

PPA series (400/800/1500W)

Introduction

PPA series are high precision programmable DC power supply with auto range output, output power rated 400W, 800W and 1500W, maximum rated voltage up to 1200V. PPA series offer the widest range of output voltage and current at its rated power. One PPA power supply can cover output range of multiple power supplies. It offers powerful programming function through RS232 and RS485 interfaces, supporting SCPI and Modbus-RTU commands. And it is designed to meet both bench-top and integrated system applications. It is the most economical choice of power source to facilitate auto test and auto control.

Features

- ✓ Auto range output
- ✓ High precision and high resolution
- ✓ Over load, over voltage, over current, over temperature and reverse polarity protections
- ✓ Constant voltage and constant current operations, auto CV and CC switch
- ✓ Automatic continuous or dynamic load change
- ✓ 1mVrms low ripple & noise
- ✓ 5 digits 4.3-inch TFT LCD display
- ✓ High speed rotary dial and keypad input
- ✓ Built-in beeper alarm
- ✓ Panel lock and output ON/OFF function
- ✓ List mode function, 300 sets save & recall for voltage, current and time setups, easy use in auto test
- ✓ Remote sense function
- ✓ Display load resistance value
- ✓ Battery charge mode
- ✓ Standard RS-232 interface, support SCPI commands, support Labview
- ✓ Optional RS-232 to USB cable

New Features

- ✓ Standard RS-485 interface, support Modbus-RTU commands
- ✓ CV/CC Priority Setup
- ✓ Trigger Data Record
- ✓ Current Limit Alarm
- ✓ Voltage Limit Alarm
- ✓ Ramp output, adjustable Voltage/Current slew rate
- ✓ Optional Test Data Record Function

Product photo



Selection Guide

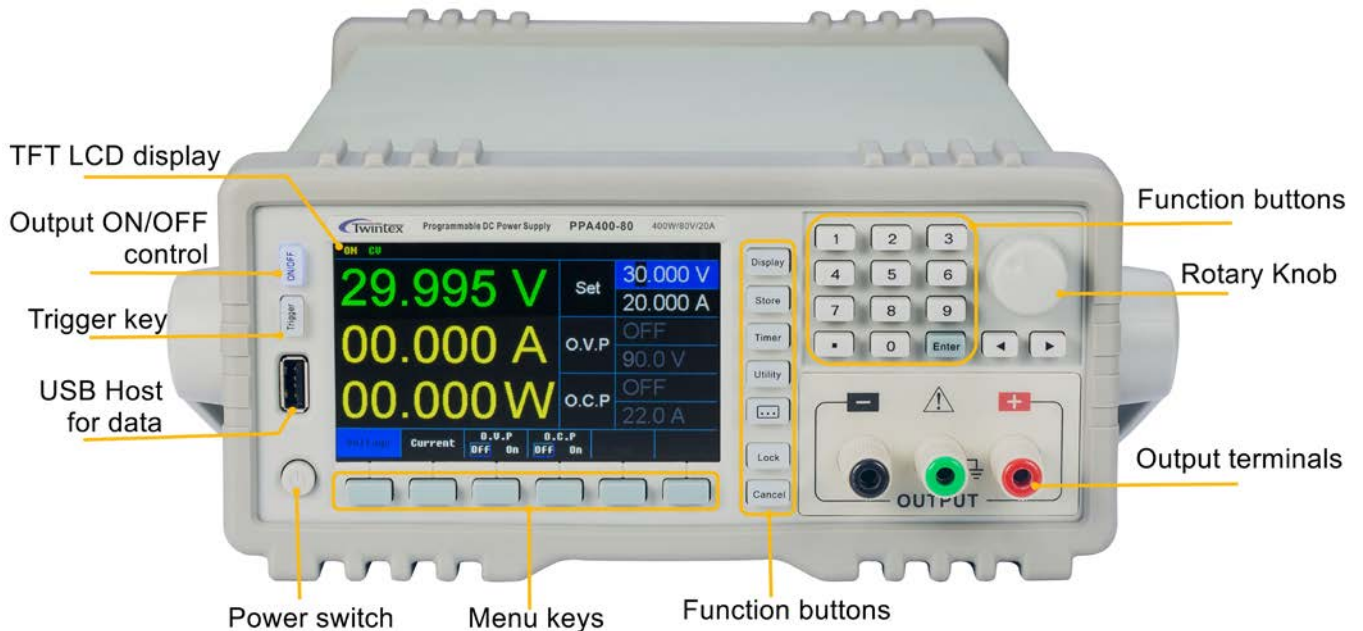
We have different series of laboratory programmable power supplies. Each of them has their own remarkable features.

	PPA	PPS	PPW	PPM	TPM
Display	4.3-inch TFT LCD	4.3-inch TFT LCD	4.3-inch LCD	4.3-inch LCD	122*32 LCD
Rated Power	400W 850W 1500W	300W 600W 900W	300W 600W 900W	90W~375W	90W~180W
Voltage Ripple	50mVpp	30mVpp	30mVpp	1mVrms	1mVrms
Ramp output	√	√	×	×	×
USB Host	√	√	×	×	×
USB Device	×	×	×	×	√
RS232	√	√	√	√	×
RS485	√	√	Optional	Optional	×
Analog Control 0-5V	×	√	Optional	Optional	×
Remote Sensing	√	√	√	√	×
Battery Charge Mode	√	√	√	√	×
Low resistance measurement	√	√	√	√	×
List Mode	√	√	√	√	√
19-Inch Rack Compatible	√	√	√	√	×

Display and Control Panel

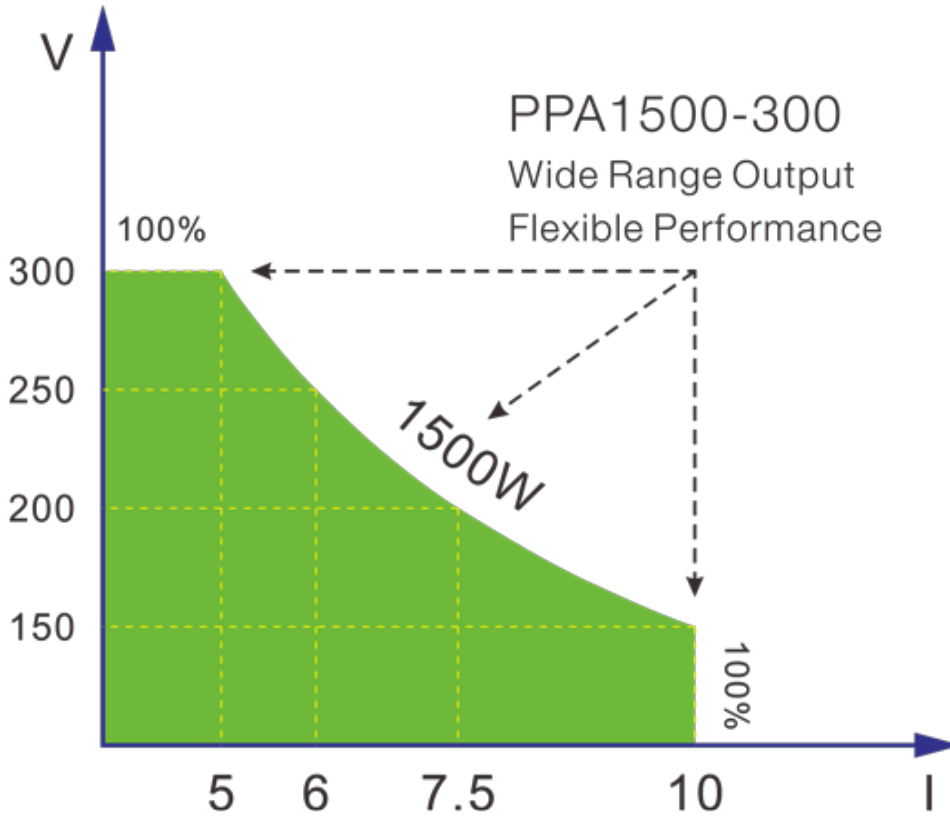
Output voltage, output current and output time can be set through digital keypad or rotary knob. Actual values of output voltage and output current can be represented in waveform display.

To prevent unintentional operations, all operation controls can be locked.



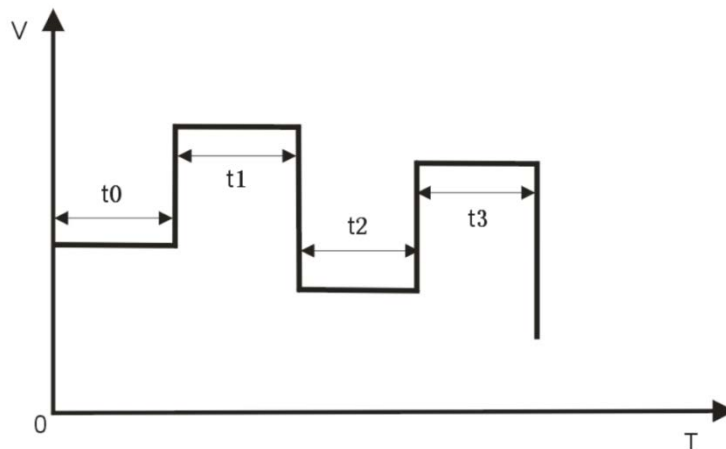
Auto Ranging Output

The output power is constant and the output voltage and current are automatically adjusted within preset output power, without reference to its load. If voltage/current/power drawn by the load exceeds adjustable range of the power supply, the output will be maintained at its max preset value.



Timing Output

When the timing output is ON, the power supply outputs the preset voltage and current values (max 300 groups) to truly simulate the various kinds of running status of power supply. Output curve of timing output can be displayed in the way of waveform.



Output curve of timing output can be displayed in the way of waveform.

The screenshot shows the control interface with two waveforms and a table of preset cycles. The top waveform shows voltage (green) and the bottom shows current (red) over 5 cycles. The table below lists the parameters for each cycle.

No	Volt(V)	Curr(A)	Set(s)
0	10.000	02.000	00000.2
1	20.000	04.000	00000.2
2	30.000	06.000	00000.2
3	50.000	08.000	00000.2
4	60.000	10.000	00000.3
5	05.000	02.000	99999.0

Control interface settings: **Groups : 300**, **Mode : Auto**, **Cycles : Infinite**. Navigation buttons include Parameter, Page Up, Page Down, Groups, Done, and More (1/2).

Two running modes:
 AUTO: Automatically run preset cycles.
 STEP: Run a single step upon a trigger.

The power supply makes output according to preset cycles. In each cycle output voltage, output current and output time can be set differently. Numbers of cycles can be set as INFINITE or set during 1 to 99999 cycles.

Ramp Output

In Ramp Output mode, the power supply output voltage / current from low to high during preset rise time, or the power supply output voltage / current from high to low during preset fall time. After setting up output voltage, current, rise/fall time, the power supply simulates output curves of different kinds of power sources.

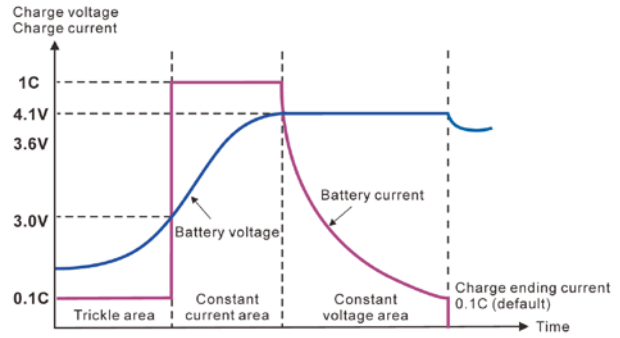
The graph on the left shows a complex ramp output waveform with various rise and fall times. The screenshot on the right shows the control interface with a ramp waveform and a table of preset cycles.

No	Volt(V)	Curr(A)	Set(s)
0	05.000	01.000	00005.0
1	30.000	03.000	00010.0
2	60.500	06.000	00015.0
3	60.000	06.000	00020.0
4	30.000	03.000	00025.0
5	05.000	01.000	00030.0

Control interface settings: **Groups : 300**, **Mode : Auto**, **Cycles : Infinite**. Navigation buttons include Mode, Cycles, Save, Read, End State, and More (2/2).

Battery Curved Charge

Instead of same charging voltage and current through out the whole charging operation, a curved charge operation can perfectly protect batteries under charge.



OFF		UDISK			
60V		00.000 V			
0		00.000 A			
10A		00:00:00			
0		00000 mAh			
TR/C	00.200 A	CC/C	02.000 A	TE/C	00.200 A
TR/V	03.000 V	CV/V	04.100 V	CH/T	01:00:00
Trickle Current	Constant Current	Term Current	Trickle Voltage	Done	More 1/2

Low Resistance Measurement & Voltage Self Check

When output voltage self test is ON, the power supply will monitor output voltage at output terminal and adjust output voltage to minimize the error between real output value and preset output value.

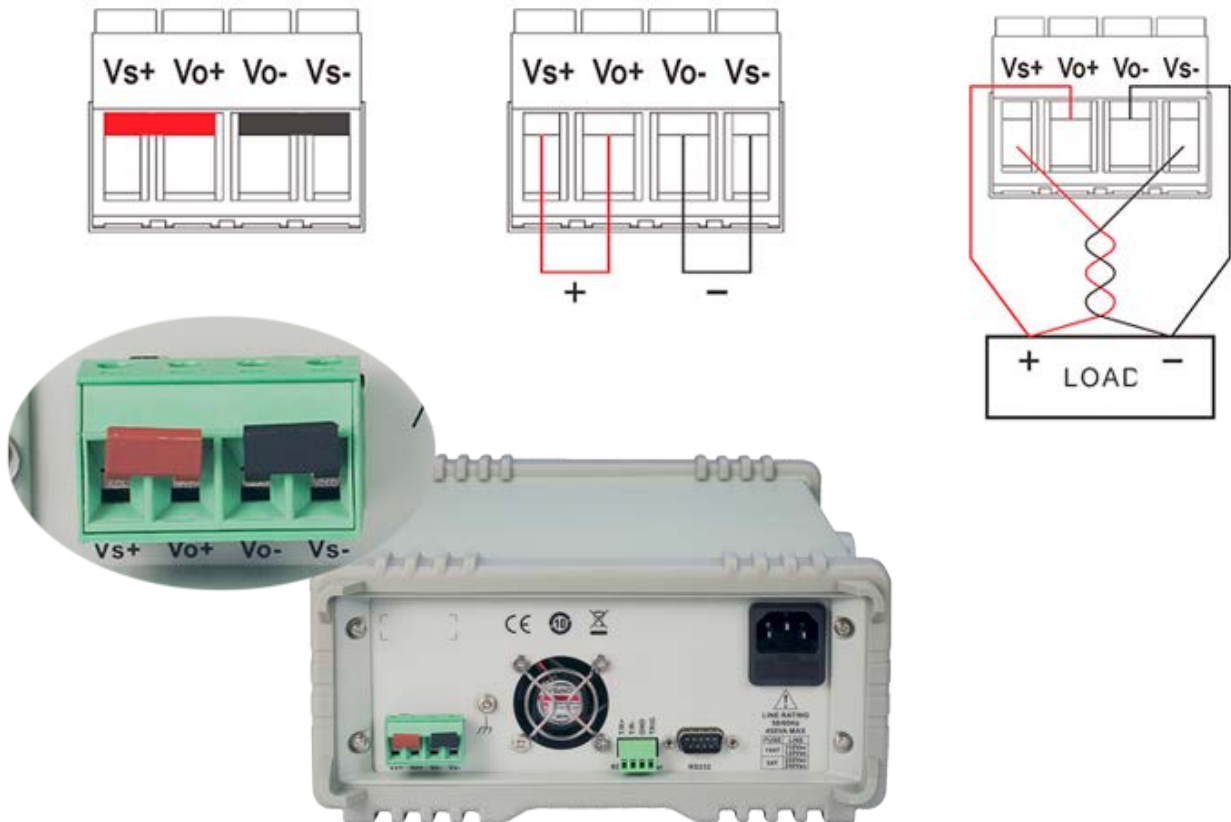
The power supply can measure load resistance and display it on screen.

OFF		UDISK		08:21:40	
Protocol	: SCPI	Power On	: Default		
Baud Rate	: 9600	Beeper	: On		
Stop Bit	: 1 bit	Version	: N102303		
Parity Bit	: None	Address	: 256		
Trig Source	: External	Sense	: Off		
Trig Function	: Output	Analog Ctrl	: Off		
CC Frist	: Off	BackLight	: 80		
Save state	: Off	Disp W R	: Disp W		
Save group	: 10	VSelfTest	: On		
Save name	: 012345	time	: 2019/03/28 08:20:59		
CP Out	: 0.0	Line RES	: 0.00000		
I/O	System	Error	Set to	Others	
↓ Config	↓ System	↓ View	↑ Default	↓ Others	

Programmable Auto Range DC Power Supply

Remote Sense

The power supply can automatically compensate for the voltage drop caused by the load lead to ensure that the power supply output value set by users is consistent with the voltage acquired by the load.



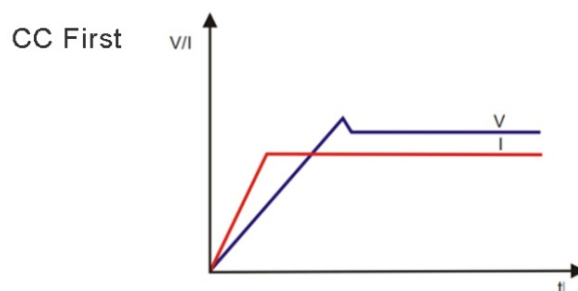
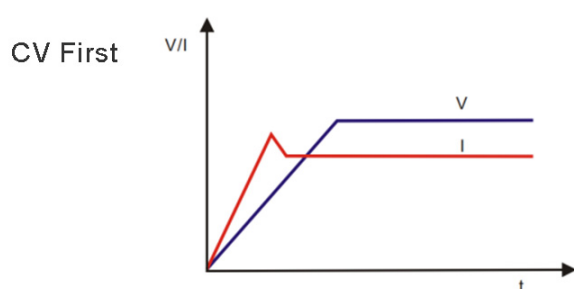
USB Host for Data

USB Host on front panel can be used for test data upload and download.



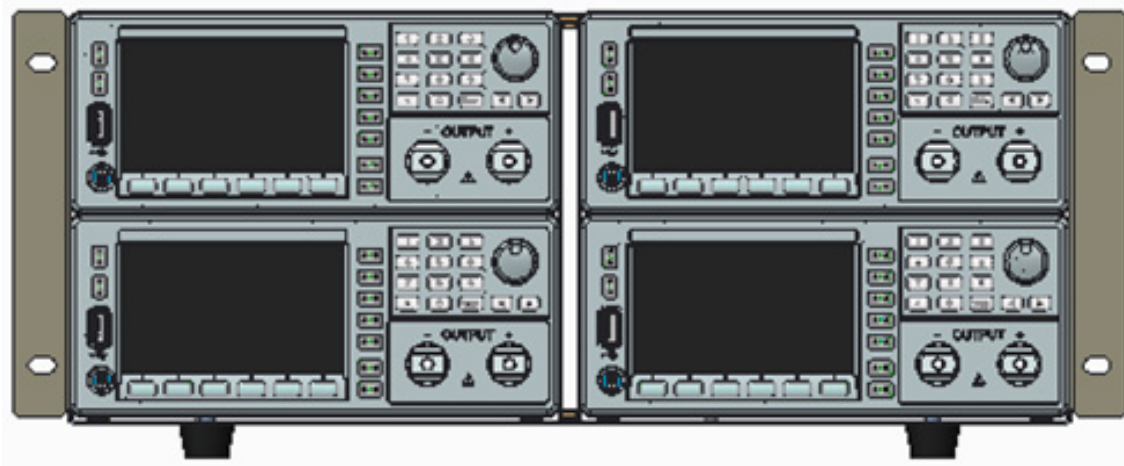
CC First

In normal operation, the power supply is in CV mode during output startup. A surge current is generated during output startup. The surge current always exceeds rated current, which may have influence to the testing devices. When “CC First” function is turned on, the surge current can be avoided and therefore the testing devices will be protected.



Rack Mount Compatible

The power supply units can be locked onto 19-inch cabinet, providing 3U rack panel or 4U rack panel.



Programmable Auto Range DC Power Supply



Specifications 400W

(0°C~40°C)		PPA400-80
Rated Output	Voltage	0~80.5V
	Current	0~20.5A
	Power	0~400W
	Power ratio	4.12
Line regulation	Voltage	≤0.01%+2.5mV
	Current	≤0.1%+2.5mA
Load regulation	Voltage	≤0.01%+5mV
	Current	≤0.1%+5mA
Setting accuracy	Voltage	±(0.01% of reading + 10mV)
	Current	±(0.1% of reading + 10mA)
Setting resolution	Voltage	1mV
	Current	1mA
Reading accuracy	Voltage	±(0.01% of reading +5mV)
	Current	±(0.1% of reading + 0.1% of FS)
Reading resolution	Voltage	1mV
	Current	1mA
Ripple&Noise (20Hz-20MHz)	Voltage	≤50mVpp
	Current	≤15mArms
Rise time	Empty load	≤300ms
	Full load	≤1s
Fall time	Empty load	≤500ms
	Full load	≤300ms
Slew rate	Time range	0.2~99999S, resolution 0.1S
	Rise slew rate	0.3V/ms(max)
	Fall slew rate	0.3V/ms(max)
Recovery time	≤5ms (50% load change)	
Temp. co-efficiency	≤100ppm	
Efficiency	80% typical	
Power factor	0.99 typical	
Protection	Over load, over voltage, over current, over temperature and reverse polarity protections	
O.V.P setting range	0.1~90V	
O.C.P setting range	0.1~22A	
Remote sense function	Maximum compensation voltage 1V	
Battery charge	Lithium battery curve charge	
Interface	RS232 & RS485 interface, Support SCPI & ModBus commands	
External trigger	Through 2-pin terminal	
Memory	300 sets	
Insulation	Between base and terminals: ≥100MΩ/500VDC	
Operating environment	Indoor use	Altitude: ≤2000m
	Relative humidity: ≤80%	Installation category: II
Storage environment	-10°C~70°C, ≤70%RH	
	Ambient temperature: 0~40°C	
Power source	AC 176V~264V(full load), 90V~132V(half load), 47~63Hz	
Accessories	Power cord x1, Operation manual x1, RS232 cable x1, Software CD x1	
Dimension	215Wx89Hx352D mm	
Weight	5kg	

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Programmable Auto Range DC Power Supply



Specifications 850W

(0°C~40°C)		PPA850-35	PPA850-80	PPA850-150	PPA850-300	PPA850-600
Rated output	Voltage	0~35V	0~85V	0~155V	0~305V	0~605V
	Current	0~111A	0~40.5A	0~20.5A	0~10.5A	0~5.5A
	Power	850W	850W	850W	850W	850W
	Power ratio	4.57	4.05	3.73	3.76	3.91
Line regulation	Voltage	≤0.01%+5mV	≤0.01%+10mV	≤0.01%+30mV	≤0.01%+50mV	≤0.01%+50mV
	Current	≤0.1%+10mA				
Load regulation	Voltage	≤0.01%+5mV	≤0.01%+10mV	≤0.01%+40mV	≤0.01%+100mV	≤0.01%+100mV
	Current	≤0.1%+10mA				
Setting accuracy	Voltage	±(0.01%rdg + 10mV)	±(0.01%rdg + 10mV)	±(0.03%rdg + 100mV)	±(0.03%rdg + 200mV)	±(0.03%rdg + 200mV)
	Current	±(0.1%rdg + 60mA)	±(0.1%rdg + 10mA)	±(0.1%rdg + 10mA)	±(0.1%rdg + 10mA)	±(0.1%rdg + 10mA)
Setting resolution	Voltage	1mV	1mV	10mV	10mV	10mV
	Current	10mA	1mA	1mA	1mA	1mA
Reading accuracy	Voltage	±(0.01%rdg + 5mV)	±(0.01%rdg + 5mV)	±(0.02%rdg + 50mV)	±(0.02%rdg + 100mV)	±(0.02%rdg + 100mV)
	Current	±(0.1%rdg + 40mA)	±(0.1%rdg + 0.1%FS)	±(0.1%rdg + 0.1%FS)	±(0.1%rdg + 0.1%FS)	±(0.1%rdg + 0.1%FS)
Reading resolution	Voltage	1mV	1mV	10mV	10mV	10mV
	Current	10mA	1mA	1mA	1mA	1mA
Ripple&Noise (20Hz-20MHz)	Voltage	≤100mVpp	≤100mVpp	≤150mVpp	≤250mVpp	≤300mVpp
	Current	≤150mArms	≤50mArms	≤30mArms	≤40mArms	≤30mArms
Rise time	Empty load	≤300ms	≤300ms	≤300ms	≤300ms	≤300ms
	Full load	≤500ms	≤500ms	≤1s	≤1s	≤1s
Fall time	Empty load	≤5s	≤5s	≤5s	≤5s	≤5s
	Full load	≤150ms	≤150ms	≤200ms	≤150ms	≤200ms
Slew rate	Time range	0.2~99999S, resolution 0.1S				
	Rise slew rate	0.12V/ms(max)	0.3V/ms(max)	0.52V/ms(max)	1.02V/ms(max)	2.02V/ms(max)
	Fall slew rate	0.24V/ms(max)	0.6V/ms(max)	0.78V/ms(max)	2.04V/ms(max)	3.03V/ms(max)
Recovery time	≤500us					
Temp. co-efficiency	≤100ppm					
Efficiency	84% typical					
Power factor	0.98 typical					
Protection	Over load, over voltage, over current, over temperature and reverse polarity protections					
O.V.P setting range	0.1~40V	0.1~90V	0.1~160V	0.1~310V	0.1~610V	
O.C.P setting range	0.1~112A	0.1~41.5A	0.1~21.5A	0.1~11.5A	0.1~6.5A	
Remote sense function	Maximum compensation voltage 1V					
Battery charge	Lithium battery curve charge					
Interface	RS232 & RS485 interface, Support SCPI & ModBus commands					
External trigger	Through 2-pin terminal					
Memory	300 sets					
Insulation	Between base and terminals: ≥100MΩ/500VDC					
Operating environment	Indoor use		Altitude: ≤2000m		Ambient temperature: 0~40°C	
	Relative humidity: ≤80%		Installation category: II		Pollution degree: 2	
Storage environment	-10°C~70°C, ≤70%RH					
Power source	AC110V±10% or 220V±10% 47~63Hz					
Accessories	Power cord x1, Operation manual x1, RS232 cable x1, Software CD x1					
Dimension	215Wx89Hx507D mm					
Weight	7.5kg					

Programmable Auto Range DC Power Supply



Specifications 1500W

(0°C~40°C)		PPA1500-35	PPA1500-80	PPA1500-150	PPA1500-300	PPA1500-600
Rated output	Voltage	0~35V	0~85V	0~155V	0~305V	0~605V
	Current	0~111A	0~40.5A	0~20.5A	0~10.5A	0~5.5A
	Power	1500W	1500W	1500W	1500W	1500W
	Power ratio	2.59	2.29	2.11	2.13	2.21
Line regulation	Voltage	≤0.01%+5mV	≤0.01%+10mV	≤0.01%+30mV	≤0.01%+50mV	≤0.01%+50mV
	Current	≤0.1%+10mA				
Load regulation	Voltage	≤0.01%+5mV	≤0.01%+10mV	≤0.01%+40mV	≤0.01%+100mV	≤0.01%+100mV
	Current	≤0.1%+10mA				
Setting accuracy	Voltage	±(0.01%rdg + 10mV)	±(0.01%rdg + 10mV)	±(0.03%rdg + 100mV)	±(0.03%rdg + 200mV)	±(0.03%rdg + 200mV)
	Current	±(0.1%rdg + 60mA)	±(0.1%rdg + 10mA)	±(0.1%rdg + 10mA)	±(0.1%rdg + 10mA)	±(0.1%rdg + 10mA)
Setting resolution	Voltage	1mV	1mV	10mV	10mV	10mV
	Current	10mA	1mA	1mA	1mA	1mA
Reading accuracy	Voltage	±(0.01%rdg + 5mV)	±(0.01%rdg + 5mV)	±(0.02%rdg + 50mV)	±(0.02%rdg + 100mV)	±(0.02%rdg + 100mV)
	Current	±(0.1%rdg + 40mA)	±(0.1%rdg + 0.1%FS)	±(0.1%rdg + 0.1%FS)	±(0.1%rdg + 0.1%FS)	±(0.1%rdg + 0.1%FS)
Reading resolution	Voltage	1mV	1mV	10mV	10mV	10mV
	Current	10mA	1mA	1mA	1mA	1mA
Ripple&Noise (20Hz-20MHz)	Voltage	≤100mVpp	≤100mVpp	≤150mVpp	≤250mVpp	≤300mVpp
	Current	≤150mArms	≤50mArms	≤30mArms	≤40mArms	≤30mArms
Rise time	Empty load	≤300ms	≤300ms	≤300ms	≤300ms	≤300ms
	Full load	≤500ms	≤500ms	≤1s	≤1s	≤1s
Fall time	Empty load	≤5s	≤5s	≤5s	≤5s	≤5s
	Full load	≤150ms	≤150ms	≤200ms	≤150ms	≤200ms
Slew rate	Time range	0.2~99999S, resolution 0.1S				
	Rise slew rate	0.12V/ms(max)	0.3V/ms(max)	0.52V/ms(max)	1.02V/ms(max)	2.02V/ms(max)
	Fall slew rate	0.24V/ms(max)	0.6V/ms(max)	0.78V/ms(max)	2.04V/ms(max)	3.03V/ms(max)
Recovery time	≤500us					
Temp. co-efficiency	≤100ppm					
Efficiency	84% typical					
Power factor	0.98 typical					
Protection	Over load, over voltage, over current, over temperature and reverse polarity protections					
O.V.P setting range	0.1~40V	0.1~90V	0.1~160V	0.1~310V	0.1~610V	
O.C.P setting range	0.1~112A	0.1~41.5A	0.1~21.5A	0.1~11.5A	0.1~6.5A	
Remote sense function	Maximum compensation voltage 1V					
Battery charge	Lithium battery curve charge					
Interface	RS232 & RS485 interface, Support SCPI & ModBus commands					
External trigger	Through 2-pin terminal					
Memory	300 sets					
Insulation	Between base and terminals: ≥100MΩ/500VDC					
Operating environment	Indoor use		Altitude: ≤2000m		Ambient temperature: 0~40°C	
	Relative humidity: ≤80%		Installation category: II		Pollution degree: 2	
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Weight	7.5kg					

Specifications are subject to change without prior notice.

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