恒压恒流数控电源使用说明

Constant Voltage and Constant Current DC Power Supply Instruction

型号:RD6006/ RD6012/ RD6018/ RD6024/ RD6030/ RD6006P/ RD6012P

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恒压恒流数控电源使用说明

型号:RD6006/ RD6012/ RD6018/ RD6024/ RD6030/ RD6006P/ RD6012P

修订时间：2024.06.18

尊敬的用户，感谢您购买由杭州睿登科技有限公司出品的恒压恒流数控电源，为了让您更快了解本产品的全部功能，获得更好的使用体验，避免出现误操作，使用前请仔细阅读本说明并保留好，以便日后查阅。

本说明书对应固件版本 RD6006(V1.42)， RD6012(V1.37)， RD6018(V1.39)，RD6024(V1.40),RD6030(V1.43) RD6006P(V1.45)，RD6012P(V1.49)不同固件版本下，界面或操作可能会有不同，使用时请注意。建议升级为最新固件，获取更好的使用体验。

目录

1.1 包装及配件

产品使用方形纸盒包装，外面套有塑封膜。打开盒子后会有一张说明书卡片，扫描二维码即可查看说明书。

产品的右侧为附带配件，有一根外接温度传感器线，可以插接到 **S：外置温度传感器接口**，选择带有 WiFi 通信的型号还会有一个 WiFi 通信板，插接到 **U：通信模块接口**，保险丝为备用，保险丝座只能小于 10A 下使用，长期使用请焊接到产品上。U 型插可以用来接输出线使用。

	
RD 数控电源一台	备用保险丝一只
	
外置温度传感器一条 10K B3950	WiFi/485 小板(可选)

1.2 产品技术指标

产品型号	RD6006	RD6012	RD6018	RD6024	RD6030	RD6006P	RD6012P
输入电压范围	6-70V			7-70V			
电压电流位数	四位					五位	
输出电压范围	0-60V						
输出电流范围	0-6A	0-12A	0-18A	0-24A	0-30A	0-6A	0-12A
输出功率范围	0-360W	0-720W	0-1080W	0-1440W		0-360W	0-720W
输出电压分辨率	0.01V					0.001V	
输出电压精度	±(0.3%+3 个字)					±(0.5‰+4 个字) ①	
输出电流分辨率	0.001A	0.01A				0.0001A	0.0001A /0.001A
输出电流精度	±(0.5%+5 个字)					±(1‰+6 个字)	
输入电压分辨率	0.01V						
输入电压精度	±(1%+5 个字)						
电池电压分辨率	0.01V						
电池电压精度	±(0.5%+3 个字)						
默认充电关闭电流	10mA	100mA				10mA	

<table>
<tr><td>输出纹波典型值(VPP)</td><td>100mV</td><td colspan="2">250mV@6A</td><td>100mV @12A 150mV @24A</td><td>50mV @15A 90mV @30A</td><td colspan="2">20mV②</td></tr>
<tr><td>产品工作温度范围</td><td colspan="7">-10℃~40℃</td></tr>
<tr><td>外置温度传感器测量范围</td><td colspan="7">-10℃~100℃/0℉~200℉</td></tr>
<tr><td>外置温度传感器测量误差</td><td colspan="7">±3℃/±6℉</td></tr>
<tr><td>恒压模式响应时间</td><td colspan="7">2ms（0.1A-5A 负载）</td></tr>
<tr><td>恒压模式负载调整率</td><td colspan="7">±(0.1%+2 个字)</td></tr>
<tr><td>恒流模式负载调整率</td><td colspan="7">±(0.1%+3 个字)</td></tr>
<tr><td>容量测量范围</td><td colspan="7">0-9999.99Ah</td></tr>
<tr><td>能量测量范围</td><td colspan="7">0-9999.99Wh</td></tr>
<tr><td>容量能量记录误差</td><td colspan="7">±2%</td></tr>
<tr><td>散热风扇开启</td><td>输出电压>40V 或输出电流>4A 或系统温度>45℃</td><td colspan="3">输出电流>8A 或系统温度>45℃</td><td>输出电流>4A 或系统温度>45℃</td><td>输出电流>4A 或系统温度>50℃</td></tr>
<tr><td>散热风扇开启后关闭</td><td>输出电压<40V 且输出电流<3.9A 且系统温度<40℃</td><td colspan="3">输出电流<7.9A 且系统温度<40℃</td><td>输出电流<3.9A 且系统温度<40℃</td><td>输出电流<3.9A 且系统温度<45℃</td></tr>
<tr><td>过温保护</td><td colspan="7">系统温度>80℃</td></tr>
<tr><td>屏幕亮度设置</td><td colspan="7">0-5 共 6 级</td></tr>
<tr><td>显示屏幕</td><td colspan="7">2.4 寸彩色液晶显示屏</td></tr>
<tr><td>输入输出保险丝型号</td><td colspan="4">1808 贴片快熔保险</td><td>1032 贴片快熔保险</td><td colspan="2">1808 贴片快熔保险</td></tr>
<tr><td>保险丝电流</td><td>10A</td><td>20A</td><td>25A</td><td>30A</td><td>40A</td><td>10A</td><td>20A</td></tr>
<tr><td>输入端子</td><td>HT508K -2P</td><td colspan="2">HT508K-4P</td><td colspan="2">K14 端子</td><td>HT508K -2P</td><td>HT508K -4P</td></tr>
<tr><td>产品净重(约)</td><td>0.58 kg</td><td>0.61kg</td><td>0.68 kg</td><td>0.72 kg</td><td>0.74kg</td><td>0.62 kg</td><td>0.66kg</td></tr>
<tr><td>产品尺寸(约)</td><td colspan="7">167*81*69mm</td></tr>
<tr><td>USB 通信</td><td colspan="7">支持</td></tr>
<tr><td>WiFi 通信</td><td colspan="7">产品包装型号带有 W 支持 WiFi 通信</td></tr>
</table>

①：精度计算方法：一个字为一个最小分辨率，5V 下误差为±(5*0.5‰+4*0.001) ，5±0.0065V

②：纹波测量方法：测量输出接线端子处，并联 0.1uF 电容，示波器 X1 档，交流耦合，20MHz 限制，使用纯电阻负载。

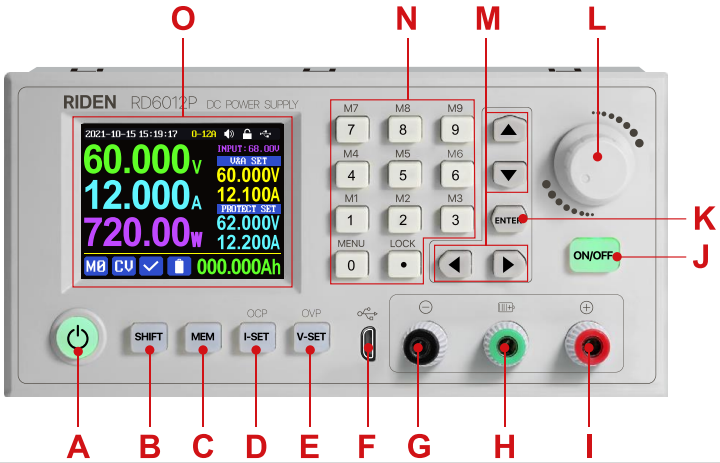
下面以 RD6012P 为例介绍外观和使用说明。

1.3 核心功能

数字键盘+编码电位器组合调节	固件更新，后续可支持更多功能
10 组快捷存储调用数据	全新的 PC 端上位机软件
2.4 寸高清彩屏	支持 WiFi 联机/USB 联机
电池充电专用接口	支持安卓手机 App/苹果手机 App
一体化面板，装配好可直接接市电	多种显示界面

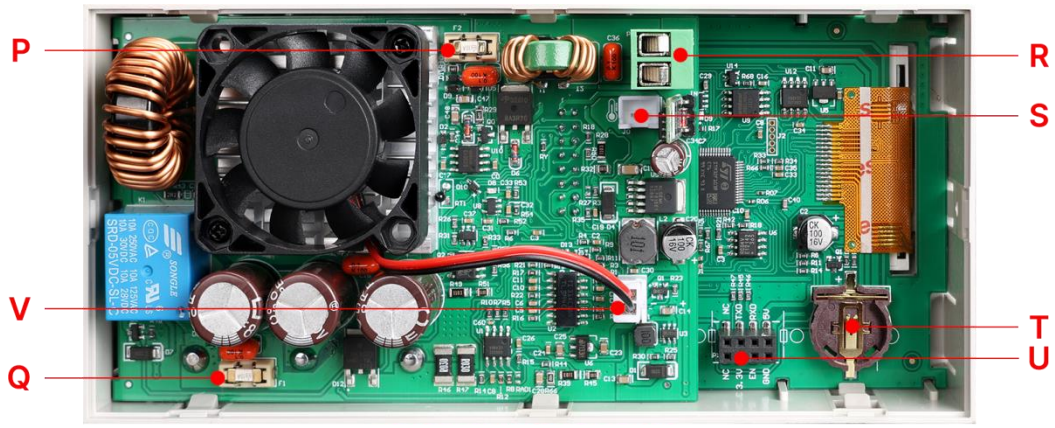
1.4 面板说明

1.4.1 前面板

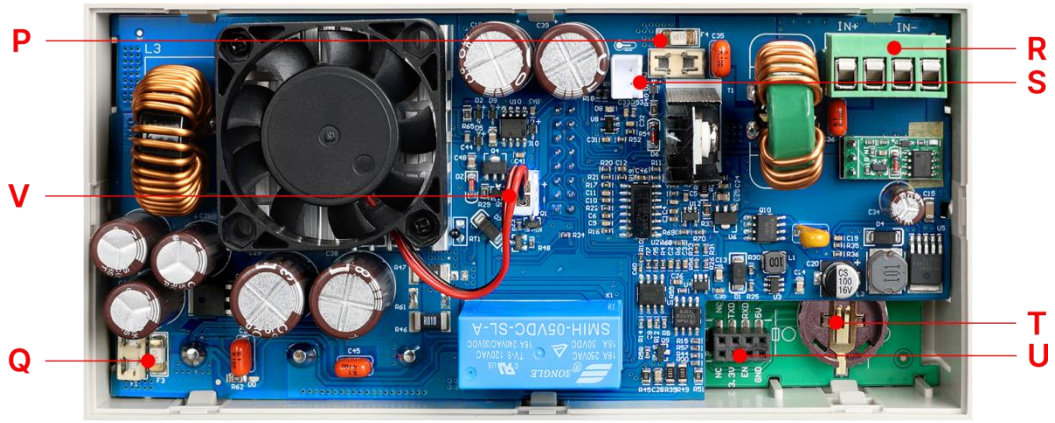


A：电源开关	B：SHIFT 第二功能键
C：快捷存储键	D：输出电流/过流保护设置
E：输出电压/过压保护设置	F：micro USB 通信接口
G：电源输出负极/电池充电负极	H：电池充电正极（充电专用端子）
I：电源输出正极（连接 4mm 香蕉头）	J：输出开关键
K：ENTER/确认键	L：编码电位器（旋转）/返回键（按动）
M：方向键	N：数字键盘
O：显示屏幕	

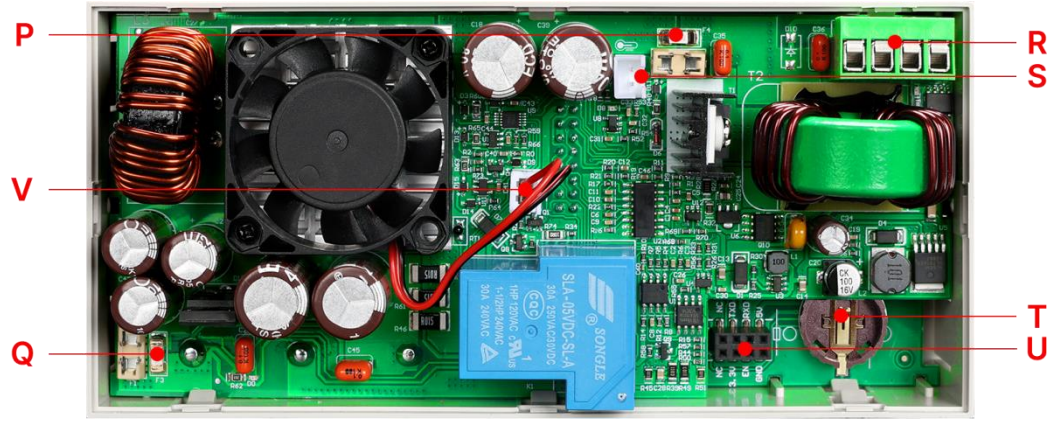
1.4.2 后面板



RD6006/RD6006-W

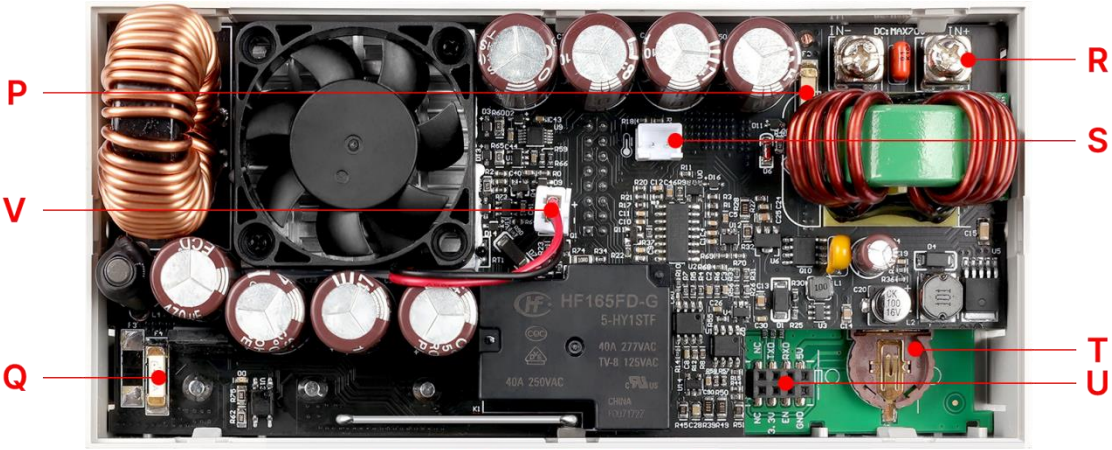


RD6012/RD6012-W



RD6018/RD6018-W

RD6024/RD6024-W



RD6030/RD6030-W

RD6006P/RD6006P-W

RD6012P/RD6012P-W

P：输入保险丝 （型号：1808）	Q：输出保险丝①
R：电源输入接口（HT508K/K14）	S：外置温度传感器接口（XH2.54-2P）
T：时钟电池仓（CR1220）	U：通信模块接口（专用接口）
V：风扇接口	W：远端采样开关（仅 RD6006P 有）
X:远端采样端子（仅 RD6006P 有）	

① RD6006/RD6006P 保险丝 10A，RD6012/RD6012P 保险丝 20A，RD6018 保险丝 25A，RD6024 保险丝 30A（型号：1808 贴片快熔保险），RD6030 保险丝 40A（型号：1032 贴片快熔保险），如果保险丝损坏请焊接后使用，带有保险丝座的产品使用保险丝座临时替代时，因为保险丝座最大承受电流为 10A，必须保证输出电流小于 10A。

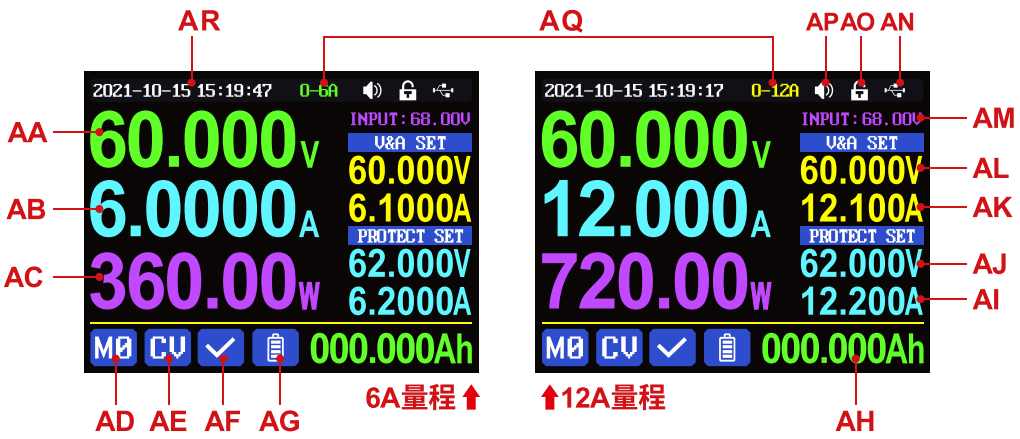
注意事项：

R：电源输入接口必须接 7-70V 的稳定直流，输入电压大于 72V，自动关闭输出并告警提示（如右图），当输入电压超出更多，产品将直接损坏无法修复！**V：风扇接口**不能外接或更换其他风扇，当系统温度大于 80 度时 **AH:循环显示区**显示 OTP 并关闭输出。**U：通信模块接口**为通信小板专用端口请勿在此处接线。输出如果接感性负载需预留三倍电流余地并且要加装续流二极管保护。

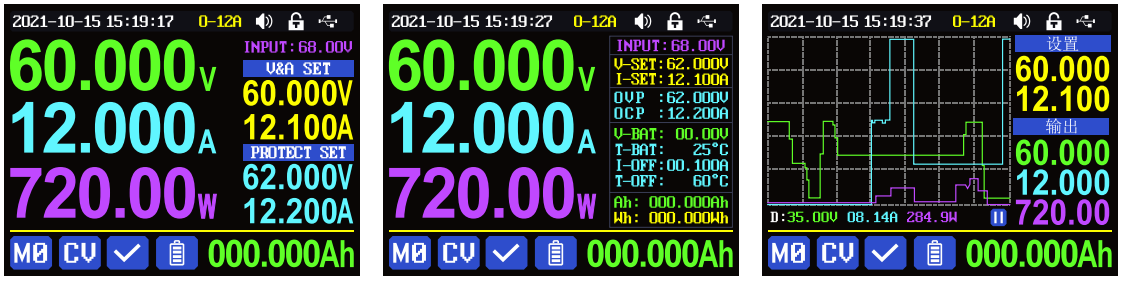
1.5 操作说明

上电后首先显示开机图片，然后进入主界面。

1.5.1 主界面



AA:输出电压回读值	AB:输出电流回读值
AC:输出功率显示值	AD:当前数据组指示
AE:恒压恒流状态指示	AF:保护状态指示
AG:电池充电状态指示	AH:循环显示区
AI:输出过流保护设定值	AJ:输出过压保护设定值
AK:输出电流设定值	AL:输出电压设定值
AM:输入电压	AN:当前通信模式指示
AO:按键状态指示	AP:按键声音状态指示
AQ:电流量程指示（仅 RD6012P 有此选项）	AR:日期时间



经典风格　　详细风格　　曲线风格

主界面按动◀或▶键可以在经典风格、详细风格、曲线风格中切换，曲线风格下，旋转编码电位器可以缩放曲线纵坐标，按动ENTER键可以开始或暂停曲线显示；主界面调整风格状态后不记忆，如需设置默认启动界面风格请前往 1.5.2.6 主界面风格设置。

1.5.2 操作说明

菜单操作中，红色、光标处或反显处为当前选中菜单，按动ENTER键确认或进

入,按动编码电位器返回，按动 M：方向键移动光标或菜单翻页,旋转编码电位器更改设置,菜单中返回时自动保存设置。按住 0 键上电恢复出厂设置,按住 1 键上电恢复出厂校准值，按住 ENTER 键上电进入 boot 模式。

1.5.2.1 电池充电功能说明

电池充电操作说明视频:https://qr17.cn/E78wfT

上电后，AH:循环显示区处，外置温度传感器温度、容量、能量循环切换显示，电源输出时，容量、能量自动累计，关机清零。

H：电池充电正极接电池正极，G：电池充电负极接电池负极，正确连接电池后 AG:电池充电状态指示 提示电池接好，设定好电压电流后然后按 ON/OFF 键开始充电，同时 AG:电池充电状态指示 提示，当输出电流小于充电截止电流(10mA 可设定)或外置温度传感器测量温度大于充电截止温度时自动关闭输出。当使用带异口保护板的电池需要使用 I：电源输出正极和 G：电源输出负极充电，电池充电时的电压电流需要自行设定。

强烈建议使用原装充电器给电池充电，本机充电功能仅能起临时替代作用，只有详细了解电池参数才可以充电，错误设置会损害电池寿命甚至起火爆炸。

1.5.2.2 主界面电压电流设置

主界面电压电流设置操作说明视频:https://qr17.cn/CpZUhq

图一

按动 ▲ 或 ▼ 键可以在 6A、12A 两个 AQ:电流量程指示中切换(仅限 RD6012P)，切换量程时会自动关闭输出。按动 I-SET 键设定 AK:输出电流设定值，转动编码电位器时设定值立刻生效，旋转调整不会超过限制，按动 ◀ 或 ▶ 键可以更改光标位置，待按动编码电位器返回时，自动保存到 M0。也可以直接使用 N：数字键盘输入按 ENTER 键确认后设定值生效同时自动将 AQ:电流量程指示和设定值保存到 M0。如果设定值超过限制，弹窗提示数据设置错误(如图一)。如输入错误，可以按动编码电位器取消。

按动 V-SET 键可以设定 AL:输出电压设定值，方法类似 AK:输出电流设定值操

作。

先按 SHIFT +I-SET 键或 SHIFT +V-SET 键可以设定 **AI:输出过流保护设定值**或 **AJ:输出过压保护设定值**，方法类似 **AK:输出电流设定值**操作。如果需要过流关断功能，**AI:输出过流保护设定值应**小于 AK:输出电流设定值。

电源处于恒压状态下 **AE:恒压恒流状态指示** CV 提示，当处于恒流状态下 CC 提示；电源正常状态下 **AF:保护状态指示** ✓ 提示，当 **AB:输出电流回读值**大于 **AI:输出过流保护设定值**(OCP)后，电源自动关闭输出，并 OCP 提示，当 **AA:输出电压回读值**大于 **AJ:输出过压保护设定值**(OVP)后，电源自动关闭输出，并 OVP 提示，当系统温度大于 80℃，电源自动关闭输出，并 OTP 提示。

图二

RD6006P 有远端采样功能，**X:远端采样端子**连接负载，打开 **W：远端采样开关**可补偿输出线上压降。注意 **X:远端采样端子**不可以接错接反否则会烧坏产品。

1.5.2.3 快捷存储和调出

快捷存储调出操作说明视频：https://qr17.cn/ACO2oQ

按动 MEM +N：数字键盘 1-9，可以将当前 **AL:输出电压设定值**、**AK:输出电流设定值**、**AJ:输出过压保护设定值**、**AI:输出过流保护设定值**、**AQ:电流量程指示**存储为快捷调用(如图二)，按动 ENTER 键确认，左下角 **AD:当前数据组指示** M1 提示，按动编码电位器或按 ▶ 键选中“取消”后按 ENTER 键取消，再次手动改变设置值后变为 M0 提示。

按动 SHIFT +N：数字键盘 1-9 可以快捷调出存储的数值(如图三)按动 ENTER 键确认后 **AL:输出电压设定值**、**AK:输出电流设定值**、**AJ:输出过压保护设定值**、**AI:输出过流保护设定值**、**AQ:电流量程指示**修改，左下角 **AD:当前数据组指示** M8 提示，再次手动改变设置值后变为 M0 提示。在系统设置菜单中关闭调出确认后，不弹出窗口，直接修改设置值。

图三

M0为上电默认数据组，按键修改设定后按ENTER键或旋转编码电位器更改设定后按编码电位器返回后自动记忆至数据组M0，或在存储数据中修改后按编码电位器返回后记忆，其他操作不记忆。

图四

1.5.2.4 键盘锁定解锁

键盘锁定解锁操作说明视频：https://qr17.cn/CEgdpt

按动SHIFT+•键可以锁定或者解锁键盘。键盘锁定时 **A0:按键状态指示**提示，此时 **A：电源开关**可正常使用，按动其他按键提示错误（如图四）。通信时自动锁定键盘(不可手动解锁)，通信断开 3 秒以后自动解锁键盘，**A0:按键状态指示**提示。

1.5.2.5 系统设置

系统设置操作说明视频：https://qr17.cn/FKrD80

主界面下按动SHIFT+0键进入系统设置菜单，最下面红色显示图标为主菜单选中位置，按动ENTER或▼键进入子菜单，蓝色底色为子菜单选中位置，旋转编码电位器改变设置，按动编码电位器返回，此时按动◀或▶键可以切换主菜单。

按动SHIFT+0键进入系统设置主菜单，按动ENTER或▼键进入子菜单。

图五

Settings 子菜单:(如图五)

系统语言默认为英文，也可以简体中文、法语、德语、俄语中选择；

调出确认默认打开，快捷调出时会先弹出窗口，关闭后快捷调出时直接更改设置值；

调出输出默认关闭，快捷调出时关闭输出，打开后，快捷调出后自动打开输出；

开机输出默认关闭，开机时输出为关闭，打开后开机自动打开输出；

开机图片默认打开，开机后会首先加载开机图片，然后进入**主界面**，关闭后开机直接进入**主界面**；

图六

图七

图八

按键声音默认打开，AP:**按键声音状态指示**提示，按动按键会有短促的滴滴声，关闭后，AP:**按键声音状态指示**提示，按键静音；

背光亮度默认为 4，可以在 0-5 之间设置；

测量速度默认为低，可以设置低中高三档，对应的是**输出电压电流实际值**的刷新率；

最大功率默认为 740W，可以在 0-740W 之间设置，对应可以设置的最大功率，右上角图标*1 为调整倍率，可以通过按动◀或▶键实现不同倍率调整，快速设置需要的数值，**最大功率**默认为电压优先模式，当设定电压电流乘积超过最大功率，系统自动将 AK:**输出电流设定值**减小，可以匹配小功率前级电源时使用，推荐设置值为前级电源的额定功率*95%（默认不用修改）；

温度单位默认为℃，可以在℃和℉之间切换。（如图六）

Battery Charger 子菜单：（如图七）

充电截止电流默认 10mA 可调，右上角图标*1 为调整倍率，可以通过按动◀或▶键实现不同倍率调整，快速设置需要的数值，充电时 AB:**输出电流回读值**小于此数值后自动关闭输出；

充电截止温度默认为 60℃，充电时当**外置温度传感器**测量温度大于 60℃后自动关闭输出。

Communication 子菜单：（如图八）

通信接口默认为 USB，也可以在 WIFI、TTL、RS485 中切换，USB 指 F：micro USB **通信接口**，设置后 AN:**当前通信模式指示**提示，与 PC 上位机通信时提示；设置 WIFI 后 AN:**当前通信模式指示**提示，与 APP 或 PC 上位机通信时提示；TTL 功能暂未开放，RS485 需要更换 485 模块，设置后 AN:**当前通信模式指示**提示，通信时提示；

设备地址默认为 001，可以在 001-255 之间选择；通信速率和设备地址必须和上

位机和手机 APP 保持一致。通信功能具体详见完整版说明书中上位机和 APP 中联机部分。

图九

Date and Time 子菜单：（如图九）

日期和时间可以在 2000-2100 年之间设置，按动◀或▶键，更改设置选项，旋转编码电位器改变数值，改变后立即保存更改，请不要设置错误的日期。使用 PC 上位机和手机 APP 可以手动同步时间，详见完整版说明书中上位机和 APP 中连机部分。

图十

1.5.2.6 主界面风格设置

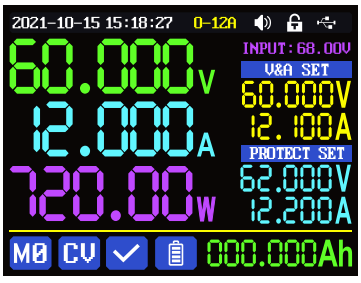
主界面风格设置操作说明视频：https://qr17.cn/CHj4iQ

主界面下按动SHIFT + 0 键进入系统设置菜单，然后再按动▶键进入（如图十）主界面风格设置主菜单下：按动ENTER 或▼键进入菜单

Layout 子菜单：

数字字体默认为 Normal，可以在 Normal 和 7-Seg V1 和 7-Seg V2 中选择；7-Seg V2 显示效果（如图十一）

主页布局默认为 0 经典风格，可以在 0 经典风格、1 详细风格，2 图表风格三个风格中选择，此处设定为开机默认界面风格。



图十一

Custom Colors 子菜单：（如图十二）

输出电压、输出电流、输出功率、AM:输入电压、电压设置、电流设置、过压设置、过流设置、容量累计、能量累计、电池电压、电池温度中每个独立的项目可以设置单独的颜色，颜色可以在红、绿、蓝、白、黄、品红、青色、浅蓝、灰色、棕色、橙色、黄绿色、蓝绿色、粉色、栗色十五个颜色中选择，

图十二

改变设置后，打开自定义颜色，就可以开启(如图十三)。

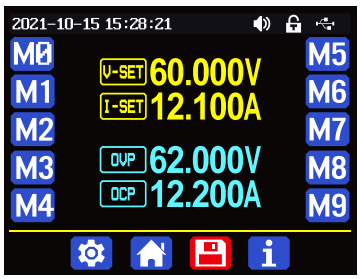
图十三

1.5.2.7 快捷数据组设置

存储数据设置操作说明视频:

https://qr17.cn/CKqPcj

主界面下按动SHIFT + 0 键进入系统设置菜单，然后再按动两次▶键进入(如图十四)存储设置主菜单：



图十四

按动ENTER 键进入菜单，按动 M：方向键可以选择数据组，此时旋转编码电位器可以在 6A、12A 两个 **AQ:电流量程指示**中切换（仅限 RD6012P），选择好量程后再设置参数。按动I-SET 键设定存储数据的 **AK:输出电流设定值**，转动编码电位器可以直接调整，旋转调整不会超过限制，按动◀或▶键可以更改光标位置，也可以直接使用 N：数字键盘输入按ENTER 键确认。如输入错误，可以按动编码电位器取消。

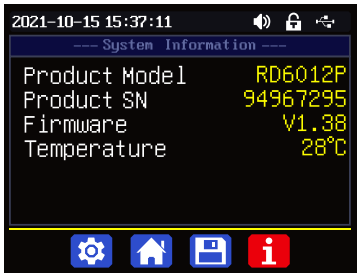
按动V-SET 键可以设定存储数据的 **AL:输出电压设定值**，方法类似 **AK:输出电流设定值**操作。

先按SHIFT +I-SET 键或SHIFT +V-SET 键可以设定存储数据的 **AI:输出过流保护设定值**或 **AJ:输出过压保护设定值**，方法类似输出电流设置。

数据设定完成后，按动编码电位器返回并保存数据。

1.5.2.8 系统信息

主界面下按动SHIFT + 0 键进入系统设置菜单，然后再按动三次▶键进入(如图十五)系统信息主菜单：



图十五

Product Model:产品型号，Product SN:产品串号，Firmware:固件版本，Temperature:系统温度。

安卓手机 App 使用说明

2.1 手机 App 软件安装

WIFI 联机仅支持 RD6012P-W，本软件仅支持 Android5.0-Android12.0 系统使用，鸿蒙系统暂不支持。如必须使用软件功能，请先预装测试。软件使用 WiFi 功能，需申请定位服务，请同意并打开定位，手机 App 请从文件管理器中打开安装。WiFi 模块不能在带电状态下插拔，会导致损坏。本说明书对应软件版本 1.0.17，不同版本会稍有不同，建议升级为最新软件，获取更好的使用体验。

2.1.1App 的下载

RD6012P 数控电源资料官网下载链: http://www.ruidengkeji.com/ziliaoxiazai

国内用户需通过浏览器直接下载到电脑，解压后将 apk 文件通过手机助手或者文件管理器导入到手机目录中，然后手机文件管理器中打开 apk 文件。可以使用谷歌 play 的用户请通过谷歌 play 搜索，如不会下载或无法下载可以找客服人员索取下载链接。

2.2 安装完成

安卓 App 安装联机过程视频：https://qr17.cn/CYCT10

WiFi 联网等帮助说明：（配网不成功的，都戳这里）

https://shop.m.taobao.com/shop/sr.htm?p=CX7KKZl_gW9pq_0_mqdtd

2.2.1 软件更新

点击 App 图标，App 启动后，系统会自动后台检测 App 版本是否有更新，新版本会弹框提醒更新，谷歌 play 下载的 App 需要手动检测新版本。

2.2.2App 界面显示

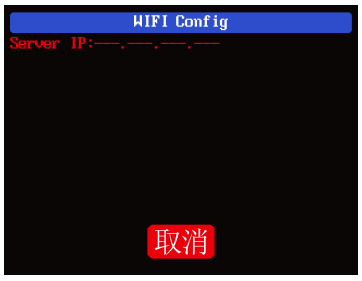
安装完成成功连接后，App 主界面显示如下图

BA：侧边栏	BQ：向左移动光标
BB：添加	BR：向右移动光标
BC：返回	BS：设置
BD：更多选项	BT：亮度
BE：曲线图	BU：系统温度
BF：输出电压回读值	BV：同步时间
BG：输出电流回读值	BW：快捷调出
BH：输出功率回读值	BX：电池电压
BI：输入电压	BY：外接传感器温度
BJ：输出电压设定值	BZ：开机累计输出能量
BK：输出电流设定值	CA：开机累计输出容量
BL：输出开关键	CB：量程切换
BM：保护状态指示	CC：当前产品型号
BN：键盘锁定指示	CD：产品序列号
BO：恒压/恒流状态指示	CE：固件版本
BP：调整轮	

2.2.3APP 的使用

安卓 App 操作过程视频：https://qr17.cn/A6C1ni

2.2.3.1 智能配网



图十六

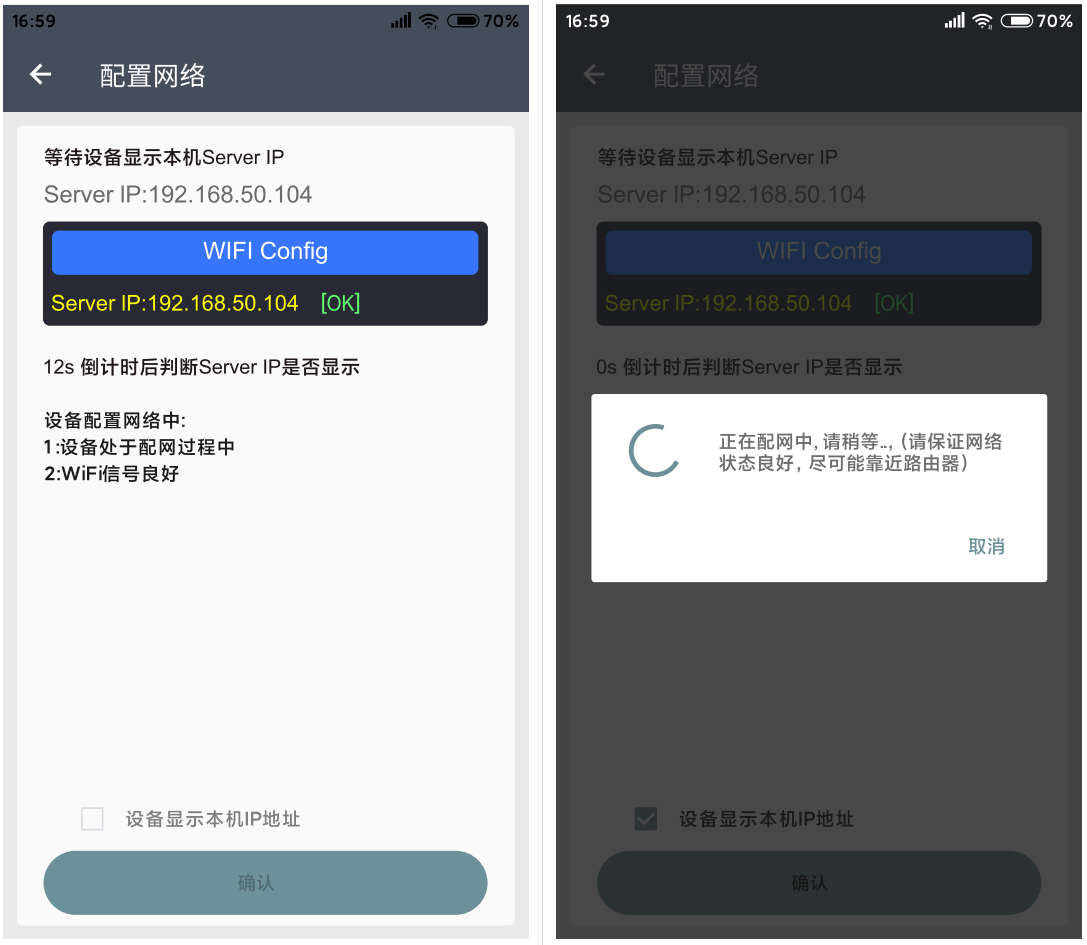
初次 WiFi 联网，先将 RD6012P 的 WiFi 模块插好，然后给 RD6012P 供电，WiFi 模块的蓝灯会闪烁一下。在系统设置中将**通信接口**设置为 WiFi 后重启 RD6012P，然后将 RD6012P 和手机都放置在靠近 2.4G 路由器的地方(此时手机也必须在同一个 2.4G 网络下，路由器关闭 AP 隔离和 WMM 功能)，RD6012P 会等待手机连接(如图十六)。手机按(如图十七)中 **BB：添加**选择“**RD 数控系列**”，出现(如图十八)输入 WiFi 密码并确认 2.4G 网络后点击“**初始化**”，等待约 10 秒，

图十七

图十八

RD6012P 会获取手机的 IP 地址(如图十九)。确认显示之后在 APP 上勾选**设备显示 IP 地址**，然后点击“**确认**”等待约 20 秒(如图二十)，APP 显示连接成功，RD6012P 会自动启动，配网成功，返回到主界面后点击 BD：**更多选项**中的“**连接**”即可连接。

图十九



图二十

如果配网失败，请给模块断电，重新操作一次(多次联网失败仔细观看联机过程视频并尝试用手机分享 WiFi 热点测试)。华为手机请关闭随机 MAC：https://jingyan.baidu.com/article/a681b0decb7c4b7a18434683.html

2.2.3.2 正常联网

RD6012P 启动后，会先连接 WiFi，然后检测手机 APP 是否能连通，锁屏或 APP 后台运行时，可能会无法连接，如果手机的 IP 地址发生变更需要先按◀键

然后按ENTER键重置网络，再次执行 3.2.3.1 智能配网过程。建议通过路由器设置手机 MAC 地址绑定 IP。

2.2.3.3APP 操作

安卓 APP 操作过程视频：暂无

点击 BJ：**输出电压设定值**设置输出电压，用右侧调整轮 BP：**调整轮**调整大小，然后用 BQ：**向左移动光标**、BR：**向右移动光标**调整光标位置，然后点击 BS：**设置**设置参数。点击 BD：**更多选项**中的**分享**即可将电压电流曲线导出成表格文件，最长可以记录 24 小时的文件。

注：1：因安卓手机种类繁多，因此在个别品牌或者一种品牌的不同比例屏幕上 UI 界面显示不一样。

2:应用程序权限要求,允许程序安装时必要权限(允许后台运行,允许使用蓝牙,允许操作文件夹，允许读取应用列表等)而且在安装完毕后还要在手机中设置程序的权限：允许后台运行、锁屏不清理、允许自启动等(持续记录数据时防止系统强制退出 APP)。

苹果手机 APP 使用说明

3.1 手机 APP 软件安装

WIFI 联机仅支持 RD6012P-W。

3.1.1APP 的下载

苹果 APP 仅支持 IOS10.0-16.1，iphone6S 以上机型，在苹果商店搜索“RuiDeng”下载。如必须使用软件功能，请先预装测试。软件使用 WiFi 功能，需申请定位服务，请同意并在设置-隐私中打开定位。本说明书对应软件版本 1.0.16，建议升级为最新软件，获取更好的使用体验。

注意：最新版集合软件为 RuiDeng，RDPower 不能正常使用的请下载该软件测试。

3.2 安装使用

首次启动软件，系统可能会申请定位（如图二十一），选择“使用 APP 时允许”，软件运行时会申请使用数据（如图二十二），选择“无线局域网与蜂窝移动网络”。

图二十一

图二十二

苹果 APP 安装联机过程视频：https://qr17.cn/CABSZI

3.2.1 软件更新

您可从苹果商店获取最新的软件，当软件有更新时，打开后会提示版本更新。

3.2.2APP 界面显示

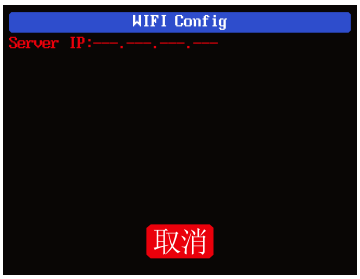
打开后界面显示下图

DA：连接/断开	DO：系统温度
DB：导出曲线数据	DP：数据快捷调出
DC：曲线图	DQ：同步时间
DD：输出电压实际值	DR：电池电压
DE：输出电流实际值	DS：外接传感器温度
DF：输出功率实际值	DT：开机后输出容量
DG：输入电压测量值	DU：开机后输出能量
DH：输出电压设定值	DV：产品型号
DI：输出电流设定值	DW：产品序列号
DJ：输出开关键	DX：产品固件版本
DK：保护状态指示	DY：主界面
DL：电池充电指示	DZ：配网界面
DM：恒压恒流状态	EA：个人中心
DN：屏幕背光亮度	

3.2.3APP 的使用

苹果 App 操作过程视频：https://qr17.cn/EugEMc

3.2.3.1 智能配网



图二十三

初次 WiFi 联网，先将 RD6012P 的 WiFi 模块插好，然后给 RD6012P 供电，WiFi 模块的蓝灯会闪烁一下。在系统设置中将**通信接口**设置为 WiFi 后重启 RD6012P，然后将 RD6012P 和手机都放置在靠近 2.4G 路由器的地方(此时手机也必须在同一个 2.4G 网络下，路由器关闭 AP 隔离 WMM 功能)，RD6012P 会等待

手机连接(如图二十三)。点击 EA：个人中心打开“**智能配网**”界面(如图二十四)，并输入无线密码。点击“**初始化**”，等待约 20 秒，

图二十四

图二十五

RD6012P 会获取手机的 IP 地址(如图二十六)。然后(如图二十五)点击**配置网络**，等待约 30 秒，APP 显示连接成功，RD6012P 正常启动，配网成功，返回到主界面后点击 DA：**连接/断开**即可连接。

图二十六

如果配网失败，请给模块断电，重新操作一次（多次联网失败仔细观看联机过程视频并尝试用手机分享 WiFi 热点测试）。

3.2.3.2 正常联网

RD6012P 启动后，会先连接 WiFi，然后检测手机 APP 是否能连通，如果手机锁屏或 APP 不在前台运行下，会无法连接；如果手机的 IP 地址发生变更需要先按左键然后按 ENTER 键重置网络，再次执行 3.2.3.1 智能配网过程。

3.2.3.3 手机 APP 功能

苹果 APP 操作过程视频：暂无

点击 DH：**输出电压设定值**或 DI：**输出电流设定值**的输入框，输入数值设定电压电流，点击空白处返回，超出的值不能设定。点击 DB：**导出曲线数据**可以将电压电流曲线导出成表格文件并分享到其他应用，最长可以记录 24 小时的文件。

点击 EA：**个人中心**可以设置软件语言或者获取使用帮助。

上位机软件的安装使用说明

安装软件需求：win7-win10 系统，带有网络连接的电脑。

本软件由杭州睿登科技有限公司开发，不带有病毒，如果杀毒软件提示请允许它的所有功能，否则会影响软件的正常运行。PC 上位机软件仅支持 win7-win10 系统，软件可能存在不兼容问题，如确切需要请先预装测试后购买产品。本说明书对应软件版本 1.0.0.12，本版本以下不支持 RD6012P，建议升级为最新软件以期获取更多功能。

RD6012P 数控电源资料主下载链接：http://www.ruidengkeji.com/ziliaoxiazai

4.1 软件安装

上位机安装视频：https://qr17.cn/ETUcEe

4.1.1 驱动安装

驱动安装指导视频：http://www.wch.cn/videos/ch340.html

首次使用需要先安装驱动程序，win10 系统可以直接连接产品网络搜索驱动，win7 打开 http://www.wch.cn/downloads/CH341SER_EXE.html 下载安装驱动，然后用 microUSB 线连接产品等待电脑安装驱动完成。安装完成后，右键点击【此电脑】>【管理】>【设备管理器】>【端口】，如果有 USB-SERIAL CH340（COMXX）说明驱动安装成功，数据线正常，如果没有反应，检查 USB 口和 micro 数据线。win7sp1 的用户可能会出现感叹号，按照

http://www.wch.cn/downloads/InstallNoteOn64BitWIN7_ZH_PDF.html 进行操作

4.1.2 安装软件

将压缩包解压到电脑 D 盘中，首先运行 Net framework4.7.2.exe 安装.net 环境，然后直接运行 RidenPowerSupply.exe 上位机软件。文件夹其他文件运行所需，不要删除。

4.2 软件的使用

4.2.1 上位机联机

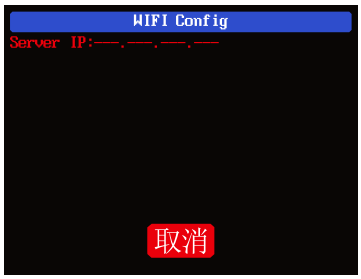
RidenPower Supply

双击桌面上的图标“Riden Power Supply”就可以打开上位机软件。

WIFI 联机仅支持 RD6012P-W，WiFi 联机为测试功能，由于部分电脑的兼容性不好，无法连接的请忽略。此功能不做任何保证，我们也将根据客户反馈结果决定是否保留。

电脑 WiFi 联机视频：https://qr17.cn/ByDJPj

将 RD6012P 通信接口设置成 WiFi，并重启，RD6012P 显示(如图二十七)，在上位机上点击“WiFi 配网”弹出 WIFI 配网界面(如图二十九)，点击“初始化”等待约 5-10 秒，RD6012P 显示本机 IP 地址后(如图二十八，点击“下一步”并输入 WiFi 名称和密码，然后点击“配网”，等待约 20 秒，上位机提示连接成功，然后单击“联机”即可。



图二十七

图二十八

USB 联机：RD6012P 通信接口设置成 USB，用 MicroUSB 线把 RD6012P 与上位机连接好，打开上位机，上位机提示串口更新，点击“联机”即可。

图二十九

4.2.2 软件使用介绍

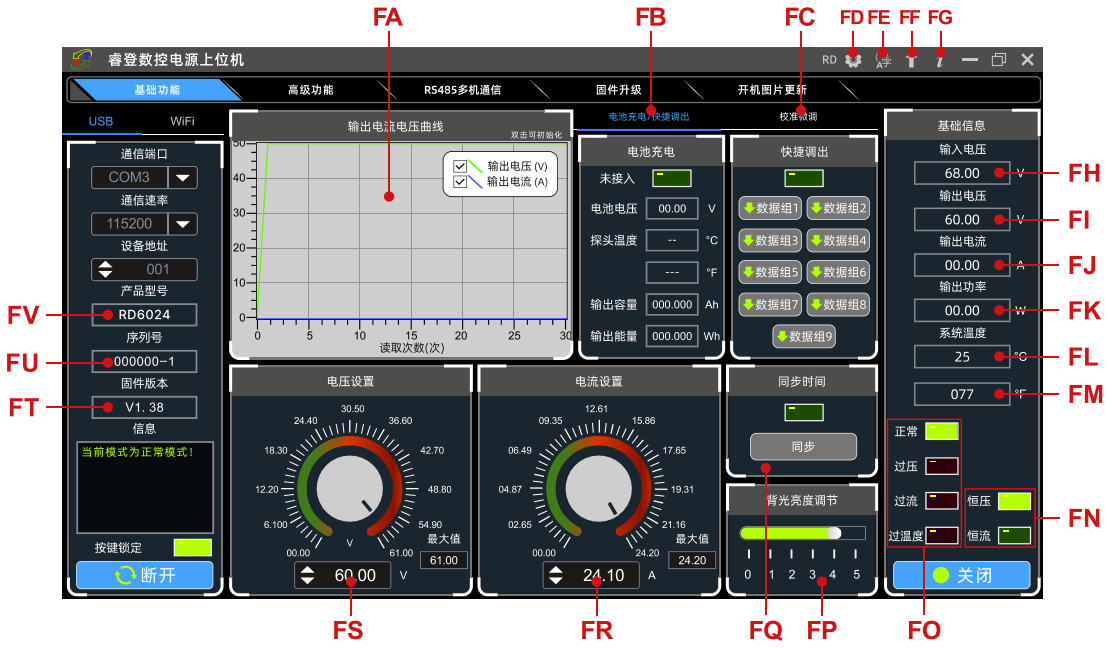
上位机使用视频：https://qr17.cn/EF1ZdQ

选择好**通信端口、波特率、从机地址**（默认为 001），点击“**联机**”开始通信，联机成功后会自动锁定数控电源按键，意外断开 3 秒后电源按键自动解锁，同时“**联机**”按钮变为“**断开**”；点击“**打开**”可以打开数控电源输出，同时按钮变为“**关闭**”。

4.3 功能介绍

上位机软件界面主要有**基础功能、固件升级、Logo 升级、检查版本更新及语**

言的选择等。



FA：	电压电流曲线	FB：	电池信息/快捷调出
FC：	校准微调	FD：	RD/DPS/RK 系列切换
FE：	语言选择	FF：	软件更新
FG：	关于	FH：	输入电压
FI：	输出电压实际值	FJ：	输出电流实际值
FK：	输出功率实际值	FL：	系统温度（摄氏度）
FM：	系统温度（华氏度）	FN：	恒压恒流状态
FO：	保护状态指示	FP：	背光亮度
FQ:	同步系统时间至产品	FR：	输出电流设定值
FS：	输出电压设定值	FT：	固件版本
FU：	序列号	FV：	产品型号

4.3.1 基础功能

上位机的基础功能包括：**电压电流的设置、快捷输出、校准微调、亮度调节及电压电流曲线导出**，调整旋钮或输入数字可以改变设置电压电流，按钮上方图表会显示实时的电压电流曲线。在曲线图上滚动滚轮可以实现缩放，双击曲线自适应，右键可以清除曲线或者将曲线导出成图片或 excel。

4.3.2 校准微调

校准微调需要拥有六位半以上的万用表的专业电子人士操作；**校准微调**会改变系统设置，误操作可能会超出硬件极限值导致损坏，由此导致的损坏不纳入保修范围！产品的极限误差一般会比标称误差小很多，当误差接近甚至大于标称误差时，请首先确认测量仪器是否准确。

点击**校准微调**输入密码“168168”可以进入校准微调界面或者保存校准微调数据（输入此密码即代表接受上述红字协议），联机后读取校准数据，通过点击箭头实现微调数值。根据一次函数 y=kx+b，常数 b 相当于零点值，斜率 k 相当于比例值，调整这两个数值就能尽量去接近实际测量的数值。

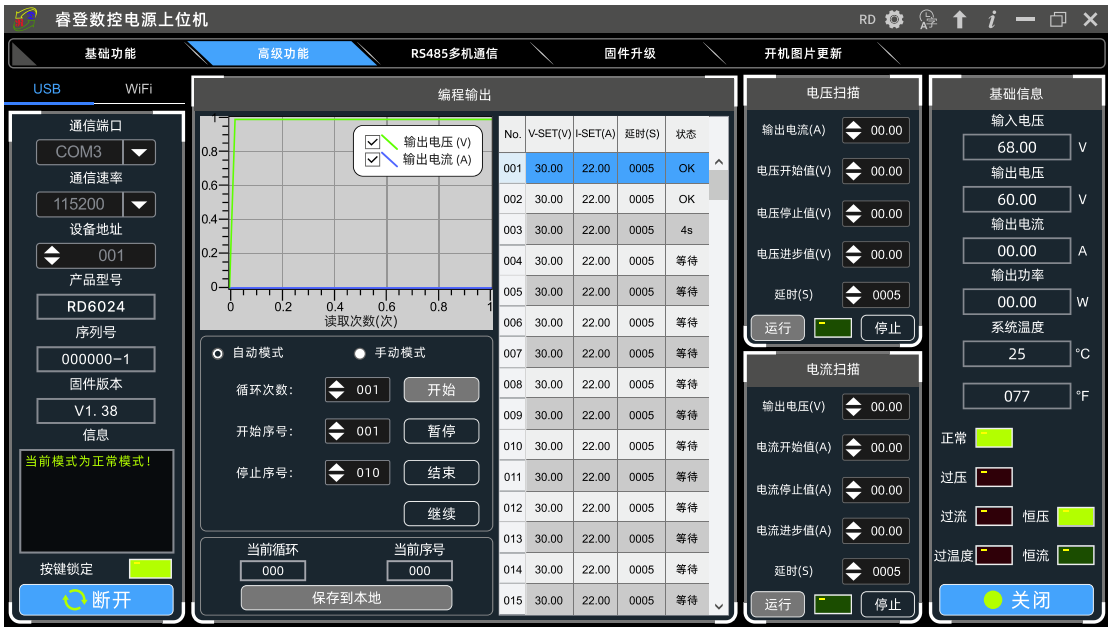
校准微调操作视频：https://qr17.cn/DoPeBD

将输出电压设置为 1V，调整电压输出零点使万用表显示接近 1V，将输出电压设置为 30V（半量程），调整输出电压比例值使万用表显示值接近 30V；同理设置为 0.1A 和 6A（半量程）可以校准电流输出零点和电流输出比例；将输出电压设置为 1V 调整回读电压零点使 RD6012P 显示电压值与万用表测量值一致，同理设置 30V 可以校准回读电压比例值，同理设置为 0.1A 和 6A 可以校准电流回读零点和电流回读比例（此部分不提供技术支持，看不懂的客户请自行丰富相关知识）。

4.3.3 高级功能

高级功能可以按照表格中的设定值变换输出电压电流，每步时间 1-9999s 可

调，最多 200 步，可以自动输出也可手动输出，编程输出或者其他操作过程中不能切换界面，必须停止后才能切换。



4.3.4 RS485 多机通信

使用 USB 转 485 连接 485 模块的 AB，多台的 AB 都连接到一块。RD6012P 每个设置不同的设备地址，最多可以连接 32 台，不同型号不能同时连接。上位机进入 RS485 多机通信，首先点击搜索，搜索完成后点击连接。

在表格中可以任意更改某个产品的输出电压电流，在自定义设置中可以批量设置电压电流。在快捷设置中可以设置几组快捷电压电流方便调出。由于通信帧间隔，每次操作完成都需要一定时间，最长不长于 11 秒。

4.3.5 固件升级

固件升级操作视频：https://qr17.cn/BMFDds

首先按住ENTER键给 RD6012P 供电，进入 boot 模式，连接好电脑，待模式信息中提示产品为 boot 模式后点击“**固件升级**”，弹出固件升级提示框，然后点击“**立即升级**”即可(可以在正常模式下升级，如果不能正常启动时，必须进入 Boot 模式升级，WiFi 下暂时未开放固件升级)。

固件升级过程中，界面显示如下：

4.3.6 开机图片更新

开机图片更新操作视频：https://qr17.cn/Bk2WXe

点击“**开机图片更新**”，弹出升级提示框，点击“**选择图片**”，（安装包内提供了一些 Logo 样张可以测试），点击“**图片导入**”即可，更新完成会自动重启。

4.3.7 软件更新

点击 FF：**软件更新**，系统会自动后台检测是否有新版本，如有新版本会弹框提醒更新。

4.3.8 语言的选择

点击 FE：**语言选择**，可以设置中文、英文、法语、德语四种语言。

4.3.9 关于

点击 FG：关于，可查看当前版本号、发布时间及版权信息等。

附录

附录 1：中文版本更新说明

2024-4-8：增加 RD6030
2023-12-21：更改为集合版本
2022-11-15：说明书更改为新界面固件
2022-5-12：修改操作说明中关于调出输出的错误
2020-9-17：英文版翻译修改，中文版错误更正
2020-9-12：增加 RD6018 说明并把所有软件说明更新到最新版本。
2020-5-18：充电部分增加说明，增加英文版
2020-5-13：将 RD6006 与 RD6012 说明书结合
2019-12-3：中英文增加 WiFi 联机不能可靠保证说明
2019-11-25：修改文中错误，并在所有 WiFi 联机处加上每个步骤大约时间。
2021-7-26：修改附录 3 中错误。
2021-12-31：修改 app 版本，增加 RS485 说明

附录 2：常见电池电压对照表

电池种类	标称电压(V)	充电截止电压(V)	放电截止电压(V)	应用	特点
三元锂电	3.7	4.2	3	数码设备	容量大，可充电
磷酸铁锂	3.2	3.65	2.5	电动车/电动工具	放电电流大，可充电
铅酸蓄电池	12	14.4	10.5	汽车/电动车	价格实惠可充电
干电池	1.5	--	0.9	遥控器/时钟	价格实惠,应用广泛,不可充电
镍铬电池	1.25	1.5	1.1	玩具	可充电,价格实惠,有记忆效应
镍氢电池	1.2	1.4	0.9	玩具/剃须刀	可充电,无记忆效应

附录 3：常见电动车电池电压对照表

电动车标称电压	电芯材料	串联节数	放电截止电压(V)	充电截止电压(V)
48V	三元	14	42	58.8
	三元	13	39	54.6
	磷酸铁锂	16	40	58.4
	铅酸蓄电池	4	42	57.6

36V	三元	10	30	42
	磷酸铁锂	12	30	43.8
	铅酸蓄电池	3	31.5	43.2
24V	三元	7	21	29.4
	磷酸铁锂	8	20	29.2
	铅酸蓄电池	2	21	28.8

注：充电截止电压大于 60V 的电池，都不能使用数控电源来充电，会造成产品损坏。

Constant Voltage and Constant Current

DC Power Supply Instruction

Model: RD6006/RD6012/RD6018/RD6024/RD6030/RD6006P/RD6012P

Date: 2024. 6. 18

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 RD6006(V1.42), RD6012(V1.37), RD6018(V1.39), RD6024(V1.40),RD6030(V1.43),RD6006P(V1.45), RD6012P(V1.49), 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.

Content

1.1 Package and Accessory List

The product is packed in a square carton with a plastic sealing film on the outside. After opening the box, there will be an instruction card. Scan the QR code to view the instructions.

On the right side of the product are the accessories. There is an external temperature sensor cable that can be plugged into the S: external temperature sensor interface. If you choose the model with WiFi communication, there will also be a WiFi communication board that can be plugged into U:U:U : Communication module interface, the fuse is a spare, the fuse holder can only be used under 10A, please solder it to the product for long-term use. The U-shaped plug can be used to connect the output line.

	
RD power supply*1	Backup fuse*1
	
External temperature sensor*1 10K B3950	WiFi/RS485 board(order separately)

1.2 Technical Parameter

Model	RD6006	RD6012	RD6018	RD6024	RD6030	RD6006P	RD6012P
Display digit	4-digit					5-digit	
Input voltage range	6-70V			7-70V			
Output voltage range	0-60V						
Output current range	0-6A	0-12A	0-18A	0-24A	0-30A	0-6A	0-12A
Output power range	0-360W	0-720W	0-1080W	0-1440W		0-360W	0-720W
Output voltage resolution	0.01V					0.001V	

<table>
<tr><td>Output voltage accuracy</td><td colspan="4">±(0.3%+3 digits)①</td><td colspan="2">±(0.5‰+4 digits) ①</td></tr>
<tr><td>Output current resolution</td><td>0.001A</td><td colspan="3">0.01A</td><td>0.0001A</td><td>0.0001A
/0.001A</td></tr>
<tr><td>Output current accuracy</td><td colspan="4">±(0.5%+5 digits)</td><td colspan="2">±(1‰+6 digits)</td></tr>
<tr><td>Battery voltage resolution</td><td colspan="6">0.01V</td></tr>
<tr><td>Battery voltage accuracy</td><td colspan="6">±(0.5%+3 digits)</td></tr>
<tr><td>Battery voltage resolution</td><td colspan="6">0.01V</td></tr>
<tr><td>Battery voltage accuracy</td><td colspan="6">±(0.5%+3 digits)</td></tr>
<tr><td>Default battery charging cutoff current</td><td>10mA</td><td colspan="3">100mA</td><td colspan="2">10mA</td></tr>
<tr><td>Output ripple typical (VPP)</td><td>100mV</td><td>250mV@6A</td><td>100mV
@12A
150mV
@24A</td><td>50mV
@15A
90mV
@30A</td><td colspan="2">20mV②</td></tr>
<tr><td>Working temperature range</td><td colspan="6">-10℃~40℃</td></tr>
<tr><td>External sensor Temperature detection range:</td><td colspan="6">-10℃~100℃/0℉~200℉</td></tr>
<tr><td>External sensor Temperature detection error:</td><td colspan="6">±3℃/±6℉</td></tr>
<tr><td>Constant voltage mode response time</td><td colspan="6">2ms（0.1A-5A Load）</td></tr>
<tr><td>Constant voltage mode load regulation</td><td colspan="6">±(0.1%+2 digits)</td></tr>
<tr><td>Constant current mode load regulation</td><td colspan="6">±(0.1%+3 digits)</td></tr>
<tr><td>Capacity measurement range</td><td colspan="6">0-9999.99Ah</td></tr>
<tr><td>Energy measurement range</td><td colspan="6">0-9999.99Wh</td></tr>
<tr><td>Capacity and energy statistical error</td><td colspan="6">±2%</td></tr>
<tr><td>Cooling fan start condition</td><td>Output voltage >40V or Output current>4A or System temperature >45℃</td><td colspan="3">Output current>8A or
System temperature>45℃</td><td>Output current>4A or System temperature> 45℃</td><td>Output current>4A or System temperature> 50℃</td></tr>
<tr><td>Cooling fan shut down condition when working</td><td>Output voltage <40V and Output current <3.9A and System temperature <40℃</td><td colspan="3">Output current <7.9A and
System temperature <40℃</td><td>Output current <3.9A and System temperature <40℃</td><td>Output current <3.9A and System temperature <45℃</td></tr>
</table>

Over temperature protection	System temperature >80℃						
Screen brightness setting	0-5(6 level)						
Screen	2.4 inch color HD display						
Input output fuse	1808 fast blow fuse				1032 fast blow fuse	1808 fast blow fuse	
Fuse current	10A	20A	25A	30A	40A	10A	20A
Input terminal	HT508K-2P	HT508K-4P		K14 Terminal		HT508K-2P	HT508K-4P
Product weight(about)	0.58Kg	0.61Kg	0.68Kg	0.72Kg	0.74Kg	0.62Kg	0.66Kg
Product dimension (about)	167*81*69mm						
USB communication	YES						
WiFi communication	Only W version support WiFi communication						

①:1 digit is a minimum resolution, and at 5V the error is ±(5*0.5‰+4*0.001)=5±0.0065V.

②Ripple measurement method: noise and ripple are measured at X1 range, AC coupling,

20 MHz of bandwidth on your oscilloscope with a 0.1uF parallel capacitor at the output terminals

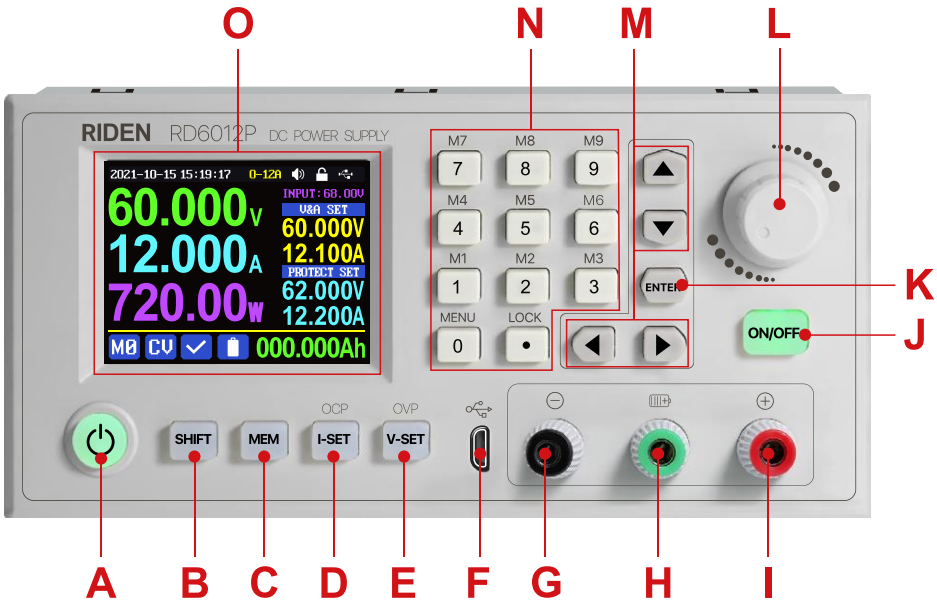
The following takes RD6012P-W as an example to introduce the appearance and usage instructions.

1.3 Core Function

N： Keypad + encoder potentiometer combination adjustment	Firmware update, support more functions later
10 data groups for storage and call out	Brand new PC software
2.4 inch HD color display	Support WiFi communication/USB communication
Battery charging terminal	Support Android/ IOS APP
Integrated panel, can be directly connected to AC power after assembly	Support multiple display interfaces

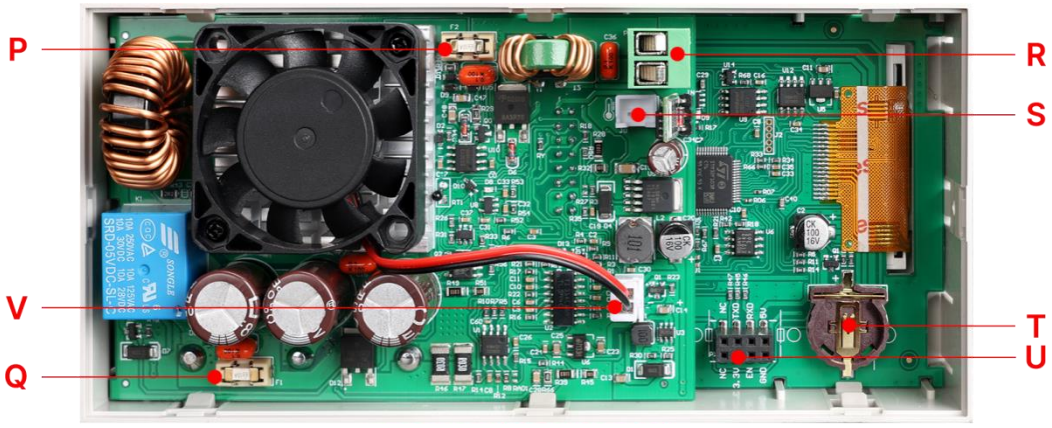
1.4 Panel Instruction

1.4.1 Front Panel

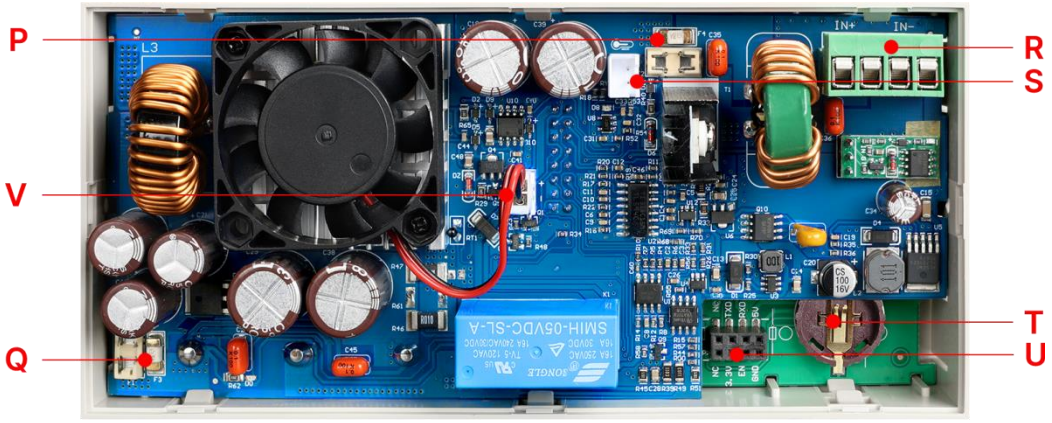


A: Power button	B: SHIFT Second function button
C: Quick storage button	D: Current/Over current protection setting
E: Voltage/Over voltage protection setting	F: Micro USB port
G: Power supply output negative terminal/ Battery charging negative terminal	H: Battery charging positive terminal (Dedicated terminal for battery charging)
I: Power supply output positive terminal connect 4mm banana plug	J: Output ON/OFF switch
K: Enter/ Confirm button	L: Encoder potentiometer(rotate) /Cancel button(Press)
M: Direction button	N: keypad
O: Screen	

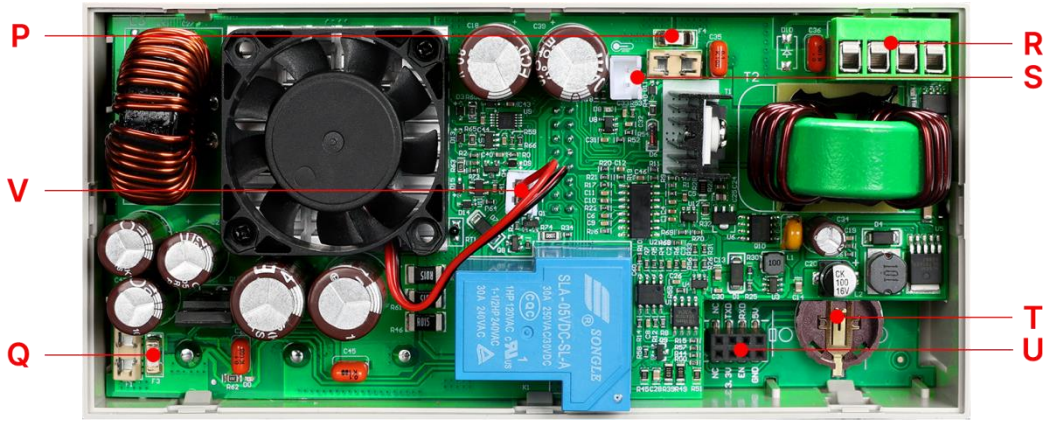
1.4.2 Back Panel



RD6006/RD6006-W

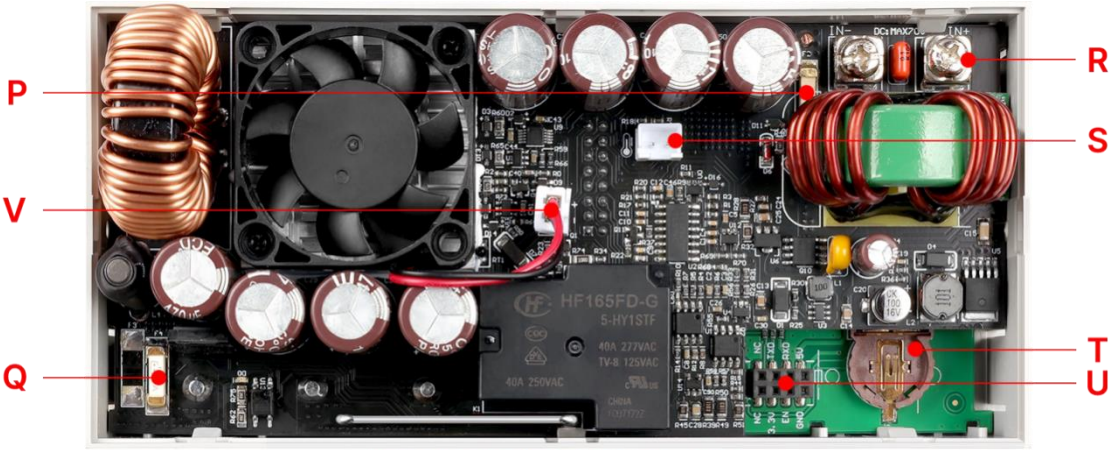


RD6012/RD6012-W



RD6018/RD6018-W

RD6024/RD6024-W



RD6030/RD6030-W

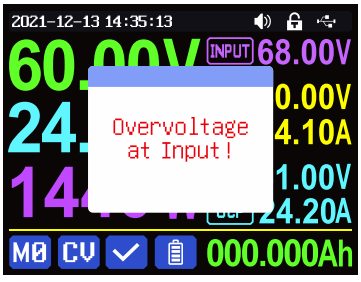
RD6006P/RD6006P-W

RD6012P/RD6012P-W

P: Input fuse(Type: 1808)	Q: Output fuse①
R: Power source input interface (HT508K/K14)	S: External temperature sensor interface (XH2.54-2P)
T: CR1220 battery socket	U: Communication module interface (WiFi or RS485 board)
V: Fan interface(cannot add or replace other fan)	W:Remote sampling switch (only for RD6006P)
X: Remote sampling terminal (only for RD6006P)	

① RD6006/RD6006P fuse 10A, RD6012/RD6012P fuse 20A, RD6018 fuse 25A, RD6024 fuse 30A(1808 fast blow fuse), RD6030 fuse 40A(1032 fast blow fuse). If the fuse is damaged, please solder a new fuse. When using a fuse holder as a temporary replacement, because the fuse holder has a maximum current capacity of 10A, the output current must be ensured to be less than 10A.

NOTE:



R: Power source input interface must be connected to 7-70V constant DC power source. When the input voltage is greater than 72V, the output will be automatically turned off and an alarm (as shown in the right picture) will be automatically prompt. When the input voltage exceeds more, the product will be directly damaged and cannot be repaired!The external sensor cable (as shown on right) must be connected to the external temperature sensor interface. V: Fan interface cannot be connected to other fans.

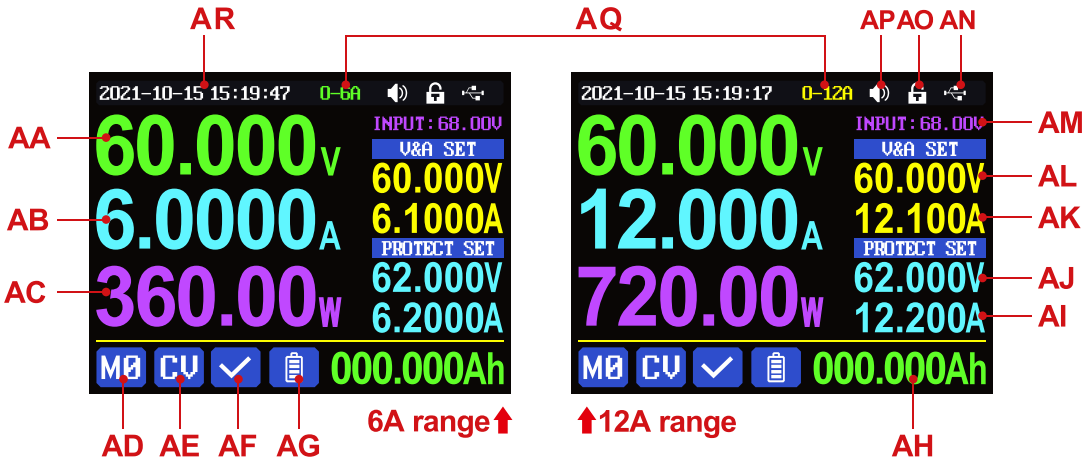
When the system temperature is higher than 80℃, the output will be shut down and show OTP on the screen. CR1220 is the clock battery (Please

prepare by yourself), it can power on the clock function. U:Communication interface is a special interface, please don't connect to other modules or cables.

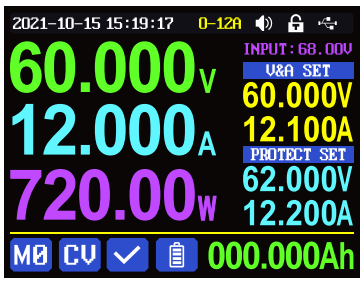
1.5 Operation Instruction

After power-on, it will show boot image first, and then enters the main page.

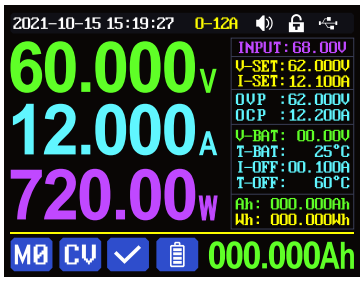
1.5.1 Main Page



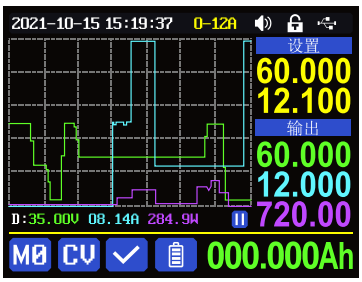
AA: Actual output voltage value	AB: Actual output current value
AC: Output power	AD: Current data group
AE: Constant voltage Constant current status	AF: Protection status indication
AG: Battery charging indication	AH: Battery related information display area
AI: Over current protection value	AJ: Over voltage protection value
AK: Output current preset value	AL: Output voltage preset value
AM: Input voltage	AN: Communication interface
AO: Button lock status	AP: Button tune
AQ: Current range(only RD6012P has)	AR: Date time



Traditional Style



Detail Style



Curve Style

At main page you can press ◀ ▶ button to change the display style between Traditional

Style, Detail Style and Curve Style, under curve style mode, rotate the encoder potentiometer to scale the vertical coordinate of the curve. Press ENTER to pause/start the curve recording, the display style will not be saved automatically, you need to set default boot display at section 1.4.2.6 Main Page Style Setting.

1.5.2 Operation Introduction

In the menu operation, the icon in red, cursor position or the option with base color is the currently selected menu, press ENTER to confirm or enter, press the encoder potentiometer to cancel or return, press M: 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.

1.5.2.1 Battery Charging Function Introduction

The operation way of RD power supplies are similar.

Battery charging operation video：

https://www.youtube.com/watch?v=sOmKoUEmjdQ

After power on, at AH: battery related information display area, external temperature, capacity and energy will loop display. When the output is turned on: capacity, energy will be automatically accumulated, and automatically cleared after power off.

The green terminal(H: Battery charging positive terminal) is connected to the positive electrode of the battery, and the black terminal(G: Battery charging negative terminal) is connected to the negative electrode of the battery. After the battery is correctly connected, the AG:battery charging indicator turns red and the battery is connected. Press ON/OFF to start charging, the AG: battery charging indicator turns green . When the actual output current is lower than cut-off current value

(10mA, can be set by user), or the temperature that the external temperature sensor tested is greater than the cut-off temperature value, the output will be cut off automatically. Battery with protection board needs to be charged with red terminal(I: Power supply output positive terminal) and black terminal(G: Battery charging negative terminal). The charging voltage and current should be set on your own.

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. You need to know the battery parameter well so that you can use it to charge, There is a risk of fire and explosion during the charging process if you use the wrong way to charge. Common Battery voltage

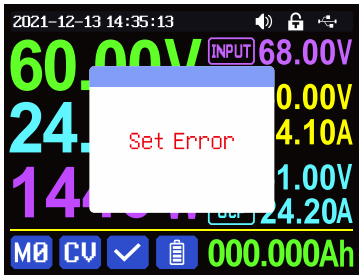


Figure 1

1.5.2.2 Main Page Output Voltage and Current Setting

Output voltage and current setting operation video：

https://www.youtube.com/watch?v=KPnXiwCGSFg

Press ▲ or ▼ to switch the 6A and 12A output range(only for RD6012P), after switching the output range, the output will be cut off. Press I-SET button to set the AK: output current value, you can use encoder potentiometer to adjust the output value directly. And you will not set the value which exceeds the limit in this way, press ◀ ▶ button to move the cursor, and the value will be saved into M0 when you press encoder potentiometer to return. Of course you can use N: keypad to type in the value, and press ENTER to confirm, and it will save the set value and AQ: current range into M0, if you set a value exceeds the limit, it will prompt like what shows in **Figure 1**. If you set the wrong value, you can press encoder potentiometer to cancel.

Press V-SET button to set AL: output voltage value, the operation way is similar to AK:output current setting.

Press SHIFT + I-SET button set the AI: over-current protection, press SHIFT + V-SET button to set AJ: over-voltage protection value. The operation way is similar to AK:output current setting. If you want to set the over current auto cut-off function,

your AI:over current protection value should be higher than the AK: current setting value.

When the device is under constant voltage mode, it will show CV in AE: Constant voltage Constant current status, and it will show CC when under constant current mode; when the device works normally it will show ✓ at AF: Protection status indication, when the AB: actual output current value is higher than the AI: over-current protection value(OCP), the output will be cut off automatically, and show OCP, when the AA: actual output voltage value is higher than the AJ: over-voltage protection value(OVP), the output will be cut off automatically, and show OVP, when the system temperature is higher than 80℃, the output will be cut off automatically, and show OTP.

RD6006P has a remote sampling function, X: remote sampling terminal connected to the load, open the W: remote sampling switch can be compensated for the voltage drop on the output line. Note that the X: remote sampling terminal cannot be connected wrongly or inversely, otherwise the product will be burnt.

1.5.2.3 Data Group Quick Storage and Call out

Data group quick store and call out operation video：

https://www.youtube.com/watch?v=Y4ywGSxDy0M

figure 2

Press MEM + N:keypad button 1-9, you can store the AL: output voltage value, AK: output current value, AJ: over voltage protection value, AI: over current protection value and AQ: Current range into the corresponding data group(as shown in figure 2).

then press ENTER to confirm, it will show M1 at AD: Current data group, you can press ▶ button and choose “X”, then press ENTER to cancel, after change the setting value it will show M0.

Press SHIFT + keypad button 1-9 to quick call out the saved data (as shown above in figure 3) from the corresponding data group. Press ENTER to confirm, It will

show M8 at AD: Current data group,

after change the setting value it will show M0. When disable the "Take OK" option, it will be called out directly to change the data setting value, no prompt.

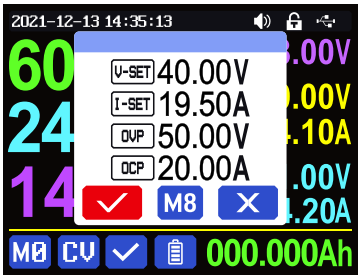


figure 3

M0 is the default data group, when you edit the settings and press ENTER button or rotate encoder potentiometer to change the setting and press encoder potentiometer to return, it will be stored into M0 automatically, or you go to the data group setting menu, change the setting and press encoder potentiometer to return, it will save too, and it will not save by other settings.

1.5.2.4 Keypad lock and unlock

Keypad lock operation video：

https://www.youtube.com/watch?v=UYMcgywKB1Q

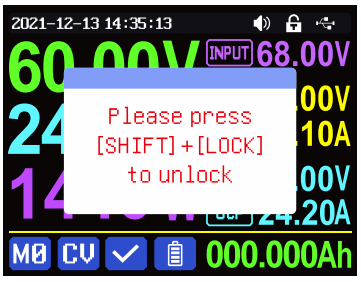


figure 4

Press SHIFT + • to lock or unlock the keyboard. And the keypad will be automatically locked when communication starts, there will be AO: Button lock status displayed on the top (cannot unlock manually), at this time, the A: power button can be used, pressing other buttons will show(as shown in figure 4), the keypad will be automatically unlocked after 3 seconds when the communication disconnected, there will be AO: Button lock status displayed.

1.5.2.5 System Setting

System setting operation video：

https://www.youtube.com/watch?v=ml15mX4u5bE

Press SHIFT + 0 to enter the system setting menu, the icon in Red shows the menu being chosen, press ENTER or ▼ to enter the sub-menu, the option in blue base color is the option being chosen, you can rotate the encoder potentiometer to change setting, press the encoder potentiometer to return, and you can press ◀ ▶ button to select menu.

Press SHIFT + 0 to enter the system setting menu showed in figure 5, press ENTER or ▼ to enter the sub-menu.

figure 5

Settings Sub-menu:

System language is is set to English by default. You can also set Simplified Chinese, French, Germany and Russian language;

Take OK is set to ON by default, when you quickly call out a data group, there will be a prompt to let you confirm, if you set OFF for this option, the settings will be edited directly when call out a data group;

Take Out is set to OFF by default, when call out a data group, it will keep the previous output status, when set it ON, it will output directly when call out a data group.

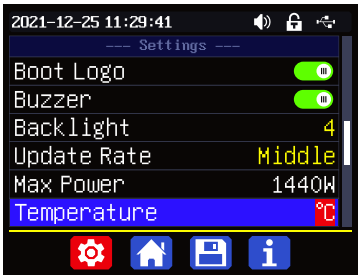


figure 6

Boot Power is set to OFF by default, when boot the device the output is cut off, when set it on, it will automatically turn on the output after booting.

Boot Logo is set to ON by default, when boot the device, it will show the boot logo first, then enter the main interface, when set it OFF, it will enter the main interface directly.

Buzzer is set to ON by default,it will show 🔊 at AP: Button tune, and you can hear the beep when press the button. When set it OFF, it will show 🔇 at AP: Button tune, there will not be beep when press the button.

Backlight is set to level 4 by default, it can be set between level 0-5.

Update Rate is set to Low by default, you can set it low/mid/high, it is the fresh rate of the real output voltage and current.

Max Power is set to 740W by default, you can set it between 0-740W, it is the max output power. On the top you can see the *1 icon, it is the adjustment magnification, you can press ◀ or ▶ to choose the different magnification so that you can set the value quickly, The max output is default voltage priority mode, when

the setting voltage*setting current is higher than the max power, the device will automatically

decrease the output current setting value. When used together with low power power source, it is recommended to set the value as the rated power of the power source*95%;

Temperature unit is ℃ by default, it can be switched between ℃ /℉ (figure 6);

Battery Charger Sub-menu(figure 7):

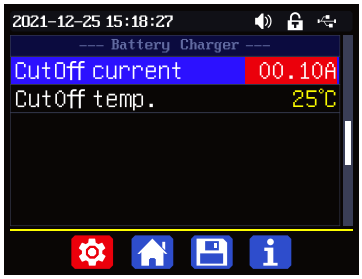


figure 7

Cut-Off Current is set to 10mA by default and it can be edited. On the top you can see the *1 icon, it is the adjustment magnification, you can press or to choose the different magnification so that you can set the value quickly, when the AB:real output current is lower than this set value, the output will be cut off automatically.

Cut-Off Temp. is set to 60℃ by default, when the external temperature sensor detect over 60℃, the output will be cut off automatically.

Communication Sub-menu(figure 8):

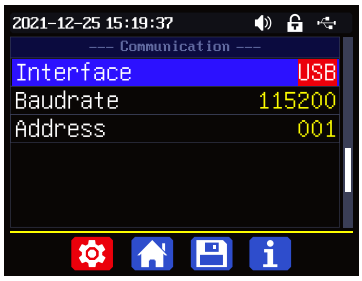


figure 8

Interface is set to USB by default, you can also set it to WIFI/TTL/RS485, USB means the micro USB port, you can see on the top when set it USB, and when the communication starts, it will show ; You need to insert a WIFI board to use the WIFI function, and it will show on the top, and when the communication starts, it will show ; TTL is not available now; You need to insert RS485 module to use RS485, and it will show on the top, and when the communication starts, it will show .

Address is set to 001 by default, you can set it between 001 and 255;

The Baud rate and address on the device should be same with the information on PC software or APP. You can see more communication at PC software and APP section.

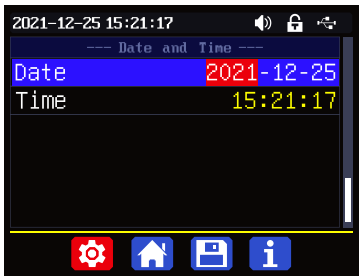


figure 9

Date and Time Sub-Menu(figure 9):

Date and Time can be set from Year 2000 to 2100, press ◀ or ▶ you can select the option, and use encoder potentiometer can adjust the value, it will be applied immediately when you change the value, please do not set the wrong time.

figure 10

1.5.2.6 Main Page Display Style Setting

Main interface display style setting operation video:

https://drive.google.com/drive/folders/1gMkuCZrr_G-PlyHqO-i6fxdS-XRvuOIG?usp=sharing

You can press SHIFT + 0 to enter the system setting menu, then press ▶ and it will be switched to display style menu(as shown in figure 10): you can press ENTER or ▼ to enter the sub-menu.

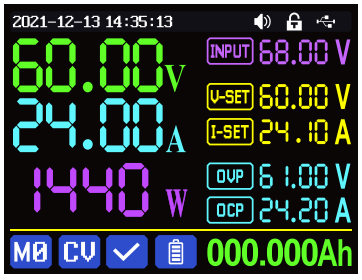


figure 11

Layout Sub-menu:

Digits Style is set to Normal by default, you can set it to Normal/7-Seg V1/7-Seg V2(as shown in figure 11).

Home Style is set to 0(traditional style), you can also set it to 1(Detail Style) or 2(Curve Style), the display style you choose will become the default style after power on.

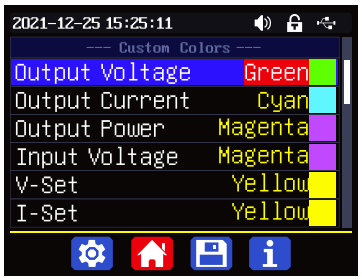


figure 12

Custom Colors(figure 12):

You can set the the display colors for output voltage, output current, output power..... After change the color, you need to turn on the Custom Colors

option to apply the settings(as shown in figure 13).

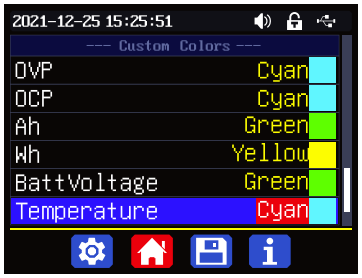


figure 13

1.5.2.7 Storage Data Setting

Data group setting in manual operation video: https://www.youtube.com/watch?v=0sJlwSGW_oc

You can press SHIFT + 0 to enter the system setting menu, and then press ▶ button twice to enter the data storage setting menu(as shown in figure 14).

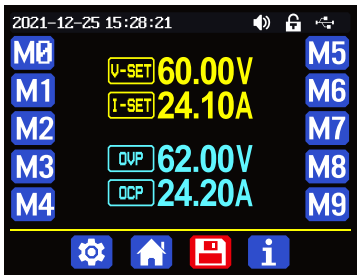


figure 14

Press the ENTER to enter the sub-menu, press M: direction button to choose the data group, you can rotate the encoder potentiometer to switch 6A and 12A range(only for RD6012P), then set the value.

Press I-SET button to set the AK: output current value, you can use encoder potentiometer to adjust the output value directly. And you will not set the value which exceeds the limit in this way, press ◀ ▶ button to move the cursor. Of course you can use N:keypad to type in the value, and press ENTER to confirm, and it will save the set value and set current range, if you set a value exceeds the limit, it will prompt like what shows in Figure 1. If you set the wrong value, you can press encoder potentiometer to cancel.

Press V-SET button to set AL: output voltage value, the operation way is similar to AK:output current setting.

Press SHIFT + I-SET button set the AI: over-current protection, press SHIFT + V-SET button to set AJ: over-voltage protection value. The operation way is similar to AK:output current setting. If you want to set the over current auto cut-off function, your AI:over current protection value should be higher than the AK: current setting value.

After setting, press the encoder potentiometer to return and save setting.

1.5.2.8 System Information

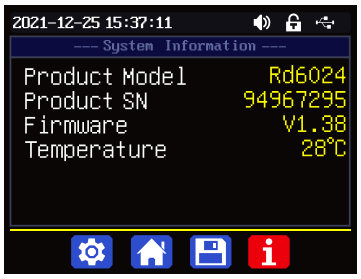


figure 15

System information operation video:

https://www.youtube.com/watch?v=PN8tBhezmtA

You can press SHIFT + 0 to enter the system setting menu, and then press ▶ button 3 times to enter the system information menu(as shown in figure 15).

Product Model is the device name, Product SN is product serial number, Firmware is the firmware version, Temperature is the System temperature.

Android APP Instruction

2.1 Mobile Phone APP Installation

Only RD6012P-W supports WIFI connection. This App only supports Android 5.0 to Android 12.0 operating system, and there may be incompatibilities problems between APP and operating system like Harmony OS, 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 from file manager. Don't install or remove Wi-Fi module when the device is powered on, otherwise it will be damaged. This instruction is made for version 1.0.17, 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 RD6012P APP zip-file in this URL:
https://drive.google.com/drive/folders/15GfqS3vN3prvdVYOT1_yGHjkz0jHk_LO?usp=sharing
If you cannot find the app, contact the seller to get it.

2.2 Installation Introduction

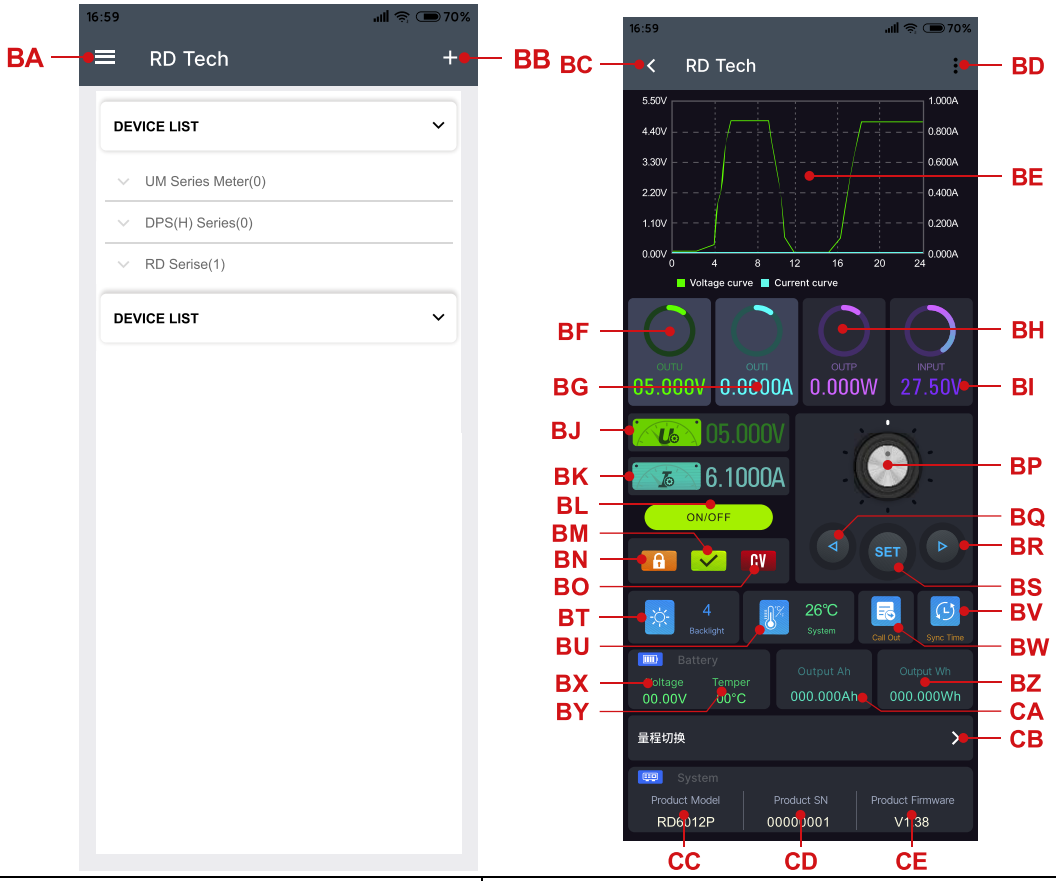
Android APP download and connection video instruction:
https://www.youtube.com/watch?v=BnC9mJ1zevg

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. If you download the APP from Google Play, you need to detect new version by yourself.

2.2.2 APP Interface Display

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



BA: sidebar	BQ: move the cursor to the left
BB: add device	BR: move the cursor to the right
BC: return	BS: set button
BD: more options	BT: screen brightness
BE: curve	BU: system temperature
BF: actual output voltage	BV: sync time
BG: actual output current	BW: data group quick call out
BH: actual output power	BX: battery voltage
BI:input voltage	BY: external sensor temperature detecting value
BJ: preset voltage value	BZ: accumulated output capacity
BK: preset current value	CA: accumulated output energy
BL: ON/OFF button	CB: output range switch
BM: protection status indication	CC: device name
BN: keypad lock indication	CD: product SN number
BO: constant voltage/current status indicator	CE: product firmware version
BP: adjust wheel	

2.2.3 APP Operation

2.2.3.1 Network Distribution

Connect Wi-Fi for the first time, please insert the WiFi board to the right

position, then power on RD6012P, you will see the blue LED blinks once. Set the communication interface to WIFI, restart RD6012P, then place the RD6012P 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).

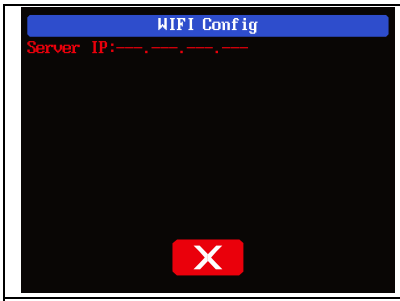


figure 16

RD6012P will wait for the phone to connect as shown in Figure 16. Press **"BB"** (add device) and choose "RD power series", it will show like Figure 17, then enter the WiFi password and confirm you are using 2.4G network as shown in Figure 18. Press "INITIALIZATION" and wait 10 seconds

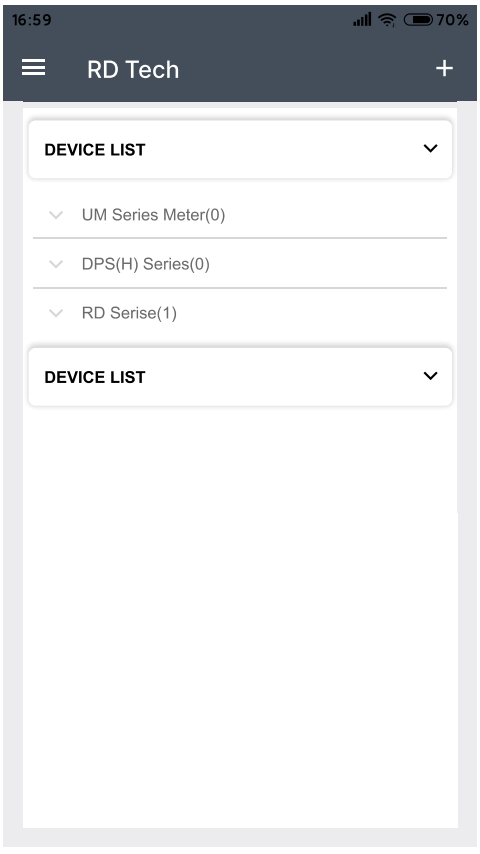


figure 17

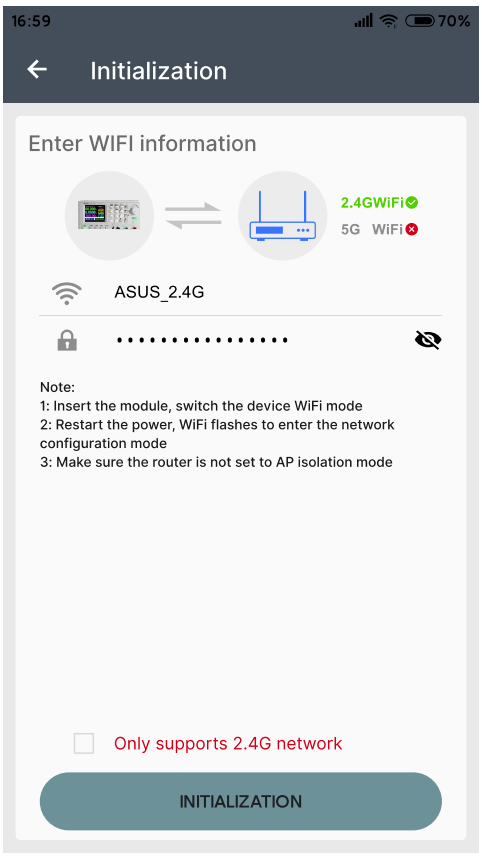


figure 18

RD6012P will obtain the IP address of your phone(figure 19), if it shows right, confirm that “device display sever IP”, and click “Confirm”, wait 20s (figure 20)，APP show connection successful, RD6012P will start automatically, the network distribution success, return to the main page and click the connect in the “**BD**”.

Figure 19

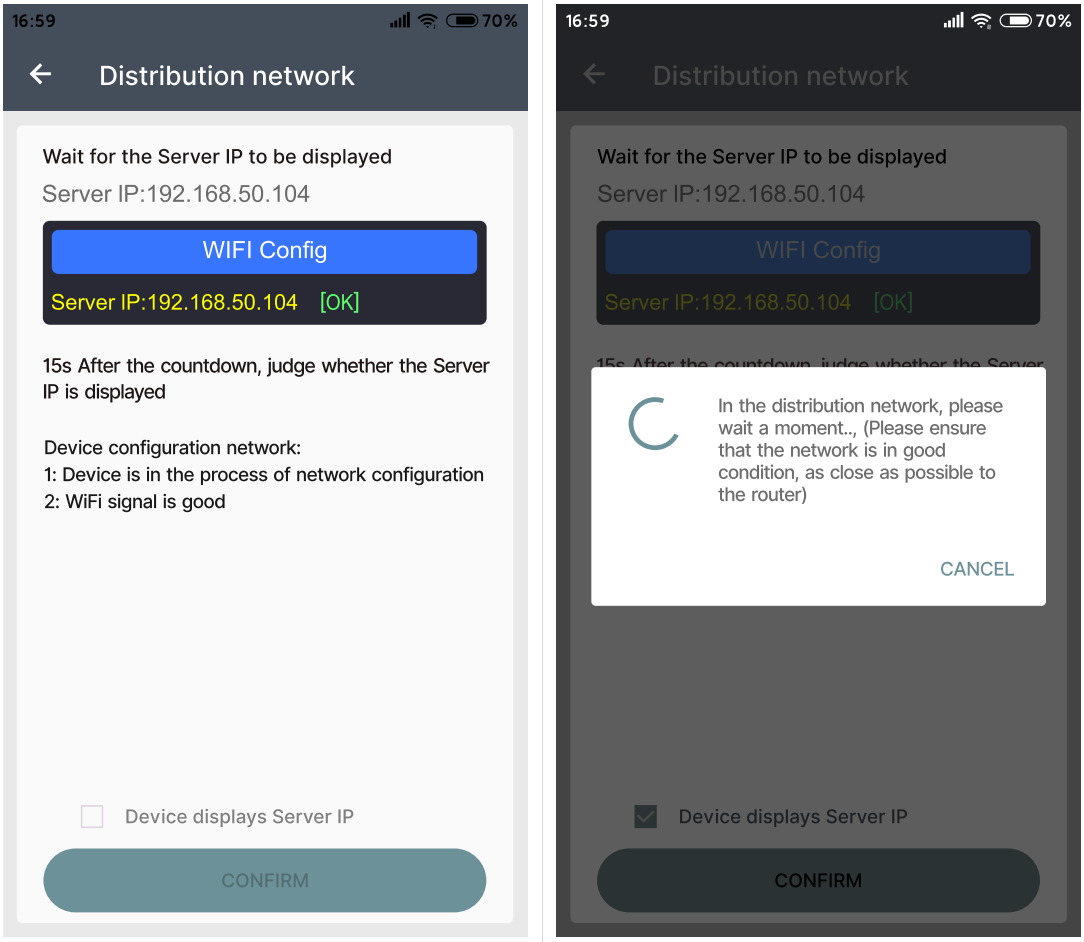


figure 20

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.

2.2.3.2 Proper Wi-Fi Connection

When power on RD6012P, 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 ◄ button and then press ENTER button to reset the net, repeat 2.2.3.1 operation. We suggest you to set a fixed IP for your phone in the router setting.

2.2.3.3 APP Operation

Android APP operation video: https://www.youtube.com/watch?v=5AMF8A_KJ3U

Click **"BJ"** preset voltage value to set the output voltage, and use **"BP"** adjust wheel to adjust the value, the **"BQ"** move the cursor to the left, **"BR"** move the cursor to the right to change the position of cursor, click **"BS"** set button to set the parameter. Click **SHARE** in **"BD"** more options 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.

IOS APP Instruction

3.1 Mobile Phone APP Installation

WiFi connection only supported for RD6012P-W.

3.1.1 APP Download

Apple APP only supports IOS10.0-16.1, iphone6 and above models, search for "RDPower" in the Apple store to download. If you must use the software function, please pre-install the test first. To use the WiFi function of the software, you need to apply for location service. Please agree and turn on location in Settings-Privacy. This manual corresponds to the software version 1.0.16, it is recommended to upgrade to the latest software for a better user experience.

NOTE: the latest APP is “RUIDENG”, if you cannot use RDPower, you can use it.

figure 21

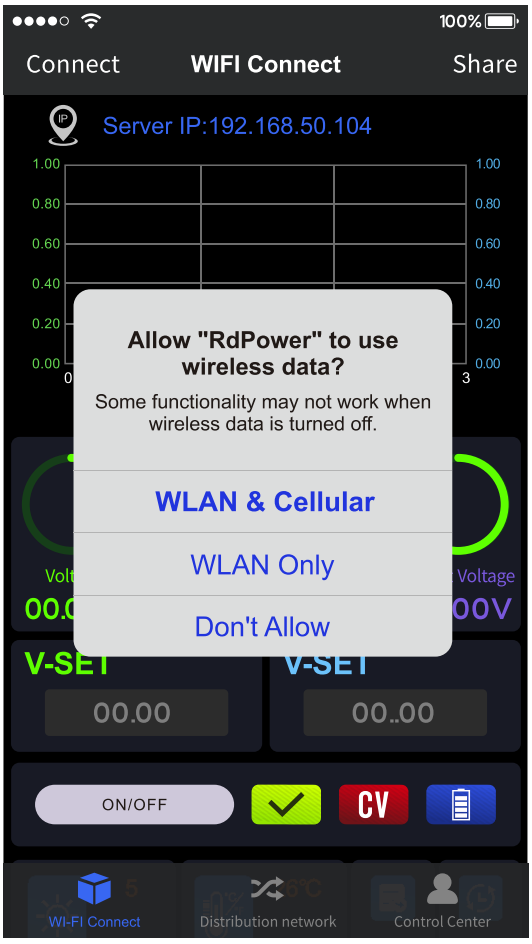


figure 22

3.2 Installation and Operation

When the APP is started for the first time, the system may apply for positioning (as shown in Figure 21), select "Allow when using APP", and apply for data when the APP is running (as shown in Figure 22), select "Wireless LAN and cellular mobile network".

Apple APP installation and connection process video:

https://www.youtube.com/watch?v=Ryy9ko3gqYg

After the installation is complete, the mobile APP icon is shown in the figure on the right:

3.2.1 APP Update

You can get the latest software from the Apple Store. When the software is updated, you will be prompted to update the version.

3.2.2 UI Instruction

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

DA: connect/disconnect	DO: system temperature
DB: export data to mobile phone	DP: data group quick call out
DC: data curve	DQ: sync time
DD: actual output voltage	DR: battery voltage
DE: actual output current	DS: external sensor temperature detecting value
DF: actual output power	DT: accumulated output capacity
DG: input voltage measurement value	DU: accumulated output power
DH: preset voltage value	DV: model being connected
DI: preset current value	DW: product SN number
DJ: output ON/OFF button	DX: product firmware
DK: protection status indication	DY: switch current range
DL: battery status indication	DZ: main page
DM: constant voltage/ constant current status	EA: network distribution page
DN: screen brightness	EB: control center

3.2.3 APP Operation

3.2.3.1 Network Distribution

Connect WiFi for the first time, please insert the WiFi board to the right place, then power on RD6012PW, you will see the blue LED blinks once. Set the communication interface to WIFI, restart RD6012PW, then place the RD6012PW 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).

figure 23

RD6012PW will wait for the phone to connect as shown in figure 23. Press **“EA”** network distribution page to choose Network distribution, it will show like figure 24, then enter the WiFi password and click INITIALIZATION. Wait about 20 seconds.

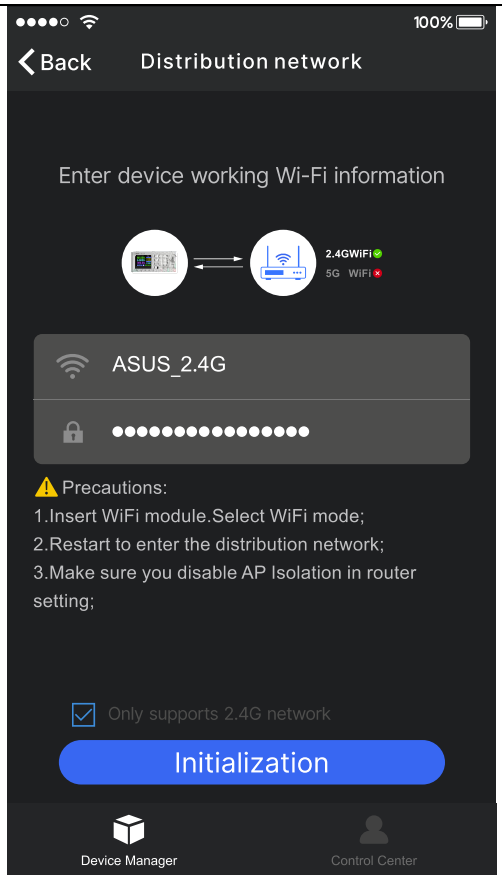


figure 24

figure 25

RD6012PW will obtain the IP address of your phone(figure 26), if it shows right, confirm that "**device displays sever IP**", and click "CONFIRM", wait 30s (figure 25), APP shows connection successful, RD6012PW will start automatically, the network distribution success, return to the main page and click "**DA**" connect/disconnect to connect.

figure 26

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 RD6012PW, 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  button and then press 

button to reset the net, repeat 3.2.3.1 operation.

3.2.3.3 APP Operation

IOS APP operation video:

https://www.youtube.com/watch?v=Ryy9ko3gqYg

Click **“DH”** preset voltage value/ ”**DI**” preset current value 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 **“DB”** to exports the voltage-current curve to excel file, up to 24 hours document can be recorded.

Click the **“EA”** personal center to set the software language or get help to use the APP.

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 1.0.0.12, there will be little difference between different versions, the version below does not support RD6012P. and we do recommend you to download the latest software for better experience.

RD6012P digital power supply file download link:

https://drive.google.com/drive/folders/1nyd7W_JdeQhPLhKdgG_iCRQ3mHZenbIU?usp=sharing

4.1 Software Download

PC software download and basic operation video:

https://drive.google.com/drive/folders/1jwAnxKiQZKkxMWpQnv4rrPw2KQk9uY-z?usp=sharing

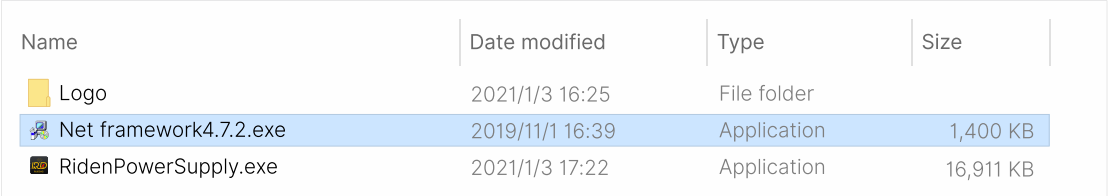
4.1.1 Unzip Files

The first time you use this software, you need to install the driver program first, you need to click CH341SER to install the driver, right click PC-management-device management-port, see if there is USB-SERIAL CH340(COMXX), if you see that, it means installation is successfully, then insert a Micro USB cable into RD6012P 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.



4.2 Software Operation

RidenPower Supply

4.2.1 Software Connection

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

Only RD6012P-W supports WiFi function, 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://drive.google.com/drive/folders/1BZslMRSntMj9Se6hnsYANsv8XAVhIZZi?usp=sharing

Set the RD6012P communication interface to WiFi, and restart, RD6012P displays like figure 27, click "WiFi Network" on the PC software to pop up the WIFI configuration interface (figure 29), click "Initialize" and wait for about 5 -10 seconds, after the RD6012P displays the local IP address (as shown in figure 28), click "Next" and enter the WiFi name and password, then click "Network distribution", wait for about 20 seconds, the PC software prompts that the connection is successful, and then click "Connect".

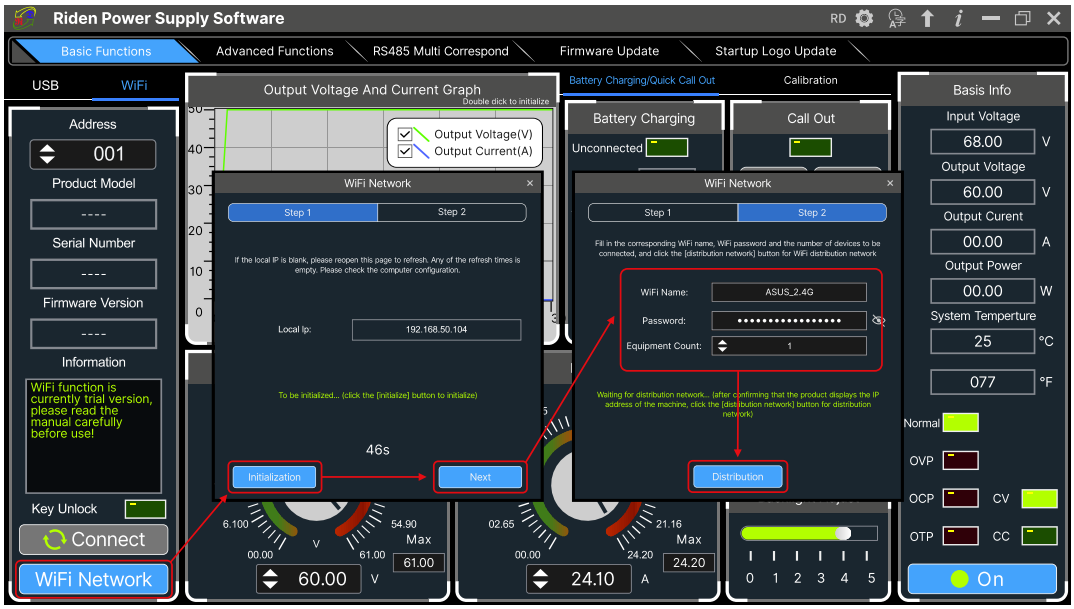


figure 29

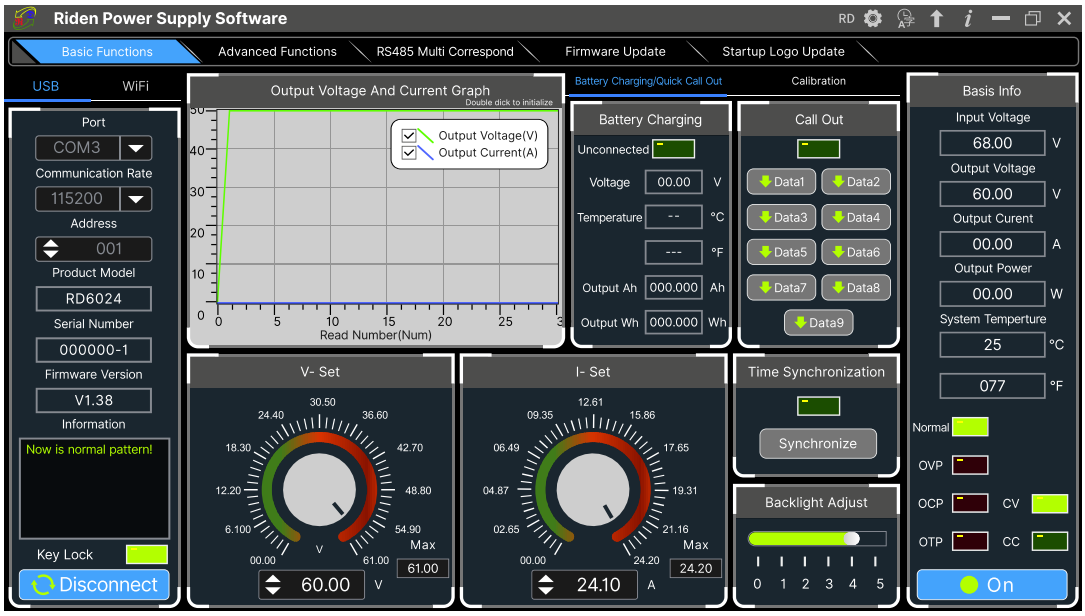
USB connection: Set RD6012P communication interface to USB and connect RD6012P and PC, the PC software prompts the serial port has been updated and clicks “**Connect**”.

figure 27

figure 28

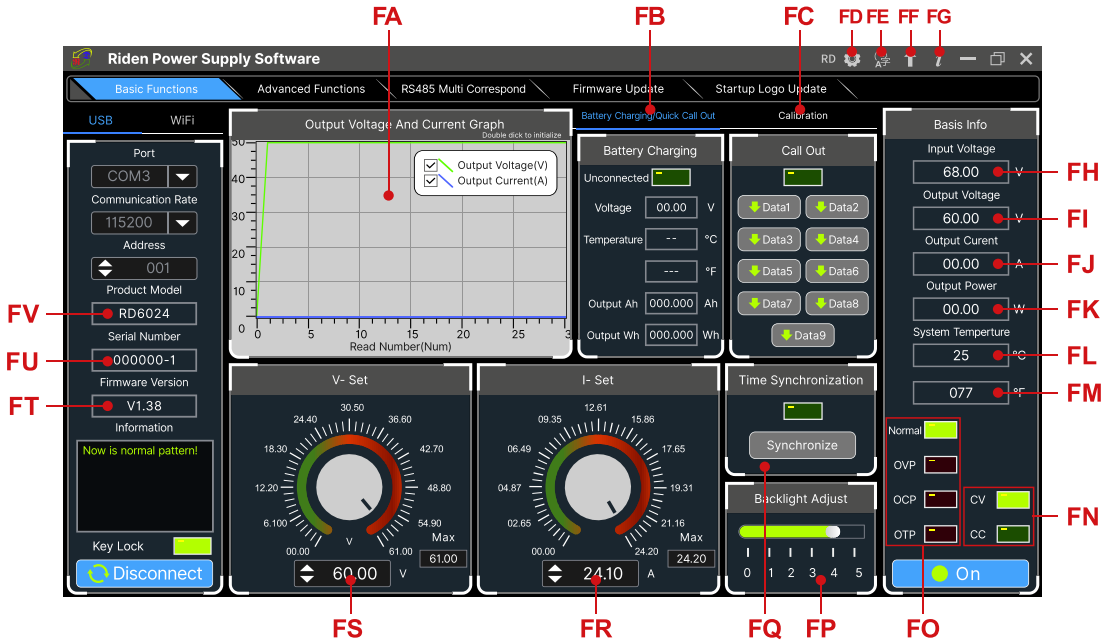
4.2.2 PC Software Operation Instruction

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”**.



4.3 Functions Introduction

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



FA: Voltage-Current Curve	FB: Battery information/ Data Group Quick Call Out
FC: Calibration	FD: RD/DPS series switch
FE: Language	FF: Software Update
FG: About	FH: Input voltage
FI: Actual Output Voltage	FJ: Actual Output Current

FK: Actual Output Power	FL: System Temperature(℃)
FM: System Temperature(℉)	FN: Constant Voltage/ Constant Current Status
FO: Protection Status Indication	FP: Screen Brightness Setting
FQ: Synchronize System Time	FR: Output Current Preset value
FS: Output Voltage Preset value	FT: Firmware Version
FU: Serial Number	FV: Product Model

4.3.1 Basic Functions

PC software operation video:

https://drive.google.com/drive/folders/1rl-CCOzbFlAONjRfrOpbNsK8rrCGVoKa?usp=sharing

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 Six and a half digit multimeter. It will change the system setting, incorrect operation may exceeds the hardware limit and cause damage, and the resulting damage is not covered in 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.

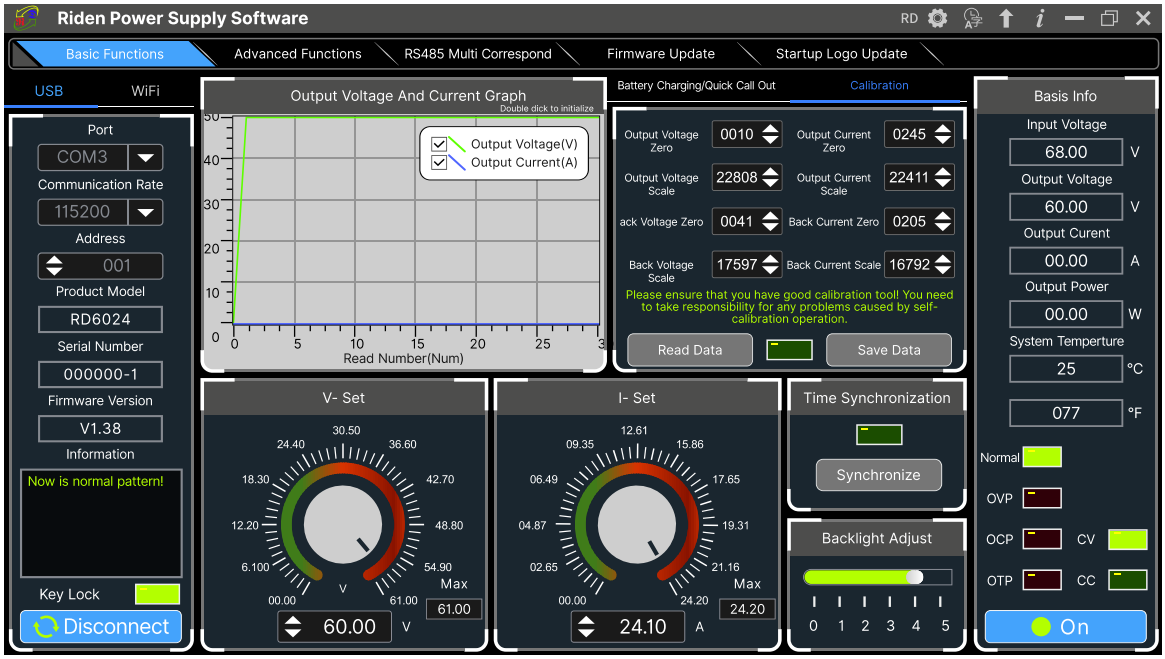
RD6024 calibration operation video:

https://drive.google.com/drive/folders/1WEusRYtpn94BFjyEQjrtsnzTo1K6hYcw?usp=sharing

Click **"Calibration"** and enter the password "168168", you can enter the Calibration Fine Tuning page or save the adjustment data(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 RD6024 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).



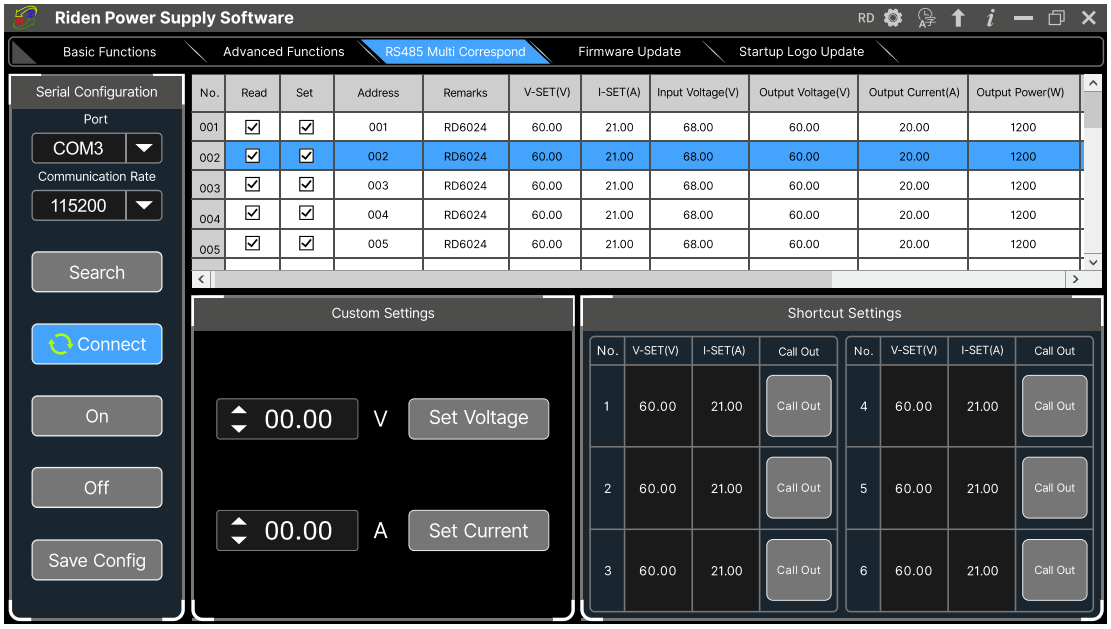
4.3.3 Advanced Function

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

Use USB to 485 module to connect the AB of the 485 module, if you have multiple device, connect their AB together. Each RD6024 needs a different device address, up to 32 units can be connected, and different models cannot be connected at the same time. The host computer enters the RS485 multi-computer communication, first click search, and click connect after the search is completed.

The output voltage and current of a product can be changed arbitrarily in the table, and the voltage and current can be set in batches in the custom setting. You can set several groups of shortcut voltage and current in the shortcut setting for easy recall. Due to the communication frame interval, it takes a certain time to complete each operation, and the longest is no longer than 11 seconds.

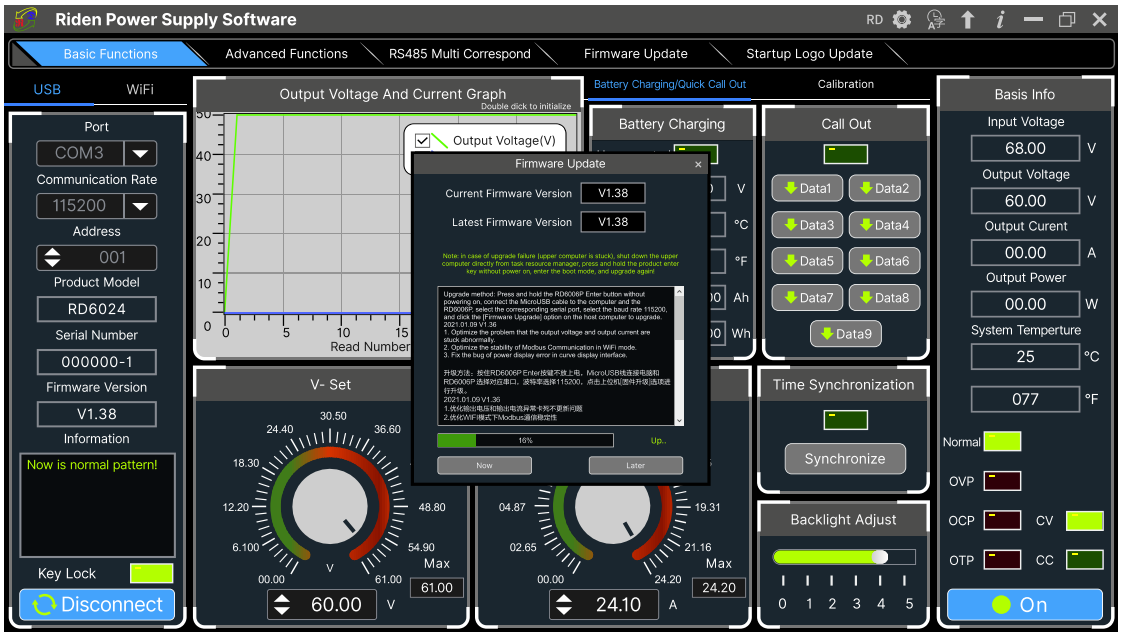


4.3.5 Firmware Update

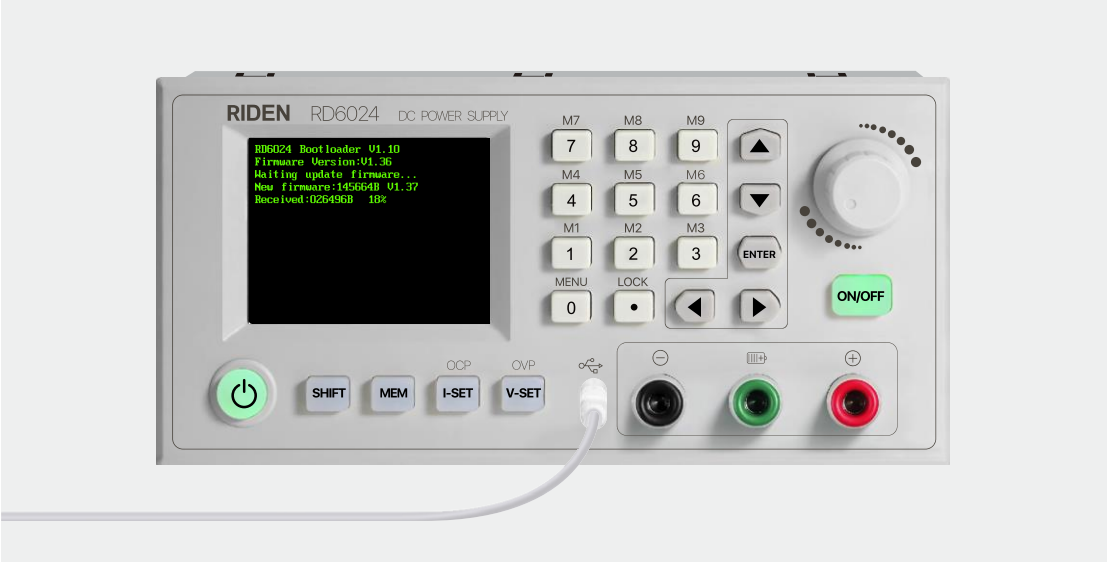
Firmware update operation video:
https://drive.google.com/drive/folders/19A8Rha_sWYuJ6nMGB7S9S7LuoNepe4by?usp=sharing

Press and hold ENTER and power on RD6024, 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).



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



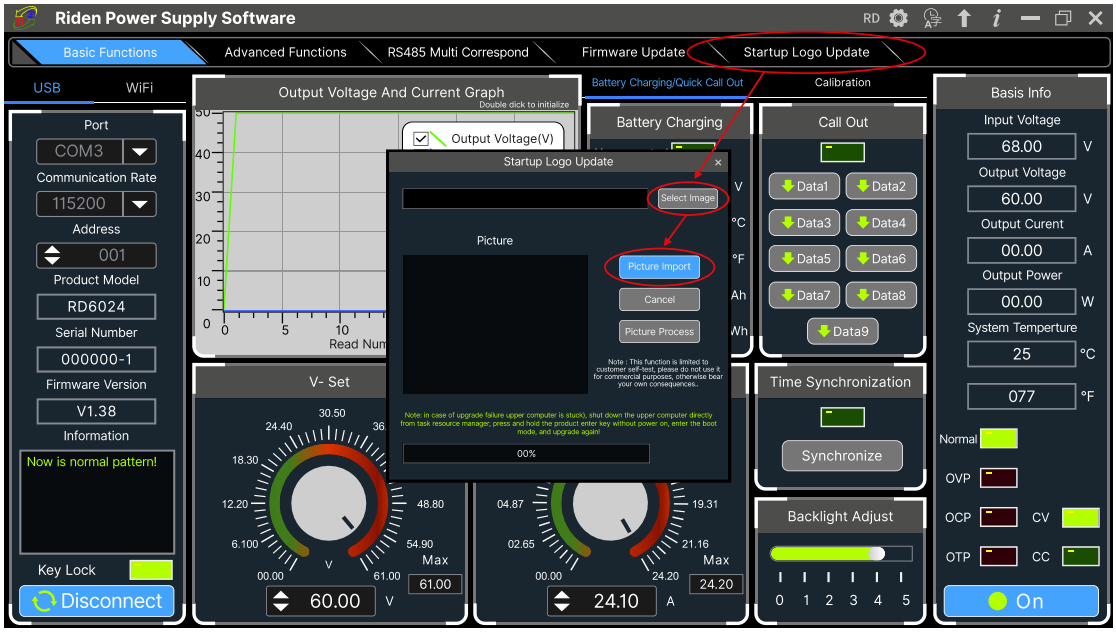
4.3.6 Boot Logo Update

Boot logo setting video:

https://drive.google.com/drive/folders/1J0iOyxZ8DSJaDQD2xgrlukBwJBELQBzf?usp=sharing

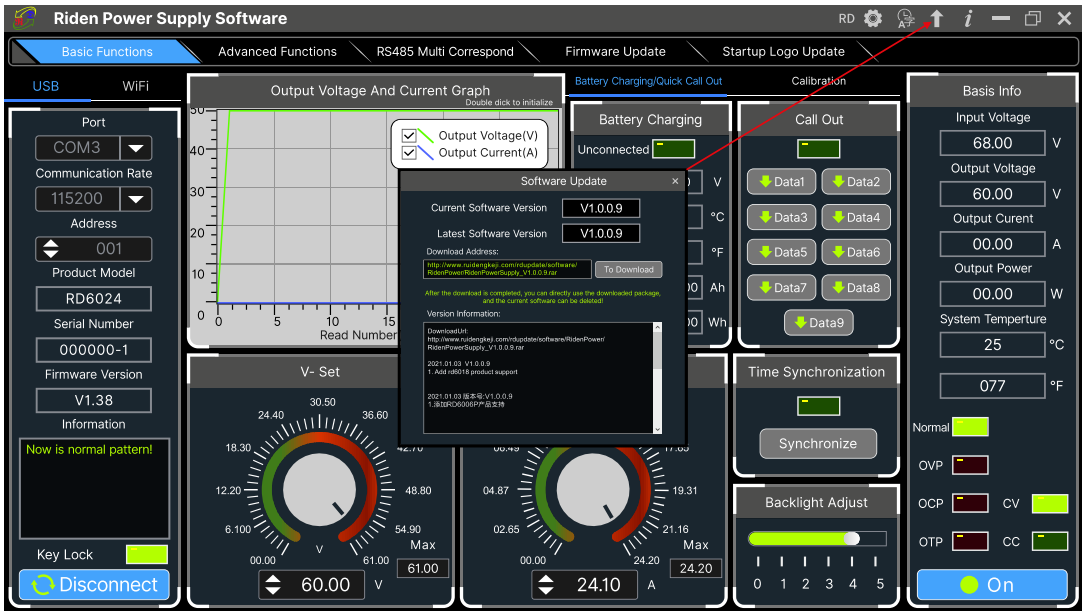
Click **“Start Logo Update”**, a Logo upgrade prompt will pop up on the page, please select a picture. Some logo samples can be used in the installation package.

Click “Picture Import” and RD6024 will reboot automatically.



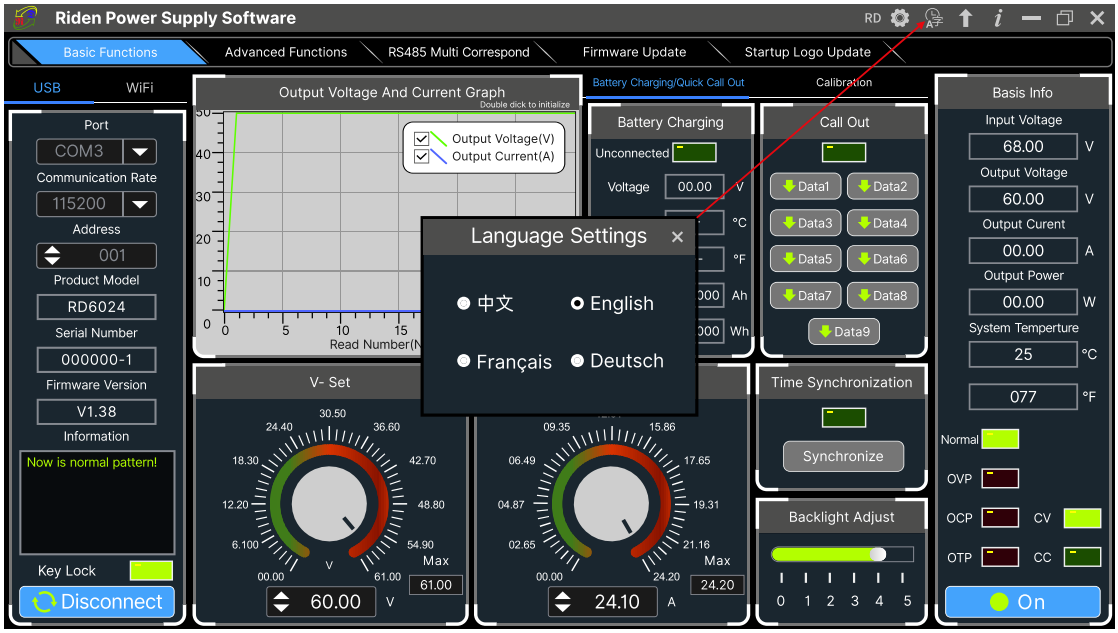
4.3.7 Version Update Detection

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



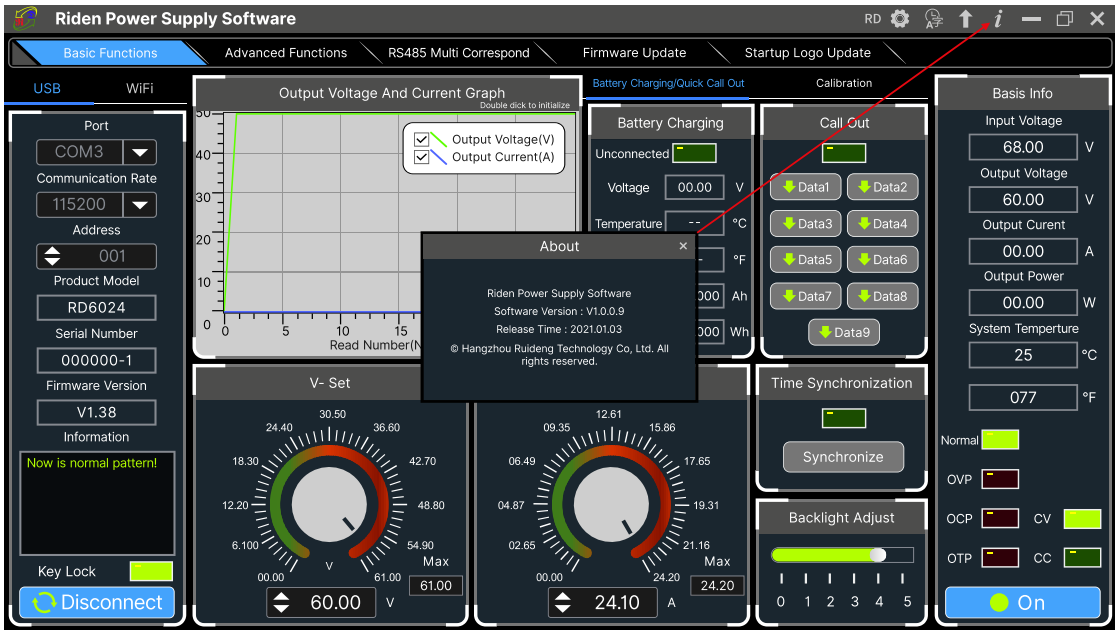
4.3.8 Language Setting

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



Appendix

Appendix 1: Common Battery Voltage Comparison Table

Battery Type	Nominal Voltage (V)	Final Charge Voltage (V)	Final Discharge Voltage (V)	Application	Characteristics
LiCoMn NiO2	3.7	4.2	3	Digital Device	High capacity
LiFePO4	3.2	3.65	2.5	Electric bike/ electric tool	Large discharge current, inexpensive
Lead Storage Battery	12	14.4	10.5	Car/ electric bike	Inexpensive Lead pollution
Dry Battery	1.5	Cannot charge	0.9	Clock/Remote control	Inexpensive widely used not rechargeable
NICD Battery	1.25	1.5	1.1	Toy	Inexpensive Memory effect
Ni-MH Battery	1.2	1.4	0.9	Toy/Shaver	No memory effect

Appendix 2: Common Electric Car/Bike Battery Voltage Comparison Chart

Nominal Voltage	Battery Type	Number of batteries connected in series	Final Discharge Voltage(V)	Final Charge Voltage(V)
48V	LiCoMnNiO2	14	42	58. 8
	LiCoMnNiO2	13	39	54. 6
	LiFePO4	16	40	58. 4
	Lead Storage Battery	4	42	57. 6
36V	LiCoMnNiO2	10	30	42
	LiFePO4	12	30	43.8
	Lead Storage Battery	3	31.5	43.2
24V	LiCoMnNiO2	7	21	29.4
	LiFePO4	8	20	29.2
	Lead Storage Battery	2	21	28.8

Note: if the final discharge voltage of the battery is higher than 60V, you cannot use RD6024 to charge, it will damage the device.