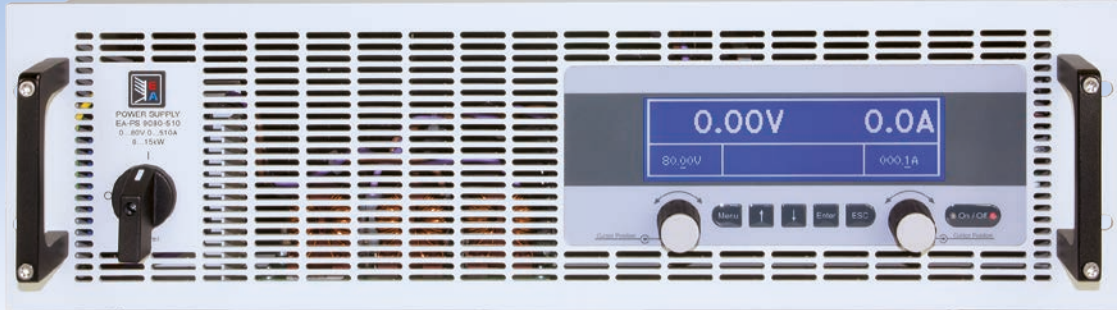
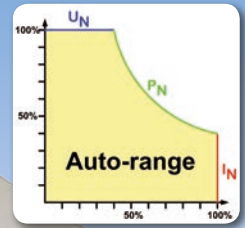


- U
- I
- P
- OVP
- OCP
- OPP
- OTP
- 19"
- USB
- LAN
- WC
- IEEE



EA-PS 9080-340 3U

- ▶ 多相输入340...460 V_{AC} 或 188...229 V_{AC} (US)
- ▶ 效率高达95.5%
- ▶ 输出功率有: 0...3.3 kW, 0...5 kW, 0...6.6 kW, 0...10 kW, 0...15 kW还可扩展至0...150 kW
- ▶ 输出电压: 0...40 V 至 0...1500 V
- ▶ 输出电流: 0...30 A 至 0...510 A 还可扩展至0...5100 A
- ▶ 灵活的功率调整输出
- ▶ 各种保护功能 (OVP, OCP, OPP, OTP)
- ▶ 带按钮的控制面板与蓝色显示器, 可显示实际值与设定值、状态与报警
- ▶ 隔离模拟接口
 - 通过0...10 V或0...5 V电压可对U / I / P编程
 - 通过0...10 V或0...5 V电压可监控U / I
- ▶ 可自动检测的远程感测
- ▶ 温控风扇制冷
- ▶ 3U高的19"外壳
- ▶ 符合SELV标准 (EN 60950)的40 V产品型号
- ▶ 放电电路 (在10 s内U_{out} < 60 V)
- ▶ 内置USB与以太网端口或选择安装IEEE/GPIB端口
- ▶ EMC符合IEC 61000-6-2:2006标准 B等级
- ▶ 支持SCPI指令语言

- ▶ **Multi-phase input 340...460 V_{AC} or 188...229 V_{AC} (US)**
- ▶ **High efficiency up to 95.5%**
- ▶ **Output power ratings: 0...3.3 kW, 0...5 kW, 0...6.6 kW, 0...10 kW, 0...15 kW, expandable up to 150 kW**
- ▶ **Output voltages: 0...40 V up to 0...1500 V**
- ▶ **Output currents: 0...30 A up to 0...510 A**
Expandable up to 0...5100 A
- ▶ **Auto-ranging output stage**
- ▶ **Various protection circuits (OVP, OCP, OPP, OTP)**
- ▶ **Control panel with pushbuttons and blue LCD for actual values, set values, status and alarms**
- ▶ **Galvanically isolated analog interface with**
 - **U / I / P programmable via 0...10 V or 0...5 V**
 - **U / I monitoring via 0...10 V or 0...5 V**
- ▶ **Remote sense with automatic detection**
- ▶ **Temperature controlled fans for cooling**
- ▶ **19" enclosure in 3U**
- ▶ **40 V models according to SELV (EN 60950)**
- ▶ **Discharge circuit (U_{out} < 60 V in ≤ 10 s)**
- ▶ **USB and Ethernet port integrated or alternatively installed IEEE/GPIB port**
- ▶ **EMC TUV approved for IEC 61000-6-2:2006 Class B**
- ▶ **SCPI command language supported**

概要

EA-PS 9000 3U系列是一款由微处理器控制的高效实验室电源, 其标准型号配备多种功能和特征, 用户使用起来非常方便、有效。

控制面板上清晰地分布有两个旋钮, 六个按钮, 以及两个LED灯。同时还有一显示所有数值与状态的蓝色液晶显示器, 从而简化了产品的使用。

若想获得更大的输出功率, 可按照用户需求, 将多台单机装于最高达42U的机柜内, 以获得高达150 kW的功率。也可见145页。

交流输入

本系列所有型号都采用主动式PFC功率因数校正线路, 专为在340 V至460 V AC (欧标型号) 或188 V至229 V AC (美标型号) 三相供电条件下操作而设计。

General

The microprocessor controlled high efficiency laboratory power supplies of series EA-PS 9000 3U offer many functions and features in their standard version, making the use of this equipment remarkably easy and most effective.

The clearly arranged control panel features two rotary knobs, six pushbuttons and two LEDs. Together with an illuminated, blue LC display for all values and status it simplifies the use of the device.

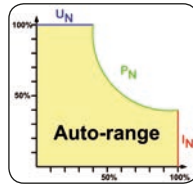
In order to achieve even higher output power than the single units can supply, cabinets with up to 150 kW and up to 42U size can be configured to suit the user's requirements. Also see page 145.

AC input

All models are provided with an active Power Factor Correction circuit and are designed for a usage on a three-phase supply with 340 V up to 460 V AC. (european models) or 188 V up to 229 V AC (US models).

功率

本系列所有产品输出功率可灵活调整，在低电流时输出更高电压，或在低电压时输出更大电流，都由最大额定输出功率来限制。因此一台该产品能涵盖大范围的应用领域。



Power

The devices are equipped with a flexible auto-ranging output stage which provides a higher output voltage at lower output current, or a higher output current at lower output voltage, always limited to the max. nominal output power. Therefore, a wide range of applications can already be covered by the use of just one single unit.

直流输出

本系列有多款不同型号，可选择 0...40 V 和 0...1500 V 输出电压，0...40 A 和 0...510 A 输出电流，0...3.3 kW, 0...5 kW, 0...6.6 kW, 0...10 kW 或 0...15 kW 输出功率的多个型号。输出端子位于产品后板。

DC output

DC output voltages between 0...40 V and 0...1500 V, output currents between 0...40 A and 0...510 A and output power ratings of 0...3.3 kW, 0...5 kW, 0...6.6 kW, 0...10 kW or 0...15 kW are available. The output terminal is located in the rear panel.

放电电路

额定输出电压为200 V或以上的产品对其输出电容配有一放电电路。在空载或带很小负载的情况下，它能保证危险的输出电压在直流输出关闭后降至60 V DC以下。该电压值被认为是对人身安全有危险的极限电压。

Discharge circuit

Models with a nominal output voltage of 200 V or higher include a discharge circuit for the output capacities. For no load or low load situations, it ensures that the dangerous output voltage can sink to under 60 V DC after the DC output has been switched off. This value is considered as limit for voltages dangerous to human safety.

保护功能

为保护连接负载，可给产品设定一过压保护极限值(OVP)，以及过流(OCP)与过功率(OPP)保护极限值。

Protective features

For protection of the equipment connected, it is possible to set an overvoltage protection threshold (OVP), as well as one for overcurrent (OCP) and overpower (OPP).

一旦因任何缘故超过了这三个极限值中的一个，直流输出会被立即切断，在显示器和接口端会发出一状态信号。

As soon as one of these thresholds is reached for any reason, the DC output will be immediately shut off and a status signal will be generated on the display and via the interfaces.

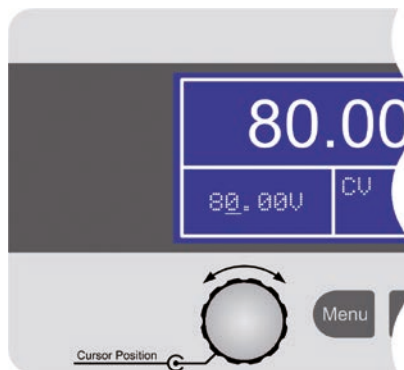
本产品还有过温保护功能，如果产品过热，它会关断直流输出。

There is furthermore an overtemperature protection, which will shut off the DC output if the device overheats.

显示器和控制键

产品的所有重要信息都于点阵显示器上清晰可见。

通过该显示器，电压与电流的实际输出值和预设值，(CV, CC, CP) 实际控制状态与其它状态，以及报警错误信息与设置菜单的设定，都清晰显示出来。



为使旋钮可以调节参数，只需按一下该旋钮，就可更换数值小数点后的光标位置。所有这些功能都归功于其方便易用的操作方式。

其面板锁定功能可以锁定整个面板，从而避免产品与连接负载出现误操作。

Display and controls

All important information is clearly visualised on a dot matrix display.

With this, information about the actual output values and set values of voltage and current, the actual control state (CV, CC, CP) and other statuses, as well as alarms and settings of the setup menu are clearly displayed.

In order to ease adjusting of values by the rotary knobs, pushing them can switch between decimal positions of a value. All these features contribute to an operator friendliness.

With a panel lock feature, the whole panel can be locked in order to protect the equipment and the loads from unintentional misuse.

扩展功能

可按需求将本系列单机产品组成各种配置，并装于高至42U的机柜内，并联后获得一个总功率高达150 kW的组合系统。也可参考第 145页。

Extensibility

The single units can be combined into various configurations upon request and in cabinets of up to 42U height, in order to build parallel systems of up to 150 kW total power. Also see page 145.

远程感测

标准远程感测输入端可直接连接到负载设备，以补偿连线上的压降。如果输入端已接上负载，本电源会自动调整输出电压，以确保负载获得准确所需的电压值。

Remote sensing

The standard sensing input can be connected directly to the load in order to compensate voltage drops along the power cables. If the sensing input is connected to the load, the power supply will adjust the output voltage automatically to ensure the required voltage is available at the load.

数字接口

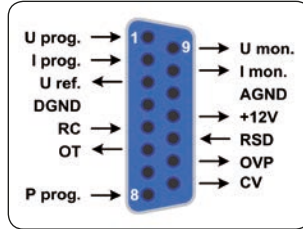
本系列所有型号的后板上标配有两个电隔离数字接口（1x USB & 1x Ethernet, 带3 W选项功能：1x USB & 1x GPIB）。可通过发送SCPI语言指令或Modbus协议经USB与Ethernet端口控制和监控产品，GPIB仅支持SCPI语言。

Digital interfaces

All models features two galvanically isolated, digital interfaces by default (standard: 1xUSB & Ethernet, with option 3 W: 1X USB & 1X GPIB), which are located on the rear side. USB and Ethernet can be used to control and monitor the devices either with SCPI language commands or Modbus protocol, while with GPIB only SCPI is supported.

模拟接口

隔离模拟接口位于产品后板。它有多个模拟输入脚，接上0 V...10 V或0 V...5 V电压，可设置0...100%的输出电压、电流和功率。



模拟输出脚接上0 V...10 V或0 V...5 V电压，可监控输出电压和电流。此外，还有几个输入脚和输出脚，可用来控制和监控产品状态。

Analog Interface

There is a galvanically isolated analog interface terminal, located on the rear of the device. It offers analog inputs to set voltage, current and power from 0...100% through control voltages of 0...10 V or 0...5 V.

To monitor the output voltage and current, there are analog outputs with voltage ranges of 0...10 V or 0...5 V. Also, several inputs and outputs are available for controlling and monitoring the device status.

选购件

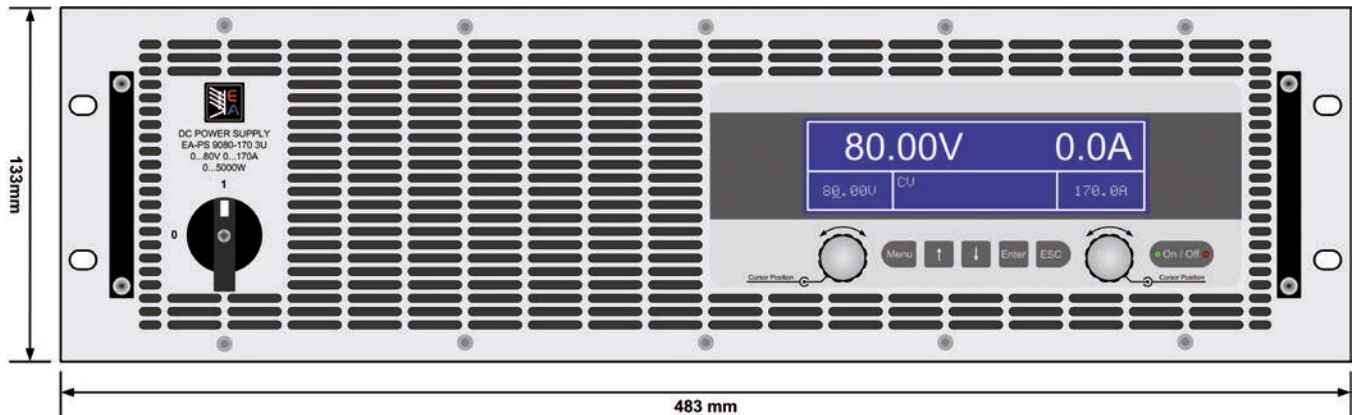
- 高速跃变（也可见151页）*
- 水制冷（仅针对200 V以下型号）
- 还可安装带固定GPIB端口的三位接口（3 W），而非接口模块用的默认插槽

* 并非针对所有电压—具体请咨询

Options

- High speed ramping (see page 151) *
- Water cooling (only for models up to 200 V)
- Three-way interface (3 W) with a rigid GPIB port installed instead of the default slot for retrofittable interface modules.

* not for all voltages - please enquire for availability



模拟接口
Analog interface

数字接口 (USB, LAN 或 GPIB)

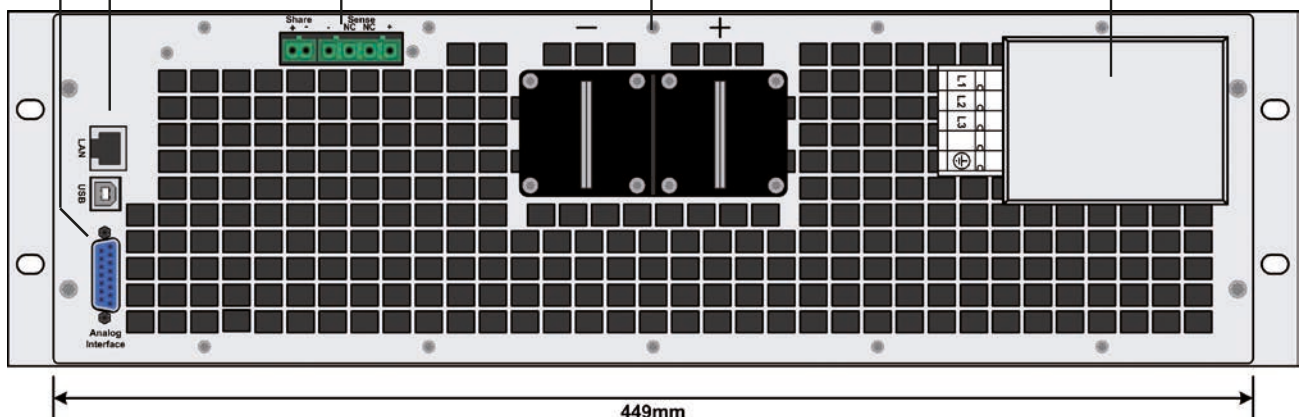
Digital interfaces (USB, LAN or GPIB)

远程感测与共享总线连接端

Connector for remote sense and Share bus

直流输出端
DC output

交流输入带内联滤波器 (欧洲版)
AC input with inline filter (EU version)



技术参数	Technical Data	Series EA-PS 9000 3U / 系列
AC输入	Input AC	
- 电压	- Voltage standard	欧版型号 / European models: 340...460 V, 2ph/3ph 美版型号 / US models: 188...229 V, 2ph/3ph
- 频率	- Frequency	45...65 Hz
- 功率因数	- Power factor	>0.99
输出: DC电压	Output: Voltage DC	
- 精确度	- Accuracy	<0.1%
- 0-100% 的负载调整率	- Load regulation 0-100%	<0.05%
- $\pm 10\%$ ΔU_{AC} 的线性调整率	- Line regulation $\pm 10\%$ ΔU_{AC}	<0.02%
- 负载从10%-100%调整需时	- Regulation 10-100% load	<2 ms
- 负载从10-90%上升需时	- Slew rate 10-90%	最长30 ms
- 过压保护	- Overvoltage protection	可调, 范围为0...110% U_{nenn} / Adjustable, 0...110% U_{nom}
- 直流端关闭时空载放电需时	- No load discharge time on DC off	100%电压降至60 V以下: 少于10 s / 100% U to <60 V: less than 10 s
输出: 电流	Output: Current	
- 精确度	- Accuracy	<0.2%
- 0-100% ΔU_{DC} 的负载调整率	- Load regulation 0-100% ΔU_{DC}	<0.15%
- $\pm 10\%$ ΔU_{AC} 的线性调整率	- Line regulation $\pm 10\%$ ΔU_{AC}	<0.05%
输出: 功率	Output power	
- 精确度	- Accuracy	<1%
过压类别	Overvoltage category	2
保护功能	Protection	OTP, OVP, OPP, PF, OCP ⁽²⁾
隔离耐压	Isolation	
- 输入对外壳	- Input to enclosure	2500 V DC
- 输入对输出	- Input to output	2500 V DC
- 输出对外壳	- Output to enclosure	根据型号不同而不同, 详见后面表格 / Depending on model, see tables
污染等级	Pollution degree	2
保护级别	Protection class	1
模拟接口	Analog interface	内置15-针D-Sub母插, 电隔离 / Built in, 15-pole D-Sub (female), galvanically isolated
- 输入范围	- Input range	0...5 V 或 0...10 V (可转换) / 0...5 V or 0...10 V (switchable)
- U / I / P 的精确度	- Accuracy U / I / P	0...10 V: <0.1% 0...5 V: <0.2%
串联操作	Series operation	可实现, 但取决于直流负极对PE的耐压 / Possible, but depending on the isolation of DC- against PE
- 主-从 (Master-Slave)	- Master-Slave	可实现 / Possible
并联操作	Parallel operation	可实现, 通过共享总线操作或模拟接口 / Possible, via Share Bus operation or via analog interface
- 主-从 (Master-Slave)	- Master-Slave	可实现 / Possible
安全标准	Standards	EN 60950, EN 61326 通过TÜV认证 / EMC TÜV approved according to IEC 61000-6-2:2005 IEC 61000-6-3:2006 Class B
制冷方式	Cooling	风扇, 还可选择: 水冷 / Fan, optional: water
工作温度	Operation temperature	0...50°C
储存温度	Storage temperature	-20...70°C
相对湿度	Relative humidity	<80%, 无凝露 / <80%, non-condensing
使用高度	Operation altitude	<2000 m
产品尺寸 (宽x高x长) ⁽¹⁾	Dimensions (W H D) ⁽¹⁾	19" 3 HE/3U 609 mm

⁽¹⁾ 仅为外壳尺寸, 非整体尺寸 / Enclosure only, not overall

⁽²⁾ 见152页 / See page 152

技术参数	Technical Data	PS 9040-170 3U	PS 9080-170 3U	PS 9200-70 3U	PS 9360-40 3U
DC输出电压	Output voltage DC	0...40 V	0...80 V	0...200 V	0...360 V
- 纹波 ⁽¹⁾	- Ripple ⁽¹⁾	<200 mV _{PP} <16 mV _{RMS}	<200 mV _{PP} <16 mV _{RMS}	<300 mV _{PP} <40 mV _{RMS}	<320 mV _{PP} <55 mV _{RMS}
- 感测端电压补偿	- Sense compensation	≈1 V	≈2 V	≈5 V	≈7.5 V
隔离耐压	Isolation				
- 输出负极对PE	- Negative output <-> PE	±400 V DC	±400 V DC	±400 V DC	±400 V DC
- 输出正极对PE	- Positive output <-> PE	±400 V DC	±400 V DC	±600 V DC	±600 V DC
输出电流	Output current	0...170 A	0...170 A	0...70 A	0...40 A
- 纹波 ⁽¹⁾	- Ripple ⁽¹⁾	<80 mA _{RMS}	<80 mA _{RMS}	<22 mA _{RMS}	<18 mA _{RMS}
输出功率	Output power	0...3300 W	0...5000 W	0...5000 W	0...5000 W
效率	Efficiency	~93%	~93%	~95%	~93%
U的编程分辨率	Programming resolution U	≤2 mV	≤4 mV	≤9 mV	≤15 mV
I的编程分辨率	Programming resolution I	≤7 mA	≤7 mA	≤3 mA	≤2 mA
重量 ⁽²⁾	Weight ⁽²⁾	≈17 kg	≈17 kg	≈17 kg	≈17 kg
欧版订购编号 ⁽³⁾	Ordering number Euro ⁽³⁾	06230250	06230251	06230252	06230253
美版订购编号 ⁽³⁾	Ordering number US ⁽³⁾	06238250	06238251	06238252	06238253

技术参数	Technical Data	PS 9500-30 3U	PS 9750-20 3U	PS 9040-340 3U	PS 9040-510 3U
DC输出电压	Output voltage DC	0...500 V	0...750 V	0...40 V	0...40 V
- 纹波 ⁽¹⁾	- Ripple ⁽¹⁾	<350 mV _{PP} <70 mV _{RMS}	<800 mV _{PP} <200 mV _{RMS}	<320 mV _{PP} <25 mV _{RMS}	<320 mV _{PP} <25 mV _{RMS}
- 感测端电压补偿	- Sense compensation	≈10 V	≈15 V	≈1 V	≈1 V
隔离耐压	Isolation				
- 输出负极对PE	- Negative output <-> PE	±725 V DC	±725 V DC	±400 V DC	±400 V DC
- 输出正极对PE	- Positive output <-> PE	±1000 V DC	±1000 V DC	±400 V DC	±400 V DC
输出电流	Output current	0...30 A	0...20 A	0...340 A	0...510 A
- 纹波 ⁽¹⁾	- Ripple ⁽¹⁾	<16 mA _{RMS}	<16 mA _{RMS}	<160 mA _{RMS}	<120 mA _{RMS}
输出功率	Output power	0...5000 W	0...5000 W	0...6600 W	0...10000 W
效率	Efficiency	≈95.5%	≈94%	≈93%	≈93%
U的编程分辨率	Programming resolution U	≤21 mV	≤31 mV	≤2 mV	≤2 mV
I的编程分辨率	Programming resolution I	≤2 mA	≤1 mA	≤14 mA	≤21 mA
重量 ⁽²⁾	Weight ⁽²⁾	≈17 kg	≈17 kg	≈24 kg	≈30 kg
欧版订购编号 ⁽³⁾	Ordering number Euro ⁽³⁾	06230254	06230255	06230256	06230263
美版订购编号 ⁽³⁾	Ordering number US ⁽³⁾	06238254	06238255	06238256	06238263

技术参数	Technical Data	PS 9080-340 3U	PS 9200-140 3U	PS 9360-80 3U	PS 9500-60 3U
DC输出电压	Output voltage DC	0...80 V	0...200 V	0...360 V	0...500 V
- 纹波 ⁽¹⁾	- Ripple ⁽¹⁾	<320 mV _{PP} <25 mV _{RMS}	<300 mV _{PP} <40 mV _{RMS}	<320 mV _{PP} <55 mV _{RMS}	<350 mV _{PP} <70 mV _{RMS}
- 感测端电压补偿	- Sense compensation	≈2 V	≈5 V	≈7.5 V	≈10 V
隔离耐压	Isolation				
- 输出负极对PE	- Negative output <-> PE	±400 V DC	±400 V DC	±400 V DC	±725 V DC
- 输出正极对PE	- Positive output <-> PE	±400 V DC	±600 V DC	±600 V DC	±1000 V DC
输出电流	Output current	0...340 A	0...140 A	0...80 A	0...60 A
- 纹波 ⁽¹⁾	- Ripple ⁽¹⁾	<160 mA _{RMS}	<44 mA _{RMS}	<35 mA _{RMS}	<32 mA _{RMS}
输出功率	Output power	0...10000 W	0...10000 W	0...10000 W	0...10000 W
效率	Efficiency	≈93%	≈95%	≈93%	≈95%
U的编程分辨率	Programming resolution U	≤4 mV	≤9 mV	≤15 mV	≤21 mV
I的编程分辨率	Programming resolution I	≤14 mA	≤6 mA	≤4 mA	≤3 mA
重量 ⁽²⁾	Weight ⁽²⁾	≈24 kg	≈24 kg	≈24 kg	≈24 kg
欧版订购编号 ⁽³⁾	Ordering number Euro ⁽³⁾	06230257	06230258	06230259	06230260
美版订购编号 ⁽³⁾	Ordering number US ⁽³⁾	06238257	06238258	06238259	06238260

(1) RMS值: 在BWL 300KHz时测量的LF值, PP值: 在BWL 20MHz时测量的HF值 / RMS value: measures at LF with BWL 300 kHz, PP value: measured at HF with BWL 20MHz

(2) 针对标准型号, 带可选件的重量会不同 / of standard version, models with options may vary

(3) 标准型号的产品编码, 带3 W选项功能的编码则会不同 / Ordering number of the standard version, models with option 3 W installed have different Ordering numbers.

EA-PS 9000 3U 3.3 KW - 150 KW

重载型实验室直流电源 / HEAVY DUTY LABORATORY DC POWER SUPPLIES



技术参数	Technical Data	PS 9750-40 3U	PS 91000-30 3U	PS 9080-510 3U	PS 9200-210 3U
DC输出电压	Output voltage DC	0...750 V	0...1000 V	0...80 V	0...200 V
- 纹波 ⁽¹⁾	- Ripple ⁽¹⁾	<800 mV _{PP} <200 mV _{RMS}	<160 mV _{PP} <350 mV _{RMS}	<320 mV _{PP} <25 mV _{RMS}	<300 mV _{PP} <40 mV _{RMS}
- 感测端电压补偿	- Sense compensation	≈15 V	≈20 V	≈2.5 V	≈6 V
隔离耐压	Isolation				
- 输出负极对PE	- Negative output <-> PE	±725 V DC	±725 V DC	±400 V DC	±400 V DC
- 输出正极对PE	- Positive output <-> PE	±1000 V DC	±1000 V DC	±400 V DC	±600 V DC
输出电流	Output current	0...40 A	0...30 A	0...510 A	0...210 A
- 纹波 ⁽¹⁾	- Ripple ⁽¹⁾	<32 mA _{RMS}	<22 mA _{RMS}	<240 mA _{RMS}	<66 mA _{RMS}
输出功率	Output power	0...10000 W	0...10000 W	0...15000 W	0...15000 W
效率	Efficiency	≈94%	≈95%	≈93%	≈95%
U的编程分辨率	Programming resolution U	≤31 mV	≤41 mV	≤4 mV	≤9 mV
I的编程分辨率	Programming resolution I	≤2 mA	≤2 mA	≤21 mA	≤9 mA
重量 ⁽²⁾	Weight ⁽²⁾	≈24 kg	≈24 kg	≈30 kg	≈30 kg
欧版订购编号 ⁽³⁾	Ordering number Euro ⁽³⁾	06230261	06230262	06230264	06230265
美版订购编号 ⁽³⁾	Ordering number US ⁽³⁾	06238261	06238262	06238264	06238265

技术参数	Technical Data	PS 9360-120 3U	PS 9500-90 3U	PS 9750-60 3U	PS 91500-30 3U
DC输出电压	Output voltage DC	0...360 V	0...500 V	0...750 V	0...1500 V
- 纹波 ⁽¹⁾	- Ripple ⁽¹⁾	<320 mV _{PP} <55 mV _{RMS}	<350 mV _{PP} <70 mV _{RMS}	<800 mV _{PP} <200 mV _{RMS}	<2400 mV _{PP} <400 mV _{RMS}
- 感测端电压补偿	- Sense compensation	≈7.5 V	≈10 V	≈15 V	≈30 V
隔离耐压	Isolation				
- 输出负极对PE	- Negative output <-> PE	±400 V DC	±725 V DC	±725 V DC	±725 V DC
- 输出正极对PE	- Positive output <-> PE	±600 V DC	±1000 V DC	±1000 V DC	±1500 V DC
输出电流	Output current	0...120 A	0...90 A	0...60 A	0...30 A
- 纹波 ⁽¹⁾	- Ripple ⁽¹⁾	<50 mA _{RMS}	<48 mA _{RMS}	<48 mA _{RMS}	<26 mA _{RMS}
输出功率	Output power	0...15000 W	0...15000 W	0...15000 W	0...15000 W
效率	Efficiency	≈93%	≈95%	≈94%	≈95%
U的编程分辨率	Programming resolution U	≤15 mV	≤21 mV	≤31 mV	≤61 mV
I的编程分辨率	Programming resolution I	≤5 mA	≤4 mA	≤3 mA	≤2 mA
重量 ⁽²⁾	Weight ⁽²⁾	≈30 kg	≈30 kg	≈30 kg	≈30 kg
欧版订购编号 ⁽³⁾	Ordering number Euro ⁽³⁾	06230266	06230267	06230268	06230269
美版订购编号 ⁽³⁾	Ordering number US ⁽³⁾	06238266	06238267	06238268	06238269

(1) RMS值: 在BWL 300KHz时测量的LF值, PP值: 在BWL 20MHz时测量的HF值 / RMS value: measures at LF with BWL 300 kHz, PP value: measured at HF with BWL 20MHz
(2) 针对标准型号, 带可选件的重量会不同 / of standard version, models with options may vary

