



Scan the qr code with a browser.
Visit our website for more product information.
SHENZHEN MEIRUIKE ELECTRONIC TECHNOLOGY CO., LTD

RK97 SERIES PROGRAMMABLE
DC ELECTRONIC LOAD

SHENZHEN MEIRUIKE ELECTRONIC TECHNOLOGY CO., LTD.
Address : Floor 5, Block 1, Qingchangtai Industrial
Zone, No 365, Silian Road, Henggang
Town, Longgang District, Shenzhen
Tel: 86-755-83987768
86-755-82736668
[Http://www.chinarek.com](http://www.chinarek.com)

Seven Security

Do not install replaced parts in the instrument by yourself,or perform any unauthorized modification.If there is a problem,please contact our after-sale maintenance personnel,if it still can't be solve,please send them to the the maintenance department designated of our company for repairing.

Quality guarantee

Our company will give a year of quality assurance about the materials and manufacture of our products since the date of shipment.

Quality assurance limited

The guarantee of the above is not applicable for the damage caused by the following:

- Incorrect or improper repair products.
- Unauthorized modification or misuse.
- Use in the environment beyond the instrument withstended.
- Configure or maintain in the maintenance point unspecified.
- The customer install circuit to cause the damage.

Annunciations

If change the contents of this manual,it without prior notice.

CONTENTS

One Abstract 1

Two Technical Parameters.....3

Three Common Terms 8

Four Quick Start..... 11

Five Setting Function..... 19

Six Operating Mode.....22

Seven Security35

One Abstract

Welcome to use the RK97 Programmable DC Electronic Load series designed by Meiruike Electronic Technology Co.,Ltd,electronic load adopt the high-performance chip-based,in accordance with the high precision design,novel appearance,the manufacturing technique is scientific and rigorous,compared with the similar products,it is more cost-effective.

RK97 series including RK9713、RK9713B、RK9714、RK9714B、RK9715、RK9715B、RK9716、RK9716B eight products in total,in the following description,if not specifically noted,the contents of the description apply to these 8 products.

The second chapter gives the basic parameters of this 8 products,but also can be used as the basis for your choice of our products.

Electronic load is widely used in the production line of electronic products (such as mobile phone charger,cell phone batteries,electric vehicle batteries, switch power supply,linear power supply),scientific research institution, automotive electronics,aerospace,ship,solar batteries,fuel cells and other industries.

Main Feature

- ◆ High brightness VFDS display screen,showed a clear and pleasing to the eye.
- ◆ Using software to correct circuit parameters,do not use the adjustable resistance,the work is stable and reliable.
- ◆ Over current,over voltage,over power,overheat,the polarity reverse protection.
- ◆ Intelligent fan system,can change according to the temperature,start or stop automatically,and adjust the wind speed.
- ◆ Supporting the external trigger input,cooperate with external equipment, complete automatic testing.
- ◆ After the completion of automatic test,can output trigger signal to an external device.
- ◆ Provide the terminal of current waveform output,can connect the oscilloscope to observe current waveform.
- ◆ Supporting far-end voltage compensation input terminals.
- ◆ Supporting for multiple testing function,specific as follows:
 - Constant voltage
 - Soft start constant voltage
 - Loading unloading constant voltage
 - Constant current
 - Soft start constant current
 - Loading unloading constant current
 - Constant current turns to Constant voltage
 - Constant power
 - Loading unloading rated power
 - Constant resistance
 - Loading unloading constant resistance
 - Constant resistance turns to constant voltage

Operate “On/Off” key to start or stop the output,the upper right corner of the screen express whether the automatic test has been started by “OFF” and “ON” .

In the process of running,the screen shows that in which measurement step currently.If occur the testing failures or testing is completed,it will setting the trigger signals outputed according to above data.The screen also can shows the prompt,such as the tip:

AT FAIL STEP= 2 Express the test failed,occur in the second step.

AUTO TEST END Automatic testing is completed,power supply under test is qualified.

Notice:

In the automatic test mode, you can also use the “trigger input” on the rear faceplate instead of the “On/Off” key.

6: Selecting the limit of measurement parameter

After the specified running time of each step in the process of automatic test pass,it will measure the specified measurement project in fifth step,the parameters obtained will compare with the parameters setted in this step,if the measured values is less than the lower limit of parameters,it will stop the follow-up measurement and send out the prompt.

When the lower limiting value inputted is completed,press “Enter” key and enter the next step.

7: Selecting the upper limit of the measurement parameter

Same as the sixth step,this step specify the upper limit of the parameters,if the measured value is greater than this value,it will stop the subsequent measurement, and send out the prompt.

When the upper limit inputted is completed,press “Enter” button,if all steps have been completed(in this case is the fifth step),then exit to the list editor of automatic measurement and return to the higher level menu,if you haven't completed all the steps,the step number add 1(x value namely)and return to the second step to continue to input the next set of data on list.

Two、 Setting the signal output

When the test failed or after completion of the test,it can output a signal to the peripheral equipment,so as to prompt and the method of enter is:

Press “Shift+0” button and enter the selection menu of function setting,press “▲” and “▼” key and turn to “AUTO TEST SET” ,press “Enter” key and press “▲” and “▼” button again,then turn to “SETUP AUTO TEST” ,press “Enter” key,setting divide into two steps,described as below:

1: Setting the trigger time

The screen shows “TRIG TIME: xxx” ,XXX can be one of the following characters, the meaning in followed.

DISABLE: Don't output the trigger signal

TEST PASS: All measuring project output the trigger signal when all through.

TEST FAIL: In one step,when the measurement fail will output the trigger signal.

Selecting the expected triggering time by “▲” and “▼” button,and then press “Enter” button and enter the next step.

2: Selecting the way of the output signal

After press “Enter” key in the previous step,the screen shows “OUTPUT MODE: xxx” ,it start selecting the way of the output signal,and can be pulse can also be electrical level,XXX values are as follows:

PULSE: Output the 5 seconds low level,turns to the high level after 5 seconds.

LEVEL: Output turns to the low level,until a key input turns to the high level in addition.

Selecting the expected output signal by “▲” and “▼” button,and then press “Enter” button and return to the higher level menu.

Enter method:

Press “Shift+0” button and enter the selection menu of function setting,press “▲” and “▼” key and turn to “AUTO TEST SET” ,press “Enter” key,the screen shows “LOAD AUTO TEST” ,press “Enter” key once again,exit from the selection menu of function setting,and the screen shows “AUTO TEST STOP” ,it express it is in the automatic test mode and the stop state currently.

Operational process:

- Dynamic testing
- Battery capacity test
- Short Circuit Function
- Listing Output
- Automatic testing

Two Technical Parameters

Form one: Basic Parameter of RK9713 (B) and RK9714 (B)

Type		RK9713		RK9713B		RK9714		RK9714B	
Rated Input	Voltage	0—150V		0—500V		0—150V		0—500V	
	Electric Current	0—120A		0—30A		0—240A		0—60A	
	Power	600W				1200W			
Measured Values of Voltage	Voltage profile	0—20V	0—150V	0—20V	0—500V	0—20V	0—150V	0—20V	0—500V
	Resolution Ratio	1mV	10mV	1mV	10mV	1mV	10mV	1mV	10mV
	Accuracy	0.015%+0.03%FS		0.015%+0.05%FS		0.015%+0.03%FS		0.015%+0.05%FS	
Measured Values of Current	Current file	0—12A	0—120A	0—3A	0—30A	0—24A	0-240A	0-6A	0-60A
	Resolution Ratio	1mA	10mA	0.1mA	1mA	1mA	10mA	0.1mA	1mA
	Accuracy	0.05%+ 0.05%FS	0.1%+ 0.08%FS	0.03%+ 0.05%FS	0.03%+ 0.08%FS	0.05%+ 0.05%FS	0.1%+ 0.1%FS	0.03%+ 0.05%FS	0.03%+ 0.08%FS
CV-Constant Voltage mode	Scope	0—20V	0—150V	0—20V	0—500V	0—20V	0—150V	0—20V	0—500V
	Resolution Ratio	1mV	10mV	1mV	10mV	1mV	10mV	1mV	10mV
	Accuracy	0.03%+0.02%FS		0.03%+0.05%FS		0.03%+0.02%FS		0.03%+0.05%FS	
CC-Constant Current mode	Scope	0—12A	0—120A	0—3A	0—30A	0—24A	0-240A	0-6A	0-60A
	Resolution Ratio	1mA	10mA	0.1mA	1mA	1mA	10mA	0.1mA	1mA
	Accuracy	0.05%+ 0.05%FS	0.1%+ 0.05%FS	0.03%+ 0.05%FS	0.03%+ 0.05%FS	0.05%+ 0.05%FS	0.1%+ 0.05%FS	0.03%+ 0.05%FS	0.03%+ 0.05%FS
Constant Power mode	Scope	0—600W				0—1200W			
	Resolution Ratio	10mW							
	Accuracy	0.1%-0.1%FS							
Constant Resistant mode	Scope	0-99.99999KΩ							
	Resolution Ratio	10mΩ							
	Accuracy	0.1%+0.1%FS							
Battery capacity test: Max 1000AH,Resolution Ratio:1uAH.									
Dynamic testing:the maximum frequency of 25KHz,2.5A/uS,the maximum pulse width of 100S,the accuracy of 20uS.									
Short circuit function	Voltage	0V							
	Electric Current	About 13.2A	About 132A	About 3.3A	About 33A	About 26.4A	About 264A	About 6.6A	66A
	Resistance	About 13mΩ		About 100mΩ		About 7mΩ		About 100mΩ	
Temperature	Working	0 - 40℃							
	Storage	-10 — 70℃							

The largest number of steps in list is 50steps,but not every test project need such a long steps,input the number of steps needed in this step,and press “Enter” button and enter the next step.

The following to setting 5 step as an example to explain.

2: Setting the work mode of every step

The screen shows “STEP x: yy” and prompt input the current value of x step,x represents a value of 1-50. “yy” express the work patterns,the meaning of letters shown in the following table:

Letter	Meaning	Letter	Meaning
CV MODE	Constant Voltage mode	CC MODE	Constant Current mode
CP MODE	Constant Power mode	CR MODE	Constant resistant Mode
OPEN MODE	Open Circuit Mode	SHORT MODE	Short circuit mode

After input is completed,press “Enter” button and enter the next step.

3: Setting the working model of working parameters

According to the different work mode selected in the second step,the prompt information in this step is also different,listed as below:

Selection Mode	Prompt Information	Selection Mode	Prompt Information
CV MODE	STEP x: VOLT=	CC MODE	STEP x: CURR=
CP MODE	STEP x: POWR=	CR MODE	STEP x: RESI=

Because of short circuit and open circuit don't need the work parameters,it will skip this step. After completion of work parameter input,press “Enter” key and enter the next step.

4: Input the running time

In this step,input every step needs the running time,the units is second,and the maximum is 255 seconds.

When the time value input is completed,press “Enter” key and enter the next step.

5: Selecting the measuring project

In this step,select the project which be measured,it can be one of the following items:

Measuring Items	Display Character	Measuring Items	Display Character
Measuring Voltage	TEST VOLTAGE	Measuring Current	TEST CURRENT
Measured Power	TEST POWER	Measuring Resistance	TEST RESISTANCE

When the measuring project selection is completed,press “Enter” key and enter the next step.

haven't completed all the steps,that the step number plus 1(x value namely)and return to the third step to continue to input next set of data on the list.

All the editing of the list data is finished,you can select the menu of “EXIT” menu item at all levels of the menu to return to normal status,it also can be click “Esc” key to return to normal state directly.

Enter method:

Press “Shift+0” button to into the selection menu of function setting and press “▲” and “▼” key,turn to “LIST SET” item,then press “Enter” button and exit from the function selection menu,the screen shows “LIST OUTPUT” ,it express that is in the mode of list ouput currently.

Operational process:

Operate “On/Off” key to start or stop the output,the upper right corner of the screen shows whether the list output has been launched by “OFF” and “ON”.

According to the motion after the list output ending settled by the first step in the first paragraph of “Settings Method” .The bottom right of screen will display different content as a reminder:

CONTIONUOUS: Always show “RUN”.

RESET: It shows “RUN” when it running, it shows “RESET” after the list output ending.

HOLD: It shows “RUN” when it running, it shows “HOLD” after the list output ending.

Notice:

None.

Automatic testing

Meaning:

The work mode of automatic testing is used to proceed a series of tests for power supply under test,it will given the conclusion of the product whether is qualified after the test is completed.

In operation,you can set the 50 work steps at most(of course,if you don't need so many steps,can also be less than 50 steps),in each step,the user can designate the working mode of the step(constant voltage,constant current,constant power and constant resistance,short circuit and open circuit),the operating parameters and the running time of the step are given.

Next,specifying the steps of measuring project can choose the voltage,electric current,power and resistance,and then specify the upper and lower limit of measured value.

In operation,the electronic load measuring the specified project according to the operation mode listed and the appointed time of parameters running at the end of each period of time,and comparing with the upper and lower of specified parameters, if it is greater than the upper limit or less than the lower limit value,it will stop the test and send out alarm to prompt the products is unqualified.

Setting method:

One、 Basic setting

Press “Shift+0” button to enter the selection menu of function setting,press “▲” and “▼” key turn to “AUTO TEST SET” item,and then press “Enter” button,and press “▲” and “▼” button again,select “EDIT AUTO TEST” and press “Enter” key,enter the editing interface of the automatic test program,it is in the steps of edit list as follow:

1: Setting the length of the step

Note:

In the working mode of constant power,constant resistance,the input required of voltage and current is greater than the full range of 10%,the accuracy meet the parameters in the table at this time ,otherwise it can exceed the range of accuracy.

Form two: Basic Parameter of RK9715 (B) and RK9716 (B)

Type		RK9715		RK9715B		RK9716		RK9716B	
Rated Input	Voltage	0—150V		0—500V		0—150V		0—500V	
	Electric Current	0—240A		0—120A		0—240A		0—120A	
	Power	1800W				2400W			
Measured Values of Voltage	Voltage profile	0—20V	0—150V	0—20V	0—500V	0—20V	0—150V	0—20V	0—500V
	Resolution Ratio	1mV	10mV	1mV	10mV	1mV	10mV	1mV	10mV
	Accuracy	0.015%+0.03%FS		0.015%+0.05%FS		0.015%+0.03%FS		0.015%+0.05%FS	
Measured Values of Current	Current file	0—24A	0—240A	0—12A	0—120A	0—24A	0-240A	0-12A	0-120A
	Resolution Ratio	1mA	10mA	1mA	10mA	1mA	10mA	1mA	10mA
	Accuracy	0.03%+ 0.05%FS	0.1%+ 0.1%FS	0.03%+ 0.05%FS	0.03%+ 0.08%FS	0.03%+ 0.05%FS	0.1%+ 0.1%FS	0.03%+ 0.05%FS	0.03%+ 0.08%FS
CV-Constant Voltage mode	Scope	0—20V	0—150V	0—20V	0—500V	0—20V	0—150V	0—20V	0—500V
	Resolution Ratio	1mV	10mV	1mV	10mV	1mV	10mV	1mV	10mV
	Accuracy	0.03%+0.02%FS		0.03%+0.05%FS		0.03%+0.02%FS		0.03%+0.05%FS	
CC-Constant Current mode	Scope	0—24A	0—240A	0—12A	0—120A	0—24A	0-240A	0-12A	0-120A
	Resolution Ratio	1mA	10mA	1mA	10mA	1mA	10mA	1mA	10mA
	Accuracy	0.05%+ 0.05%FS	0.1%+ 0.05%FS	0.05%+ 0.05%FS	0.1%+ 0.05%FS	0.05%+ 0.05%FS	0.1%+ 0.05%FS	0.05%+ 0.05%FS	0.1%+ 0.05%FS
Constant Power mode	Scope	0—1800W				0—2400W			
	Resolution Ratio	10mW							
	Accuracy	0.1%-0.1%FS							
Constant Resistant mode	Scope	0-99.99999KΩ							
	Resolution Ratio	10mΩ							
	Accuracy	0.1%+0.1%FS							
Battery capacity test: Max 1000AH,Resolution Ratio:1uAH.									
Dynamic testing:the maximum frequency of 25KHz,2.5A/uS,the maximum pulse width of 100S,the accuracy of 20uS.									
Short circuit function	Voltage	0V							
	Electric Current	About 13.2A	About 132A	About 3.3A	About 33A	About 26.4A	About 264A	About 6.6A	66A
	Resistance	About 6mΩ		About 50mΩ		About 6mΩ		About 50mΩ	
Temperature	Working	0 - 40℃							
	Storage	-10 — 70℃							

Meaning:

The internal high-power tube of electronic load is breakover completely,simulate a short circuit in the input end.。

Enter method:

Press “Shift+9” button,the screen shows “SHORT WORK MODE” and express enter the short circuit working mode currently,this mode is not running parameters can be set up,so there is no need to “Enter” key to confirm.

Operational process:

Operate “On/Off” key to start or stop the output.The upper right corner of the screen shows whether to open the short circuit mode by “ON” and “OFF” .

Notice:

None.

Listing Output (LIST)

Meaning:

Listing output is also known as the output of the program,it refers to the electronic load output successively in accordance with the constant current value compiled and its corresponding time,in order to achieve the edit capabilities of any current waveform.

Setting method:

Press “Shift+0” button,enter the menu selection of function setting and press “▲” and “▼” key,turn to “LIST SET” item,and then press “Enter” button,press “▲” and “▼” button again and select “EDIT LIST” ,press “Enter” key to enter the list to editing interface,the steps of edit list as follow:

1: The motion after the list output ending

CONTIONUOUS: Continue to start from step 1 after the list output ending,loop output setting value.

RESET: Shut down the output after the list output ending.

HOLD: Remain the final output value invariant after the list output ending.

Press “Enter” key to enter the next step after selection is completed.

2: Setting the length of steps

The largest number of steps of list is 200 steps,but not every test project need such a long steps.It needs to input the number of steps in this step,and then press “Enter” button and enter the next step.

The following steps to set the number for 5 step as an example to explain.

3: Setting every step of the constant current value

The screen shows “STEP x: CURR=” and prompt input the current value of x step, x represents a value of 1-200.

After input is completed,press “Enter” button and enter the next step.

4: Setting the duration of each step

Screen shows “STEP x: TIME=” and prompt input the duration of x step,x represents a value of 1-200.

After input is completed and press “Enter” button,if you have already completed all the steps(in this case is 5step),exit to the list of editing and return to the up one level menu,if you

AUTO: It express that after the electronic load starting,the change of current complete in accordance with“A -> A-B -> B -> B-A -> A”automatically,without outside intervention.

TRIG: When received the trigger signal,according to the original current is A or B,in accordance with“A -> A-B -> B”or“B -> B-A -> A”to complete one change,and then stopped at the final electrical level.

PULSE: When received the trigger signal,the change of current in accordance with “A -> A-B -> B -> B-A -> A” to complete a time,then stop in A current and waiting for the next trigger.

In the “PULSE” and “TRIG” this two kinds of mode,the trigger signal can be from three aspects:

1. “Shift+.” key
2. Through the switch short-circuit a time and connect the terminal “TRI” and “GND” of the cage.
3. The remote trigger instruction of PC.

Operational process:

Press “Shift+3” key and screen shows “DYNAMIC TEST” into the dynamic testing mode,operate “On/Off” key to start or stop the output.The upper right corner of the screen shows it whether start and the current state after start by “OFF”、“A” “A-B”、“B” and “B-A” respectively.

Notice:

None.

Battery capacity test (BATT)

Meaning:

The working mode is used to measure the capacity of the battery,after start-up, the electronic load discharge to the power supply under test by the specified current and accumulate the time of discharge at the same time,it calculated release of power,in the process of discharge,if the voltage of the power supply under test is lower than the specified value,it will stop the discharge.

Enter method:

Firstly,set the discharge current by setting “the constant current working mode”, and then press “Shift+8” key,the screen shows “END TEST VOLT=” and prompt that input the voltage of the test termination,after the input is completed,press “Enter” key to return to normal state,the bottom right corner screen shows “BATT” ,it express it is in the mode of the battery capacity test currently.

Operational process:

Operate “On/Off” key to start or stop the output.The upper right corner of the screen shows “Not Started” “In measurement” “Test ending” by “OFF” “TEST” “END” respectively.

The middle position of the second Line on the screen displayed the electric quantity has been released,the unit is AH,that is “Ampere-Hour” ,the data showed accurate to the sixth decimal places after the decimal point,therefore,it can display the electric quantity of 1uAH accurately,that is the electric quantity discharged by 1uA current during 1 hour namely.

Notice:

In the working mode of the battery capacity testing,long press “Esc” key and the time reach more than 1 second,it can reset the capacity value measured to 0.

Short circuit function

Note:

In the working mode of constant power,constant resistance,the input required of voltage and current is greater than the full range of 10%,the accuracy meet the parameters in the table at this time ,otherwise it can exceed the range of accuracy.

Form three: Soft start and dynamic testing time parameters

Setting Resolution	0.01mS
Working Resolution	0.02mS
The maximum setting value	99999.99mS

Form four: Battery capacity test parameters

Resolution Ratio	Capacity<10AH	10AH≤Capacity<100AH	100AH≤Capacity<1000AH
	1uAH	10uAH	100uAH
Maximum measuring range	999.999999AH		

Constant resistance turns to constant voltage (CR-CV)

Meaning:

In the work of stage 1,the electronic load work with the mode of constant resistance,when the voltage of the power supply under test decline to a designated value,it will enter the mode of constant voltage.

Enter method:

Enter the “constant resistance” work mode first,and input the expected final resistance value,then press “Shift+5” button,the screen shows “CR TO CV VOLT=” that prompts input the expected voltage value.After input is completed,press “Enter” key and return to normal state,the bottom right corner of screen shows “CR-CV” ,it express it is in the mode of constant resistance turns to constant voltage currently.

Operational process:

Operate “On/Off” key to start or stop the output.The upper right corner of the screen shows the current working status by “OFF”、 “CR” and “CV” respectively. “OFF” express do not started, “CR” express is in a state of constant resistance discharge currently, “CV” express that enter the constant voltage state.

Notice:

When working state turns from the constant resistance into the constant voltage, there will be a prompt tone,press any key to cancel the prompt tone.

Dynamic testing

Meaning:

This mode of operation is used to test the anti impact ability of the tested power supply,the electronic load discharge to the power supply under test with two current(the minimum is 0,the maximum can be the allowable maximum value),the size of the two kinds of current,the duration and the duration between the current conversion can adjust respectively.

Enter method:

Set the above parameters first and press “Shift+6” key,it can enter the settings.The following table gives the contents and meanings of settings,each complete one input needs to press “Enter” to the next item.

Content Displayed	Meaning
LEVEL A CURR=	Input the current value of A segments current.
WIDTH A TIME=	Input the duration of A segments current.
WIDTH OF A-B=	Input the duration of A segments current turns to B segments current.
LEVEL B CURR=	Input the duration of B segments current.
WIDTH B TIME=	Input the duration of B segments current turns to A segments current.
WIDTH OF B-A=	Use“▲” and “▼”key can choose“AUTO”、 “TRIG”and“PULSE”.
TRANSMIT MODE=	Input the duration of B segments current.

In the table above,the last item is used to setting the dynamic testing mode, explaining in detail as follow:

When setting load and unload voltage value,it should be set according to the following formula,otherwise it will cause oscillation:
on-load voltage > uninstall voltage

Constant resistance（CR）

Meaning:
In constant resistance mode,the electronic load behave as a normal resistance, the electric current will increased linearly with the input voltage rises, current and linear increase.

Enter method:
Press “R-set” key and the screen shows “STANDARD RESI=” that prompts input the expected resistance value,after input is completed,press “Enter” button and return to normal state,the bottom right corner of screen shows “CR” ,it express it is in the constant resistance mode currently.

Operational process:
Operate “On/Off” key to start or stop the output.Adjust the turn-knob on the top right corner of the faceplate can change the magnitude of power.

Notice:
None.

Loading unloading constant resistance（CR-LU）

Meaning:
It does not start before the input voltage rising to the load voltage,only when the input voltage is greater than the load voltage value,the electronic load will start and enter the constant resistance mode;If in the process of operation,the input voltage declining below the discharge voltage,it will cease the constant resistance mode.In order to prevent some of the power supply joined the larger load and cannot be started during startup.

Enter method:
Enter the “constant resistance” work mode first,and input the expected final power value,then press “Shift+1” button,the screen shows “ONSET=” that prompts input the expected on-load voltage value.After input is completed,press “Enter” key and the screen shows “OFFSET VOLT =” that prompts input the expected unloading voltage value,after input is completed,press “Enter” button and return to normal state,the bottom right corner of screen shows “CR-LU” ,it express it is in the loading and unloading constant resistance mode currently.

Operational process:
Operate “On/Off” key to start or stop the output,if the input voltage is less than the load voltage,the upper right corner of the screen shows “WAIT” ,if it is greater than the load voltage,the screen shows “ON” .Adjust the turn-knob on the top right corner of the faceplate can change the resistance value,press the turn-knob and can change the bits of digits and obtain the speed or accuracy expected.

Notice:
When setting load and unload voltage value,it should be set according to the following formula,otherwise it will cause oscillation:
on-load voltage > uninstall voltage

Three Common Terms

The interpretation of the term used in the instruction as below.

- ◆ **The power supply waited for be test**
Electronic load is used to measure the various features of dc power supply,such as the stability of power supply voltage,load capacity,the ability of transient suppression,overload capacity,capacity(battery)and other indicators.In this paper,if mentioned the power supply to be tested,mean the power supply is to be measured,or the “test object power supply”.
- ◆ **Operating Mode**
Electronic load has a variety of work mode,different mode of work can finish different measuring function,such as constant voltage mode and constant current mode,battery capacity testing work mode,automatic test work mode,etc.
In normal working state,the bottom right corner of the screen displays the current working mode,the specific meaning is as follows:

Character	Meaning	Character	Meaning
CV	Constant voltage	CR	Constant resistance
CVS	Soft start constant voltage	CR-LU	Loading unloading Constant resistance
CV-LU	Loading unloading constant voltage	CR-CV	Constant resistance turns to constant voltage
CC	Constant current	DYNAMIC TEST	Dynamic testing
CCS	Soft start constant current	BATT	Battery test
CC-LU	Loading unloading constant current	SHORT WORK MODE	Short-circuit test
CC-CV	Constant current turns to constant voltage	LIST OUTPUT	Listing Output
CP	Constant power	ATUO TEST	Automatic testing
CP-LU	Loading unloading constant power		

- ◆ **Normal state and setting state**
Normal state and setting state is relative.In normal state,the screen display various data,show the detected parameters and settings parameters.

In normal state,presses the specific button can into the setting state,in the condition of setting,usually will prompt the user input data to confirm a certain operation parameters,or choose between a few options.

In setting state,the first line on the screen content is the same as the normal state,the content setted showed on the second line of the screen,if mentioned in the description of the “screen display” ,it refers to the second line of the screen.

◆ **Setting value、 actual value and the calculated value**

Setting value refers to operation parameters setted by the user.Actual value refers to the value of the instrument detected.These two values sometimes are equal,but sometimes are not equal,with the constant current mode,for example,the user setting to 2A,but the external power supply can only provide 1.5A(it is possible power resistance is bigger,or the power supply itself with current limiting function),the “2A” is the setting value, 1.5A is the actual value.

Calculated value is the value calculated according to the actual value, such as power value and resistance value,they are not measured directly,but calculated according to the measured voltage and current data.

◆ **Setting parameters(setting value or running parameters)and parameters saving**

Setting parameters is the setting value of in the last entry,in different context,sometimes named setting values,sometimes named setting parameters or running parameters.

Setting parameters specified by the user,as the voltage value of the constant voltage mode,the current value of the constant current model,the stopped test voltage value of the battery capacity test,etc.

When the users setting certain a parameter,if press the “Esc” key,then will return to normal state,and won't save the data inputed,if the data input is complete and press “Enter” key,the equipment will save the input data,data won't lost when the power is cut off,arrange another time to use.

◆ **Output State**

There are two kinds of electronic load for output state.It is “stop” and “run” .It showed as “ON” and “OFF” in the left upper corner of the screen respectively.

Electronic load internal has multiple power tube,working in one of the cut-off,amplification and saturated state,for the power supply will be tested, it is equivalent to a variable load.

The “stop” state express power tube cut-off,for the power supply will be tested,it express the open circuit of load(in physical,electronic load still connect with the power supply will be tested).

The “Running” state express the working state of power tube is amplification or saturation,the resistance value showed reduce,it will consume a certain amount of power.

◆ **The shift key and shift**

In keypad areas,0-9 this ten number key have the second function mostly, in the condition of setting,used as a common number keys.

The “Shift” is called the Shift key,when press the Shift key,the upper right corner of the screen shows that the location of the output state will show “Shift” character,time for 5 seconds.Within the 5 seconds,shift function is effective.If press buttons with the second functions,it will trigger the second function of the button.

When working state turns from the constant current into the constant voltage, there will be a prompt tone,press any key to cancel the prompt tone.

Constant power (CP)

Meaning:

When electronic load run with constant power mode,its impedance rise with the voltage rising,make the product of the voltage and current is constant,the power is constant namely.

Enter method:

Press “P-set” button,and the screen shows “STANDARD POWR=” that prompts input the expected magnitude of power.After input is completed,press “Enter” key to return to normal state,the bottom right corner of screen shows “CP” ,it express it is in the mode of constant power currently.

According to different types of the equipment,the maximum allowable consumption power of **RK8511** is 150W,the maximum allowable consumption power of **RK8512** is 300W power.

根据设备型号的不同, **RK8511** 最大允许消耗 150W 功率, **RK8512** 最大允许消耗 300W 功率。

Operational process:

Operate “On/Off” key to start or stop the output.Adjust the turn-knob on the top right corner of the faceplate can change the magnitude of power.

Notice:

None.

Loading unloading constant power (CP-LU)

Meaning:

It does not start before the input voltage rising to the load voltage,only when the input voltage is greater than the load voltage value,the electronic load will start and enter the constant power mode;If in the process of operation,the input voltage declining below the discharge voltage,it will cease the constant power mode.In order to prevent some of the power supply joined the larger load and cannot be started during startup.

Enter method:

Enter the “constant power” work mode first,and input the expected final power value,then press “Shift+1” button,the screen shows “ONSET=” that prompts input the expected on-load voltage value.After input is completed,press “Enter” key and the screen shows “OFFSET VOLT =” that prompts input the expected unloading voltage value, after input is completed,press “Enter” button and return to normal state,the bottom right corner of screen shows “CP-LU” ,it express it is in the loading and unloading constant power mode currently.

Operational process:

Operate “On/Off” key to start or stop the output,if the input voltage is less than the load voltage,the upper right corner of the screen shows “WAIT” ,if it is greater than the load voltage,the screen shows “ON” .Adjust the turn-knob on the top right corner of the faceplate can change the magnitude of power,press the turn-knob and can change the bits of digits and obtain the speed or accuracy expected.

Notice:

When setting load and unload voltage value,it should be set according to the following formula,otherwise it will cause oscillation:

on-load voltage > uninstal voltage

Soft start constant current (CCS)

Meaning:

In this work mode,the constant current value according to the appointed time, rise from 0 to the current value specified of“constant current working mode”.

Enter method:

Enter the “constant current” work mode first,and input the expected final current value,then press “Shift+2” button,the screen shows “RISING TIME=” that prompts input the expected time premium.After input is completed,press “Enter” key to return to normal state,the bottom right corner of screen shows “CC-S” ,it express it is in the soft start constant current mode currently.

The maximum time allowed setting is 99999.99mS,is about 100 seconds.

Operational process:

Operate “On/Off” key to start or stop the output,the meaning of the character displayed on the upper right corner is as follows:

OFF: Not Started

START: In the process of soft start

ON: The boot process has been completed,enter the constant voltage mode

When start every time,the rated current will be increased from zero to constant current setting value.

Notice:

If the electric current provided by the load is less than the specified current value(such as power supply resistance or power supply current circuit limited),it will not obtain the setting current value.

Constant current turns to constant voltage (CC-CV)

Meaning:

In the work of stage 1,the electronic load discharge to the power under test with the stable current,if the voltage of power supply is lower than the specified value,the electronic load will into stage 2——the constant voltage mode.

Enter method:

Enter the “constant current” work mode first,and input the expected final current value,then press “Shift+4” button,the screen shows “CC TO CV VOLT=” that prompts input the expected voltage values.After input is completed,press “Enter” key to return to normal state,the bottom right corner of screen shows “CC-CV” ,it express it is in the mode of constant current turns to constant voltage currently.

Operational process:

Operate “On/Off” key to start or stop the output.The upper right corner of the screen shows the current working status by “OFF”、 “CC” and “CV” respectively. “OFF” express do not Started, “CC” express is in a state of constant current discharge currently, “CV” express that enter the constant voltage state.

Notice:

If didn’t press the botton of the second function within 5 seconds,or press “Shift” key again,or presses the button don’t have the second function. “Shift” characters on the screen disappeared,shift function is failure.

In this paper,using “Shift+1” to express that press “Shift” key first,and press the button “1” within 5 seconds.

◆ Trigger Input

In the dynamic test work mode,the user can choose how to start the dynamic testing,if you select automatic,electronic load will switch between the two kinds of current value automatically,if you choose to trigger,the electronic load would be in a waiting trigger state,if there is a trigger event occurs,the electronic load will complete a current change process,the specific operation can refer to the explanation of dynamic test model.

There are three kinds input methods of trigger input,one is “Shift +.” .The second is the terminal on the back of the machine,connect two lead on the “TRI” and “GND” .When the two line short-circuit at a time,it will complete a trigger.The third is the trigger button on the PC.

◆ Trigger Output

After completion of the automatic test,or in the automatic test,one test fails can output a trigger signal.This signal sent by the rear of the machine load “TRQ” and “GND” ,the user can connect a prompt equipment externally,it used to prompt the operator whether the test completed or test failure.

The specific way of trigger output please refer to the introductions of the “automatic test” working mode.

Four Quick Start

Power On Self Test

The machine will be connected to the 220V power supply,press the power button on the lower left corner on the front faceplate and start the instrument,enter the self test process first,the prompt as below(RK9713 as an example,the other type models will display the corresponding model name):

Project	VFD display	Explanation
Power on	RK9713 VERSION: 1.0 SYSTEM SELF TEST	Automatic System Check,and display the product model and the software version number.
1 seconds after	ERROR: EEPROM	If the EEPROM damage,the instrument can't work normally,the screen will display this information,buzzer warning sound.
	xxxxxxxV xxxxxxxA xxxxxxxW xxxxxxxX	VFD displayed for actual input voltage, electric current,power,setting parameters value and the current state.

If the load can't start

Use the following methods can help to solve problem that you may encounter when open load.

- To check whether the 220V power supply is normal,and whether the power cord in good condition,whether the power switch is opened.
- Check whether the load of the fuse is burnt.

If the fuse is burnt,please use 1A/250V insurance tube replaced.The method of fuse replacementis as follows:

Prize up the small plastic cap at the bottom of the power input socket on the rear faceplate of the load with the slotted screwdriver.That can see the insurance tube,please use only the fuse of the above specifications.

If you still cannot start the instrument,please contact our after-sales personnel,customers can’t adjust the components in the instrument,please don't repair or modification for instrument,otherwise,our company will not assume any obligations,and responsibility.

The Front Faceplate

Terminal on the right of the front faceplate of RK9713 electronic load(Or the wiring copper bar),the structure is shown below in figure 4-1 and 4-2:

If the input voltage is less than the constant voltage setting value,it will not get a stable voltage value.

Constant current （CC）

Meaning:

The resistance of the electronic load increases with the rise of the input voltage,the current that flowed through the electronic load remains unchanged,it showed the characteristics of constant current.

Enter method:

Press the “I-set” button and the screen shows “STANDARD CURR=”,it prompt that input the expected current value,after input is completed and press “Enter” key to return to normal state,the bottom right corner of screen shows “CC” ,it express is in constant current mode currently.

Operational process:

Operate “On/Off” key to start or stop the output.Adjust the turn-knob on the top right corner of the faceplate can change the current value,press the turn-knob and can change the bits of digits and obtain the speed or accuracy expected.

Notice:

If the electric current provided by the load is less than the specified current value(such as power supply resistance or power supply current circuit limited),it will not obtain the setting current value.

Loading unloading constant current （CC-LU）

Meaning:

It does not start before the input voltage rising to the load voltage,only when the input voltage is greater than the load voltage value,the electronic load will start and enter the constant current mode;If in the process of operation,the input voltage declining below the discharge voltage,it will cease the constant current mode.In order to prevent some of the power supply joined the larger load and cannot be started during startup.

Enter method:

Enter the “constant current” work mode first,and input the expected final voltage value,then press “Shift+1” button,the screen shows “ONSET=” that prompts input the expected load voltage value.After input is completed,press “Enter” key and the screen shows “OFFSET VOLT=” that prompts input the expected unloading voltage value, after input is completed,press “Enter” button and return to normal state,the bottom right corner of screen shows “CC-LU” ,it express it is in the loading and unloading current mode currently.

Operational process:

Operate “On/Off” key to start or stop the output,if the input voltage is less than the load voltage,the upper right corner of the screen shows “WAIT” ,if it is greater than the load voltage,the screen shows “ON”.Adjust the turn-knob on the top right corner of the faceplate can change the current value,press the turn-knob and can change the bits of digits and obtain the speed or accuracy expected.

Notice:

Meaning:

It does not start before the input voltage rising to the load voltage,only when the input voltage is greater than the load voltage,the electronic load will start to enter the constant voltage mode;If in the process of operation,the input voltage declining below the discharge voltage,it will cease the constant voltage mode.In order to prevent some of the power supply joined the larger load and cannot be started during startup.

Enter method:

Enter the “constant voltage” work mode first,and input the expected final voltage value,then press “Shift+1” button,the screen shows “ONSET=” that prompts input the expected load voltage value.After input is completed,press “Enter” key and the screen shows “OFFSET VOLT=” that prompts input the expected unloading voltage value, after input is completed,press “Enter” button and return to normal state,the bottom right corner of screen shows “CV-LU” ,it express it is in the loading and unloading voltage mode currently.

Operational process:

Operate “On/Off” key to start or stop the output,if the input voltage is less than the load voltage,the upper right corner of the screen shows “WAIT” ,if it is greater than the load voltage,the screen shows “ON” .Adjust the turn-knob on the top right corner of the faceplate can change the voltage value,press the turn-knob and can change the bits of digits and obtain the speed or accuracy expected.

Notice:

When setting load and unload voltage value,it should be set according to the following formula,otherwise it will cause oscillation:

on-load voltage > setting value of the constant voltage > discharge voltage

Soft start constant voltage (CVS)**Meaning:**

In this work mode,the constant voltage value according to the appointed time, rise from 0 to the voltage value specified by “constant voltage working mode”.

Enter method:

Enter the “constant voltage” work mode first,and input the expected final voltage value,then press “Shift+2” button,the screen shows “RISING TIME=” that prompts input the expected time premium.After input is completed,press “Enter” key to return to normal state,the bottom right corner of screen shows “CV-S” ,it express it is in the soft start constant voltage mode currently.

The maximum time allowed setting is 99999.99mS,is about 100 seconds

Operational process:

Operate “On/Off” key to start or stop the output,the meaning of the character displayed on the upper right corner is as follows:

OFF: Not Started

START: In the process of soft start

ON: The boot process has been completed,enter the constant voltage mode

When start every time,the virtual voltage will be increased from zero to constant voltage setting value.

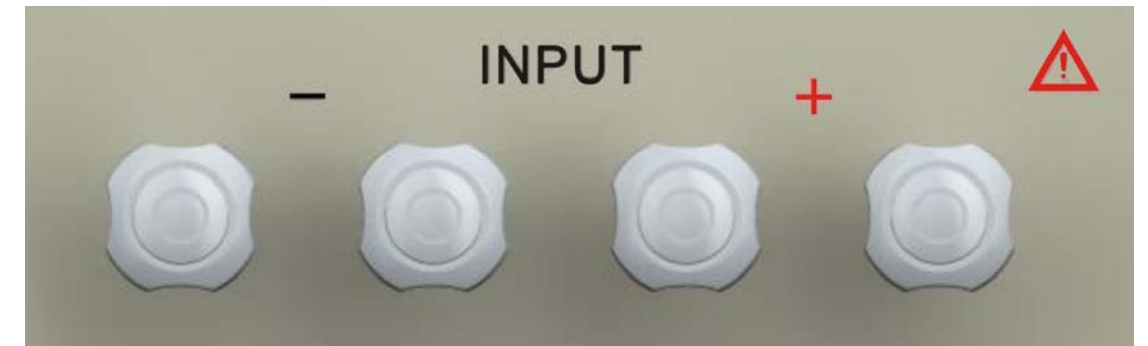
Notice:

Figure 4—1 Apply to the terminal of RK9713、RK9713B、RK9714B、RK9715B and RK9716B

The current allowed testing of RK9713,RK9713B,RK9714B,RK9715B and RK9716B these five products are smaller(less than or equal to 120A).Using the large current terminal as the connection mode,the negative electrode of measured power source connect the two terminal on the left side,the positive electrode of measured power source connect the two terminal on the right side.

In the actual test,if the measured current is less than or equal to 60A,you can use one of two terminal(one on each side),if the measured current is greater than 60A,you can use of the four terminals best to avoid excessive current burned out the terminal.

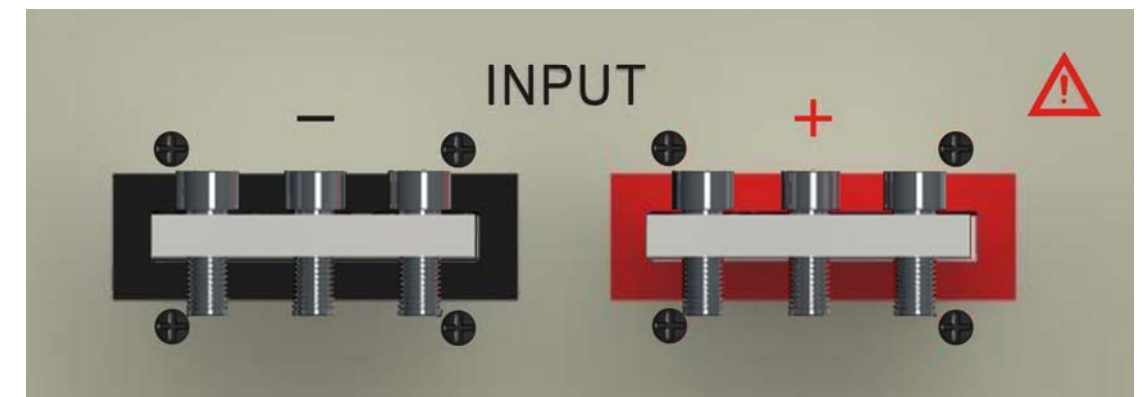


Figure 4—2 Apply to the terminal copper bar of RK9714、RK9715 and RK9716

The maximum current allowed testing of RK9714、RK9715 and RK9716 these three products can reach 240A,so using the terminal copper bar as the connection mode, the test line is fixed on the cold terminal in the course of using,and then fixed on the terminal copper bar through the inner 6 angle screws,as shown in Figure 4-3.



Figure 4—3 The connection mode of using the terminal copper bar

In the actual test,if the test current is large,can be shown in Figure 4 - 3, all the three terminals on each terminal copper bar access to the test loop,and each cold terminal is pressed by the two wires,in order to increase the current-carrying capacity;if the current of measurement circuit is small,can reduced number of leads and the sectional area according to the situation,the principle is that the wire is not hot,of course,if the access wire is more coarse(including wire diameter and number).The smaller the resistance,the smaller the line pressure drop.

On the left side in the front faceplate of the RK9713 series electronic load, iron plate embedded in a plastic faceplate,electronic load button,knob and display screen all on the plastic faceplate,appearance shown as Figure 4-4(shown in figure RK9713,other models with the same,only the upper part of the PVC printing content is different):

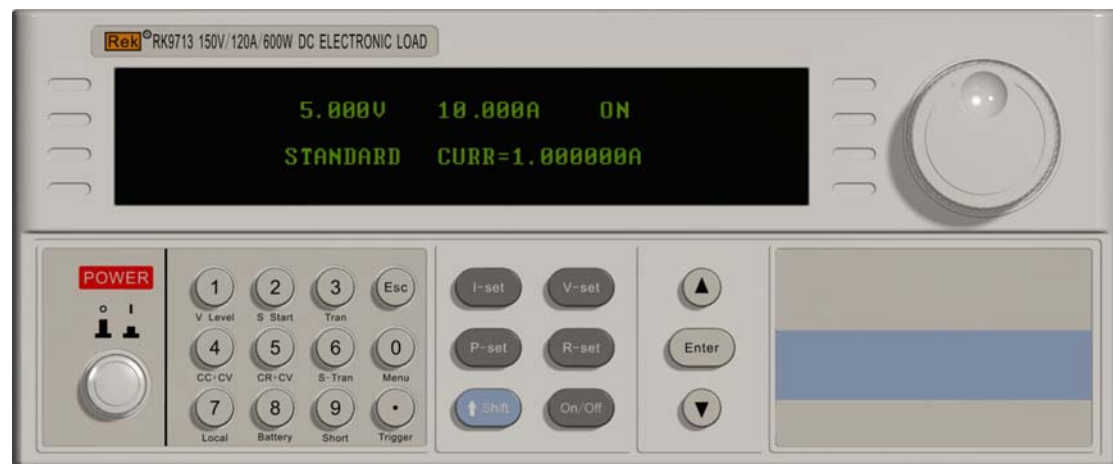


Figure 4—4 The Picture of The Front Faceplate

The upper half of the front faceplate,the left side is VFD display screen,it used to display a variety of data,such as voltage,electric current,power,resistance, capacity or the setting parameters of the corresponding project.

Display content is divided into two lines,a total of six regions,in the top row,on the left shows the actual voltage,the middle shows the actual electric current, on the right shows the current running status of the project,such as display “ON” it express the project has been started, “OFF”

Six Operating Mode

Prompt:

This chapter will explain the operation mode of the electronic load,DC electronic load support working mode as following:

- 1: Constant voltage 2: Soft start constant voltage 3: Loading unloading constant voltage
- 4: Constant current 5: Soft start constant current 6: Loading unloading constant current
- 7: Constant current turns to constant voltage
- 8: Constant power 9: Loading unloading constant power
- 10: Constant resistance 11: Loading unloading constant resistance
- 12: Constant resistance turns to constant voltage
- 13: Dynamic testing
- 14: Battery capacity testing
- 15: Short circuit function
- 16: Listing output
- 17: Automatic testing

The following section introduce the work mode of above-mentioned in detail,in the introductions,composing according to the following format:

Meaning: Introduce the measuring principle of work patterns.

Enter method: How to enter the working mode.

Operational process: Start to run the work mode.

Notice: Something matters need attention about using this pattern.

Constant voltage (CV)

Meaning:

Electronic load as a high power voltage stabilizing diode,no matter how the current flow through the electronic load change,it maintain the voltage at the ends of the constant.

Enter method:

Press “V-set” button,the screen shows “STANDARD VOLT=” to prompt input the expected voltage value,when the input is completed,press “Enter” key to return to normal state,the bottom right corner of screen shows “CV”,it express that is in constant voltage mode currently.

Operational process:

Operate the “On/Off” key,it will start or stop the output.Adjust the turn-knob on the top right corner of the faceplate can change the voltage value,press the turn-knob can change the bits of digits and obtain the speed or accuracy.

Notice:

If the voltage inputted is less than the setting value of constant voltage,it will not get a stable constant voltage value.

Loading unloading constant voltage (CV-LU)

It has two choices, “FRONT” and “BACK” ,it express front and back respectively,and it refers to the electronic load measuring voltage of the voltage source input from the front faceplate terminal of cage,or input from the rear terminal of the cage.When input from the rear terminal,it can compensate voltage drop of the wire from the power supply under test to the electronic load.

● SYSTEM VOLTAGE RANGE

Setting the voltmeter gear, “HIGH” and “LOW” two gears, “LOW” gear can measure and control the voltage from 0 to 20V, “HIGH” gear allows reached 0 to 150V(RK9713、 RK9714、 RK9715 and RK9716)or 0 to 500V(RK9713B、 RK9714B、 RK9715B and RK9716B).

If work in “LOW” gear,voltage values displayed accurate to three decimal places(that is,1mV),when working in “HIGH” gear,voltage values displayed accurate to two decimal places(that is,10mV).

● SYSTEM CURRENT RANGE

Setting the current meter gear,“HIGH” and “LOW” two gears,“LOW” gear can measure and control the current from 0 to 12A,“HIGH” gear allows to 0 to 120A.

If work in “LOW” gear,current value displayed accurate to three decimal places(that is,1mA),when working in “HIGH” gear,current value displayed accurate to two decimal places(that is,10mA).

The current range and resolution of other models are different when in different current stall,please refer to the following table:

		RK9713	RK9713B	RK9714	RK9714B	RK9715	RK9715B	RK9716	RK9716B
Low	Range	0—12A	0—3A	0—24A	0—6A	0—24A	0—12A	0—24A	0—12A
	Resolution	1mA	0.1mA	1mA	0.1mA	1mA	1mA	1mA	1mA
HIGH	Range	0—120A	0—30A	0—240A	0—60A	0—240A	0—120A	0—240A	0—120A
	Resolution	10mA	1mA	10mA	1mA	10mA	10mA	10mA	10mA

● SET EXIT

Select this option,after press “Enter” key it will return the root menu.

Notice:

In the process of setting,can press the “Esc” key to exit the setup state at any time,but it can’t save parameters have changed.

express in a stopped state, “START” in the start state,etc.,The specific meaning parameters described in a later chapter.

In the next following line,under the normal state,the power value is displayed on the left,settings value displayed in middle,the right side shows test items,such as “CC” express the current state, “CV” express the state of constant voltage and so on.

In the function setting,the second line area of the screen is used to display the corresponding function of setting content and setting parameters,in the introduction subsequent will explain in detail.

Upper right of the front faceplate is the parameter adjustment rotary knob,it used for setting the parameters of fine-tuning test project,when setted the parameters it will appears a cursor in a certain number below,it express you can use the rotary knob to change the parameters,such as the original data for the “12.345” ,the cursor is under the number “4” ,the clockwise data will change in accordance with the “12.355” , “12.365” ...the counterclockwise will change in accordance with the “12.335” , “12.325” ...from 0 to 9,or from 0 to 9,automatic to carry or borrow upward.

You can also press the rotary knob to change the setting bits.According to the above example,press once,the cursor will transfer underneath the number “3” ,then press again,it will transfer underneath the number “2” .

The lower half of the faceplate,the power button on the left,keypad area in the middle,the specific methods of using please refer to the back of the specification,the right is the input terminal of the external power supply under test.

The Rear Faceplate

The rear faceplate of electronic load of the RK9713 series has two kinds of rear faceplate as shown in Figure 4—5 and 4—6:

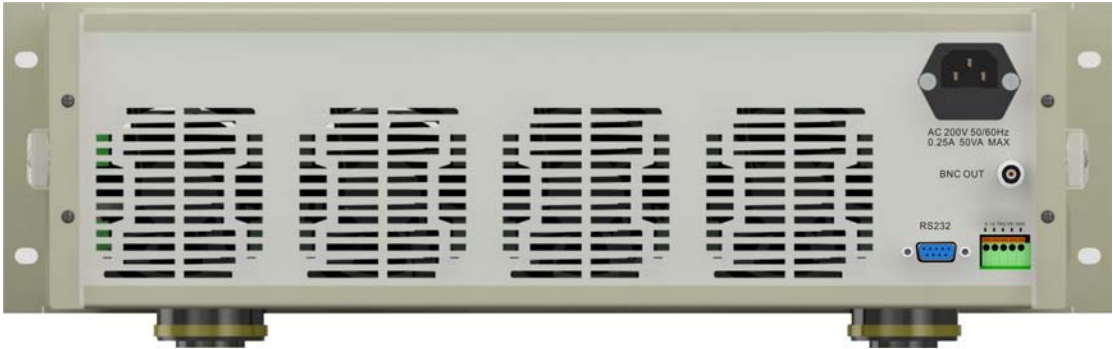


Figure 4—5 The Rear Faceplate of RK9713、 RK9713B、 RK9714 and RK9714B

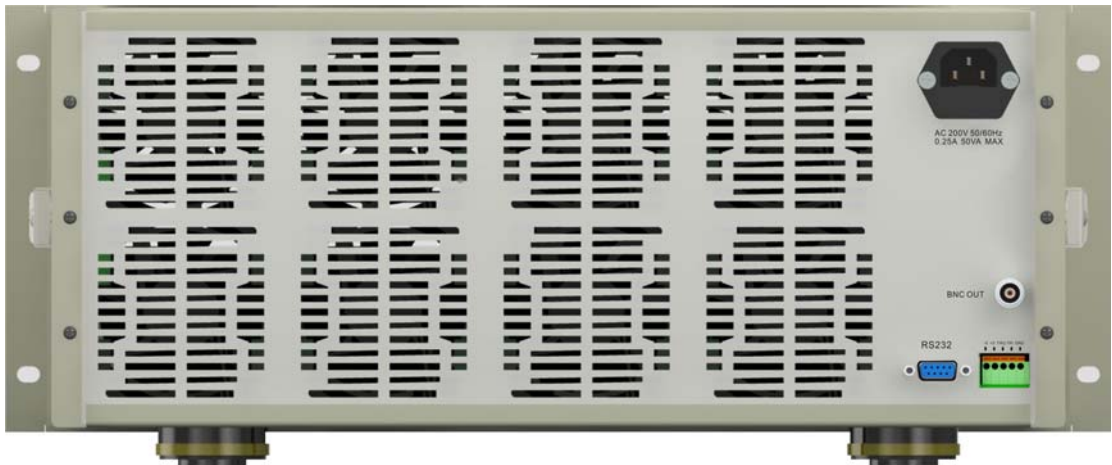


Figure 4—6 The Rear Faceplate of RK9715、RK9715B、RK9716 and RK9716B

In addition to the difference of high degree,the structure of the two kinds of faceplate is approximately the same,as RK9715, RK9715B, RK9716 and RK9716 these four products need to install more heat sink,so the case is higher.

On the rear faceplate,the left for the cooling hole,when working,if the internal temperature of the instrument reaches the setting value,the internal cooling fan will start blowing hot air,so that these two rows of holes can not be blocked by other items,especially in power load,heat dissipation holes(that is behind the case) should have enough space,and not combustibile stacking.

The 220V power input socket above the right part of the rear faceplate,220V power supply which provided by the external equipment connect into the instrument interior, at the bottom of the socket hole is the insurance tube mounting seat,if the current is too large to fusing the fuse,open the position shown in Figure 4-7 with a slotted screwdriver and change of the fuse,the capacity for 1A.



Figure 4—7 220V power input socket and BNC output socket

	EXIT LIST SET		
MENU AUTO TEST SET			
	LOAD AUTO TEST		
	EDIT AUTO TEST		
		STEP LENGTH=	
		STEP 1: MODE	
		STEP 1: PARA	
		STEP 1: TEST	
		STEP 1: MIN	
		STEP 1: MAX	
		STEP 2: TIME	
	SETUP AUTO TEST		
		TRIG TIME	
			TEST FAIL
			DISABLE
			TEST PASS
		OUTPUT MODE	
			LEVEL
			PULSE
	EXIT AUTO TEST SET		
MENU EXIT			

In the above table,the same column items can use “▲” or “▼” button to choose, some of choices is the menu item,some of them is setting items.

The difference of menu items and setting items is that the menu item is not the last column,it still has the option in the lower right cell,setting items in the end,it has no subsequent projects to choose.

For example,in the tail end of the table above, “OUTPUT MODE” is menu item,it has two settings items “LEVEL” and “PULSE” .

If you choose the “EXIT” character contained of the menu item,and press “Enter” button can return to the higher level menu,if select “EXIT” in the root menu item (MENU EXIT)it will returned to normal status.

In this chapter,only explain “SYSTEM SET” and its sub menu,the menu “LIST SET” and “AUTO TEST SET” refer to the explanation of work mode in next chapter.

In the root menu select “SYSTEM SET” and then press “Enter” button to enter the next level(level 2)sub menu,in this level menu can choose as follows:

- SOUND SET

Press “Enter” button to enter setting item,can choose to “ON” or “OFF” by “▲” or “▼” key, “ON” express that enabled the sound,when press the button, in the condition of support the current keys function,it will be issued the sound, “OFF” express that close the sound.
- SYSTEM TERMINAL SELECT

Five Setting Function

This chapter explain the function of the electronic load setup section,in the function setting,can set whether to open the buttons beep and the basic parameters of the voltage and current stall.The detailed explanation as following.

If the electronic load in the setting state,the options and related data display on the second line of the screen.In this paper,if it refer to “screen shows...” in explaining the setup process,it refers that the content on the second line of the screen displayed.

Press “Shift+0” button,the screen will shows “MENU SYSTEM SET” and entered the the root menu of state function setting.

In this state,choosing between “SYSTEM SET”、 “LIST SET”、 “ATUO TEST SET” and “EXIT” in the menu by pressing the “▲” or “▼” keys,after the completion of the selection,according to the different selection,press “Enter” key to select the corresponding subroutine,or enter the next level menu,or exit the settings status.

In function setting state,the user can choose the menu as follow:

MENU	SYSTEM SET			
		SOUND SET		
			ON	
			OFF	
		SYSTEM TERMINAL SELECT		
			FRONT	
			BACK	
		SYSTEM VOLTAGE RANGE		
			HIGH	
			LOW	
		SYSTEM CURRENT RANGE		
			HIGH	
			LOW	
		SET EXIT		
MENU	LIST SET			
		LOAD LIST		
		EDIT LIST		
			END	
				CONTIONUOUS
				RESET
				HOLD
			SET LENGH	
			STEP 1:CURR=	
			STEP 1:TIME=	

BNC socket is under the 220V power socket,a signal outputed from the socket, connected an oscilloscope externally,and used for observing current waveform of electronic load throughing,refer to figure4-7.

On the rear faceplate under the right lower,RS232 socket and multi function input and output terminal block,as shown in figure 4-8:

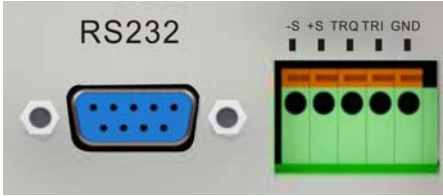


Figure 4—8 RS232 communication socket and multi function input and output terminal

Among them,the left is the RS232 communication interface,with an external module and communication lines,and then connected to the computer,observe and control the work of electronic load through the computer software.

On the right is a multi-functional terminal,five terminal in total,from left to right,is “-s”, “+S” , “TRQ” , “TRI” and “GND” respectively.

Terminal access power supply under test through the front faceplate,but in the case of load current is larger,the lead voltage between the power supply under test and electronic load drops large,the line loss large namely,voltage displayed on the electronic load is the voltage at the ends of the electronic load terminal,rather than the voltage at the ends of the power supply under test.

To make up the loss,can connect the output of the power supply under test through a thick wire to the terminal of electronic load on the front faceplate,and the output of the power supply under test will connect the terminal on the rear faceplate marked with “S” and “+S” through two lines(can use a thin wire).Through the settings menu to make electronic load voltage displayed source from the rear faceplate,it can compensate for the loss.

GND is reference ground of TRQ and TQL>About the TRQ and TRI functions,can refer to the “dynamic testing” and “automatic testing” two sections of the sixth chapter (working mode).The dynamic test pattern used for the TRI terminal function,automatic test pattern used for the TRQ function.

Keyboard Instructions

- Numbers and the decimal point

These buttons can be used in both cases,one is used for the input data in the process of parameter settings.The second is that press certain a number key can choose different functions or enter different function setting within press“Shift”button for 5 seconds.

When inputting the data,according to the expected data,such as “12.345” , press the button “1” , “2” , “.” , “3” , “4” , “5” in turn.

If input the original data in digital input area on the screen(setting values (old)),or input the wrong data,the new input numbers will left shift follow at the back of the original data,it will not be able to achieve desired results,such as the original setting values for the 56,that input after the “12.345” ,screen will shows “5612.345” .At this point,you can continue to input data when the data bits reach the largest digits(including the decimal point,eight bits in total)and then input data,it will remove the original data.

If you want to complete data input as soon as possible,can hold the first number keys of the input data hoped more than 1 second.The program will remove the original input,and the current input key as the first number of new data.

As in the example above,you can press the number keys the “1” more than 1 second that screen will display “1”,then please input “2” , “.” , “3” , “4” , “5” in turn.

In the “Shift+x” (“x” represents one of the following keys)cases,it will enter the setting state,described as follows:

The key value	Choosing function	The key value	Choosing function
0	Enter the function settings menu	1	Setting the parameters of loading and unloading
2	Setting the soft start parameters	3	Selecting dynamic testing
4	Setting the parameters of constant current turns to constant voltage	5	Setting the parameters of constant resistor turns to constant voltage
6	Setting the parameters of dynamic testing	8	Setting the parameters of battery capacity testing
9	Enter short circuit mode	.	Generating a trigger event

You can obtain what meaning of the second function represent according to the reminder at the bottom of the keypad.

● Shift

After click this button,the upper right corner of the screen shows “SHIFT” (the original showed is the output state)and it disappear automatically after 5 seconds,that display output state again.

Presses the button which has the second function before did not disappear can trigger the corresponding functions.As described above,specific operation can refer to the following instructions.

In the back of the instructions,it will use “Shift+1” to represent the first click the Shift key,then press the number keys “1” in 5 seconds.

● Esc

Push down this button in the state of function setting,you can exit the function setting.

Working in battery capacity test mode,long press this button to record the battery capacity can reset to 0.

● V-set、 I-set、 P-set and R-set

This four buttons used to open the parameter settings interface of “constant voltage” “constant current” and “constant power” and “constant resistance” respectively,after input parameters finished,press “Enter” key to exit the setup interface to shut down the output,and then turn to the corresponding work mode, if it is already in the corresponding work mode before entering the settings,the former working mode and output state is changeless,only change the operation parameters.

For example,the original work mode is the “constant power” .Press “V-set” key to open the parameter settings interface of “constant voltage” ,after the completion of the input

parameters,press “Enter” key,the instrument exit the “constant power” model to close the output(regardless of the original output is On or Off)and then enter “constant voltage” work mode;If the original is “constant voltage” working mode,after setting is completed,exit the setting state,is still the “constant voltage” model,and does not change the output state of the equipment(it is still “On” and “Off”).

● On/Off

This is a table key,if the original output state is “On” ,press this button to turn “Off” ,and press this button again,it will back to the “On” state.

● ▲▼

In the condition of function setting,this two key are used to change the project settings,or adjust project parameters,specific usage refer to the following part of function setting.

● Enter

After the completion of the function setting,click this button to exit the function setting and save the corresponding parameters setting,according to the context,return to the previous menu or return to normal working condition.