

# JT-DPM8605

Programmable lab power supply



The JT-DPM8624 is a programmable Buck power supply. It has both a constant voltage and a constant current mode. With its TTL interface, it is possible to manage any setting comfortably via your PC with a free software.

As optional equipment for this power supply, a wireless control panel is available, which enables remote control of up to 10 meter (without obstacle) to any setting and data.

## MAIN FEATURES

Interface	TTL
Voltage supply	10 - 75 V DC
Voltage output	0 - 60 V DC
Current output	0 - 5 A
Power output	0 - 300 W
Voltage resolution	10 mV
Current resolution	1 mA
Output ripple	< 50 mVpp
Response time	< 50 ms
Size	131 x 112 x 55 mm
Items delivered	JT-DPM8605

## FURTHER SPECIFICATIONS

Voltage display accuracy	10 mV
Current display accuracy	1 mA
Voltage fault tolerance	0,2 % + 1 digit
Current fault tolerance	0,5 % + 1 digit
Operating temperature	-10°C - 45°C

# JT-DPM8600

Programmable lab power supplies



## 1. SAFETY INSTRUCTIONS

**Our product is suitable for up to 75 Volt DC. Working with voltage over 60 V DC is re-served for trained electricians, because of the hazard of an electric shock which may cause serious injuries or death. Non-electricians have to use a voltage source below 60 Volt DC.**



## 2. GENERAL INFORMATION

Dear customer,

thank you for choosing our product. In the following, we will show you how to use your product.  
Should you encounter any unexpected problems during use, please do not hesitate to contact us.

The DPM8600 series are programmable power supplies which have a large output power, are compact and are well structured. At the same time, it is equipped with TTL serial communication interface or RS485 communication interface, which provides a serial communication protocol. It can also be applied to modbus-RTU communication protocol and supports further development from users. Moreover, it can provide multi-purpose solution according to your design and testing requirements.

Also, DPM8600 series can be equipped with a wireless remote control. The wireless controller adopts 2.4-inch LCD screen. It has many display values, a simple operation, a built-in lithium battery which can be recharged and it can control the power supply from up to 10 meters wirelessly. The wireless controller can control multiple power supplies simultaneously.

This modular power supply can be applied in several aspects. It can be used for example as an ammeter, a smartmeter, a LED driver, a voltage regulator for solar panels or in an industrial control.

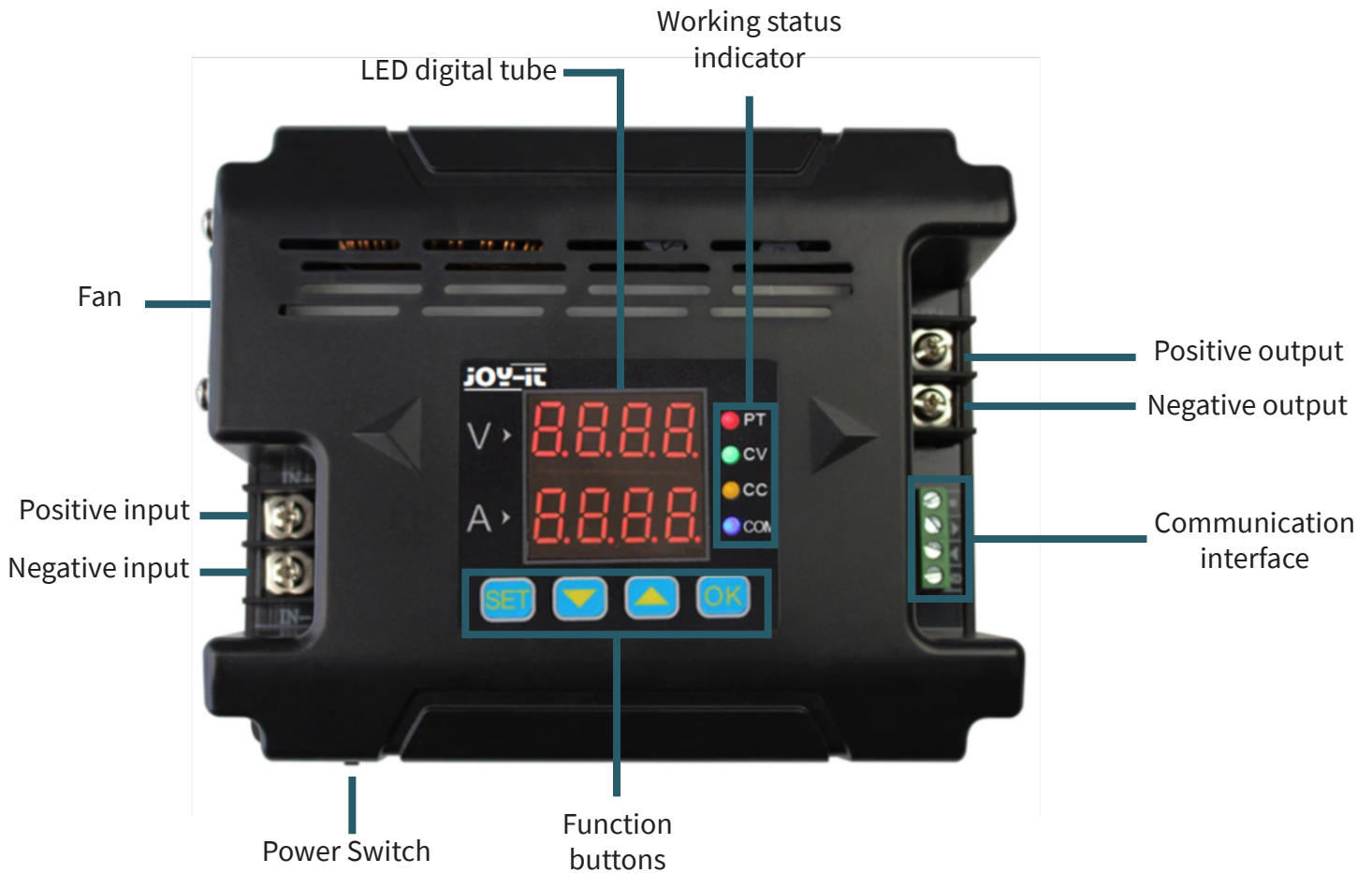
If the device is damaged or the scope of delivery incomplete, do not use it and contact our support. Otherwise, if the device is damaged, it could cause shorts and the device could inflame.

### 3. TECHNICAL PARAMETERS

Model	DPM-8605	DPM8624-485
Input voltage	10 - 75 V	10 - 75 V
Output voltage	0 - 60 V	0 - 60 V
Output current	0 - 5 A	0 - 24 A
Output power	0 - 300 W	0 - 1440 W
Communication interface	DPM-8605 DPM8624-485	TTL serial communication interface RS-485 communication interface
Voltage resolution	10 mV	
Current resolution	1 mA	10 mA
Output ripple	< 50 mVpp	
Efficiency	92 %	
Display accuracy	10 mV, 1 mA	10 mV, 1 mA
Output tolerance	voltage: $\pm 2 \%$ / current: $\pm 5 \%$	
Response time	< 50 ms	
Dimension	120 · 131 · 55 mm	150 · 120 · 59 mm
Applied ambient temperature	-25 - 60 °C	

**NOTE:** The following description uses the DPM8624 as an example. The DPM8605 works similar to the DPM8624.

## 4. MODULE



## 5. DISPLAY

0500	shows voltage values	4-Fd	Activates quick response
0300	shows current values	--L	
1-5A	Sets upper limit of voltage and current	5-CS	Simple communication
--10-		--0-	
1-5A	Sets lower limit of voltage and current	5-CS	Communication with modbus
--11-		--L	
1-5A	Cancels the limits of voltage and current	6-bd	Possible to select 2.4, 4.8, 9.6, 19.2, 38.4, 57.6, 115.2 (Kbps) as the baud
--12-		0096	
2-dF	No factory settings	7-Ad	99 communication addresses
--n-		--0L	
2-dF	Sets device to factory settings	8-CH	31 communication channels from 00 to 30 (00 means no connection)
--y-		--0L	
3-0n	When the device starts, it works only after activating it	-Ld-	Calls parameter from a storage location 0 - 9
--0-		--0-	
3-0n	It works automatically after the start	-5A-	Saves parameters to storage location
--1-		--0-	
4-Fd	Deactivates quick response	Corr	Calibrate voltage and current
--0-		-°C-	Displays temperature of the device
		0280	

## 6. INDICATOR



PT	<u>Overheat protection indicator</u> If the temperature is greater than 80 °C, the light is activated to indicate the overheat protection.
CV	<u>Constant voltage indicator</u> The CV indicator light indicates constant voltage output.
CC	<u>Constant current indicator</u> The CC indicator light indicates constant current output.
COM	<u>Communication indicator</u> The COM-LED will light up if the device is communicating.

## 7. SETUP

First, you have to connect the input and the output correctly to ensure that the input voltage is high enough for operation. A reverse polarity can cause damage to the device.

**NOTE:** The input voltage must be higher than the output voltage by more than 0.5 V.

Now you can adjust the voltage and current values after your purposes. The “V” on the digital tube display shows the voltage and “A” the current. The LCD displays the voltage with 2 decimal digits (00.00) and the current with 3 decimal digits (0.000). After that, you can press “OK” to activate the device. Then the CV or the CC lights up to indicate that the is active.

In the following is explained in detail how to set the voltage and current value:



The default is 5 Volt and 3 Ampere.






Press "SET" that this value lights up.



If you press this button again the selected digit will move one further.





The value can be changed with the buttons  and .

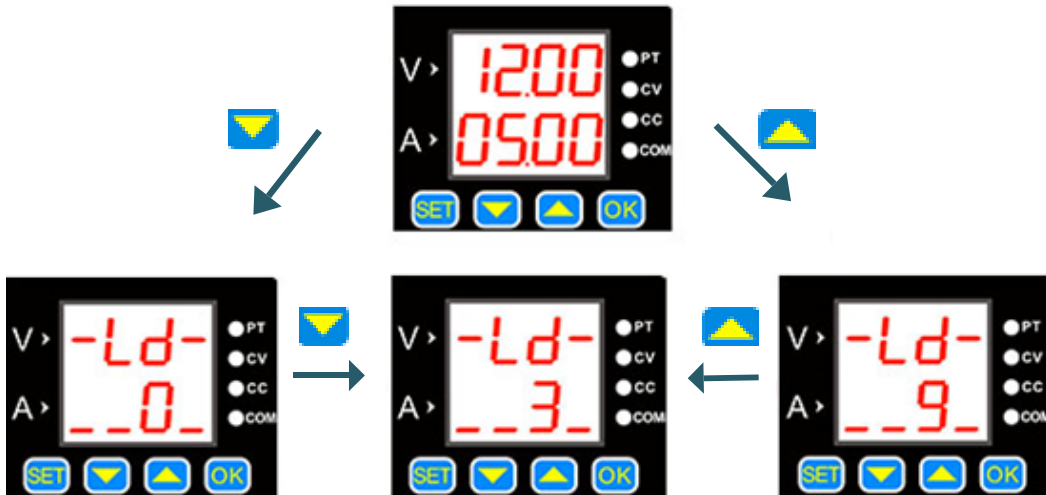


Press "OK" to turn on and off the output. If the load current is below the set current, the output is a constant voltage. The CV light comes on.



If the load current reaches the set current, the output is at the same level as the set current and constant current. Then the CC light comes on.

Press the  or  to enter the save and load menu as well as the temperature display and calibration menu.



If you press **SET**, you can adjust the loaded memory. The different locations can be selected with **▼** and **▲**. With **OK** you confirm your settings.



Press **▼** to return to the menu. To calibrate the device press **OK**. In the following is the function of the calibration explained.

Press **▼** to exit the temperature display.



### **Calibration**

1. If the set voltage is higher than 20 V, the output is switched on and there is no load connected, the output current can be calibrated to zero with the function "Corr.". For example if you set 25 V as the output voltage, the zero calibration for the voltage is still by 25 V.
2. If the output is turned off and you trigger the calibration, the zero points of voltage and current are set.
3. If you short-circuit the enabled output and the maximal output current is set higher than 2 A, the calibrated value is at the defined value. For example if you set the output current to 3 A, then you calibrate the output to 3 A.

## Temperature display

The temperature display shows the temperature of the device which is controlled by the fan speed and overheat protection. If the temperature is higher than 40°C then the fan starts working. With each 5 °C the fan speed increases by one level. If the temperature reaches 60 °C, the fan is at its maximal speed. If it reaches 80 °C, the overheating protection turns off the output.

## SET menu

Press the **SET** button long, then you enter the SET menu. With pressing the **SET** button you switch between each menu point. You can change every value in this menu by pressing  and . You must press **OK** to confirm the settings.



This menu point declares the limit of voltage as well as current. The “10” means the upper limit, “11” the lower limit and “12” the cancelation of the limits.



In this menu point, you can reset your device to the factory settings with “Y” you reset the device and with “N” you stay with your settings.



This menu point is the status interface. It accomplishes that when the power supply starts it can start automatically the output or you must turn it on manually. The “0” means the function is deactivated and “1” means it is activated.



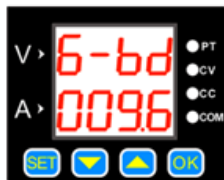




This menu point declares the response time of the interface when it is discharging. In that case “0” means slow and “1” fast.



This menu point declares the communication protocol. Here the “0” is for the simple communication protocol and “1” for the modbus communication protocol.



In this menu point you can enter the baud rates. There are 7 different rates in Kbps.



In this menu point you can enter the local addresses. There are 99 communication addresses.

### **Upper and lower limits of voltage and current**

These limits can be adjusted in the SET menu. For example you set 30 V and 5 A in the main interface. If you now activate the upper limit, you can not adjust the voltage and the current over the 30 V and the 5 A anymore. Only lower values are now possible to choose for example 20 V and 4.5 A. The lower limit works the same way in reverse. You can adjust the voltage and the current only higher then the chosen values. If you set both limits, the device can only be in operation in the range from lower limit to upper limit.

## **Communication protocol**

There are two options for the communication protocol the simple and the Modbus communication. These can be selected in the SET menu.

The simple communication protocol is our custom communication protocol which is easy to understand.

The Modbus communication protocol is the standard Modbus communication protocol.

## **Quick response**

After the quick response is activated, the response time is shorter when you adjust the voltage lower than before. For example the output voltage is set on 30 V and you adjust it down to 5 V directly. If the quick response is not operating, it takes 5 seconds to reduce the voltage from 30 V to 5 V. If it is active, it takes less than 1 second to reduce the same amount.

## **Power-on default status**

It refers that the output is automatically on or off after you turned on the device. If this function is activated and the device goes into operation, the output automatically starts without any adjustments. If the function is deactivated, the output is turned off. It can only be activated if you turn it on manually.

## **Key lock**

If you press long on the OK button , then you activate the key lock. If you press it long again, it will reverse it again.

## **8. SOFTWARE**

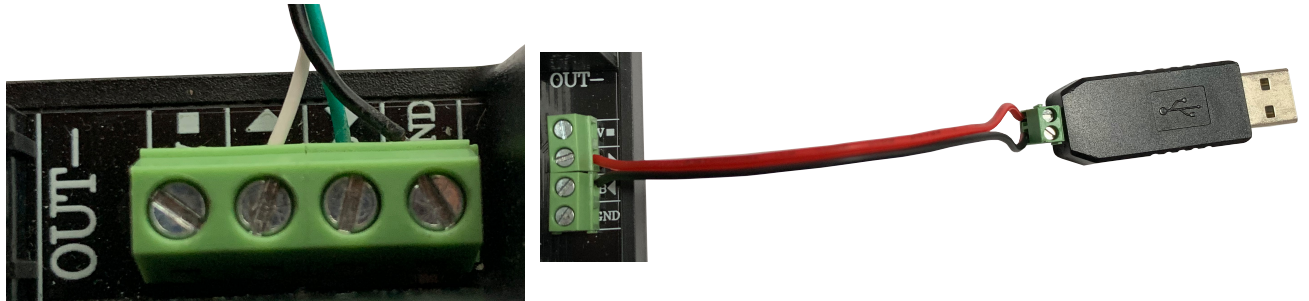
We provide a software, which can be downloaded from our website:

[www.joy-it.de](http://www.joy-it.de)

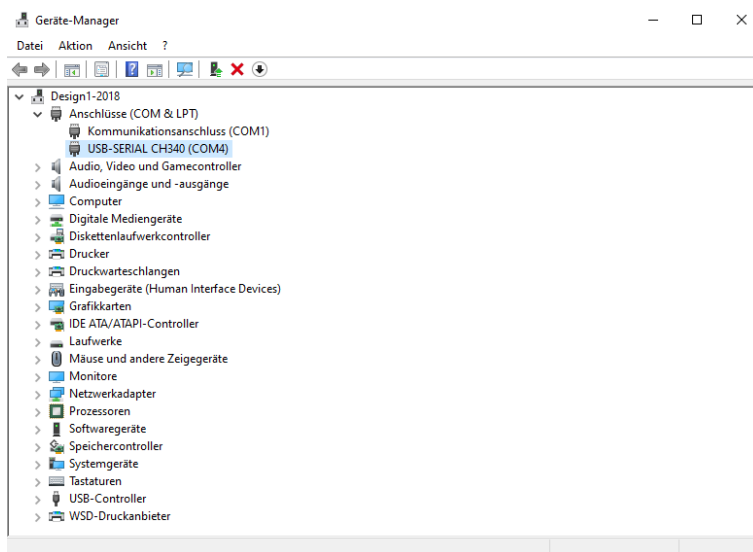
After the installation, connect the lab power supply to your PC with a TTL or rather a RS485 adapter.

In doing so, it is to note that in case of an inaccurate connection, the communication can not be guaranteed between the computer and the lab power supply.

DPM	TTL	RS485
V ■	not connected	not connected
A ►	RX (white)	A
B ◀	TX (green)	B
GND	GND (black)	not connected



After the cable is connected with the power supply like in the picture and the chart, the device can be connected with the PC via USB. In the device-manager in point “connections (COM & LPT)“, the port of the power supply can be found. In this case, it is COM4.

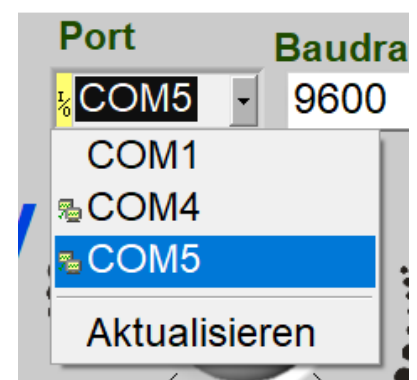


You can open now the program.

**Attention!** You must open the program “8608en“ if you use the DPM8605 and the “8024en“ if you use the DPM8624.

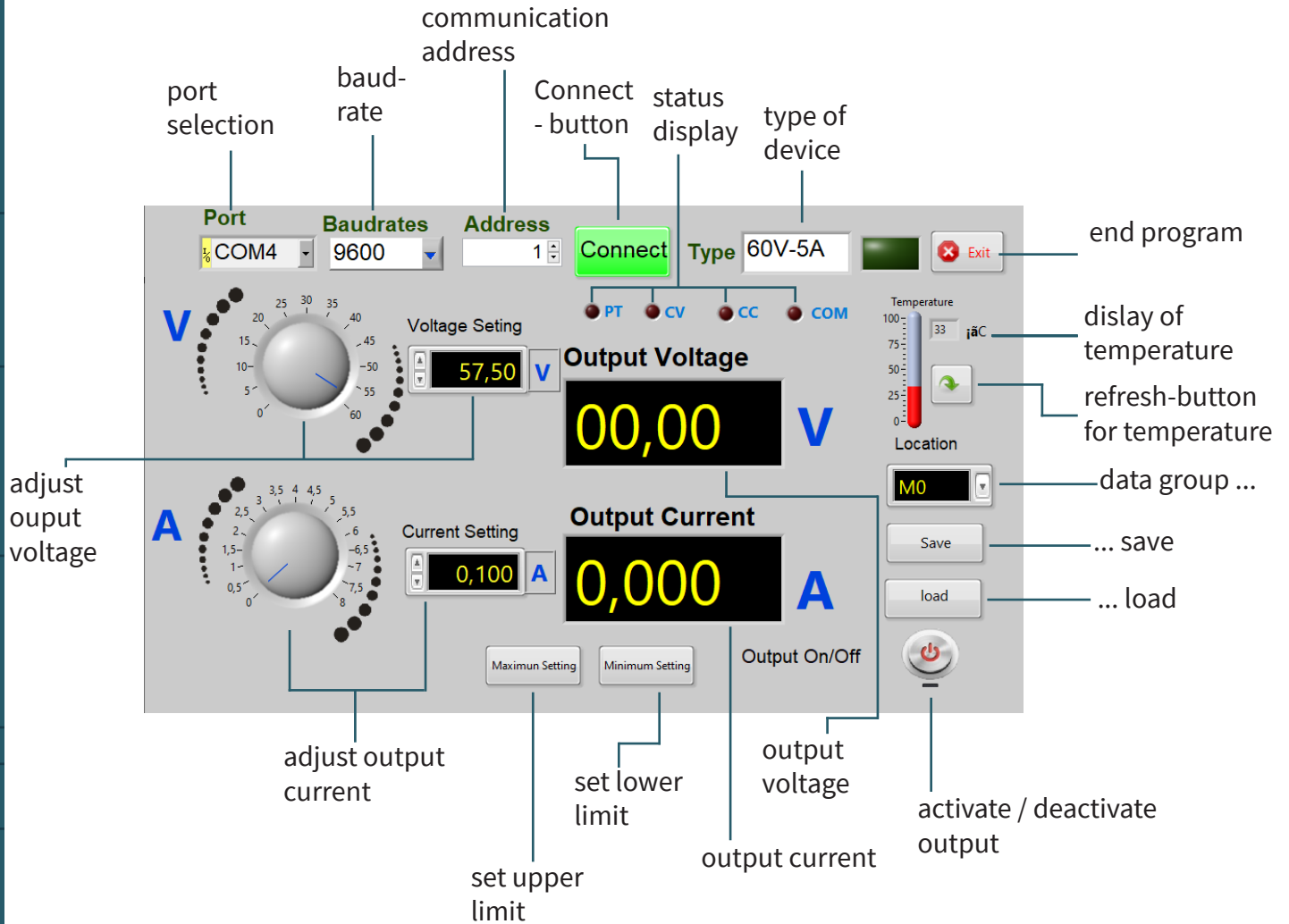
In the program, you must select the port of the power supply and click on “Connect“ to connect the power supply with the computer.

The baudrate is set on 9600 by default and can be set if necessary on the set value from the device.





If the “Connect” - button glows green, the device is connected with your PC. The further operation is as follows:



The output is deactivated if the button glows red. It will be green as soon as the output is activated.

