

APM TECHNOLOGIES

PROFESSIONAL INNOVATIVE BRANDING SERVICE

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High Power DC Power Supply Control Panel

User Manual 🔰



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1.1 Introductions

This monitoring software can be used to set or display the output of APM SP-3U/6U series DC power supply. The remote control mode has the same functions as the local control mode. Before using the remote control mode please make sure that the communication cable is connected properly.

1.2 Applicable Models

Output		3U			6U	
Voltage	6000W	12000W	18000W	24000W	30000W	36000W
80VDC	200A	400A	600A	800A	1000A	1200A
165VDC	-	180A	-	360A	-	540A
250VDC	-	-	180A	-	-	-
360VDC	42.5A	85A	127.5A	170A	212.5A	255A
500VDC	32A	64A	96A	128A	160A	192A
750VDC	21A	42A	63A	84A	105A	126A
1000VDC	-	32 A	-	64A	-	96A
1500VDC	-	21A	32A	42A	-	63A
2250VDC	-	-	21A	-	-	-

1.3 Communication Interface

- RS232
- RS485
- USB
- LAN
- GPIB
- CAN



1.4 Computer Requirements

- Intel CPU 1GHz or above
- Operating system: windows 7 SP1 x86, x64 windows 8.1 x86, x64 windows 10 x86, x64
- Storage Disks: 16GB or above
- RAM: 2GB, 4GB for 64bits operating system
- VGA or SVGA video card and a color monitor
- PS2 Mouse

Version PA, updated February 2021





Visit our website en.apmtech.cn to download the software. Double click on the setup file to install the monitoring software. Click the "Next" button to install the application follow the default location or you can change the location by clicking the "Browse" button and select another directory.

11,7	
Destination Directory Select the installation directories.	
All software will be installed in the following locations. To install software into a different location, click the Browse button and select another directory.	
Directory for HighPowerDCPowerSupplyControlPanelSetup C:\Program Files (x86)\Mass DC Power Control Panel\	Browse
Directory for HighPowerDCPowerSupplyControlPanelSetup C:\Program Files (x86)\Mass DC Power Control Panel\ Directory for National Instruments products C:\Program Files (x86)\National Instruments\	Browse

Then always click on the "Next" button to finish the installation. A shortcut to the application will be displayed on the desktop.



Click to open "Control Panel"-- click to open "Programs"-- click to open "Programs and Features" -- click to open "Uninstall a program", right click on the "HighPowerDCPowerSupplyControl PanelSetup" and choose "Uninstall" to remove it.

HighPowerDCP	erSunnlyControlPanelSetup	
B Microsoft Office	Uninstall	
Microsoft OneDrive	e	



Please click on the "Install" button to install the language when open the software first time. Click on the X on the top right corner to close the page after installing the language.





4.1 Login Interface



This application supports RS232/RS485/USB/GPIB/LAN/CAN communication modes.

4.1.1 RS232 Communication Mode

Check RS232 option first. And make sure that the communication parameters is the same as that in the menu of the DC power supply.

Click on the "SEARCH" button to search the unit which is connected to the computer. Select the unit by clicking the check-box before the channel number. Then click on the "OK" button to turn to the Basic Mode page.

		iyn P	ower DC	Powe	er Sup	ply Control	Panel
		Channel	Master/Slove	Port	Address	Model	SN
✓ RS232	1	CH1	Master	CO M3	NA	SP80VD C6000W	2345678902345678
RS485							
USE							
GPIB	E						
LAN							
CAN	E						

4.1.2 RS485 Communication Mode

Refer to the diagram below for RS485 communication connection.



Check RS485 option first. And make sure that the communication parameters is the same as that in the menu of the DC power supply.

Click on the "SEARCH" button to search the unit which is connected to the computer. Select the unit by clicking the check-box before the channel number. Then click on the "OK" button to turn to the Basic Mode interface.

		Channel	Master/Slove	Port	Address	Model	SN
RS232	1	CH1	Master	CO M3	1	SP80VDC6000W	1234567891234567
🖌 RS485		-			_		
USB							
					_		
GPIB							
LAN							
CAN		-					



4.1.3 USB Communication Mode

4.1.3.1 USB Driver Installation

Before installing the USB driver, make sure the DC power supply is on and found by the PC or laptop connected to it using a USB device cable. This will confirm that the connection is correct.

To open the Device manager, open Windows, Settings and use the search box to locate "Device Manager".

Settings				- 🗆 ×
		Windows Settings		
	Device M	lanager	٩	
		-		
口				Q
System	Devices	Network & Internet	Personalization	Accounts
power	Bluetooth, printers, mouse	Wi-H, airplane mode, VPN	colors	work, other people
<u>P</u>	$(\downarrow_{\overrightarrow{T}})$	Д		
Time & language	Ease of Access	Privacy	Update & security	
Speech, region, date	Narrator, magnifier, high contrast	Location, camera	Windows Update, recovery, backup	
	Windows	isn't activated. Activate Wind	ows now.	

Open the device manager as shown below. Locate the "APM (R) SP USB2.0 Device" under the "Other Devices" category.

📇 Device Manager	_	×
File Action View Help		
Image: Computer Image: Computer > ■ Disk drives > ■ Monitors > ■ Other devices > ■ Other devices > ■ Disk20.0 Device > ■ Drist (COM & LPT)		
> 🚍 Print queues		
> Processors		
Sound video and game controllers		
Say Storage controllers		
> System devices		
> 🏺 Universal Serial Bus controllers		

Right mouse click and choose "Update Driver Software..." as shown below.

	evice Manager		-	×
File	Action View Help			
) 📰 📴 🚺 🖬 5	🖳 📕 🗙 🖲		
× ≞ >	DESKTOP-B0AO518	uts		
>	Computer			
>	Disk drives			
	Human Interface Device	rer		
	IDE ATA/ATAPI control	erc		
	Keyhoards			
	Mice and other pointir	a devices		
5	Monitors	guerrees		
>	Network adapters			
~	Other devices			
	APM(R) SP USB20	Device		
>	Ports (COM & LPT)	Update Driver Software		
>	Print queues	Disable		
>	Processors	Uninstall		
>	Software devices			
>	Sound, video and g	Scan for hardware changes		
>	Storage controllers	Properties		
>	System devices			
~	Universal Serial Bus co	ntrollers		



When prompted, select the Browse for driver entry as shown below.



The USB driver can be found in the data folder of the software installation path.



A warning will appear regarding the driver software publisher verification. Select the second entry "Install this driver software anyway".

×	Windows can't verify the publisher of this driver software
	→ Do <u>n</u> 't install this driver software You should check your manufacturer's website for updated driver software for your device.
	→ Install this driver software anyway Only install driver software obtained from your manufacturer's website or disc. Unsigned software from other sources may harm your computer or steal information.

If instead of the dialog box shown above, you encounter an "Install Error" like the one shown here, you will need to disable your digital authentication mode in Windows 10 first.



Wait for the driver installation to finish. The dialog shown below should appear when done.



÷	Update Driver Software - APM USB	×
	Windows has successfully updated your driver software	
	Windows has finished installing the driver software for this device:	
	APM USB	
		<u>C</u> lose

The USB driver should now be visible in the Device Manager.





4.1.3.2 Disabling Driver Signature Enforcement in Windows 10

If your Windows PC is configured for Driver signature enforcement, it will be necessary to temporarily disable this OS features to allow the USB driver installation. One way to do so it use the Advanced Boot Menu. Follow these steps do so.

1. Hold down the Shift key while choosing the "Restart" option in Windows. Your computer will restart with Advanced Options. From the list of options displayed, select the "Troubleshoot" tile.



2. Next, select "Advanced options" and hit the "Startup Settings" tile.





3. Next, select the "Restart" button to restart your PC on the Startup Settings screen.



4. You will see the following screen on restart. Press the number "7" keyboard key to activate the "Disable driver signature enforcement" option.

se number keys or functions keys F1-F9	
Enable debugging	
Enable boot logging	
Enable low-resolution video	
Enable Safe Mode	
Enable Safe Mode with Networking	
Enable Safe Mode with Command Prompt	
Disable driver signature enforcement	
Disable early launch anti-malware protection	
Disable automatic restart after failure	
ress F10 for more options	

5. Once done, your PC will reboot with driver signature enforcement disabled, and you will be able to install unsigned drivers.

4.1.3.3 USB Communication Instruction

Check USB option first. Click on the "SEARCH" button to search the unit which is connected to the computer. Select the unit by clicking the check-box before the channel number. Then click on the "OK" button to turn to the Basic Mode interface.

		Channel	Master/Slave	Port	Address	Model	SN
RS232	1	CH1	Master	USBO	USB0::0	SP80VDC6000W	1234567891234567
R\$485							
VSB							
GPIB							
CAN							

4.1.4 GPIB Communication Mode

Check GPIB option first. Click on the "SEARCH" button to search the unit which is connected to the computer. Select the unit by clicking the check-box before the channel number. Then click on the "OK" button to turn to the Basic Mode interface.

		Channel	Master/Slove	Port	Address	Model	SN
R\$232	1	CH1	Master	GPIB0	GPIB0::1	SP750VDC6000W	2020123100000000
RS485							
030							
GPIB							
LAN							
CAN							

4.1.5 LAN Communication Mode

4.1.5.1 Setting a Static IP Address

Click to open the program "Open Network and Sharing Center" -- open "Local Area Connection" -- choose and double click "Internet Protocol Version 4 (TCP/IP)" to get the IP setting of the PC.

etworking		General	
Connect using:		You can get IP settings assigned this capability. Otherwise, you n	automatically if your network supports eed to ask your network administrator
Realtek PCIe GBE Family Controller		for the appropriate IP settings.	
	Configure	Obtain an IP address autor	matically
This connection uses the following items:		• Use the following IP addres	35:
 Client for Microsoft Networks File and Printer Sharing for Microsoft 	Networks	IP address:	192.168.10.129
🗹 🖳 QoS Packet Scheduler		Subnet mask:	255.255.255.0
Internet Protocol Version 4 (TCP/IPv	4)	D-C-HH	
Microsoft Network Adapter Multiplexo	or Protocol	Default gateway:	192.168.10.1
L Microsoft Network Adapter Multiplexo LDP Protocol Driver LIDP Protocol Driver Linemet Protocol Version 6 (TCP/IPv	6) v	Obtain DNS server address	192 . 168 . 10 . 1
Internet Protocol Version 6 (TCP/IPv	6) v	Obtain DNS server address	192 . 168 . 10 . 1
Microsoft Network Adapter Multiplexc Microsoft LLDP Protocol Driver Internet Protocol Version 6 (TCP/IPv Install	6) Properties	Obtain DNS server address Obtain DNS server address Use the following DNS serv Preferred DNS server:	192 . 168 . 10 . 1 : automatically er addresses: 202 . 96 . 128 . 86
Microsoft Network Adapter Multiplexo Microsoft LLDP Protocol Driver Internet Protocol Version 6 (TCP/IPv Internet Protocol Version 6 (TCP/IPv Install Description Transmission Control Protocol/Internet Protocol/Interne	6) v Properties	Obtain DNS server address Obtain DNS server address Use the following DNS serv Preferred DNS server: Alternate DNS server:	192 . 168 . 10 . 1 automatically er addresses: 202 . 96 . 128 . 86 202 . 96 . 128 . 143

Note: Only the IP address of the unit and the PC are in the same network segment, then it's available to control the unit.

C Source	Remote Setup
LAN Setting	RS232
Enable V Socket Port 2001	RS485
ETH Setting	USB/GPIB
IP Addr 192.168. 10 .100	LAN
Net Mask 255.255.255. 0	CAN
Gateway 192.168.10 . 1	ſ
LOCAL	15:50 2021/01/04

Use the numeric keys on the front panel to set the Ethernet parameters of the unit.

4.1.5.2 LAN Communication Instruction

Check LAN option first. Click on the "SEARCH" button to search the unit which is connected to the computer. Select the unit by clicking the check-box before the channel number. Then click on the "OK" button to turn to the Basic Mode interface.

-	1	CH1	Master/Slove Master	Port	Address 192,168	Model SP80VDC6000W	SN 1234567891234567	1
RS232								1
R\$485								
								+
USB								1
								-
GPIB								+
✓ LAN								-
								1
CAN								1

4.1.6 CAN Communication Instruction

Not yet available.





5.1 Status Bar

File	View	PLS
Exit	System Information	List Mode
	Warning Log	Program Mode
	Back	Step Mode

Exit: Close the software.

System Information: Unit information.

Warning Log: Alarm history.

Back: Back to Login page.

List mode/Program Mode/Step Mode: Waveform create function.



5.2 Channel Selection

CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	CH 9	CH 10

Select the desired control channel in multi mode. Not yet available.

5.3 Waveform Simulation Field

Can real time display the Voltage, Current, Power and Resistance output waveform after selected.

Waveform	Simulation U 🟹 I 💟 P 📝 R 📃	
205 = 84 <u>-</u>		6300
150 - eo		-5000
100 00-		4000
100- 40-		-3000
		-2000
50 - 20 -		-1000
0- 0-		10

5.4 Power Mode Parameters Setting Field



This part provides three ways to set the parameters.

- 1. Rotate the knob for a rough setting.
- 2. Enter the desired values directly.
- 3. Use the up and down arrows to change the settings.



5.5 Power ON/OFF

DC power supply power ON/OFF switch.



5.6 Measurement for Power and Sink Mode

Real time display the measurement of Power or Sink mode.

Power N	1easurement			Sink Meas	surement		
U/V	I/A	P/W	R/ohm	U/V	I/A	P/W	R/ohm
0.000	0.000	0.0	0.0000	0	0	0	0

5.7 Sink Mode Parameters Setting Field

This Sink mode will available only after option and install the sink module.



This part provides three ways to set the parameters. Select the desired operation mode (CR, CP, CV or CC) first, then

- 1. Rotate the knob for a rough setting.
- 2. Enter the desired values directly.
- 3. Use the up and down arrows to change the settings.

5.8 Sink ON/OFF

Sink mode ON/OFF switch.





6.1 Limitation and Protection Setup

Limitation	More Se	≘t	System	
V Limit	(∨)-н	V Li	mit(∨)-L	
84.00	0 🕄	0	.000	Ş.
I Limit(а)-н	I Lin	nit(A)-L	
204.7	50 🖯	0	.000	J I
P Limit(w)-н	P Lin	nit(W)-L	
6300.	.0 🕄		0.0	5
RLimit(c	hm)-H	RLim	nit(ohm)-	۰L
12.60	0 🕄	- 0	.000	5
OVP(V)		OVP	Delay(s))
88.00	0 🕄	1	.000	3
OCP(A)		OCP	Delay(s)
214.5	00 🕄	0	.001	
OPP(W)		OPP	Delay(s)	
6600.	0 🕄	0	.001	
UVP(V)		UVP	Delay(s)	
0.000		0	.100	3
CC/CV		cc/c	V Delay(s) Al
CV-CC	- <u>×</u>	2	.000	2
OVP		OCP	- bla - Fi	
Disabi	e 🗵	Er	hable 👱	
OPP		CC-C	cv	
Enable	Ľ	Di	sable 🖌	
UVP				
Disabl	• 🗵			

V Limit(V)-H: Voltage upper limit, setting range is 0~105% * rated voltage. V Limit(V)-L: Voltage lower limit, setting range is 0~105% * rated voltage. I Limit(A)-H: Current upper limit, setting range is 0~105% * rated current. I Limit(A)-L: Current lower limit, setting range is 0~105% * rated current. **P Limit(W)-H:** Power upper limit, setting range is 0~105% * rated power. **P Limit(W)-L:** Power lower limit, setting range is 0~105% * rated power. **R Limit(ohm)-H:** Resistance upper limit, setting range is 0~105% * rated resistance. **R Limit(ohm)-L:** Resistance lower limit, setting range is 0~105% * rated resistance. **OVP(V):** Over voltage protection, setting range is 0~110% rated voltage. OVP Delay(s): Over voltage protection delay time. **OCP(A):** Over current protection, setting range is 0~110% rated current. **OCP Delay(s):** Over current protection delay time. **OPP(W):** Over power protection, setting range is 0~110% rated power. **OPP Delay(s):** Over power protection delay time. **UVP(V):** Under voltage protection. UVP Delay(s): Under voltage protection delay time. **CC/CV:** Regulation mode protection, setting range is CC-CV or CV-CC. CC/CV Delay(s): Regulation mode protection delay time. **OVP:** Enable or Disable over voltage protection. **OCP:** Enable or Disable over current protection. **OPP:** Enable or Disable over power protection. CC/CV: Enable or Disable CC-CV or CV-CC protection. UVP: Enable or Disable under voltage protection.

6.2 Output and Measurement Setup

V Rise (V/ms): Voltage rise slew rate setting.

V Fall (V/ms): Voltage fall slew rate setting.

I Rise (A/ms): Current rise slew rate setting.

I Fall (A/ms): Current fall slew rate setting.

CC/CV Prior: CC or CV priority setting.

CC/CV Rise (A/ms): Set voltage or current rise slew rate.

Average: Meter averaging time setting.

HI-Variation: Used to shorten the output voltage fall time.



6.3 Special Function Setup



P/O Sta: Power on state setting.

<u>Rst:</u> The power source will NOT store any settings when it is powered off and will initialize with factory defaults at the next power on.

<u>Save:</u> In this mode, a user-defined configuration can be assigned for recall when the power source is turned on. This means the power supply will always turn on with the values of this specific configuration.

<u>Last</u>: The power supply will store the settings in effect when the supply was last powered off, and will recall the same settings at power on. This means the unit will power up in the same conditions as when it was turned off.

Short Mode: Enable or disable short mode. **Active V:** Set the trigger voltage of Short protection.

LV Mode: Enable or disable LV mode.

Mcurr Share: Enable or disable current sharing function.

Counting Func: Includes Voltage and Current counting function.

- IL (A): Cut-off current for counting.
- Ib (A): Start current for counting.

Power ON Timer: Enable or Disable power on timer function.

Timer: Setting a timer.

Power OFF Timer: Enable or Disable power off timer function.

Timer: Setting a timer.



To record the running data in this basic mode page.

1. Click on "Record Data" button to create a new database.



2. Save the running data to a defined database.

Data Sampling		
Timing Save	;	
Save Interval(s)	1	
Save Filename	Sample1	
		SAVE

Save Intervals (s): Set the sampled-data interval. The minimum value is 1 second. **Save Filename:** Rename the database.

SAVE: Click on this button to confirm the settings.

3. Turn on the output after setting the parameters.

4. Click on the "Report Edit" button to enter into report edit page after the conclusion of the running.

5. Report edit page.

elect	Sample1.mdb	•	🔀 Delete	Table	Save to Excel
legin (Date 2021/01/04	00:00:00	End Date	2021/01/04	23:59:59
NO.	Date Time	Voltage(∨)	Current(A)	Power(W)	Resistance(Ohm)
7	2021/1/4 16:33:37	9.707	0.000	0.0	0.0000
8	2021/1/4 16:33:38	9.709	0.000	0.0	0.0000
9	2021/1/4 16:33:39	9.711	0.000	0.0	0.0000
10	2021/1/4 16:33:40	9.706	0.000	0.0	0.0000
11	2021/1/4 16:33:41	9.708	0.000	0.0	0.0000
12	2021/1/4 16:33:42	9.708	0.000	0.0	0.0000
13	2021/1/4 16:33:43	9.709	0.000	0.0	0.0000
14	2021/1/4 16:33:44	9.708	0.000	0.0	0.0000
15	2021/1/4 16:33:46	9.708	0.000	0.0	0.0000
16	2021/1/4 16:33:47	9.708	0.000	0.0	0.0000
17	2021/1/4 16:33:48	9.708	0.000	0.0	0.0000
18	2021/1/4 16:33:49	9.708	0.000	0.0	0.0000
19	2021/1/4 16:33:50	9.708	0.000	0.0	0.0000
20	2021/1/4 16:33:51	9.710	0.000	0.0	0.0000
21	2021/1/4 16:33:52	0.063	0.000	0.0	0.0000
22	2021/1/4 16:33:53	0.000	0.000	0.0	0.0000
23	2021/1/4 16:33:54	0.000	0.000	0.0	0.0000
4					

Select File: Select the wanted database file.

Delete Table: Delete the database file.

Begin Date/End Date: Define the start time and end time of the report.

Query: Query the running data.

Save to Excel: Save the running data to a excel file.

Delete Record: Delete the running data shown in the table.





8.1 List Voltage Waveform Preview



Remaining time: Remaining time of this List mode.

Run Time: Escaped time of this List mode.



8.2 Output Waveform Preview



Can real time display output Voltage, Current and Power waveform after selected.

8.3 List Mode Parameters Setup

List setting	Save list	Open list	Download
	Step 🗾 1	 ⊖ P/\	v <u>0.0</u>
	U/V <u>0.000</u>		n <u>0.0000</u>
Format Rectangle		wid/	s 0.000 🚭
Repeat <u>1</u>	I/A 0.000	Cour	it 1 🔗
Step Count 🚺			
		Moc	le CONT 🔽

No.: List file number, which range is 1~30.

Format: List format, includes three options: Rectangle, S-Ramp and F-Ramp.

Repeat: Repeat times setting, which range is 0~9999, 0 means infinite loop.

Step Count: Set the total number of steps in the current list file, which can range from 1 through 8. **Step:** Currently editing step.

U/V: Voltage setup.

Usl/s: Set the slop time for the voltage from the previous step to current step.

I/A: Current setup.

Isl/s: Set the slop time for the current from the previous step to current step.

P/W: Power setup.

 Ro/Ω : Output impendence setup.

Wid/s: Dwell time of the current step.

Count: Number of times the current step will be repeated.

Mode: List execution mode - Cont (continuous) or Step (once).



Save List: Save the edited List file to the computer.Open List: Recall the List file saved in the computer.Download: Download the selected List file to the unit.

8.4 List Execution Button



Power: Indicates the output state of the power supply.

Trigger: Begins the execution of the selected list file. Once pressed, this soft key will change to Stop which when pressed will terminate the list execution.

Pause: Pauses the list execution. Once pressed, this soft key changes to Continue. Upon pressing Continue, the list execution will continue from where it was paused.

8.5 List Data Record

Refer to Chapter 7 for the details on data record operation.



9

Program Mode



9.1 Program Voltage Waveform Preview



Remaining time: Remaining time of this Program mode. **Run Time:** Escaped time of this Program mode.

9.2 Output Waveform Preview

Waveform Simulation	
205 = 84 -	=6300
150- co	-5000
	-4000
100- 40-	-3000
50-20-	-2000
	-1000
0- 0-	-0

Can real time display output Voltage, Current and Power waveform after selected.

9.3 Program Mode Parameters Setup



Step Count: The total number of steps in the selected program file, which ranges from 1 through 18. **Step:** Currently editing step.

Mode: Continuous or Step.

Cycle: Number of times to repeat the list file in a given program step, 0 means infinite loop.

List Data: Click on 🖬 to select the edited List file.

Repeat: The number of times to repeat the program file.

Save Pro: Save the edited Program file to the computer.

Open Pro: Recall the Program file saved in the computer.

Download: Download the selected Program file to the unit.



9.4 Program Execution Button



Power: Indicates the output state of the power supply.

Trigger: Begins the execution of the selected program file. Once pressed, this soft key will change to Stop which when pressed will terminate the program execution.

Pause: Pauses the program execution. Once pressed, this soft key changes to Continue. Upon pressing Continue, the program execution will continue from where it was paused.

9.5 Program Data Record

Refer to Chapter 7 for the details on data record operation.






10.1 Step Voltage Waveform Preview



Remaining time: Remaining time of this Step mode.

Run Time: Escaped time of this Step mode.



10.2 Output Waveform Preview



Can real time display output Voltage, Current and Power waveform.

10.3 Step Mode Parameters Setup

Step setting					Do	ownload	
Step NO. <mark>1</mark>	÷	I/A	0.000	Ş	Ro/ohm 📘	0.0000	Ş
Count <u>1</u>	∼	∆I/A	0.000	Ş	∆Ro/ohm <mark>_</mark>	0.000	Ş
U/V <u>0.00</u>	0	P/W	0.0	Ş	∆t/s <mark>_</mark>	0.000	Ş
Δυ/ν 0.00	0	∆p/w	0.000	÷	Repeat <mark>_</mark>	1	÷

Step NO. : Step file NO., which range is 1~5. **Count:** Number of times to repeat the step. **U/V:** Start voltage.

ΔU/V: Step voltage.

- I/A: Start current.
- ΔI/A: Step current.
- P/W: Start power.

ΔP/W: Step power.

 Ro/Ω : Start resistance.

 $\Delta Ro/\Omega$: Step resistance.

 $\Delta t/s$: The length of a step in seconds.

Repeat: Number of times to repeat the step.

Download: Download the selected Step file to the unit.



10.4 Step Execution Button



Power: Indicates the output state of the power supply.

Trigger: Begins the execution of the selected program file. Once pressed, this soft key will change to Stop which when pressed will terminate the program execution.

Pause: Pauses the program execution. Once pressed, this soft key changes to Continue. Upon pressing Continue, the program execution will continue from where it was paused.

10.5 Program Data Record

Refer to Chapter 7 for the details on data record operation.





If you have any questions about the High Power DC Power Supply Control Panel please contact us per the contact information below. We will be happy to promptly answer any of your questions.

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1.1介绍

此软件支持APM 80V、165V、250V、500V、750V、1000V、1500V、2250V系列的所有大功率直流电源,使用软件之前PC与电源必须通讯连接正常。

此软件可以进行大功率直流电源的输出参数设定、输出量的监控、切换电源功能等。

1.2 支持产品

APM大功率直流电源:

检出中国		3U			6U	
制山屯压	6000W	12000W	18000W	24000W	30000W	36000W
80VDC	200A	400A	600A	800A	1000A	1200A
165VDC	-	180A	-	360A	-	540A
250VDC	-	-	180A	-	-	-
360VDC	42.5A	85A	127.5A	170A	212.5A	255A
500VDC	32A	64A	96A	128A	160A	192A
750VDC	21A	42A	63A	84A	105A	126A
1000VDC	-	32 A	-	64A	-	96A
1500VDC	-	21A	32A	42A	-	63A
2250VDC	-	-	21A	-	-	-

1.3 通讯界面

PC与电源间通讯方式:

- RS232
- RS485
- ∎ USB
- LAN
- GPIB
- CAN



1.4 软件和硬件需求

执行程式较大,建议个人电脑软、硬件系统配置如下:

- CPU主频1G以上(目前双核处理器一般都在1G以上)
- 支持操作系统: windows7 SP1 x86, x64

windows 8.1 x86, x64

windows10x86,x64

- 建议16G以上存储硬盘(目前一般硬盘都在500G以上)
- 内存最少1G, 推荐2G以上。若64位系统4G以上
- VGA或SVGA彩色显示器
- PS2滑鼠

<u>2021年02月发行,版本PA</u>





官网:www.apmtech.cn可在"服务支持"的子模块"下载中心"内进行下载。

双击.exe格式文件,按照提示进行安装。如要更换安装路径,点击Browse...按钮,指定安装路径。

Destination Directory Select the installation directories.	
All software will be installed in the following locations. To install software into a different location, click the Browse button and select another directory.	
Directory for HighPowerDCPowerSupplyControlPanelSetup C:\Program Files (x86)\Mass DC Power Control Panel\	Brausa
Directory for HighPowerDCPowerSupplyControlPanelSetup C:\Program Files (x86)\Mass DC Power Control Panel\ Directory for National Instruments products	Browse

一直点击"Next"按钮完成软件的安装,安装完成之后,可在电脑桌面上找到软件的快捷方式。



在电脑上打开"控制面板",选择"卸载程序",找到"High Power DC Power Supply Control Panel Setup",右击选择"卸载"。

🚣 Adobe Acrobat XI Pro		
Electronic load Setup		
HighPowerDCPowerSupplyContr	rolPanelSetup	
😹 Intel(R) Dynamic Platform and	卸载(U)	
IVI Shared Components 2.6.1		
IVII.NET Shared Components 1.4	4.1 for .NET 2.0	



4.1 登录界面

R\$232	Channel	Master/Slove	Port	Address	Model	SN	
R\$485							
USB							
GPIB							-
CAN							

此上位机软件High Power DC Power Supply Control Panel包括RS232、RS485、USB、GPIB、 LAN、CAN这6种通讯方式。

4.1.1 RS232通讯方式

勾选RS232通讯方式,将通讯参数与电源的RS232通讯参数配置一致;点击"SEARCH"搜索电源, 勾选需要监控的电源,点击"OK"进入监控软件的主界面。

		Channel	Master/Slave	Port	Address	Model	SN
✓ RS232	1	CH1	Master	COM3	NA	SP80VDC6000W	2345678902345678
RS485							
USB							
GPIB							
CAN							

4.1.2 RS485通讯方式

参考下图进行RS485通讯模式下的连接。



勾选RS485通讯方式,将通讯参数与电源的RS485通讯参数配置一致;点击"SEARCH"搜索电源,勾选需要监控的电源,点击"OK"进入监控软件的主界面。



Channel Master/Si	ive Port	A statement		
		Addr 855	Model	SN
RS232 CH1 Master	COM3	1	SP80VDC6000W	1234567891234567
✓ R\$485				
USB				
GPIB				
LAN				
CAN				

4.1.3 USB通讯方式

使用USB通讯方式之前需要先安装USB驱动。

右击"计算机"打开"属性",选择"设备管理器",找到"APM(R)SPUSB2.0 Device",右击选择 "更新驱动程序软件(P)"。

· 计算机管理		
文件(F) 提(作(A) 查看(V)	帮助(H)	
🗢 🔿 🖄 🖬 🗉 👔	🗊 🛝 😰 🙀 🕫	
● ●	El INE INE ID El INE El INE ID El INE EL EL	BPh: 设全台理题 更多通作 更多通作

点击"浏览计算机以查找驱动程序软件(R)"



点击"浏览(R)..."按钮,选择USB驱动文件所在的文件夹;





点击"下一步(N)"按钮来安装USB驱动。

● 更新驱动程序软件 - APM USB	x
Windows 已经成功地更新驱动程序文件	
Windows 已经完成安装此设备的驱动程序软件:	
APM USB	
	关闭(C)

驱动安装完毕后,可在设备管理器中找到"APM USB"。





注意关于禁用数字签名:

1. Win7系统:选择命令提示符(管理员) "command Prompt(Admin)";
 禁用输入指令:bcdedit.exe /set nointegritychecks on 回车;

恢复数字签名指令:bcdedit.exe /set nointegritychecks off回车。



2. Win10系统:

1) 点击系统左下角开始(start), 然后点击设置(Settings)。





2) 在setting界面,点击更新和安全(Update & Security)

Settings			Fin	– d a setting	п ×
System Display, notifications, apps, power	Devices Bluetooth, printers, mouse	Network & Internet Wi-Fi, airplane mode, VPN	Personalization Background, lock screen, colors	Accounts Your accounts, email, sync, work, family	
Time & language Speech, region, date	Ease of Access Narrator, magnifier, high contrast	Privacy Location, camera	Update & security Windows Update, recovery, backup		

3) 在更新和安全(Update & Security)界面里选择恢复(Recovery),点击下方的立即重启(Restart now)。



4) 进入下图界面后,点击选择疑难解答(Troubleshoot)



5) 进入疑难解答(Troubleshoot)界面后,点击高级选项(Advance options)。





6) 进入高级选项(Advance options)界面后,点击启动设置(Startup Settings)。



7) 进入启动设置(Startup Settings)界面后,点击重启(Restart)。



8) 电脑重启后,按选择数字键7或F7,系统自动重启后就禁用数字签名。



勾选USB通讯方式,点击"SEARCH"按钮搜索电源,勾选需要监控的电源,点击"OK"进入监控软件的主界面。

		Channel	Master/Slave	Port	Address	Model	SN
R\$232	1	CH1	Master	USBO	USB0::0	SP80VDC6000W	1234567891234567
RS485							
VSB							
GPIB							
CAN							

4.1.4 GPIB通讯方式

勾选GPIB通讯方式,点击"SEARCH"按钮搜索电源,勾选需要监控的电源,点击"OK"进入监控软件的主界面。

		Channel	Master/Slave	Port	Address	Model	SN
R\$232	1	CH1	Master	GPIB0	GPIB0::1	SP750VDC6000W	202012310000000
RS485							
USE							
🗸 gpib							
CAN							

4.1.5 LAN通讯方式

打开"网络和共享中心"-"本地连接"-"属性"-选择"Internet 协议版本 4 (TCP/IP)"来获取电脑的 IP配置。

↓ 本地连接 属性 · · · · · · · · · · · · · · · · · ·	Internet 协议版本 4 (TCP/IPv4) 雇性
网络	常规
连接时使用:	如果网络支持此功能,则可以薪取自动指派的 IP 设置。否则,
🔮 Realtek PCIe GBE Family Controller	您需要从网络永线官理贝处获得适当的 IF 设置。
	◎ 自动获得 IP 地址 @)
LEE接使用 Nyyyel (0). ▼ ■ Microsoft 网络客户端	◎ 使用下面的 IP 地址(S)
☑ 👵 QoS 数据包计划程序	IP 地址(I): 192 .168 .10 .98
✓ 鳥Microsoft 网络的文件和打印机共享	子网掩码 (U): 255.255.255.0
✓ ▲ Internet 协议版本 6 (ICF/IFv6) ✓ ▲ Internet 协议版本 4 (ICP/IFv4)	默认网关 (1): 192 .168 .10 .1
✓ ▲ 链路层拓扑发现映射器 I/O 驱动程序	○ 自动获得 DNS 服务器协址(B)
♥ ▲ 挺的运行作及现响应性序	 使用下面的 DMS 服务器地址 (2):
安装 (N) 卸载 (U) 属性 (R)	首选 DNS 服务器 (P): 202 . 96 .128 .86
描述 ICP/IP。该协议是默认的广域网络协议,它提供在不同	备用 DNS 服务器(A): 202 . 96 .128 .143
的相互注援的网络工的通讯。	□退出时验证设置 ① 高级 ② · · ·
确定 取消	确定 取消

JC Source 远程控制 LAN设定 通讯端口 启用 2001 1 自动 手动 \mathcal{A} 以太网 1 USB/GPIB IP地址 192.168.10.100 LAN 子网掩码 255.255.255.0 网关 192.168.10.1 15:50 2021/01/04 面板控制

通过电源的前面板,把电源的IP地址与电脑设置在同一网段。

勾选LAN通讯方式,点击"SEARCH"按钮搜索电源,勾选需要监控的电源,点击"OK"进入监控软件的主界面。

		Channel	Master/Slave	Port	Address	Model	SN	1
R\$232	1	CH1	Master	LAN	192,168	SP80VDC6000W	1234567891234567]
RS485								-
USB								-
GPIB								_
🖌 LAN	E							_
CAN								

4.1.6 CAN通讯方式

说明:此通讯方式暂未完善。





High DC Power Contr	ol Panel								X
File View PLS									
Single Mod	е 🗸 СН 2 СН 3	СН 4 СН 5	CH 6	CH 7	сн в с	Н 9	CH 10	Record Data Report Edit	
Waveform Simulation 205 = 84 - 150 - 60 - 100 - 40 - 50 - 20 - 0 - 0 - 30 40 50 20 - 60 - -70		2000 3000 60 1000-	0 4000 	4	6 8 -10	Pow	-5000 -5000 -4000 -3000 -2000 -1000 -0	Limitation More Set System V Limit(V)-H V Limit(V)-L 84.000 ① 0.000 ① I Limit(A)-H V Limit(A)-L ② ③ ③ ③ ③ ③ ③ ③ ③ □ ① ① 〕 □ ○ □ ○ □ □ □ □ ○ □ ○ □ ○ □	~~
10- 0 84 U(V) 0.000 3 Power Measurement U/V 1/A 0.000 0.000 Sink Measurement U/V 1/A 0 0	20 → 205 1(A) 195.000 € P/W R/oh 0.0 0.000 P/W R/oh 0 0	ви о с то с то с то с	6300 00.0 0	0 R(ohm)	7 -8 -9 10	Sink	OFF OFF	6600.0 ⊕ 0.001 ⊕ UVP(V) UVP Delay(s) ⊕ 0.000 ⊕ CC/CV CC/CV Delay(s) ⊕ ⊕ ⊕ CV-CC Q 2.000 ⊕ ⊕ OVP OCP □ □ ⊕ ⊕ Disable ✓ Enable ✓ □	

5.1 功能栏

File	View	PLS
Exit(退出)	System Information (电源信息)	List Mode (列表模式)
	Warning Log(告警记录)	Program Mode(序列模式)
	Back(返回电源搜索界面)	Step Mode(步进模式)

5.2 通道选择区

此监控软件可监控多台电源,点击通道选择区进行电源切换。

说明:此功能暂未完善。



5.3 波形显示区

在U、I、P、R右侧的方框内勾选后,可在仿真区对应的显示输出波形。

Waveform Simulation	U 🔽 I 🗹 P 🔽 R 📄	
205 = 84 =		_ ⁶³⁰⁰
150 - co		-5000
100 00-		-4000
100- 40-		-3000
50 00		-2000
30- 20-		-1000
0- 0-		-0

5.4 电源输出参数设置

设置输出参数有以下三种方式:

- 1. 分别点击各个旋钮拖至目标值放开,快速设置输出值;
- 2. 在设置框内直接输入数字设置输出值;
- 3. 点击设置区的上、下箭头设置输出值;





5.5 电源输出开关ON/OFF

点击OFF按钮,电源输出打开,且绿灯变亮,同时此位置显示ON;再次点击,电源输出关闭。



5.6 电源、耗散器测量区

Power Measurement电源测量区,电源输出时,可看到实时值。

Power	Measurement		
U/V	I/A	P/W	R/ohm
0.000	0.000	0.0	0.0000

Sink Measurement耗散器测量区,耗散器启用后,可看到实时值。

Sink Meas	urement		
U/V	I/A	P/W	R/ohm
0	0	0	0

5.7 耗散器(Sink)参数设置

只有电源选配耗散器后,监控软件的该功能才可使用。 点击CR、CP、CV、CC右侧光标,切换耗散器的工作模式; 参数设置有以下三种方式: 1.分别点击各个旋钮拖至目标值放开,快速设置输入值;

- 2. 在设置框内直接输入数字设置输入值;
- 3. 点击设置区的上、下箭头设置输入值;





5.8 耗散器(Sink)输入开关ON/OFF

点击OFF按钮,耗散器输入打开,且绿灯变亮,同时此位置显示ON;再次点击,耗散器输入关闭。







6.1 限值/保护(Limitation)设置区



V Limit(V)-H: 电压上限, 设定范围0~105%*额定电压。 V Limit(V)-L: 电压下限, 设定范围0~105%*额定电压。 ILimit(A)-H: 电流上限, 设定范围0~105%*额定电流。 ILimit(A)-L: 电流下限, 设定范围0~105%*额定电流。 P Limit(W)-H: 功率上限, 设定范围0~105%*额定功率。 P Limit(W)-L: 功率下限, 设定范围0~105%*额定功率。 R Limit(ohm)-H: 电阻上限, 设定范围0~105%*额定电阻。 R Limit(ohm)-L: 电阻下限, 设定范围0~105%*额定电阻。 OVP(V): 过压保护, 设定范围0~110%*额定电压。 OVP Delay(s): 过压保护延迟时间。 OCP(A): 过流保护,设定范围0~110%*额定电流。 OCP Delay(s): 过流保护延迟时间。 OPP(W): 过功率保护, 设定范围0~110%*额定功率。 OPP Delay(s): 过功率保护延迟时间。 UVP(V): 低压保护。 UVP Delay(s): 低压保护延迟时间。 CC/CV: 折返保护, 可选择CC-CV或CV-CC。 CC/CV Delay(s): 折返保护延迟时间。 **OVP**: 过压保护, Enable(启用)、Disable(关闭)。 **OCP**: 过流保护, Enable(启用)、Disable(关闭)。 **OPP**: 过功率保护, Enable(启用)、Disable(关闭)。 CC/CV: 折返保护, Enable(启用)、Disable(关闭)。 **UVP:**低压保护, Enable(启用)、Disable(关闭)。

说明:

SP80VDC6000W~36000W的机型, 电流设置范围0~102%*额定电流。 SP80VDC6000W~36000W的机型, OCP设置范围0~107%*额定电流。

6.2 输出&测量(More Set)设置区

Limitation	More Set	System	
V Rise 0.00 I Rise(0.00 CC/CV I CV Average Slow	(V/ms) V 00 ♀ A/ms) I 00 ♀ Prior CC/C\ ♥ ♥ ♥	Fall(V/ms) 0.000 Fall(A/ms) 0.000 / Rise(A/m 0.000 €	
HI-Vari ON	ation		

V Rise(V/ms): 电压上升斜率。 V Fall(V/ms): 电压下降斜率。 I Rise(A/ms): 电流上升斜率。 I Fall(A/ms): 电流下降斜率。 CC/CV Prior: 设定CC优先或CV优先。 CC/CV Rise(A/ms): 设置电流或电压上升斜率。 Average: 滤波设置,快(Fast)、中(Middle)、慢(Slow)。 HI-Variation: 高速跃变,OFF、ON、Auto。



6.3 特殊功能(System)设置区

Limitation More Set System	
P/O Sta ∨ set Rst ♥ 0.000 ♀ I set 0.000 ♀ P set 0.0 ♀ R set 0.000 ♀	
Short Mode Active V Disable V 0,700 순 LV Mode Mcurr Share Disable V Disable V Counting Func Disable V	
Power ON Timer Timer Disable 0 0 0 Power OFF Timer Timer Disable 0 0 0	

P/O Sta: 设置电源开机后的状态:默认(Rst)、自定义(Save)、上次关机状态(Last); 选择Save,可设定V set、I set、P set、R set。

Short Mode: 短路模式, 开(Enable)、关(Disable)。 Active V: 动态电压, 启用短路模式后, 输出低于动态电压值, 触发短路告警。

LV Mode: 低压模式, 开(Enable)、关(Disable)。 Mcurr Share: 模块均流, 开(Enable)、关(Disable)。

Counting Func: 计数功能,关(Disable)、电压计数(Voltage)、电流计数(Current)。 IL(A): 计数截止电流。 Ib(A): 开始计数电流。

Power ON Timer: 定时开机,开(Enable)、关(Disable)。 Timer: 定时开机时间。 **Power OFF Timer:** 定时关机,开(Enable)、关(Disable)。 Timer: 定时关机时间。





该功能用于导出电源输出时的实时电压值、电流值、功率值、电阻值。

为了方便使用,在监控软件的主界面可看到此功能区;同时,在PLS功能栏下的List mode(列表模式)、Program mode(序列模式)、Step Mode(步进模式)的功能界面下也添加了此功能区。

在所有功能下进行实时数据导出前,都需要先启用此功能,建立数据库;测试过程完成后,再导 出数据。

过程如下:

1. 点击Record Data, 进入建立数据库界面。



2. 保存数据库

Data Sampling		
Timing Save		
Save Interval(s)	1	
Save Filename	Sample1	
		SAVE

Save Interval(s):采样时间间隔。 Save Filename:数据库文件名。 SAVE编辑完后点击保存。 3. 编辑电源的输出参数,点击输出开关ON/OFF键。

- 4. 测试完成后点击Report Edit。
- 5. 进入采样数据报告编辑界面。

elect	ile Sample1.mdb	•	🔀 Delete	Table	Save to Excel		
Begin (Date 2021/01/04	00:00:00	End Date	2021/01/04	23:59:59		
NO.	Date Time	Voltage(∨)	Current(A)	Power(W)	Resistance(Ohm)	7	
7	2021/1/4 16:33:37	9.707	0.000	0.0	0.0000	1	
8	2021/1/4 16:33:38	9.709	0.000	0.0	0.0000	1	
9	2021/1/4 16:33:39	9.711	0.000	0.0	0.0000	1	
10	2021/1/4 16:33:40	9.706	0.000	0.0	0.0000	1	
11	2021/1/4 16:33:41	9.708	0.000	0.0	0.0000	h	
12	2021/1/4 16:33:42	9.708	0.000	0.0	0.0000		
13	2021/1/4 16:33:43	9.709	0.000	0.0	0.0000		
14	2021/1/4 16:33:44	9.708	0.000	0.0	0.0000		
15	2021/1/4 16:33:46	9.708	0.000	0.0	0.0000		
16	2021/1/4 16:33:47	9.708	0.000	0.0	0.0000		
17	2021/1/4 16:33:48	9.708	0.000	0.0	0.0000		
18	2021/1/4 16:33:49	9.708	0.000	0.0	0.0000		
19	2021/1/4 16:33:50	9.708	0.000	0.0	0.0000		
20	2021/1/4 16:33:51	9.710	0.000	0.0	0.0000		
21	2021/1/4 16:33:52	0.063	0.000	0.0	0.0000		
22	2021/1/4 16:33:53	0.000	0.000	0.0	0.0000		
23	2021/1/4 16:33:54	0.000	0.000	0.0	0.0000	jl	
						Ľ	
4							

Select File: 选择需要导出的数据库。

Delete Table: 删除数据库文件。

Begin Date/End Date: 导出数据的开始/结束时间,请按默认格式填写。

Query:选择第2步保存的数据库,点击此查询按键,表格区域显示设定时间内的实时数据。

Save to Excel: 保存到Excel表。

Delete Record: 清除已经查询到的数据。

说明:导出实时数据,必须按上述过程进行操作,否则不能正常导出数据。



8 List Mode 列表模式



8.1 List参数设定波形显示区



Remaining time: List运行倒计时。 **Run Time:** List文件运行总时间。

8.2 输出波形显示区



程序运行后,可在此区域看到电源输出后的电压、电流、功率波形。

8.3 List参数设置



No.:List文件名,设置范围1~30。

Format: List格式,包括Rectangle(无变量)、S-Ramp(多变量)、F-Ramp(全变量)。

Repeat: List循环次数,设置范围0~9999,0代表无限循环。

Step Cont: List文件总步数,设置范围1~8。

Step: 当前编辑的步数。

U/V:电压。

Usl/s:电压斜率,用时间表达;比如,第二步设置1s,第一步电压到第二步电压用时1s。

I/A: 电流。

I sl/s: 电流变化斜率, 用时间表达。

P/W:功率。

Ro/Ω:输出阻抗。

Wid/s: 当前步数的持续时间。

Count:当前步数的运行次数。

Mode: 当前步数的运行模式,Cont(当前步数运行完自动进行下一步),Step(当前步数运行完后,需按 触发键运行下一步)。

Download:程序编辑完成,点此下载。

Sownload	X
Loading	

Save list:保存编辑的程序文件到电脑,保存路径可自行选择。

🔤 选择或输入文件路径			x
🖉 🗸 🖉 🖉 🖉 List set parameters	▶ List1	搜索 List1	P
组织 ▼ 新建文件夹			0
■ 桌面 ▲ 名称	<u>^</u>	修改日期 类型	
圖 最近访问的位置	いちと協志を併用	而 461页	
2345Download:	皮有一皮茶茶件也	CHUH1247Co	
▶ 🖹 文档			
▶ 👌 音乐			
⊿ 🖳 计算机			
🛛 💒 本地磁盘 (C:)			
▷ 🧰 本地磁盘 (D:)			
E (E:) 🗸 🧹	III		÷
文件名(N): UST1		*.CSV (*.CSV)	-
		确定 取消	
			t

Open list: 调取保存在电脑中的程序文件。

🔤 选择或输入文件路径							X
🔾 🗢 📕 « List set p	oarameters 🕨 Lis	t1	▼ 4 ₇	搜索 List1			Q
组织 ▼ 新建文件夹					-		?
📃 桌面 🔷	名称	^		修改日期		类型	
3 最近访问的位置 345Download:	🖳 LIST1			2021/1/4	17:07	Micro	osoft
<mark>⊜</mark> 库							
■ 视频							
■ 文档							
⊿) 音乐							
🖳 计算机							
🏭 本地磁盘 (C:)							
👝 本地磁盘 (D:)							
👝 E (E:) 👻	•	III					
文件名	K(N): LIST1		•	*.CSV (*.CSV)			•
				确定		取消	

8.4 List输出开关ON/OFF



Power:显示电源的输出状态。

Trigger: 点击触发list程序运行。同时,此位置显示Stop,点击后停止运行。 **Pause:** 点击暂停程序运行。同时,此位置显示Continue,再次点击,按暂停值继续运行。

8.5 数据导出功能



此功能请参考【第7章数据导出功能】的操作过程。




9.1 Program参数设定波形显示区



点击Program旁边的三角形,可选择查看单个List文件的模拟波形。

Remaining time: Program运行倒计时。

Run Time: Program文件运行总时间。

9.2 输出波形显示区



程序运行后,可在此区域看到电源输出后的电压、电流、功率波形。

9.3 Program参数设置

Program setting	Save Pro		Open	Pro	Downl	oad
Step Count 🗾 🤞	Mode	CON	T	Repeat	1	Ŷ
Step 👥 🔮	Cycle	1	<mark>∢</mark>			
List Data <mark>1</mark>						Þ

Step Count: 序列文件总步数,设置范围1~18。

Step:选择当前编辑的文件步数。

Mode:当前步数的运行模式,Cont(当前步数运行完自动进行下一步),Step(当前步数运行完后,再次点击ON运行下一步)。

Cycle:当前编辑步数的循环次数,设置范围0~9999,0代表无限循环。

List Data: 点击 📴 ,选择List文件。

Repeat: Program文件循环次数。

Download:程序编辑完成,点击下载。

Download	X
Loading	

Save Pro: 将已经编辑好的Program文件保存到电脑中。

🔤 选择或输入文件路径							x
OO V 📔 « Program	n set parameters 🕨	Program 👻	4 7	搜索 Progra	m		٩
组织 ▼ 新建文件夹					•		?
桌面 桌面 个 图 最近访问的位置	名称	^		修改日期		类型	
) 2345Download:		没有与搜索	条件匹配	的项。			
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🔡 视频							
■ 图片 ■							
文档							
→ 音乐							
』 计算机							
🏭 本地磁盘 (C:)							
👝 本地磁盘 (D:)							
👝 E (E:) 🗸	•	III					Þ
文件	S(N): PROGRAM		•	.CSV (*.CSV)			•
				确定		取消	

Open Pro:将保存在电脑中的Program文件调取出来。

- Hogid	in set parameters + rregian	1 Best Hogram	-
组织 ▼ 新建文件夹		== •	
📃 桌面 🔷	名称	修改日期	类型
>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	B PROGRAM	2021/1/5 14:11	Microsoft
肩库			
■ 视频			
■ 文档 ♪ 音乐			
 ■ 文档 ♪ 音乐 ● 计算机 			
 ≧ 文档 ♪ 音乐 № 计算机 ▲ 本地磁曲 (C:) 			
 ■ 文档 ♪ 音乐 ■ 计算机 ▲ 本地磁盘 (C:) □ 本地磁盘 (D:) 			
 ▲ 文档 ♪ 音乐 ● 計算机 ▲ 本地磁曲 (C.) □ 本地磁曲 (D.) □ E (E:) 			

9.4 Program输出开关ON/OFF



Power:显示电源的输出状态。

Trigger: 点击触发Program程序运行。同时,此位置显示Stop,点击后停止运行。 **Pause:** 点击暂停程序运行。同时,此位置显示Continue,再次点击,按暂停值继续运行。

9.5 数据导出功能



此功能请参考【第7章数据导出功能】的操作过程。





10.1 Step参数设定波形显示区



Remaining time: Step运行倒计时。 **Run Time:** Step文件运行总时间。

10.2 输出波形显示区

Waveform Simulation	
205 = 84 -	-6300
150- 00	-5000
	-4000
100- 40-	-3000
	-2000
	-1000
0- 0-	-0

程序运行后,可在此区域看到电源输出后的电压、电流、功率波形。

10.3 Step参数设置



 Step NO.: Step文件名,设置范围1~5。

 Count: Step文件步进次数。

 U/V: 电压。

 ΔU/V: 步进电压。

 I/A: 电流。

 ΔI/A: 步进电流。

 P/W: 功率。

 ΔP/W: 步进功率。

 Ro/Ω: 电阻。

 ΔRo/Ω: 步进电阻。

 Δt/s: 每一个步进持续时间。

 Repeat: Step文件循环次数。

Download: 文件编辑完成, 点击下载。

🔤 Download	
Loading	

10.4 Step输出开关ON/OFF



Power:显示电源的输出状态。

Trigger: 点击触发Program程序运行。同时,此位置显示Stop,点击后停止运行。 **Pause:** 点击暂停程序运行。同时,此位置显示Continue,再次点击,按暂停值继续运行。

10.5数据导出功能



此功能请参考【第7章数据导出功能】的操作过程。



如您有关于本公司的High Power DC Power Supply Control Panel的任何问题,请与我们取得联系。 我们将非常乐于为您解答,以下是我们的联系方式:

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