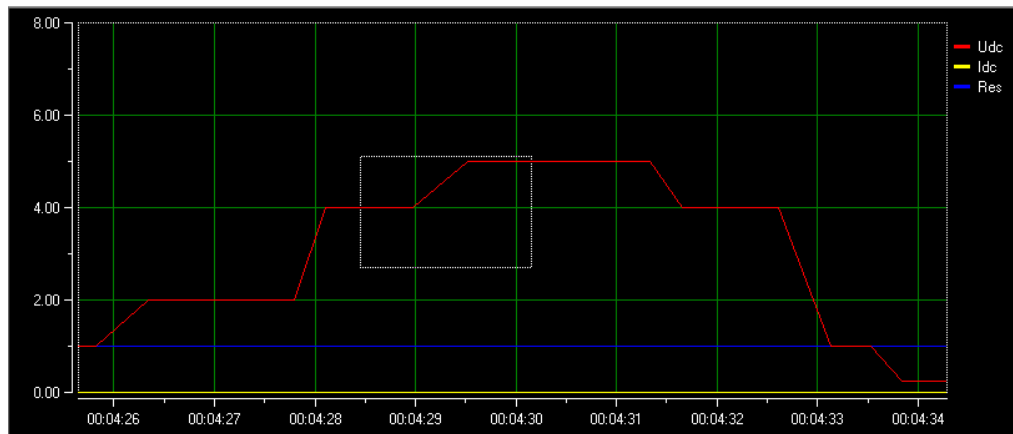
3.8 Curve Zoom Out and Translation

In the IT9000 software, voltage and current curve graphs have such functions as Resume, Zoom Out, Zoom In and Partial Zoom. Right click any one at the curve graph, as shown below.



Curve zoom out

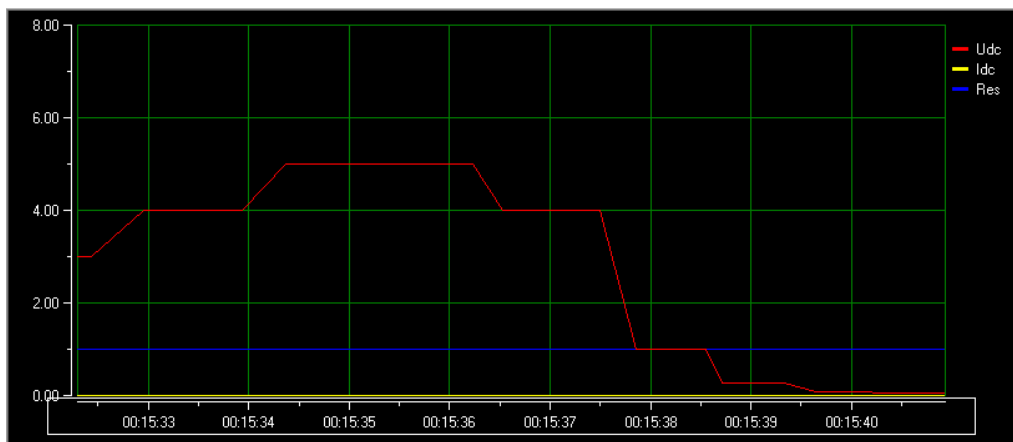
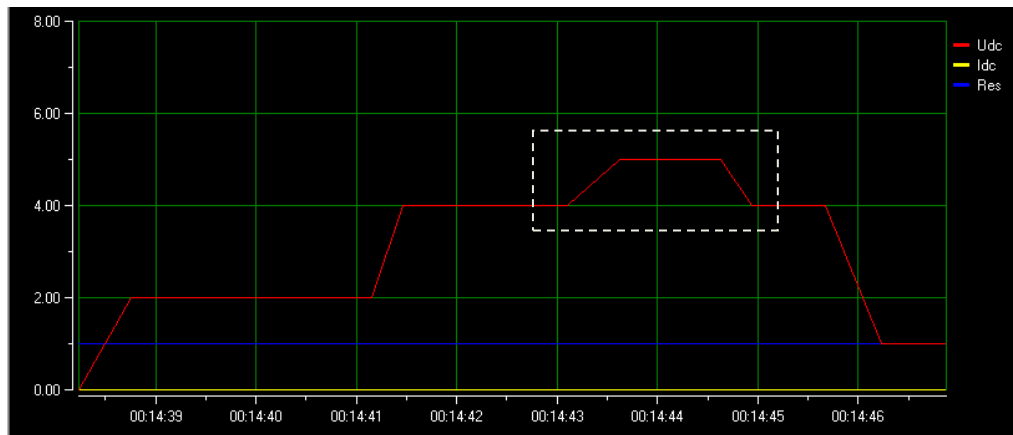
1. Right click the curve graph and select "Partial Zoom". At the bottom of cursor will display a small rectangle box.
2. Move the cursor of small rectangle box to pull out a bigger rectangle box to define the location which you need enlarge the partial wave.
3. Release the mouse left key and the image will be promptly zoomed out.



4. To resume dynamic records, right click the curve graph and choose "Resume".

Translation view

1. Move the cursor shape to any position of the horizontal coordinate axis (Time Axis) and the mouse will change to be a hand.
2. Hold down the mouse left key to move the mouse. When moving left, you will see the curve after the current time; when moving right, you will see the curve before the current time.
3. Similarly, you can translate the voltage/current coordinate to view curve.



4. To resume dynamic records, right click the curve graph and choose "Resume".

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3. Select the most convenient contact for further consultation.