Manuals+ — User Manuals Simplified.

UNI-T RD6000 Series Programmable Power Supply User Manual

UNI-T RD6000 Series Programmable Power

Supply User Manual

Contents

1. GENERAL INFORMATION

Dear customer, thank you for choosing our product. In the following, we have listed what should be observed during commissioning. Should you encounter any unexpected problems during use, please do not hesitate to contact us.

The RD6000-C is a laboratory power supply which can be used in different operating modes (e.g. constant current or constant voltage mode). The keypad, as well as the pressure and rotary encoder, make the operation of the power supply particularly convenient. In addition, up to nine settings can be stored and loaded using the keypad. The high-resolution 2.4″ color display clearly presents all important information. The USB interface allows the device to be operated via the PC.

⚠ **ATTENTION!** Do not connect any inductive loads to the device. If you nevertheless wish to connect inductive loads, you must protect the laboratory power supply unit against reverse currents. Otherwise, damage to the device cannot be ruled out.
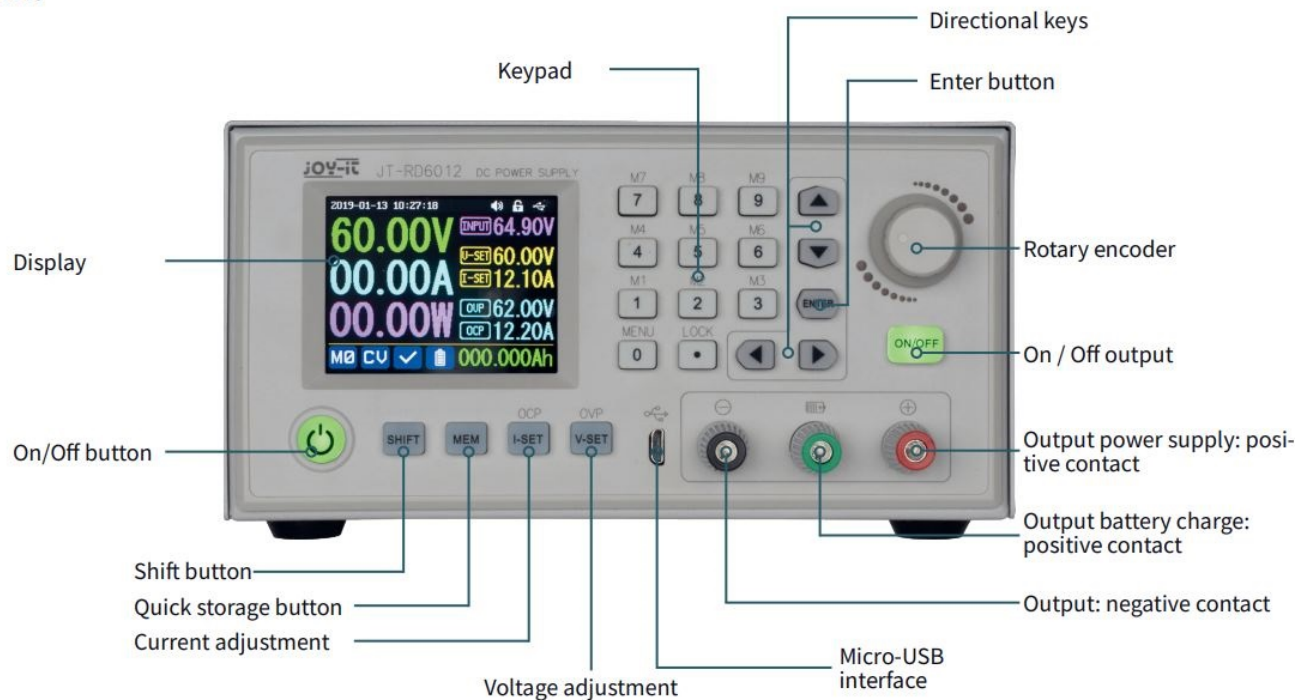
2. TECHNICAL SPECIFICATIONS

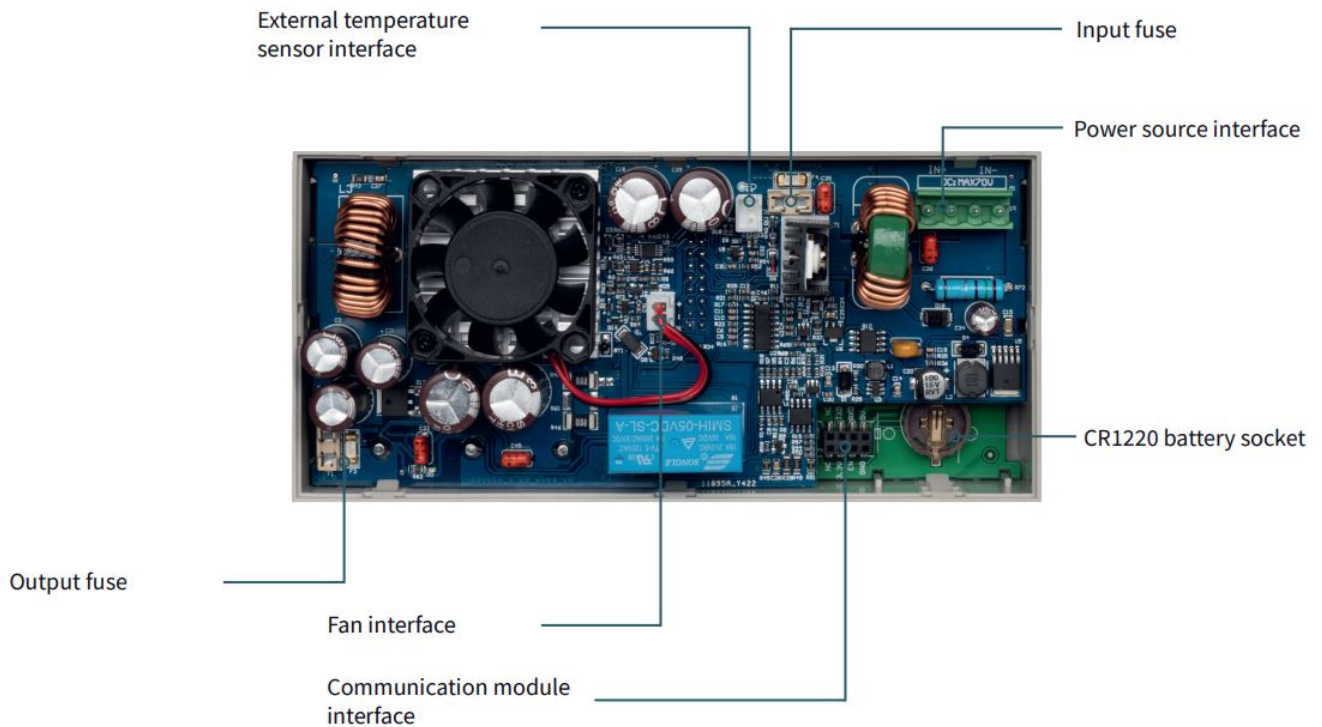| SPECIFICATION	RD6006	RD6006-P	RD6012	RD6018	RD6024
Display			2.4" LCD color display		
Input voltage range			230 V AC		
Output voltage range			0 - 60 V DC		
Output current range	0 - 6 A	0 - 6 A	0 - 12 A	0 - 18 A	0 -24 A
Output power range	0 - 360 W	0 - 360 W	0 - 720 W	0 - 1080 W	0 - 1440 W
Input voltage accuracy			± 1 % + 5 digits		
Output voltage accuracy	± 0,3 % + 5 digits	± 0,05 % + 4 digits	± 0,3 % + 5 digits	± 0,3 % + 5 digits	± 0,3 % + 3 digits
Output current accuracy	± 0,5 % + 5 digits	± 0.1 % + 6 digits	± 0,5 % + 5 digits	± 0,5 % + 5 digits	± 0,5 % + 5 digits
Battery voltage measurement accuracy			± 0,5 % + 3 digits		
Input voltage measurement resolution			0,01 V		
Output voltage measurement resolution	0.01 V	0.001 V	0.01 V	0.01 V	0.01 V
Output current measurement resolution	0.01 A	0.0001 A	0.01 A	0.01 A	0.01 A
Battery voltage measurement resolution			0,01 V		
Constant voltage mode response time	2ms @ 0,1 - 4 A	2ms @ 0,1 - 5 A	2ms @ 0,1 - 5 A	2ms @ 0,1 - 5 A	2ms @ 0,1 - 5 A
Constant voltage mode load regulation			± 0,1 % + 2 digits		
Constant current mode load regulation			± 0,1 % + 3 digits		
Capacity measurement range			0 - 9999,99 Ah		
Energy measurement range			0 - 9999,99 Wh		
Capacity and energy statistical error			± 2 %		
Output ripple	100 mV VPP	20 mV VPP	250 mV VPP	250 mV VPP	100 mV VPP
Sensor temperature detection range			-10 - 100 °C / 0 - 200 °F		
Sensor temperature detection accuracy			± 3 °C / ± 6 °F		
Working mode			Step-Down mode		
Voltage drop			> 1V & > 10 %		
Screen brightness setting			Level 0 - 5, 6 levels total		
Working temperature range			-10 - 40 °C		

3. DEVICE OVERVIEW

In this chapter, we will explain the various operating elements of the device so that you can familiarize yourself with the operation of the laboratory power supply and ensure safe operation.
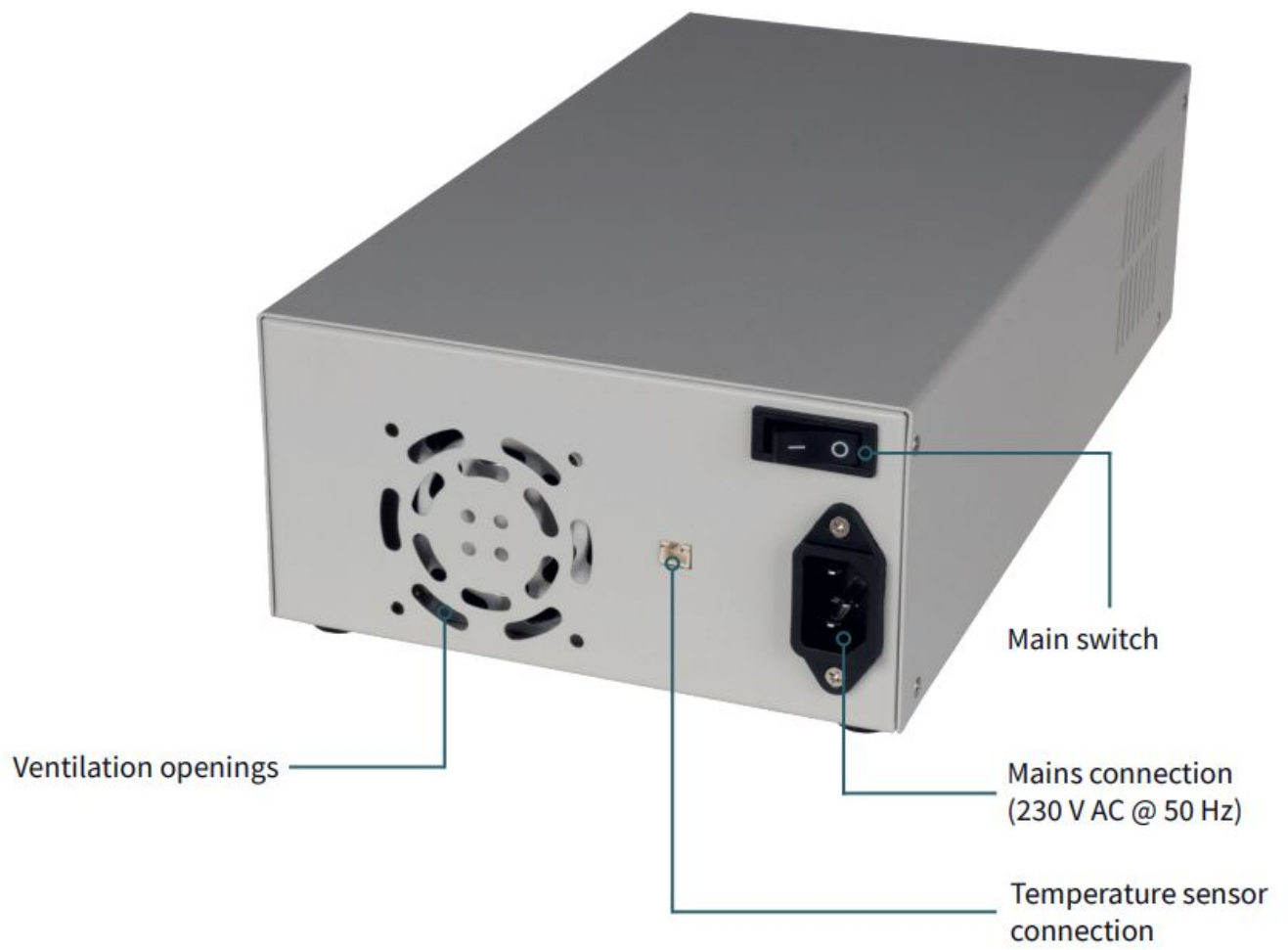
FRONT:

BACK:

External temperature sensor interface

Input fuse

Power source interface

CR1220 battery socket

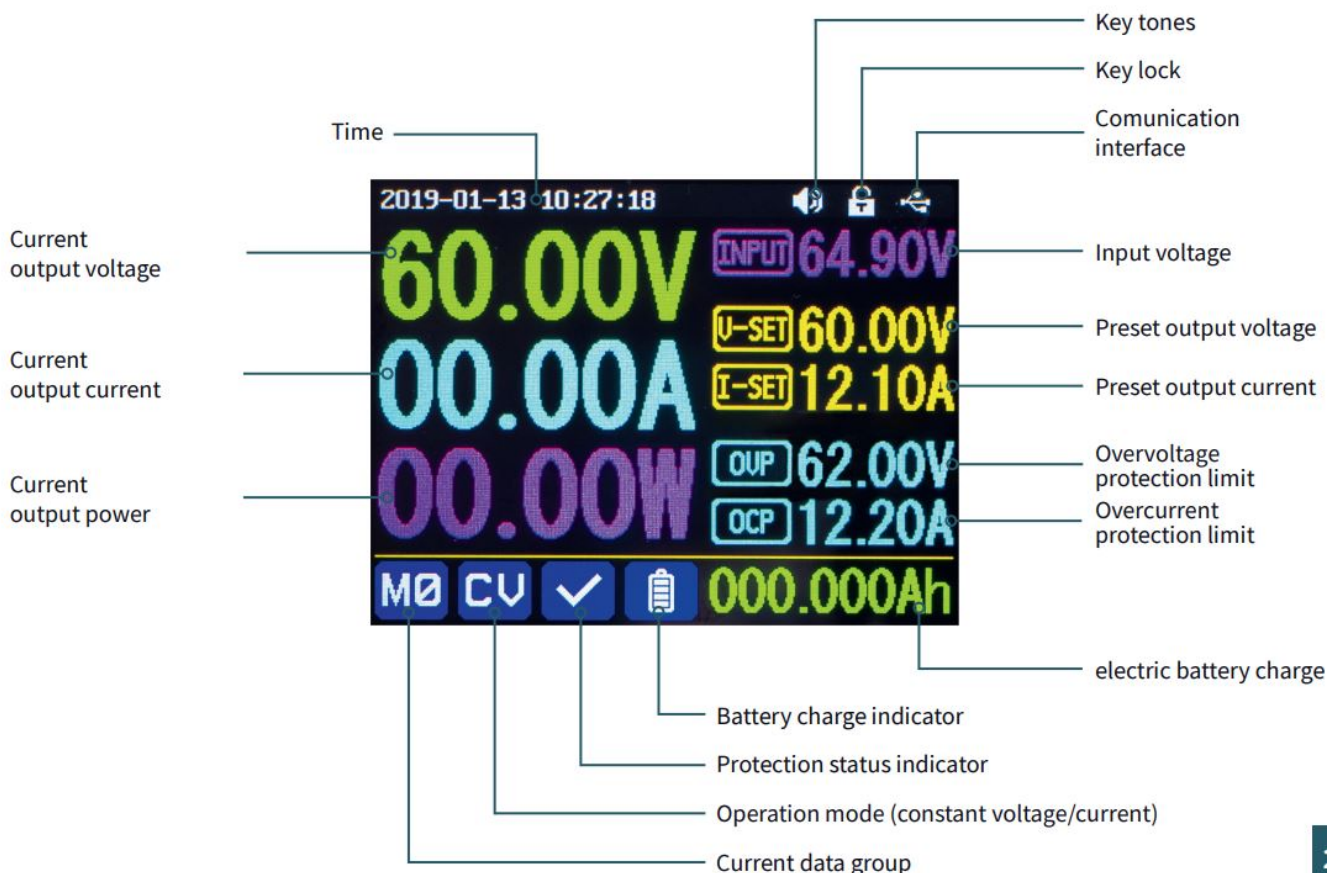Output fuse

Fan interface

Communication module interface

⚠ **ATTENTION!** This device may only be opened by a qualified electrician who takes the necessary protective measures himself. Internal components are live, there is a risk of electric shock, which can lead to serious injury or death. Components inside store energy, the danger exists even when the mains plug is pulled out! We do not accept any liability for damage caused by opening the device. Please contact us or an authorized service partner if maintenance work is required.

REAR SIDE OF CASE:
⚠ **ATTENTION!** Please note that the ventilation openings of the housing should not be covered under any circumstances.

Ventilation openings

Main switch

Mains connection
(230 V AC @ 50 Hz)

Temperature sensor
connection

DISPLAY:

Time

Key tones

Key lock

Comunication interface

Current output voltage — 60.00V

Current output current — 00.00A

Current output power — 00.00W

INPUT 64.90V — Input voltage

U-SET 60.00V — Preset output voltage

I-SET 12.10A — Preset output current

OVP 62.00V — Overvoltage protection limit

OCP 12.20A — Overcurrent protection limit

MØ CV ✓ 🔋 000.000Ah — electric battery charge

Battery charge indicator

Protection status indicator

Operation mode (constant voltage/current)

Current data group

4. SETTINGS MENU

4.1 OPERATION

Press SHIFT + 0 to enter the system settings menu. In menu mode, the icon in red or the cursor is the currently selected menu. The icon in blue represents the menu that is not selected. Press ENTER to confirm. Press the encoder to cancel or to return. Press the direction keys to move the cursor or change the menu. The settings can be edited with the help of the rotary encoder. The changes are automatically saved and applied as soon as you leave the menu page. RESETTING TO FACTORY SETTINGS: Press and hold the 0 key and switch on the instrument. RESTORATION OF THE FACTORY CALIBRATION VALUE: Press and hold the 1 key and switch on the device. BOOT-MODE: Press and hold ENTER and switch on the device.

4.2 BATTERY CHARGING MODE

After switching on, the external temperature, capacity and energy are displayed in the display area for battery-related information. In so far as there is an output current, the electrical charge and energy are automatically accumulated and automatically deleted after the device is switched off.

The green pole is connected to the positive pole of the battery. The black pole is connected to the negative pole of the battery. After the battery has been connected correctly, the battery charge indicator lights up red. Press ON/OFF to start the charging process. The battery charge indicator now lights up green. If the output current is less than 10 mA, the output is automatically switched off. A battery with a protection board may not be charged. The charging voltage and charging current should be set yourself.

ATTENTION! Incorrect settings during charging, as well as defective / incorrect batteries can lead to serious damage, there is a risk of fire / explosion. This function is therefore reserved for electricians who can ensure that the correct settings and safety precautions are used. Batteries must not be charged unattended!

4.3 SETTING THE OUTPUT VOLTAGE / OUTPUT CURRENT

Press the I-SET key to set the output current value. You can use the encoder potentiometer to set the output value directly. Press the direction key to move the cursor. Of course, you can also set the value using the keypad and confirm your entry with ENTER. If you have entered an incorrect value, you can press the encoder to cancel your entry. Press the V-SET key to set the output voltage. The procedure here is identical to that for setting the output current. Press SHIFT + I-SET or SHIFT+ V-SET keys to set the overcurrent protection/overvoltage protection limit. The operation is identical to the setting of the output current.

The data group M0 represents the default data group and is loaded automatically every time the device is started. Change and save the settings for M0 manually and your desired settings will be loaded at each start-up.

4.4 DATA GROUP FAST STORAGE

Press the MEM + keys 1-9, you can save the output voltage, output current, overvoltage protection limit and overcurrent protection limit in the corresponding data group. Confirm your entry with ENTER or cancel your entry by pressing the encoder. Press SHIFT + key 1-9 to quickly recall the stored data. Press ENTER to confirm or press the encoder to cancel.

4.5 LOCKING THE KEYPAD

Press SHIFT + . to lock or unlock the keypad. The status of the keypad lock is automatically shown in the status bar on the display:

🔒 Keypad locked

🔓 Keypad unlocked

4.6 SYSTEM-SETTINGS

Press SHIFT + 0 to enter the system settings menu. The desired setting can be selected using the direction keys. The current selection is highlighted in red. The setting can be changed by pressing the encoder.

CALL OK: Deactivation of the data group quick access. When activated, the selection of a data group must be additionally confirmed via a confirmation window.
CALL OUT: Automatic output switch-on. When activated, the output is switched on automatically as soon as a data group is selected.
POWER ON: Output switch-on at startup. When activated, the output is automatically switched on as soon as the device is switched on.

BEEPER: Activation/deactivation of the key tones.

LOGO: Activation/deactivation of the boot logo during the startup process of the device.

LANGUAGE: Setting the system language. German, English, French and Simplified Chinese languages are supported.

BACKLIGHT: Adjustment of the screen brightness in 6 levels (0 – 5).

INTERFACE: Setting the communication interface. The USB and WiFi options are available. An active communication is indicated with a corresponding symbol in the status bar. When changing the communication interface, it is necessary to restart the device.

BAUDRATE: If the device is operated via the USB communication interface, the following baud rates can be selected: 9600, 19200, 38400, 57600, 115200. In WiFi mode, the baud rate is fixed at 115200.

ADDRESS: The device address can be freely selected between 001 and 255.

TIME: Set the current system time here.

MEASURE: Update rate of the measured voltage. You can choose between low, medium and high.

4.7 ADJUSTING THE MAIN PAGE

Press SHIFT + 0 to enter the system settings menu. Now press the right arrow key to enter the home page settings menu. Press ENTER and then use the direction key to set the classic style or the curve style. CLASSIC STYLE: The classic style is the default style of the system and displays voltage, current and power in large font. CURVE STYLE: The curve style displays the output voltage, current and power in a color-coded curve. Here, D defines the scale of the ordinate. ENTER can be used to stop or continue the automatic curve progression. The encoder can be used to scale the ordinates of the curves.

4.8 DATA STORAGE SETTINGS

Press SHIFT + 0 to enter the system settings menu. Now press the right arrow key twice to call up the settings menu for data storage. Use the direction keys to select the desired data group. I-SET: Setting the memory output current V-SET: Setting the memory output voltage SHIFT + I-SET: Setting the memory overcurrent protection limit SHIFT + V-SET: Setting the memory overvoltage protection limit

4.9 SYSTEM INFORMATION

Open the system settings menu (SHIFT + 0) and press the right arrow key three times to enter the system information menu. Here you will see the model number, the serial number, the current firmware version, and the current system temperature.

5. PC-SOFTWARE

5.1 OVERVIEW

To be able to control the laboratory power supply unit via software, you must first download and install the drivers and the software. These can be found in the download area of the product page of your power supply unit under: **https://joy-it.net/products**.

After you have completed the installations, you can connect your device to your computer via USB.
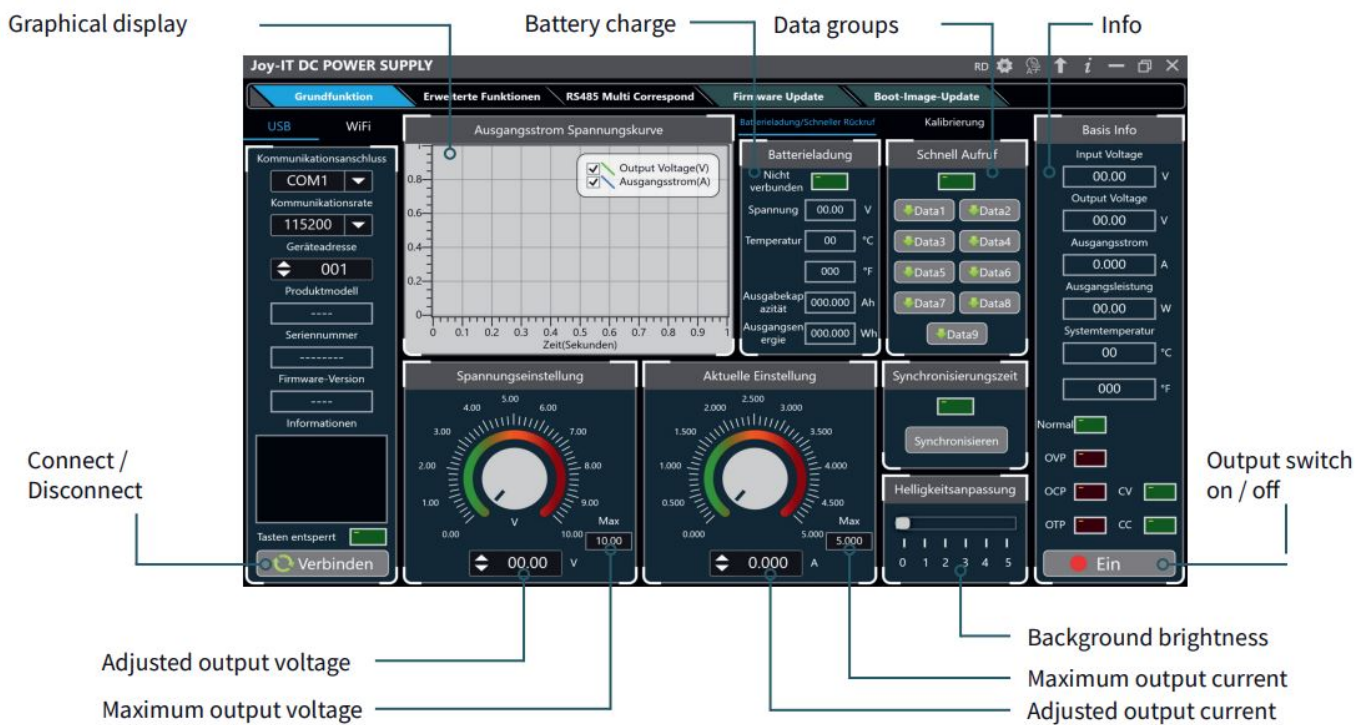
ADVANCED FUNCTIONS:

Data group selection

Read data groups
from power supply

Write data groups to
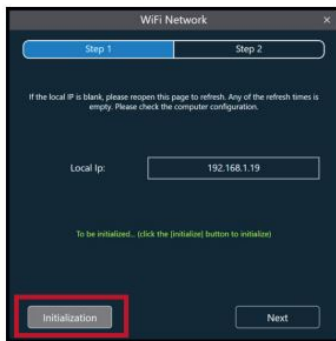power supply

Set intervals

5.2 WIFI-CONNECTION

As an alternative to the USB connection, the laboratory power supply can also be controlled by the radio module via WiFi. For control via WiFi, the corresponding interface must first be activated on the device. To do this, open the settings by pressing **SHIFT** and **0** and set the interface option here to **WiFi**. Please note that the changes will only take effect after restarting the device.

To connect the device to your WiFi network now, open the WiFi section in the PC software and open the **WIFI NETWORK** menu there.

Now click on **INITIALIZATION** in the window that opens. Now start the laboratory power supply and wait until the IP address of your computer is displayed on the device. Then click **NEXT**.
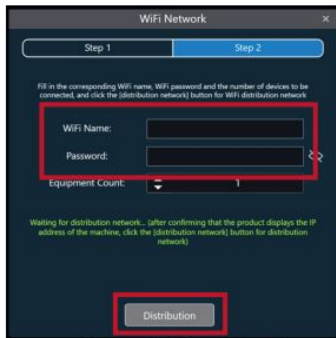
Now enter the WiFi name and password of the WiFi network to which you want to connect the laboratory power supply unit.

After the successful completion of the automatic transfer, you can connect to your network device.

6. DECLARATION OF CONFORMITY

MANUFACTURER / DISTRIBUTOR :

SIMAC Electronics GmbH Pascalstr. 8 47506 Neukirchen-Vluyn

MANUFACTURER / DISTRIBUTOR : SIMAC Electronics GmbH
Pascalstr. 8
47506 Neukirchen-Vluyn

ARTICLE: JT-RD6006C / JT-RD6006-P-C / JT-RD6012C/ JT-RD6018-C / JT-RD6024-C
DESCRIPTION: Laboratory power supply
INTENDED USE: Office use / Private households

Declares that the product, when used as intended, is in conformity with the essential requirements of the following directives:

GUIDELINES: 2014/53/EU (RED), 2014/35/EU (LVD) &2011/65/EU (Rohs)

STANDARDS: EN55032:2015 EN55035:2017 EN61000-3-2:2019 EN61000-3-3:2013 EN62368-1:2014+A11:2017 EN300 328 V.2.1.1:2016 EN301 489-1 V2.2.0:2017 EN301489-17 V3.2.0:2017 EN62479:2010 EN60950-1: 2006+A11: 2009+A1: 2010+ A12: 2011+A2:2013

FREQUENCY RANGE: 2412-2472 Mhz
TRANSMISSION TYPE / CATEGORY: IEEE802.11 b/g/n
MAX. TRANSMIT POWER (EIRP): 12.86 dBm

DATE NAME OF THE PERSON RESPONSIBLE
10.08.2020 Xu Lu

SIGNATURE

POSITION IN THE COMPANY
Executive Director

7. ADDITIONAL INFORMATION

Our information and take-back obligations under the Electrical and Electronic Equipment Act (ElektroG)

Symbol on electrical and electronic equipment: This crossed-out trash can means that electrical and electronic equipment does not belong in the household trash. You must hand in the old equipment at a collection point. Before dropping off, you must separate used batteries and accumulators that are not enclosed in the old device from the old device.

Return options: As an end user, when you purchase a new appliance, you can return your old appliance (which performs essentially the same function as the new one purchased from us) for disposal free of charge. Small appliances with no external dimensions larger than 25 cm can be returned in normal household quantities, regardless of the purchase of a new appliance.

Possibility to return to our company location during opening hours: SIMAC Electronics GmbH, Pascalstr. 8, D-47506 Neukirchen-Vluyn

Possibility to return in your area: We will send you a parcel stamp with which you can return the device to us free of charge. To do this, please contact us by e-mail at **service@joy-it.net** or by phone.
Packaging information: Please pack your old device securely for transport. If you do not have suitable packaging material or do not wish to use your own, please contact us and we will send you suitable packaging.

8. SUPPORT

We are also there for you after the purchase. If you have any questions or problems, we are also available by e-mail, phone and ticket support system. E-MAIL: **service@joy-it.net** TICKET-SYSTEM: **http://support.joy-it.net**
PHONE: +49 (0)2845 9360 50 (9:30 – 17:30 o'clock)
36 For more information visit our website: **www.joy-it.net**

FOR MAKERS AND PROFESSIONALS
WWW.JOY-IT.NET

Documents / Resources

UNI-T RD6000 Series Programmable Power Supply [pdf] User Manual
RD6000 Series Programmable Power Supply, RD6000 Series, Programmable Power Supply, Power Supply

References

- ITnet | Servizi di Colocation e Cloud
- Joy-IT Helpdesk
- For Makers and Professionals | Joy-IT
- Products | Joy-IT