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Constant Voltage and Constant Current DC Power Supply Instruction

Model: RD6006/RD6006W/ RD6012/RD6012WRD6018/RD6018W

Date: 2021. 13. 31

Dear users, thank you for purchasing the constant voltage constant current DC power supply produced by Hangzhou Ruideng Technology Co., Ltd. In order to let you know more about the full function of this product, get a better experience and avoid misuse. Please read this instruction carefully before using it. Keep it for future reference.

Note: This instruction is corresponding to firmware V1.30, the page and operation may be different under different firmware versions, please pay attention when using it. We do recommend you to download the latest firmware for better experience.



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1.1 Technical Parameter

Model	RD6006	RD6006-W	RD6012	RD6012-W	RD6018	RD6018-W
Input voltage range	6-70.00V					
Output voltage range	0-60.00V					
Output current range	0-6.000A		0-12.00A		0-18.00A	
Output power range	0-360W		0-720W		0-1080W	
Input voltage measurement resolution	0.01V					
Output voltage setting measurement resolution	0.01V					
Output current setting measurement resolution	0.001A		0.01A			
Battery voltage measurement resolution	0.01V					
Input voltage measurement accuracy	±(1%+5 digits)					
Output voltage accuracy between setting and measurement	±(0.3%+3 digits)					
Output current accuracy between setting and measurement	±(0.5%+5 digits)					
Battery voltage measurement accuracy	±(0.5%+3 digits)					
Automatic cut off current value when charging	10mA		100mA			
Output ripple typical	100mV VPP		250mV VPP@6A			
Working temperature range	-10℃~40℃					
External sensor Temperature detection range:	-10℃~100℃/0℉~200℉					
External sensor Temperature detection accuracy:	±3℃/±6℉					
Constant voltage mode response time	2ms（0.1A-5A Load）					
Constant voltage mode load regulation	±(0.1%+2 digits)					
Constant current mode load regulation	±(0.1%+3 digits)					
Capacity measurement range	0-9999.99Ah					
Energy measurement range	0-9999.99Wh					
Capacity and energy statistical error	±2%					
Buck working mode	Voltage drop >1V and >10%					
Cooling fan start condition	Output voltage>40V or Output current>4A or System temperature>45℃		Output current>8A or System temperature>45℃			

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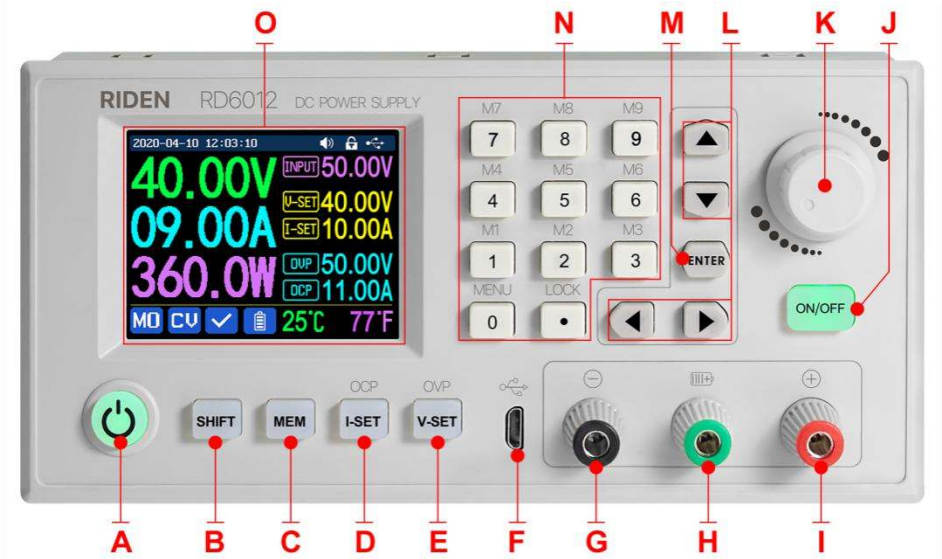
Cooling fan shut down condition when working	Output voltage <40V and Output current <3.9A and System temperature <45℃		Output current <7.9A and System temperature <45℃			
Over temperature protection	System temperature >80℃					
Screen brightness setting	0-5(6 level in total)					
Screen	2.4 inch color HD display					
Weight(with package)	About 0.58kg		About 0.61kg		About 0.68kg	
Product dimension	167*81*65mm				167*81*69mm	
Support USB communication	yes					
Support WiFi communication	No	yes	No	yes	No	yes

1.2 Core Function

·Keypad + encoder potentiometer combination adjustment
·10 data groups for storage and call out
·Firmware update, support more functions later
·2.4 inch HD color display
·Dedicated terminal for battery charging
·Brand new PC software
·Support WiFi communication /USB communication
·Support Android/ IOS APP
·Support multiple display interfaces

1.3 Panel Instruction

1.3.1 Front Panel



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A: Power button	B: SHIFT Second function button
C: Quick storage button	D: Current/Over current protection setting
E: Voltage/Over voltage protection setting	F: Micro USB port
G: Power supply output negative terminal/ Battery charging negative terminal	H: Battery charging positive terminal (Dedicated terminal for battery charging)
I: Power supply output positive terminal	J: Output switch
K: encoder potentiometer/Cancel button	L: Direction button
M: Enter/ Confirm button	N: keypad
O: Screen	

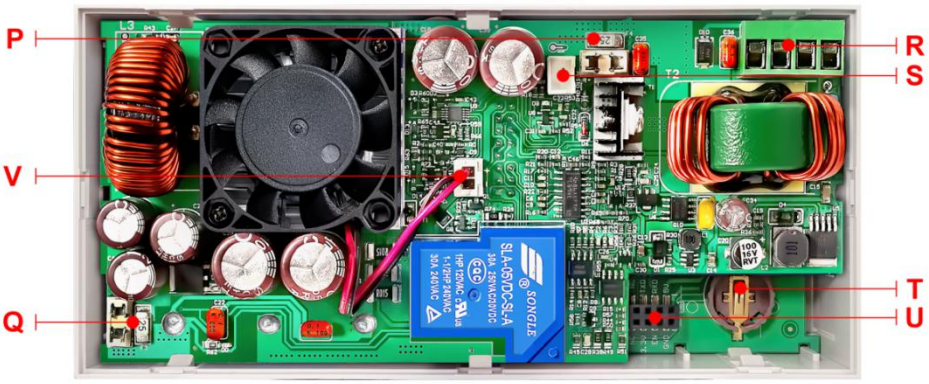
1.3.2 Back Panel



RD6006/RD6006-W



RD6012/RD6012-W



RD6018/RD6018-W

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P: Input fuse	Q: Output fuse
R: Power source input interface	S: External temperature sensor interface
T: CR1220 battery socket	U: Communication module interface
V: Fan interface	

NOTE:



Power source input interface must be connected to 6-70V constant DC power source. The external sensor cable (as shown on right) must be connected to the external temperature sensor interface. The fan interface cannot be connected to other fans. When the system temperature is higher than 80℃, the output will be shut down and show OTP on the scrren. CR1220 is the clock battery (Please prepare by yourself), it can power on the clock function. Communication interface is a special interface, please don't connect to other modules or cables.

You can see the Wi-Fi module and RS-485 module in the picture below. If you need RS-485 for industrial batch test and it is not on sale now, if you want to use that, please contact us.





1.4 Operation Instruction

After power-on, it will show boot image first, and then enters the main page. We use RD6012 as example to introduce how to use it.

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1.4.1 Main Page



W: Time	AF: Protection status indication
X: Button tune	AG: Battery charging indication
Y: Button lock status	AH: Battery related information display area
Z: Communication interface	AM: Input voltage
AA: Actual output voltage value	AL: Output voltage preset value
AB: Actual output current value	AK: Output current preset value
AC: Output power	AJ: Over voltage protection value
AD: Current data group	AI: Over current protection value
AE: Constant voltage Constant current status	

1.4.2 Operation Introduction

In the menu operation, the icon in red or cursor is the currently selected menu, the icon in blue is not selected, press **ENTER** to confirm, press the encoder potentiometer to cancel or return, press the direction button to move the cursor or switch menu, rotate the encoder potentiometer to change the setting, the settings will be automatically saved when returning from the menu page. Press and hold the 0 button and power on to restore the factory settings, press and hold the 1 button and power on to restore the factory calibration value, press and hold ENTER and power on to enter the boot mode.

1.4.2.1 Battery Charging Function Introduction

Battery charging operation video：https://youtu.be/irTbqfqtgU0

After power-on, at battery related information display area, external temperature, capacity and energy will loop display. When there is output current: capacity, energy automatically accumulated, and automatically cleared after shutdown.

The green terminal is connected to the positive pole of the battery, and the black terminal is connected to the negative pole of the battery. After the battery is correctly connected, the battery charging indicator turns red and the battery is connected. Press ON/OFF to start charging, the battery charging indicator turns green. When the actual output current is lower than 0.1A (10mA for RD6006), the output will be shut down automatically. Battery with protection board need to be charged with red and black terminals. The charging voltage and current should be set on your own. When the charging function is not in use, you can connect the green and black terminals with a cable to prevent interference with the battery detection terminal and accidentally turn off the output.

It is strongly recommended to use the original charger to charge the battery. The charging function of this machine can only serve as a temporary replacement, not for long-term use. There is a risk of fire and explosion during the charging process. Non-professionals should not operate. (*COMMON BATTERY VOLTAGE can be check in Appendix 2.*)

1.4.2.2 Main Page Output Voltage and Output Current Setting

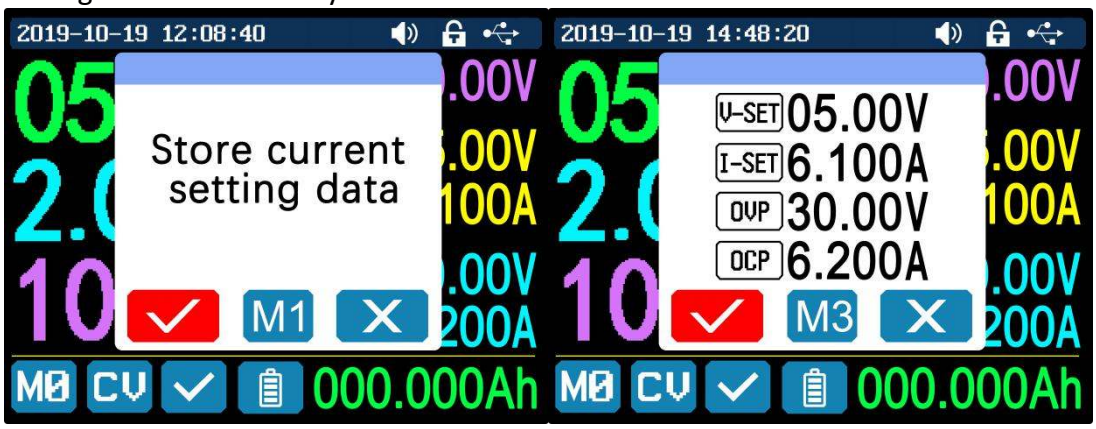
Output voltage and current setting operation video：https://youtu.be/S6Kan66dNsk

Press “**I-SET**” button to set the output current value, you can use encoder potentiometer to adjust the output value directly, press the direction button to move the cursor. Of course you can use keypad to enter the value, and press “**ENTER**” to confirm. If you set the wrong value, you can press encoder potentiometer to cancel.

Press “**V-SET**” button to set the output voltage value, the operation method is similar to output current setting.

Press **“SHIFT”**+ “**I-SET**” button / **“SHIFT”**+ “**V-SET**” button to set the over current protection/ over voltage protection value. The operation method is similar to output current setting.

M0 is the default data group when RD6006 is powered on, manually modify the settings will automatically be record to M0 after confirmation.



1.4.2.3 Data Group Quick Storage and Call out

Data group quick store and call out operation video：https://youtu.be/eo5saPj0Gpo

Press **“MEM”**+ keypad button 1-9, you can store the output voltage value, output current value, over voltage protection value, over current protection value into the corresponding data group(as shown above), then press **“ENTER”** to confirm,

or press the encoder potentiometer to cancel.

Press **“SHIFT”**+ keypad button 1-9 to quick call out the saved data (as shown above). Press **“ENTER”** to confirm, or press the encoder potentiometer to cancel.

1.4.2.4 Keypad lock and unlock

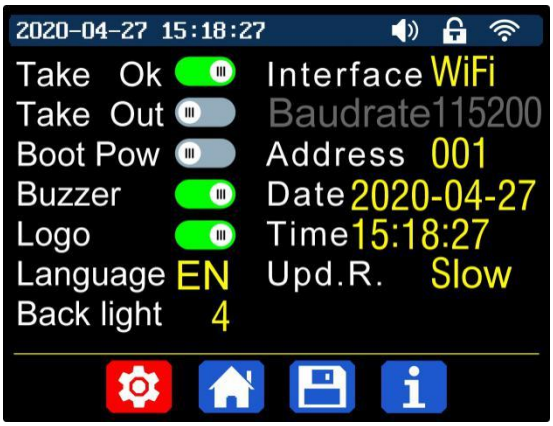
Keypad lock operation video： https://youtu.be/zxpmasJyQ6Y

Press **“SHIFT”+”LOCK”** to lock or unlock the keyboard. And the keypad will be automatically locked when communication starts, there will be  displayed on the top (cannot unlock manually), and the keypad will be automatically unlocked when the connection disconnected manually, there will be  displayed, the keypad will be automatically unlocked when the connection disconnected abnormally, and the power off button can be used when the keypad is locked.

1.4.2.5 System Setting

System setting operation video： https://youtu.be/Q9d3rIgIrOc

Press **“SHIFT”+”MENU”** to enter the system setting menu as shown below, press **“ENTER”** to enter the menu, press direction button to select option, the option in red is the option be chosen, rotate the encoder potentiometer to change setting.



Turn on the “**Take OK**”, a confirmation window will pop up when you quick call out a data group. If you turn it off, the setting values will be modified directly when you call out a data group.

Turn on the **“Take out”**, the output will be turn on automatically when you call out a data group. If you turn it off, the output will keep the previous status.

Turn on the **“Boot Pow”,** it will turn on the output automatically when start. If you turn it off, the output will keep OFF status when started.

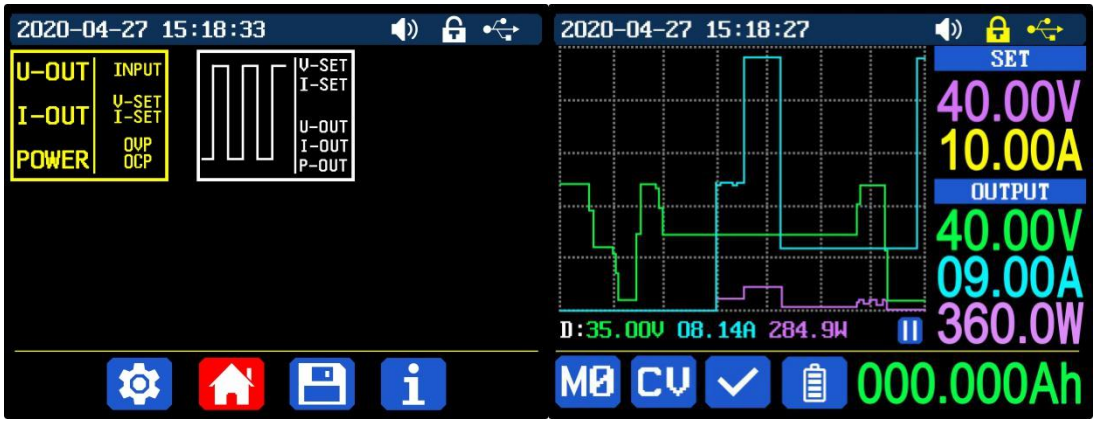
Turn on the **“Buzzer”,** you will hear button tune when press the button, and there will be  on the top. If you turn it off, there will not be button tune when press the button, and there will be  on the top.

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Turn on the **“Logo”**, it will display Logo first and then enter the main page when boot RD6006. If you turn it off, you will enter the main page directly.

The system language supports Simplified Chinese, English, German and France for the time being; the screen brightness can be set from level 0 to level 5; The communication interface can be set to USB, Wi-Fi or TTL, **USB** interface is the Micro-USB interface on the front panel interface, you can see the  on the top when communication starts. **Wi-Fi** interface is the Wi-Fi module inserted to the communication interface, you can see the  on the top when communication starts (connect mobile phone by Wi-Fi, WiFi function only support connection control in LAN), **TTL** is not available for the time being; When the interface is changed, you need to reboot RD6006 to apply the modification. The baud rate can be set to 9600/19200/38400/57600/115200 under USB mode; The Baud rate under Wi-Fi is fixed at 115200. Device address can be set from 001-255. You can set the date and time by rotating the encoder potentiometer, the setting will be saved immediately after modification. Please do not set a wrong time, it may cause that the date will not be automatically accumulated. Press the encoder potentiometer to return, and the set value will be saved automatically. **Upd.R.** is the refresh rate of read back voltage and current in the main page, you can set it to low, middle and high. We add output power limit function, when you set that, the current will be adjusted automatically to the value which multiply by set voltage value will not exceed the power limit, so that it can protect the input PSU, it is recommended to set the output power value at (rated power of PSU*95%). Press encoder potentiometer to return and save the settings.

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1.4.2.6 Main Page Display Style Setting

Main interface display style setting operation video：https://youtu.be/f51VDiY2VHE

You can press SHIFT + MENU to enter the system setting menu, and then press the right button to enter the main page style setting menu as shown above. Press ENTER and then use direction button to set classic style or curve style. The pattern in red is the style being chosen. Press the encoder potentiometer to return and save the settings. The classic style is the system default style, it shows the voltage, current and power in large font. The curve style is as shown above, the color of the three curves corresponds to the output voltage, current and power. D is the scale of the ordinate, Press **“ENTER”** to start or pause the curve, and rotate the encoder potentiometer to scale the ordinate of the curve.

1.4.2.7 Storage Data Setting

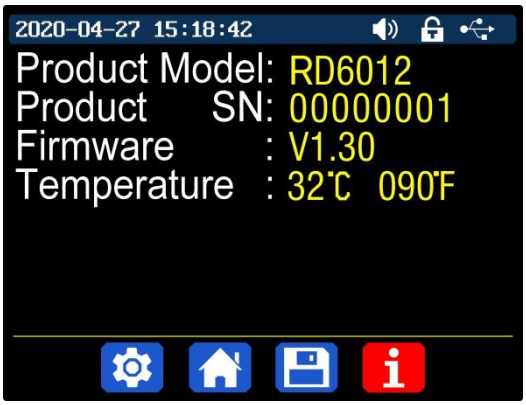
Data group setting in manual operation video：https://youtu.be/i1kTeurS13I

You can press SHIFT + MENU to enter the system setting menu, and then press the right button twice to enter the data storage setting menu as shown below, press ENTER to enter the setting menu, the icon in red is the chosen data group, press the direction button to select data group number. Press “**I-SET”** button to set the storage output current value, then rotate the encoder potentiometer the adjust the output value, press the direction button to move the cursor. You can also set the value with keypad, press ENTER to confirm. If you set the wrong value, you can press the encoder potentiometer to cancel. Press “**V-SET”** button to set the storage output voltage value, the operation method is similar to storage output current setting.

Press **“SHIFT”**+ “**I-SET”** button or **“SHIFT”**+ “**V-SET”** button to set the storage over current protection/ storage over voltage protection value. The operation method is similar to storage output current value setting. Press encoder potentiometer to return, and the data will be automatically saved.

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1.4.2.8 System Information

System information operation video： https://youtu.be/Um4NQObeeJE

You can press SHIFT + MENU to enter the system setting menu, and then press the right button three times to enter the system information menu as shown above. You can view the SN number, firmware version and system temperature here.

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Android APP Instruction

2.1 Mobile Phone APP Installation

This App only supports Android 5.0 to Android 10.0 operating system, and there may be incompatibilities problems between APP and operating system, please install and test the software before buying the product. It will apply for location service, please agree and turn on the location service. After downloading the mobile APP zip-file, please install the APP in file manager. Don't install or remove Wi-Fi module when the powered on, otherwise it will be damaged. This instruction is made for version 1.1.2, there will be little difference between different versions, and we do recommend you to download the latest APP for better experience.

2.1.1 APP Download

You can download the APP in Google Play by searching RDPower.
You can also download the RD60XX APP zip-file in this URL:
https://drive.google.com/drive/folders/1V0l6P1sIJilN1yBOsTO9YGLVdkuO0cX9?usp=sharing

2.2 Installation Introduction

After the installation, you can see the icon as shown below:



2.2.1 APP Update

Click the APP icon, After the APP starts, it will automatically detect whether there is a new version, and it will remind you by popping the window. You need to check if there is a new version by manual detecting.

2.2.2 APP Interface Display

When finish the installation and succeed in connection, it will show the main page as shown in the right picture.

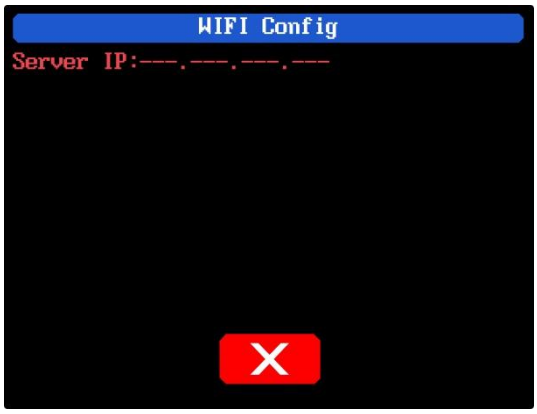


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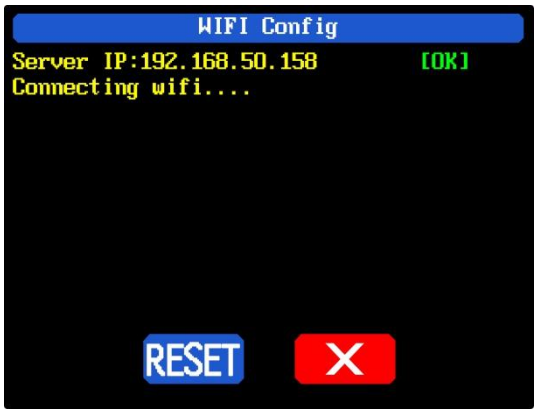
BN: call out/ shut down sidebar	CB: set button
BO: connection button	CC: keypad lock indication
BP: export data to mobile phone folder	CD: protection status indication
BQ: data curve	CE: constant voltage/ constant current status
BR: actual output current	CF: screen brightness
BS: actual output voltage	CG: system temperature
BT: actual output power	CH: data group quick call out
BU: input voltage	CI: battery voltage
BV: preset voltage value	CJ: external sensor temperature detecting value
BW: preset current value	CK: accumulated output power
BX: ON/OFF button	CL: accumulated output capacity
BY: setting wheel	CM: model being connected
BZ: move the cursor to the left	CN: product SN number
CA: move the cursor to the right	CO: product firmware version

2.2.3 APP Operation

2.2.3.1 Network Distribution

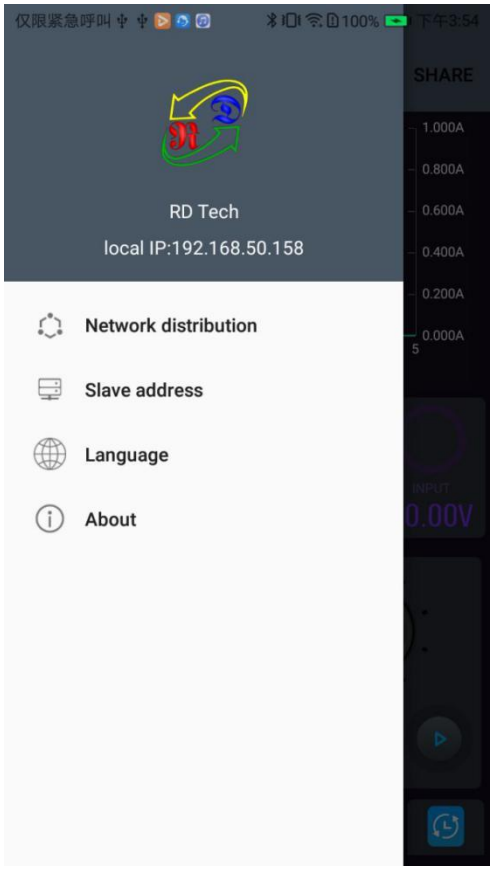


Picture 3

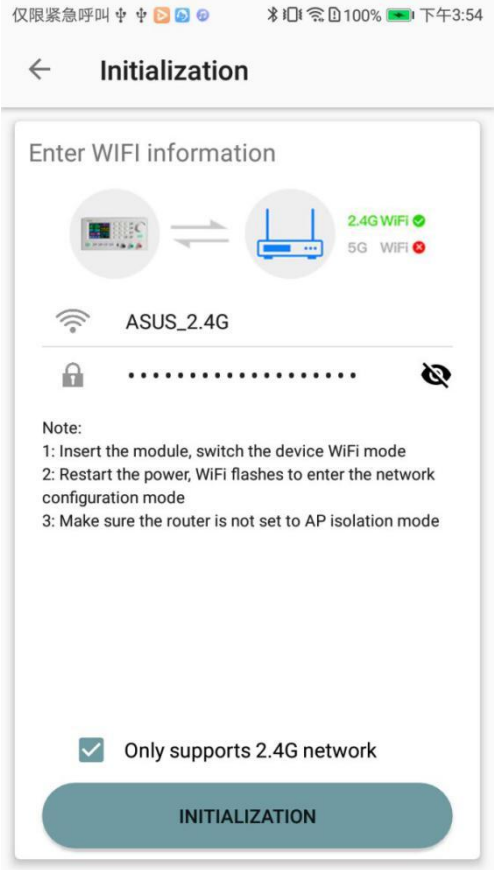


Picture 4

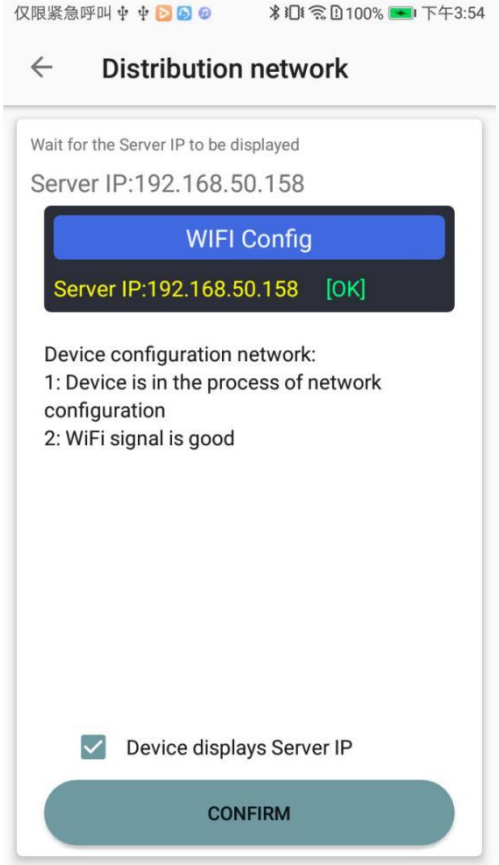
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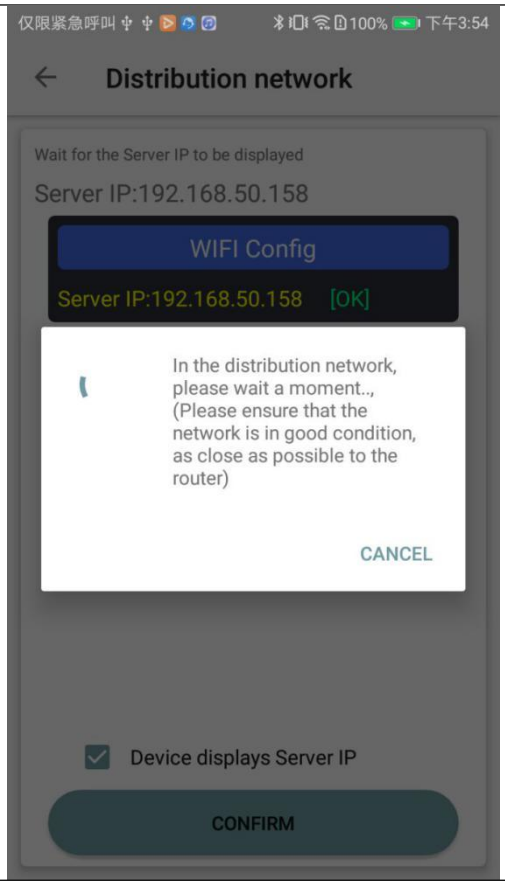
Picture 5



Picture 6



Picture 7



Picture 8

Connect Wi-Fi for the first time, please insert the WiFi board to the right place, then power on RD6012, you will see the blue LED blinks once. Set the communication interface to WIFI, restart RD6012, then place the RD6012 and the mobile phone close to the 2.4G router (the mobile phone must also be under the same 2.4G network, and the router must disable the AP isolation function and the WMM function).

RD6012 will wait for the phone to connect as shown in Picture 3. Press **"BN"** to call out the sidebar, clicks on the **"Network distribution"** as shown in Picture 5, then enter the WiFi password and confirm you are using 2.4G network as shown in Picture 6. After 10 seconds, the RD6012 will obtain the IP address of the mobile phone as shown in Picture 4. Then click "Next", fill in the WIFI password as shown in Picture 7, click "CONFIRM" below, wait for about 20s, it will show success as shown in Picture 8, then RD6012 will automatically restart, the distribution network is successful, return to the main interface and click **"BO"**(Connection). If the distribution network fails, please power off the module and re-operate in the same way (multiple networking failures you can watch the video and try to use the hotspot of the mobile phone to test). If you use Huawei brand phone, please turn off the random MAC address function.

3.2.3.2 Proper Wi-Fi Connection

Android APP download and connection operation video:
https://youtu.be/QwyBEUCnp9c

When power on RD6012, it will connect Wi-Fi first, and then detect if it can be connected to APP, and it may not be connected successfully if the phone is under screen-lock status or the APP is running at the background. If the IP address of the phone has changed, you need to press the "left direction" button and then press "ENTER" button to reset the net, repeat 3.2.3.1 operation.

2.2.3.3 APP Operation

Android APP operation video: https://youtu.be/hqrF4keTfbE.

Click **"BV"** to set the output voltage, and use the wheel **"BY"** to adjust the value, the **"BZ"**, **"CA"** to change the position of cursor, click **"CB"** to set the parameter. Click **"BP"** to exports the voltage-current curve to excel file, up to 24 hours document can be recorded.

NOTE:

1. There are many kinds of Android phone, so the user interfaces maybe different on some brand phones or different scales of the same brand.
2. Application permission requirements, allow the necessary permissions when the APP is installed (allow background running, using Bluetooth, operation on the folder, reading the application list, etc.) and also set the permissions of the APP after installation: Allow background running, never shut down when lock screen, allow self-starting (it is used to prevent the system from forcibly exiting the APP when recording data), etc.

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IOS APP Instruction

3.1 Mobile Phone APP Installation

3.1.1 APP Download

IOS APP can only supports IOS10.0-13.4 system, please search “RDPower” in the APP store to download, or search “RD6006” to find the APP， and there may be incompatibilities problems between APP and operating system.The software opened under IOS13 will apply for location service for the first time. Please agree and open the location in Settings-Privacy. Don’t install or remove Wi-Fi module when the power is on, or else it will be damaged. This instruction is made for version 1.0.1, there will be little difference between different versions, we do recommend you to download the latest App for better experience.

3.2 Installation and Operation

IOS APP download and connection operation video ： https://youtu.be/nH2HYwop0TE

You can see the APP icon (as shown on the right) when finished the installation.

The first time you start the APP, there will be prompt as shown in Picture 10 if your mobile phone system is IOS13 or above, choose “Allow when using APP”, if your system is under IOS13, you can see the prompt as shown in Picture 11, please choose ”Wireless LAN and cellular mobile network”.

3.2.1 APP Update

You can download the latest the software at APP store, this instruction is corresponding to IOS APP version 1.0.9.

3.2.2 UI Instruction

You can see the user interface as shown in Picture 9.

AN: connection button	BA: system temperature
AO: export data to mobile phone folder	BB: data group
AP: data curve	BC: screen brightness
AQ: actual output voltage	BD: battery voltage
AR: actual output current	BE: external sensor temperature detecting value
AS: actual output power	BF: accumulated output power
AT: preset voltage value	BG: accumulated output capacity
AU: preset current value	BH: model being connected
AV: output ON/OFF button	BI: product firmware version
AW: protection status indication	BJ: product SN number
AX: battery status indication	BK: main page
AY: constant voltage/ constant current status	BL: network distribution page

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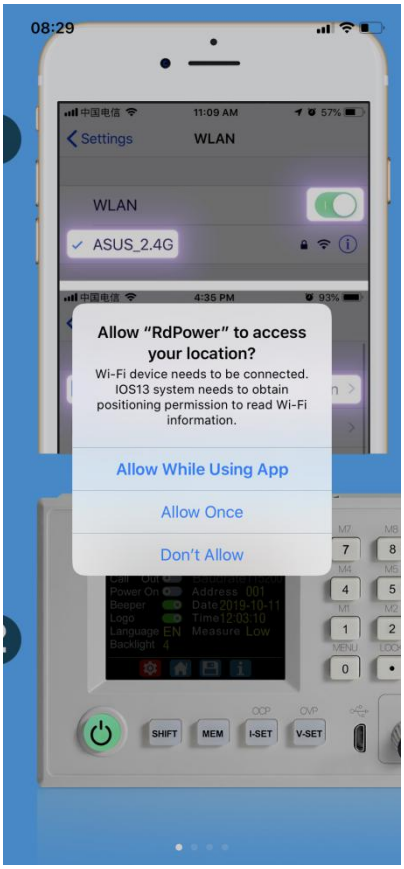
AZ: input voltage measurement value	BM: personal center

3.2.3 APP Operation

3.2.3.1 Network Distribution



Picture 9

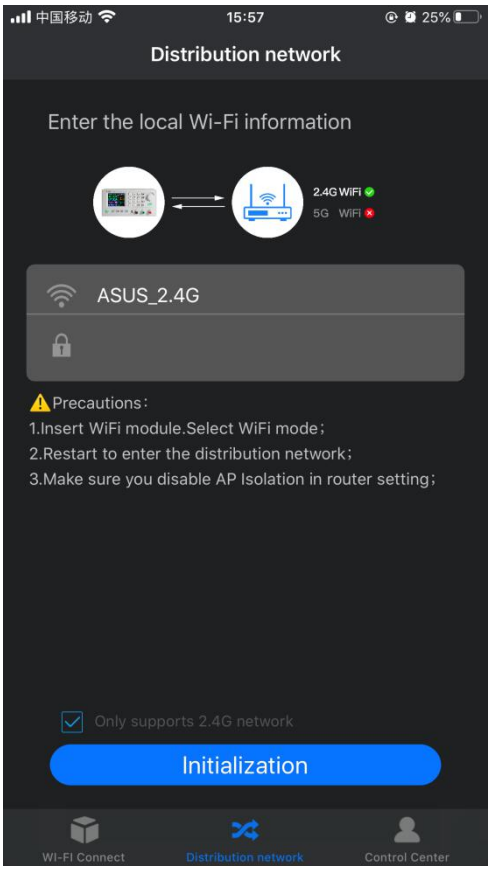


Picture 10

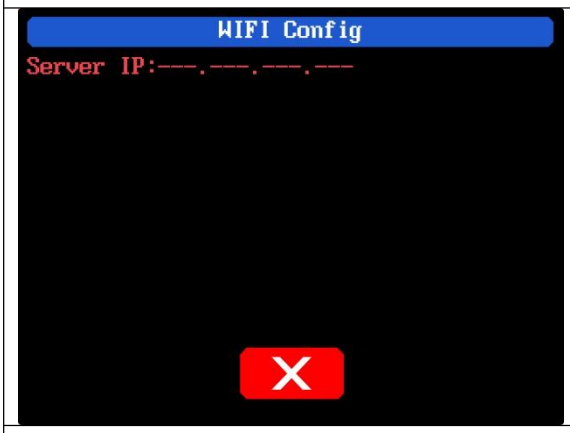
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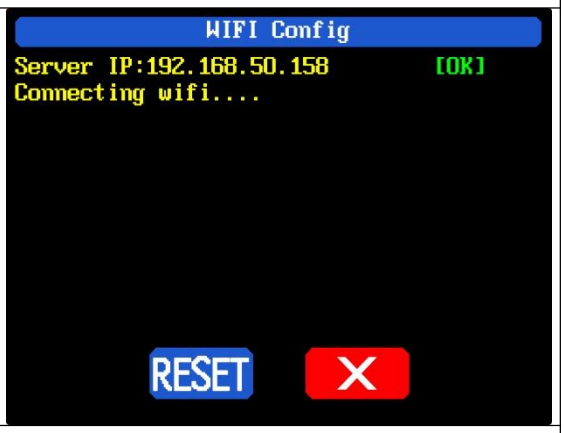
Picture 11



Picture 12



Picture 13



Picture 14

Connect Wi-Fi for the first time, please insert the WiFi board to the right place, then power on RD6012, you will see the blue LED blinks once. Set the communication interface to WIFI, restart RD6012, then place the RD6012 and the mobile phone close to the 2.4G router (the mobile phone must also be under the same 2.4G network, and the router must disable the AP isolation function and the WMM function).

RD6012 will wait for the phone to connect as shown in Picture 13. Press **"BL"** to jump to the network distribution page and enter the password. Click "**Initialization**" and wait about 20 seconds, RD6012 will obtain the IP address of the mobile phone as shown in Picture 14. Then click "**Configure Network**", wait about 30s, it will show success on the APP, then RD6012 will start normally, the distribution network is

successful, return to the main interface and click **“AN”**(Connection). If the distribution network fails, please power off the module and re-operate in the same way (multiple networking failures you can watch the video and try to use the hotspot of the mobile phone to test).

3.2.3.2 Proper Wi-Fi Connection

When power on RD6012, it will connect Wi-Fi first, and then detect if it can be connected to APP, and it may not be connected successfully if the phone is under screen-lock status or the APP is running at the background. If the IP address of the phone has changed, you need to press the “left direction” button and then press “ENTER” button to reset the net, repeat 2.2.3.1 operation.

3.2.3.3 APP Operation

IOS APP operation video: https://youtu.be/lXSw1CM9IY8.

Click **“AT”** / ”**AU**” text label and enter the value to set the output voltage/ output current, then click at the blank area to return, if you enter a value exceeds the limit, it cannot be applied. Click **“AO”** to exports the voltage-current curve to excel file, up to 24 hours document can be recorded.

Click the personal center to set the software language or get help to use the APP.

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PC Software Installation and Operation Instruction

Requirement: Win 7-Win10 system and the computer has Internet connection.

This PC software is designed by Hangzhou Ruideng technology CO., LTD, it has no virus, if your anti-virus software prompts for a virus warning, please allow all its features, otherwise it will affect the normal operation of the software. PC software supports Win7-Win10 system, and there may be incompatibilities problems, if you really need it, please install and test the software before buying the product. This instruction is made for version 1.0.0.8, there will be little difference between different versions, and we do recommend you to download the latest App for better experience.

RD6012 digital power supply file download link:
https://drive.google.com/drive/folders/1V0l6P1sIJilN1yBOsTO9YGLVdkuO0cX9?usp=sharing

4.1 Software Download

PC software download and basic operation video:
https://youtu.be/mjt1RMaah1Y

4.1.1 Unzip Files

The first time you use this software, you need to install the driver program first, you need to click CH341SER to install the driver, the insert a Micro USB cable into RD6006/RD6012/RD6018 and wait for the computer to install the driver.

4.1.2 Unzip Files

Unzip the file to Disk(D) of the PC. You need to run Net framework4.7.2.exe to install the .Net environment, then click RidenPowerSupply.exe directly to use the software, please do not delete any files.



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4.2 Software Operation

4.2.1 Software Connection

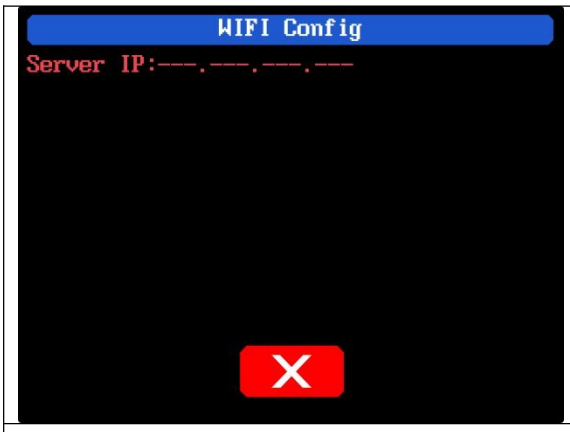
Double click **RidenPowerSupply.exe** to run the PC software.

WiFi connection is a test function, due to poor compatibility with some computers, if you cannot connect PC software via WiFi, please ignore this function. For this function, we do not provide any guarantee and technical support, and we will decide whether to keep this function based on customer feedback.

WiFi connection video link: https://youtu.be/ussQREniPuY

Click WiFi on the PC software and enter the WiFi name and password, set the communication interface to WIFI and reboot, you can see the display of RD6012 as shown in picture 15, and click "**WiFi Network**" to distribute network, wait RD6006 display as shown in picture 16(wait 1-5 seconds), click "NEXT", wait for a while (about 20 seconds), the PC software shows connection successful, then click "**Connect**" to communicate.

USB connection: Set RD6006 communication interface to USB and connect RD6006 and PC, the PC software prompts the serial port has been updated and clicks online.



Picture 15

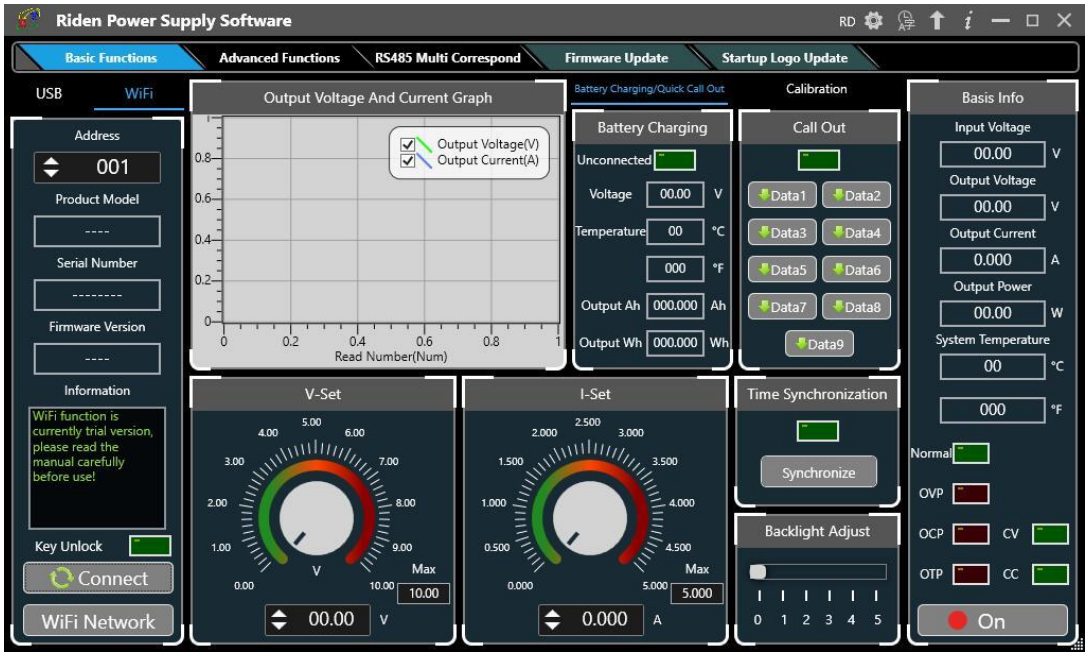


Picture 16

4.2.2 PC Software Operation Instruction

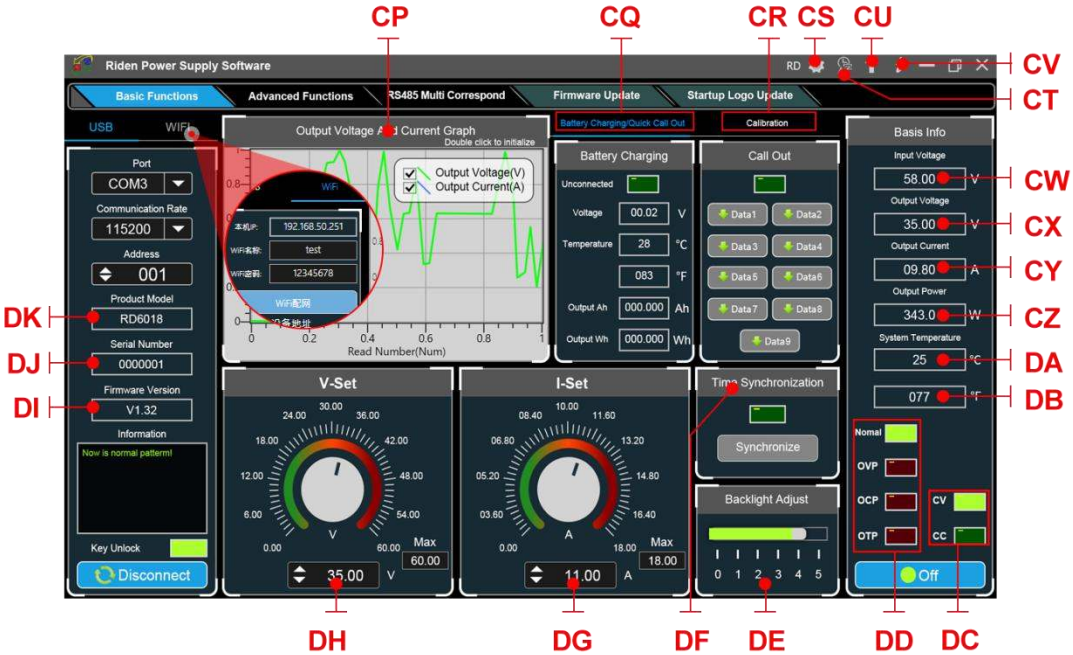
Choose the right communication port, baud rate, slave address (default 001), click **"CONNECT"** to start communication. If the communication succeeds, the power supply button will be locked automatically, the buttons will automatically unlock after 3 seconds of accidental disconnection, and the **"CONNECT"** turns to **"DISCONNECT"**; Click **"ON"** to turn on the output of the power supply, and it will turn to **"OFF"**.

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4.3 Functions Introduction

The PC software interface mainly has basic functions, firmware upgrade, Logo upgrade, version update detection and language setting...



CP: Voltage-Current Curve	DA: System Temperature(℃)
CQ: Battery information/ Data Group Quick Call Out	DB: System Temperature(℉)
CR: Calibration	DC: Constant Voltage/ Constant Current Status
CS: RD/DPS series switch	DD: Protection Status Indication
CT: Language	DE: Screen Brightness Setting

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CU: Software Update	DF: Synchronize System Time
CV: About	DG: Output Current Preset value
CW: Input voltage	DH: Output Voltage Preset value
CX: Actual Output Voltage	DI: Firmware Version
CY: Actual Output Current	DJ: Serial Number
CZ: Actual Output Power	DK: Product Model

4.3.1 Basic Functions

PC software operation video: https://youtu.be/mjtlRMaahlY

The basic functions of PC software: voltage/current preset, data group quick call out, calibration fine tuning, brightness setting, voltage and current curve exporting. You can rotate the wheel or enter the value to set the voltage and current, the graph above the button shows the real-time voltage and current curve. You can zoom in and out the curve by using the mouse wheel, double click the curve to auto adjusts the axis, you can right click on the curve to clean the curve or export the curve data to picture or excel.

4.3.2 Calibration

The calibration fine-tuning function needs to be operated by a professional electronic person who has more than five and a half multimeter. It will change the system setting, incorrect operation may exceeds the hardware limit and cause damage, and the resulting damage is not covered by the warranty! The limit error of the product is generally much smaller than the nominal error, when the error is close to or even higher than the nominal error, you need to check if the measuring instrument is accurate.

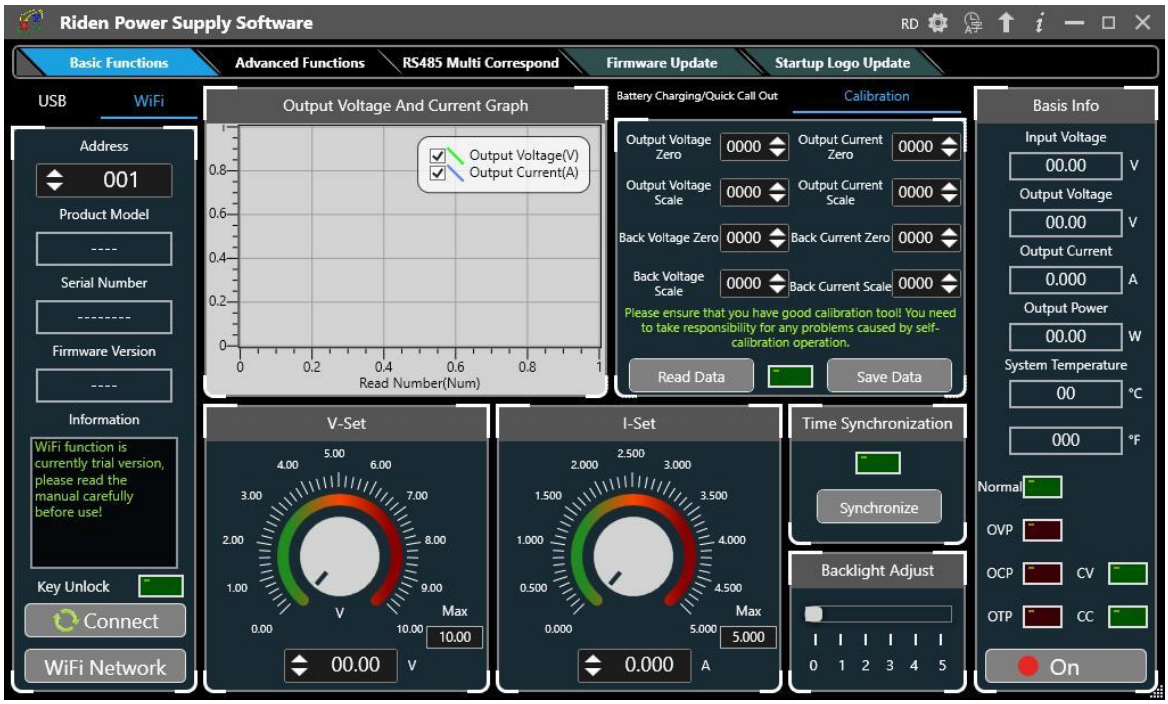
RD6006 calibration operation video: https://youtu.be/c9sn1wY2mjE

Click **“Calibration”** and enter the password “168168”, you can enter the Calibration Fine Tuning page (if you enter the password, by default you have accepted the above red letter agreement). It can read the calibration data after connection; click the arrow to fine tuning the data. According to the linear function y=kx+b, the constant b is equivalent to the zero value, the slope k is equivalent to the proportional value, adjust this two values so that the data will be close to the real test value.

Set the output voltage at 1V, adjust the output voltage zero point to make the multimeter display close to 1V, and then set the output voltage at 30V, adjust the output voltage proportional value to make the multimeter display close to 30V. In the same way you can set 0.1A and 3A output current to calibrate the zero point and proportional value of the output current.

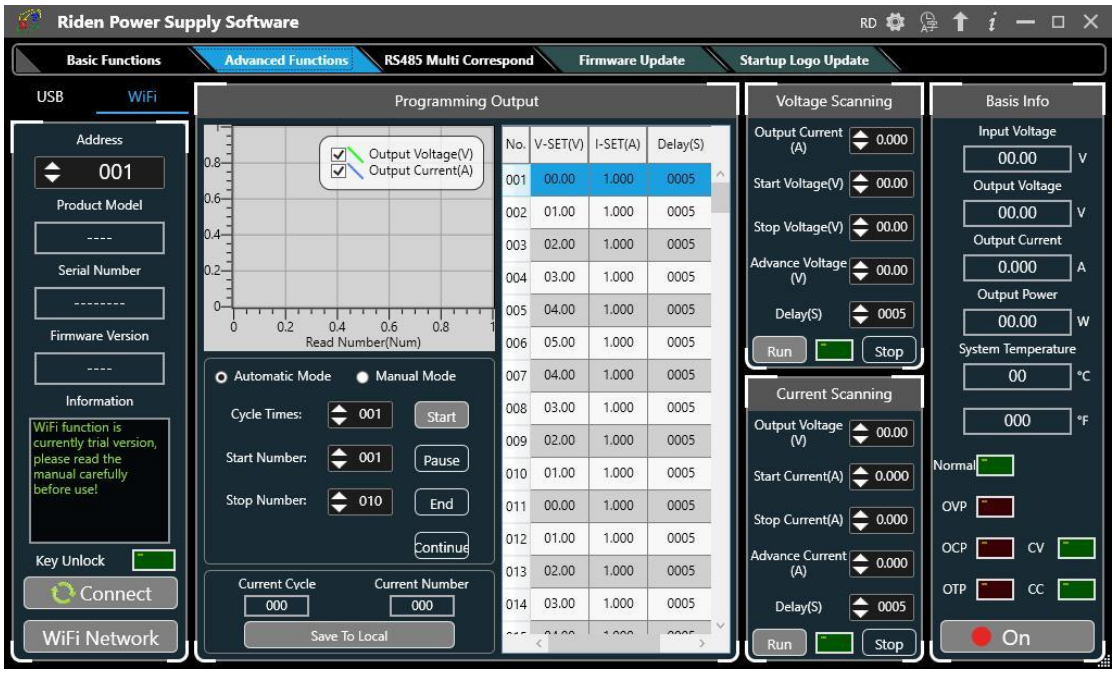
Set the output voltage at 1V and calibrate the actual output voltage zero point to make the actual output voltage displayed on RD6012 close to the value on multimeter. You can set 30V and calibrate the proportional value of actual output voltage. In the same way you can set 0.1A and 3A to calibrate the zero point and proportional value of the actual output current. (This section does not provide

technical support. If you do not understand, please check the related information).



4.3.3 Advanced Function

You can set the output voltage and current by chart in the advanced function page, you can set every step between 1 and 9999 seconds, you can set 200 steps max, it can output automatically or manually. You cannot choose other operation page when it performs programming output or other operations, you can only switch other page when it ends.



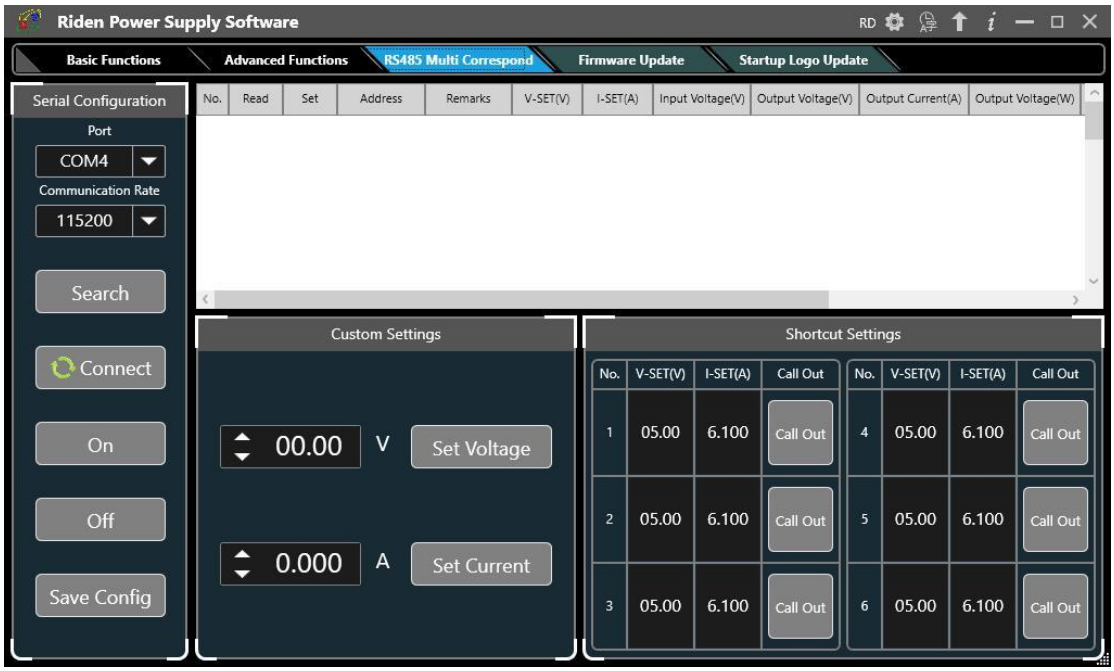
4.3.4 RS485 Multiple Devices Communication

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Multi-device communication is to control multiple power supplies through the 485 bus, and can control up to 32 units at the same time. It is suitable for industrial control field. USB to 485 and 485 modules need to be purchased separately. The output voltage and current of all power supplies can be controlled by one software, or they can be set separately.

First, after connecting multiple units with USB to 485, select the appropriate port number and baud rate, and then set each RD6006 to a different device address (see 1.4.2.5 System Settings), then click search and click connect. You can modify the voltage and current of a single unit in the icon on the right, and you can set the voltage and current in batches at the bottom. Since RS485 is a polling operation, when there are 32 RD6006s, an operation may be delayed for 12 seconds.

The interface cannot be switched after connecting in the RS485 interface, and it can be switched after disconnecting.

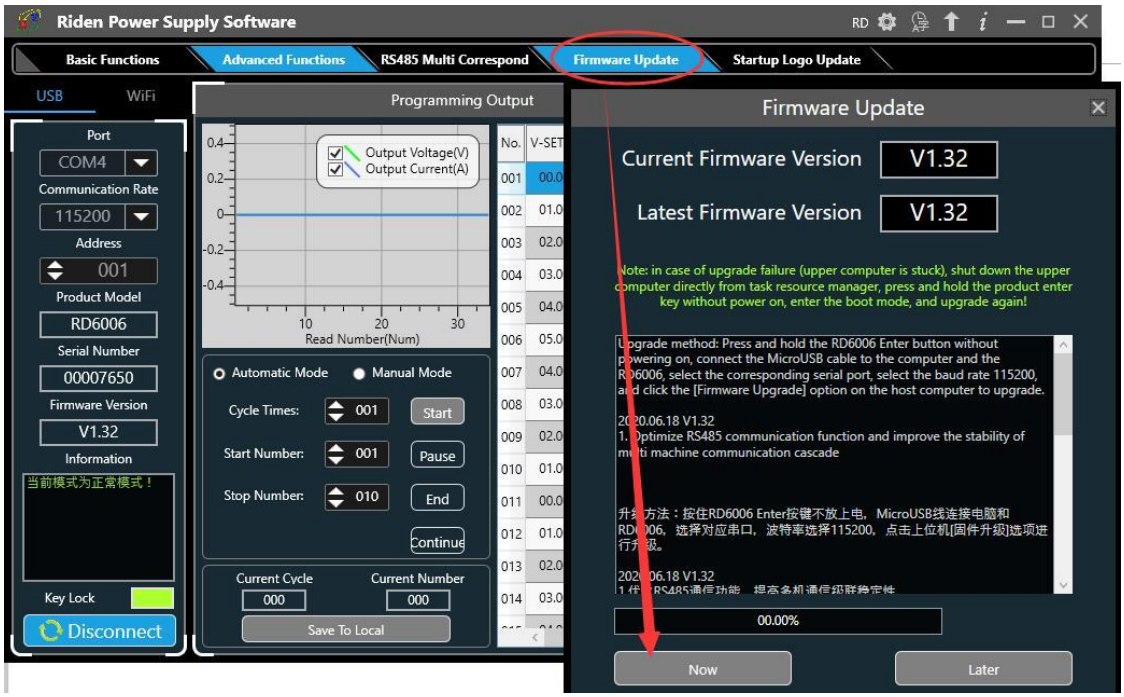


4.3.5 Firmware Update

Firmware update operation video: https://youtu.be/NOoLfDw0DiY

Press and hold “**ENTER**” and power on RD6012, enter the boot mode, then connect it to computer, there will be “boot mode” in the mode information text box, then click **“Firmware Update”**, a firmware update prompt will pop up on the interface, and click “**Now**” to upgrade. (You can update the firmware under the normal mode, if it cannot be started up normally, you should press and hold the **“ENTER”** button and power on, update it under boot mode. It doesn’t support firmware update under WiFi connection mode).

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During the firmware upgrade process, the interface is displayed as follows:

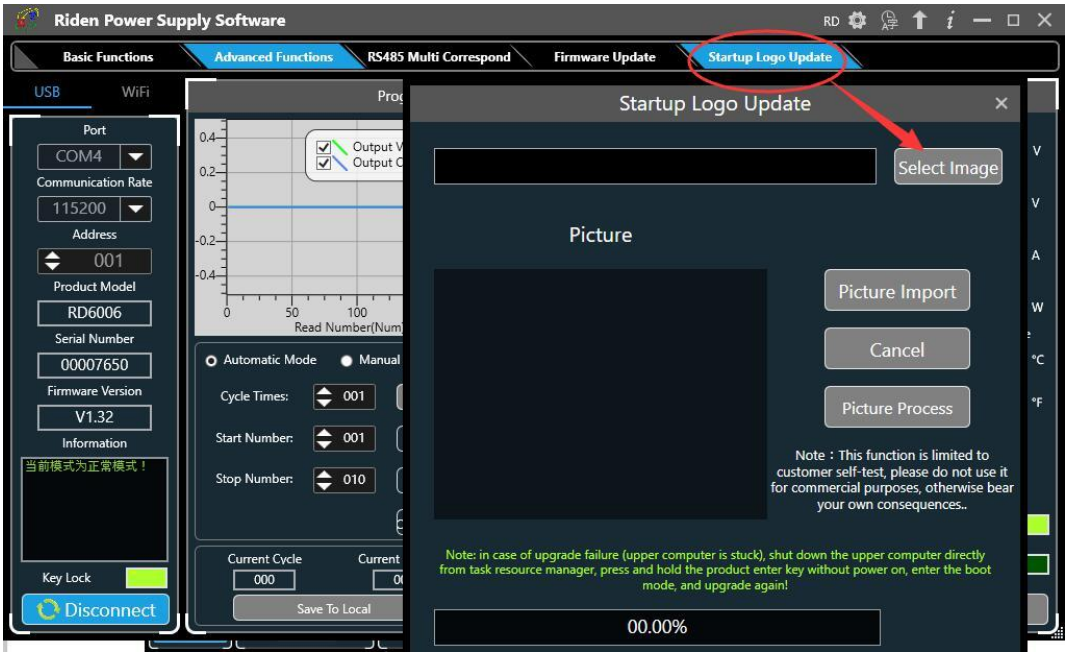


4.3.6 Boot Logo Update

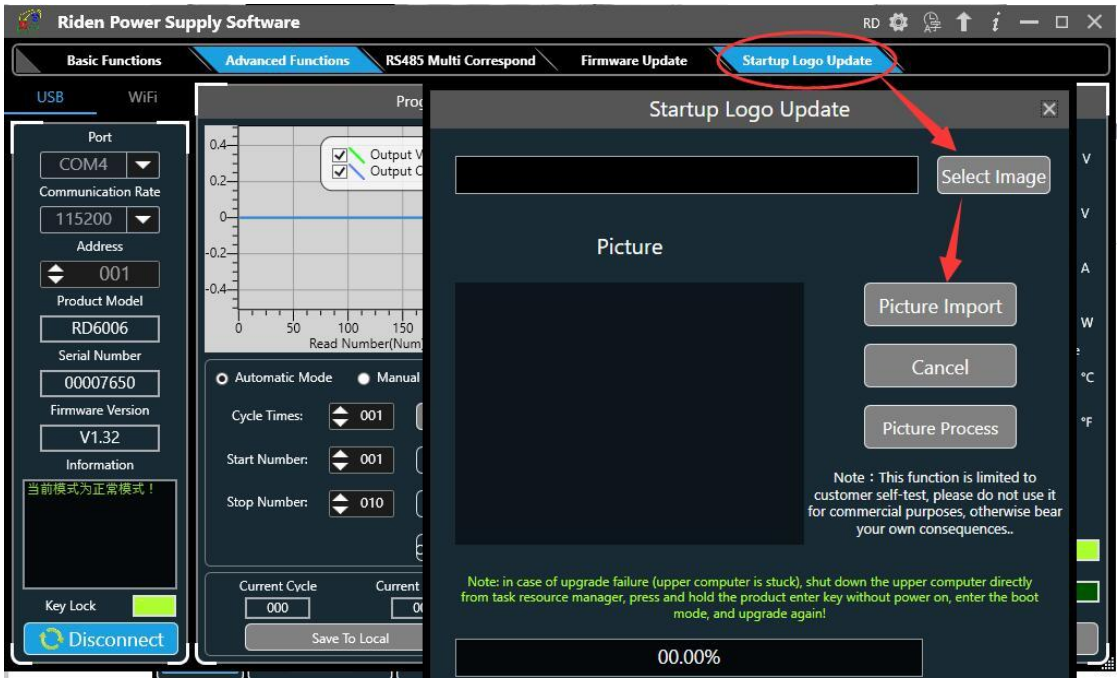
Boot logo setting video:https://youtu.be/vuVhBsohWts

Click **“Start Logo Update”**, a Logo upgrade prompt will pop up on the page, please select a picture with a size of 320x240 and a resolution of 96dpi. Some logo samples can be used in the installation package.

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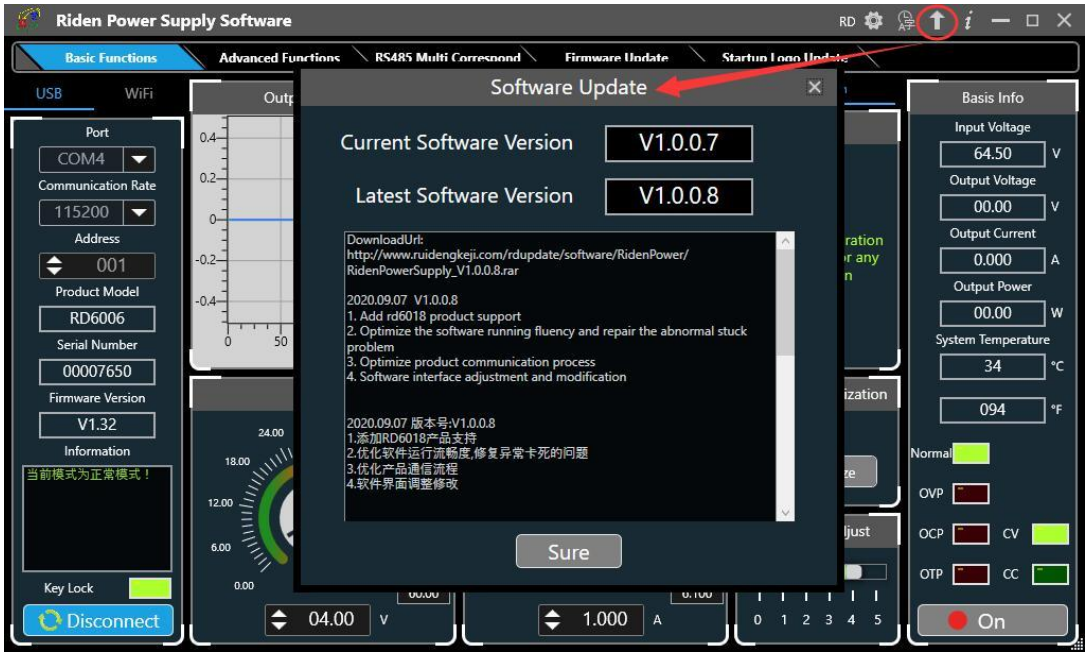


Click “Picture Import” and RD6006 will reboot automatically.



4.3.7 Version Update Detection

Click **“Software Update”,** the software will automatically detect if there is a new version, if so, an update prompt will pop up on the interface.



4.3.8 Language Setting

Click **“Language”**, a language setting prompt will pop up on the interface, you can choose Simplified Chinese, English, France and German.



4.3.9 About

Click **“About”**, you can check the version number, publish time and copyright Information.

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Appendix

Appendix 1: Common Battery Voltage Comparison Table

Battery Type	Nominal Voltage (V)	Max Voltage (V)	Min Voltage (V)	Application	Characteristics
LiCoMnNiO2	3.7	4.2	3	Digital Device	High capacity, rechargeable
Lithium Phosphate Battery	3.2	3.65	2.5	Electric bike / electric tool	Large discharge current, rechargeable
Lead Storage Battery	2	2.4	1.75	Car / electric bike	Inexpensive rechargeable
Dry Battery	1.5	--	0.9	Widely used	Inexpensive widely used not rechargeable
NICD Battery	1.25	1.5	1.1	Toy	Rechargeable Inexpensive Memory effect
Ni-MH Battery	1.2	1.4	0.9	Toy/Shaver	Rechargeable No memory effect

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Appendix 2: Common Battery Voltage Comparison Table

Nominal Voltage	Battery Type	Number of batteries connected in series	Discharge termination voltage(V)	Charging limit voltage(V)
72V	LiCoMnNiO2	20	60	87
	Lithium Phosphate Battery	24	60	87.6
	Lead Storage Battery	6	63	86.4
64V	Lithium Phosphate Battery	21	52.5	76.6
60V	LiCoMnNiO2	17	51	71.4
	Lithium Phosphate Battery	20	50	73
	Lead Storage Battery	5	52.5	72
48V	LiCoMnNiO2	14	42	58.8
	Lithium Phosphate Battery	16	40	58.4
	Lead Storage Battery	4	42	57.6
36V	LiCoMnNiO2	10	30	42
	Lithium Phosphate Battery	12	30	43.8
	Lead Storage Battery	3	31.5	43.2
24V	LiCoMnNiO2	7	21	29.4
	Lithium Phosphate Battery	8	20	29.2
	Lead Storage Battery	2	21	28.8