OPERATING MANUAL

DPS-6015
Programmable Power
Supply

December 2015

Contents

1. Contact

www.yydianzi.cn

2. Inspecting Package Contents

When you get a new DPS-6015 Programmable Power Supply, please inspect the instrument as follows:

2.1 Check if there is damage due to transportation

If the package is damaged, please retain them until the instrument and accessories are tested.

2.2 Check package contents

Contents of the case are as bellows, if the content does not match with the packing list or the instrument is damaged, please contact us.

        DPS-6015 Programmable Power Supply   1pc

        User manual(pdf)   1pc

2.3 Check the machine

If the machine was damaged; did not work properly or failed to pass performance tests, please contact your dealer or our company.

3. Summary

3.1 Brief introduction

DPS-6015 is single output programmable switch power supply. Its specification

is 60V, 15A, 900W. It is designed by DC-DC modularization. Small size and high output power. Besides, it is equipped with TTL serial interface, provide a serial communication protocol, support secondary development. We can provide versatile solutions according to your design and test requirements.

3.2 Main function

- Based on BUCK structure of switch power supply technology, the work frequency can reach to150 KHZ

- DC input voltage range: 15V~ 80V, which is suitable for multiple kinds of pre-stage input power supplies

- Combined with the operating buttons and multifunction encoders, it is convenient and easy to use

- High accuracy and high resolution: 10 mV / 10 mA

- Low ripple and low noise

- Indicator light: constant current(CC), constant voltage (CV) and output state (ON)

- LCD1602 display

- Adjust voltage and current by adjustment knob and keys

- Support measuring and displaying output voltage, output current, output power, output electric quantity (AH) and working time

- The minimum pressure differential is 2V, the module can still work steadily under the circumstance

- With output turn off function key, users can turn on or off   the output flexibly

- 10 groups of parameter settings of M0-M9, which can be conveniently called out at any moment

- Prompt for operation or alarm function of onboard buzzer

- Convenient and simple three-phase charge intelligent control function of storage battery

- With TTL serial communication, and improved communication protocol so

as to be convenient for centralized control

3.3 Technical data

Item	Parameter
Input Voltage	15V～80V
Output Voltage	0～60V
Output Current	0～15A
Output power	0～900W
Setup resolution of output voltage	10mV
Setup resolution of output current	10mA
Source regulation	CV is less than 0.5% + 10 mV, CC is less than 1% + 5 mA
Load regulation	CV is less than 0.5% + 10 mV CC is less than 1% + 5 mA
Output ripple	< 50mVpp (Input 54 V, 12 V output, current 3A)
Volatility transmission ratio of 100 Hz	< 1/10000
Typical efficiency	Input 54 V, 36 V, output current 3 A
The display precision of Voltage, Current	10mV、10mA
Display error of Voltage	±1%+50mV
Display error of Current	±2%+20mA
Response time	< 50ms
Memory operation	10 groups of parameter storage of M0-M9
Protection type	OVP、OCP、OPP、OAH、OFT
Heat-dissipating method	heat dissipater and fan (optional)
Operating ambient temperature	0～40℃
Storage ambient temperature	-20～70℃

Use ambient	For indoor use , maximum humidity of 80%
Dimensions(W*H*D)	140×100×43（mm）
weight	326g

3-1 Technical data

4. Instrument Introduction

4.1 Panel Introduction
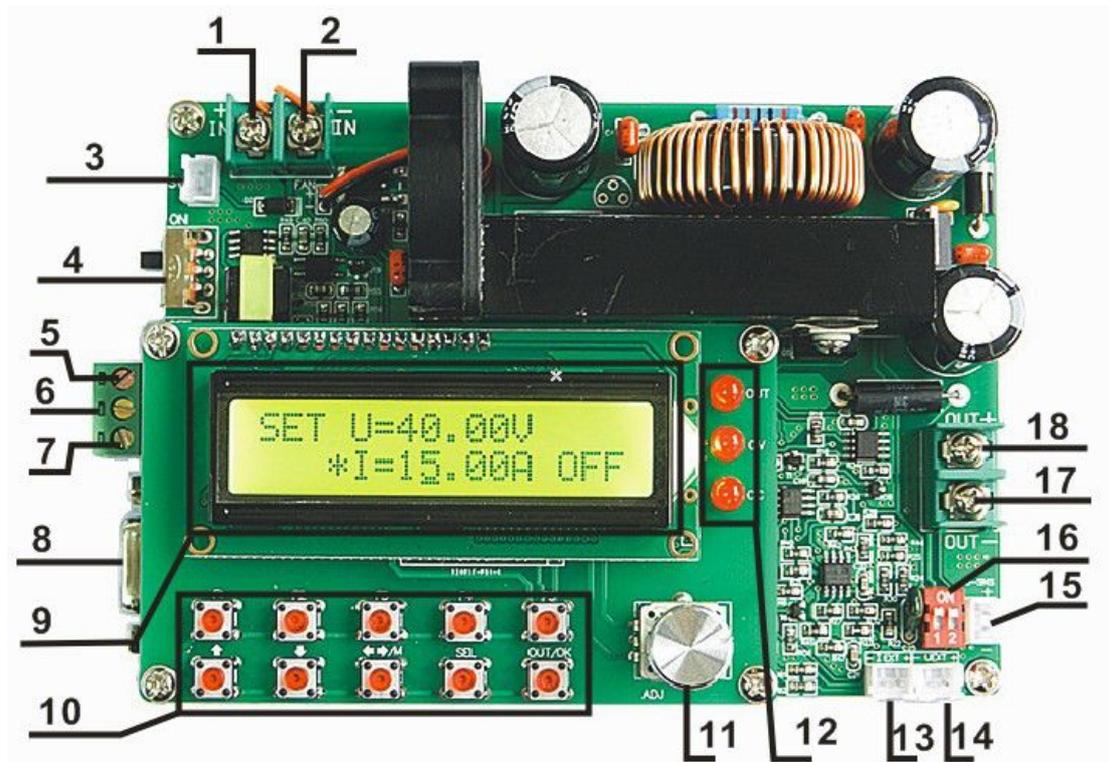
Label	instructions	label	instructions
1	DC input upright pole	10	Encoder
2	negative DC input	11	working status indicator
3	Power switch external	12	working status indicator
4	external voltage reference	13	input port
5	Isolation 485 A port	14	external current reference
6	Isolation 485 B port	15	voltage measurement
7	Isolation 485 G port	16	measuring voltage
8	9-pin serial port isolation	17	Negative DC output
9	LCD Display	18	DC output upright pole
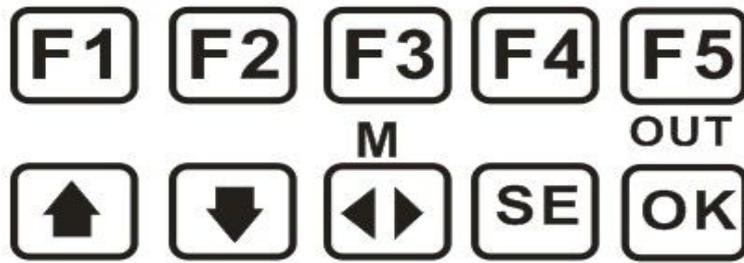
Button	Name and function
⬆	Page Up key to quickly set the voltage and current values
⬇	Downward flip key, quickly set the voltage electric current value of the
◀▶/M	Store called, the cursor move around buttons
SEL	Select the key to set the parameter selection
OUT/OK	ENTER
F1	Recall M1 storage parameters (functions can be customized)
F2	Recall M2 memory parameters (functions can be customized)
F3	Recall M3 storage parameters (functions can be customized)
F4	Recall M4 storage parameters (functions can be customized)
F5	LCD new initialization (function can be customized)

5. Operation

This chapter we will introduce the usage of DPS-6015S in detail.

5.1 Quick start guide

Now we will introduce the operation method of the power supply briefly with an example of 24.5V, 3A to ensure that users can grasp a conventional method of the power supply rapidly.

5.1.1 Start

The range of the input voltage is 13 V ~ 80 V, please be sure that the voltage of the pre-stage input power supply is during the range, otherwise, the power supply will not work or damaged. What should be noted is that the power

supply is a BUCK power supply, if you want to output 24.5V, make sure the input is more than 26V (Ensure that the pressure differential is greater than 1.5V), then connect the output of a pre-stage power supply to input terminal behind the machine. Be careful not to pick the wrong positive and negative. After ensuring that the power input is properly connected, you can turn on the power switch, then the screen will light up the voltage and current default interface appears.
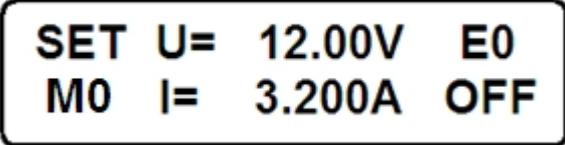
```
SET U=  12.00V   E0
M0   I=  3.200A  OFF
```

M0 indicates that preset value stored in M0 is called in currently, if parameters which were pre-stored in other positions are needed to be called out, "<>" keys can be repeatedly pressed to call the parameters from M1 to M9 out. OFF indicates that the power supply is in off state and E0 indicates that the power supply is normally turned off.

5.1.2 Setting the voltage and current value

Press the "SEL" key, the cursor stays in the value of the voltage, it means that we can set the value now. Rotary encoder, regulate the voltage to 24.00 V, then press the "< >" key, change the cursor position, regulate the voltage value of 24.50V, as shown in the figure below.
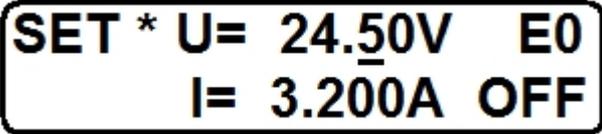
```
SET * U=  24.50V   E0
        I=  3.200A  OFF
```

Press the "SEL" key, cursor stays in the value of the current, rotary encoder, regulate the the current to 3.000A. Press the "SEL" key again, the cursor will disappears.

```
SET  U= 24.50V    E0
     *I= 3.000A  OFF
```

5.1.3 The operation of output state

Connect load, press "OUT" key, the machine will output normally, when the load resistance is larger, the current will less than 3A, the machine is in CV mode, the CV and ON indicator lamps will light.

```
24.53V   2.280A
55.92W   10mAH CV
```

Change the load, when the current increase to 3A, the instrument is in constant current (CC)state, at this time the voltage is reduced, the CC and the ON indicator lamps will light.

```
18.26V    2.998A
54.74W   86mAH CC
```

Obviously, the power is the product of voltage and current, AH is a cumulative amount, which gradually increase over time.

Under the output state, when the cursor is not displayed, press the "↓" key can clear the AH. Press the "↑" key to switch into the time display, as shown below:

```
18.26V    2.998A
TIME:00:10:18   CC
```

5.1.4 Turn off the output

If you don't need to output, you can press "OUT" key to cut off the output.

5.2 Detail operating instructions

This section we will introduce the use method of power supply in detail.

5.2.1 General Introduction

When output is not performed and the cursor is not displayed, press"↑", "↓"key or rotary encoder to switch different function options, as shown below:

Serial	Function	Explanation	
1	SET U-CAL	Calibration of the voltage measurement	
2	SET I-CAL	Current measurement calibration	
3	SAVE CAL DATA	Save the calibration data	
4	System Recover	System Recovery	
5	Set SYS.options	**Start-up: OFF**	Setting the boot output
		Sound Enable：OFF	Setting the buzzer sound
		Fast Falling： OFF	Set voltage rapid decline
		LRC Enable: OFF	Setting LRC checksum
6	SET Address	Setting address code	
7	Set Baud Rates	Set the baud rate	
8	Set Fan start	Setting FanStartTemperature	
9	Set OTP Value	Set temperature shutdown protection	
10	SET MAX	Set the maximum output voltage	
11	SET MAX	Set the maximum output current	
12	Save Setting to	Save parameters	

2. The voltage and current calibration function (1) (2), save the parameters function (3), as well as to restore the factory setting function (4)

Function (1), the function (2) and function (3) are the two functions and stored voltage and current parameters calibrated at the factory calibrated, under normal circumstances do not need to do this operation, if necessary calibration, after contact us, if you misuse, adjustment disorder to set

parameters, you can use the function (4), press the "OK" button, you can restore to factory settings.

3. System Settings function (5)

　(1) Start up the power of the machine turned off by default, press the "OUT" button to output, if need to boot directly to the output, you can set so that the "Start up: ON" state, you can boot automatically in the output state .

　(2) Sound Enable native default sound is turned on, the voice prompts and alarm sound if you do not operate when you can set the function (11), making the "Sound Enable: OFF".

　(3) Fast Falling function is to set the voltage drop fast, fast discharge capacitor voltage, the voltage drop shorter time, by clicking on the SEL button to switch options, to determine a good choice, press the OK button to complete the setting.

　(4) LRC Enable function is turned on LRC check function machine communication options by clicking the SEL button to switch, to determine a good choice, press the OK button to complete the setting.

4、The serial communication address code setting function (6)

　　Address code range is 01-99, after the adoption of control buttons to change the value of the address code, modify good address code, press the OK button to complete the setting

5. communication baud rate setting function (7)

This machine provides a total of eight kinds of Porter default, 1200,2400,4800,9600,19200,38400,57600,115200, you can set the appropriate baud rate as needed, the default 9600.

6. Set the fan start temperature function (8)

　As shown by the setting, or the rotary encoder to adjust the set temperature to 42 degrees Celsius temperature (settable range 20-120 degrees Celsius),

and click the OK button to complete the setting. When the machine is higher than 42 degrees Celsius temperature of the motherboard, fans began to turn. When the actual temperature is smaller than the set temperature 5 degrees Celsius fan stops.

```
SET FAN start up
23°C Tset=042°C
```

7. Set the temperature shutdown protection function (9)

Given temperature is 120 degrees Celsius (20-120 degrees C temperature range can be set), click on the OK button to complete the setting, when the machine is running for a long time under the high power output as shown by setting or adjusting the rotary encoder located off protection when, when the temperature exceeds a set value of the power devices 120 degrees Celsius will automatically shut off the output.

```
SET  OTP  Value
23°C Tset=120°C
```

8. Set the maximum output voltage function (10)

As shown by the setting⬆ ⬇ , or the rotary encoder to quickly adjust the voltage of the maximum output voltage, and click OK to complete the setting, this function can limit the maximum output voltage of the machine.

```
SET Max Voltage
Umax=  40.00V
```

9. Set the maximum output current capability (11)

As shown by the setting⬆ ⬇ , or the rotary encoder to quickly adjust the voltage of the maximum output voltage, and click OK to complete the setting, this function can limit the maximum output voltage of the machine.

10. Save function parameters (12)

If you need to save, to ensure no loss of data after power off, you need to be transferred functions (12), then press "OK", stored in the M0, so each boot will be automatically transferred to the relevant parameter settings. The machine has a total of 10 memory locations M0 ~ M9, if you need to save to the M1 ~ M9 any one, you can press the button ◀▶/M to select the location to be stored and press the OK button to store complete. Need to be transferred M1 ~ M9, in the absence of output condition, and when the cursor is not displayed, repeatedly pressing the ◀▶/M quick redeployment

11. The voltage measured value compensation

If the power supply during normal operation the output line losses can not be ignored, can be used to measure external compensation approach, the default two terminals DIP switches are at the top, when you enable external voltage compensation, the two terminals of the DIP switch appropriated below, and then connected to the input port on the compensation voltage load test, the positive and negative directions note, at this time the measured voltage value of the voltage across the load.

12. Output voltage and current external reference control

If you want the machine output voltage and current control by

external analog reference, you can Uext via an external voltage reference input or an external current reference terminal Iext control output voltage and current. Input analog voltage and current reference ranges 0-5V.

13. Other Important

(1) the default storage location M0 is transferred to the boot parameters will be automatically transferred in each boot.

(2) the scope of the power stored in each memory location contains a fairly wide, including voltage and current set value, whether the various protection settings and boot automatically open, sound options, etc. will be stored in the corresponding storage locations, each storage location are independent of each other.

Care and maintenance

One can not use more than the meter voltage and current range, otherwise it will damage the meter.

2, the positive and negative can not be reversed, reverse can not be measured correctly.

3, the working temperature of -10 ~ 50 ℃, Storage temperature -20 ~ 70 ℃, and the instrument is in a dry environment.

4. Do not attempt to disassemble the instrument, destroy the package will void the warranty. This instrument there are no

user-serviceable parts, repairs may only repair outlets or by specifying returning factory.

5. Do not move the instrument to avoid severe irreparable damage to the internal circuit when the instrument is working properly.