

EA-PS 9080-60 2U

- 多相输入90...264VAC，带主动式PFC
- 效率高达93%
- 输出功率有：0...1000W至0...3000W
- 输出电压：0...40V 至 0...750V
- 输出电流：0...4A 至 0...120A
- 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
- 远程感测端
- 隔离模拟接口
 - 通过 0...10V或0...5V电压可对U / I / P编程
 - 通过 0...10V或0...5V电压可监控U / I
- 温控风扇制冷
- 符合SELV标准 (EN 60950)的40V产品型号
- 内置电隔离USB与以太网端口
- 支持SCPI指令语言

- **Wide input voltage range 90...264V, with active PFC**
- **High efficiency up to 93%**
- **Output power ratings: 0...1000W up to 0...3000W**
- **Output voltages: 0...40V up to 0...750V**
- **Output currents: 0...4A up to 0...120A**
- **Flexible, power regulated output stage**
- **Various protection circuits (OVP, OCP, OPP, OTP)**
- **Control panel with pushbuttons and blue LCD for actual values, set values, status and alarms**
- **Remote sense**
- **Galvanically isolated analog interface with**
 - **U / I / P programmable via 0...10V or 0...5V**
 - **U / I monitoring via 0...10V or 0...5V**
- **Temperature controlled fans for cooling**
- **40V models according to SELV (EN 60950)**
- **Galvanically isolated USB and Ethernet port integrated**
- **SCPI command language supported**

概要

EA-PS 9000 2U系列是一款由微处理器控制，采用最新技术设计的实验室电源。其标准型号配备多种功能和特征，让用户使用起来更方便、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。

AC 输入

本系列所有型号都采用主动式功率因数校正线路，1.5kW以下型号可在90V_{AC}至264V_{AC}的输入电压范围下使用。

1.5kW型号在输入电压<150V_{AC}时输出功率减少至1kW。3kW型号在输入电压<205V_{AC}时则降至2.5kW。

General

The microprocessor controlled laboratory power supplies of series EA-PS 9000 2U 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.

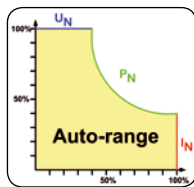
AC input

All units are provided with an active **Power Factor Correction** circuit and models up to 1.5kW are even suitable for a worldwide operation on a supply from 90V_{AC} up to 264V_{AC}.

With the 1.5kW models, the output power is automatically reduced to 1kW if the supply voltage is <150V_{AC} and with the 3kW models is reduced to 2.5kW at <205V_{AC}.

功率

所有型号输出功率可灵活调整。可在低电流时输出更高的电压，或在低电压时输出更大的电流，都由最大额定输出功率来限制。设定功率都可调。因此一台该产品能涵盖广范围的应用领域。



Power

All models 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. The power set value is adjustable with these models. 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...40V至0...750V输出电压，0...4A至0...120A输出电流，0...1000W至0...3000W输出功率的类型。

可对电流、电压与功率在0%与100%之间连续调整，不论是手动调整还是远程控制（数字式或模拟式）。

直流输出端位于产品后板。

DC output

DC output voltages between 0...40V and 0...750V, output currents between 0...4A and 0...120A and output power ratings between 0...1000W and 0...3000W are available.

Current, voltage and power can thus be adjusted continuously between 0% and 100%, no matter if manually or remotely controlled (analog or digital).

The DC output is located on the rear panel of the devices.

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。

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

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。

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).

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.

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

远程感测端

远程感测输入端可直接连到负载设备，以补偿连线上一定程度的压降。如果感测输入端已接到负载上，本电源会自动检测并调整输出电压，以确保负载获得准确所需的电压值。

远程感测连接器位于产品后板。

Remote sense

Remote sensing can be done via a dedicated input which is directly connected to the load equipment, in order to compensate voltage drops along the load cables. The power supply detects automatically whether the sense input is connected and will stabilise the voltage directly at the load.

The connection for the remote sense is located on the rear of the device.

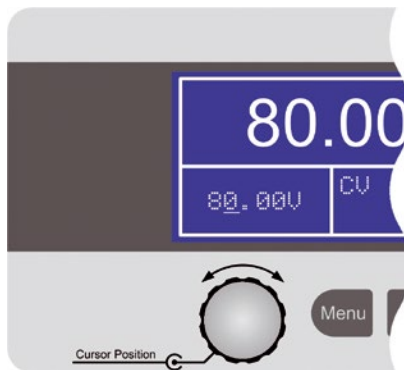
显示器和控制键

产品的所有重要信息都于一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，报警与设置菜单的设定，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.

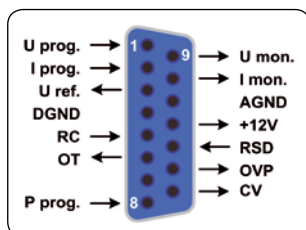
In order to ease adjusting of values by the rotary knobs, pushing them can switch between decimal positions of a value. All these features contribute to an operator friendliness.

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

内置模拟接口

产品后面板上装有一隔离模拟接口。它提供模拟接口输入脚，接上0V...10V或0V...5V电压，可设置0...100%的输出电压、电流与功率。

模拟输出脚接上0V...10V或0V...5V电压，可监控输出电压与电流。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 0V...10V or 0V...5V.

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



EA-PS 9000 2U 1000W - 3000W

可编程实验室直流电源 / PROGRAMMABLE LABORATORY DC POWER SUPPLIES

数字接口卡

本系列所有型号在其后板上标配两个电隔离数字接口（1xUSB, 1xLAN）。可通过发送SCPI语言指令或Modbus协议来控制与监控产品。

选购件

- High speed - 高速跃变（见132页）*

Digital interfaces

All models features two galvanically isolated, digital interfaces (1xUSB, 1xLAN) by default, which are located on the rear side. They can be used to control and monitor the devices either with SCPI language commands or Modbus protocol.

Options

- High speed ramping (also see page 132) *

技术参数	Technical Data	Series EA-PS 9000 2U / 系列	
AC输入	Input AC		
- 电压	- Voltage	90...264V, 1ph+N (Models 1000W & 1500W / 型号), 180...264V, 1ph+N (Models 3000W / 型号)	
- 频率	- Frequency	45...65Hz	
- 功率因数	- Power factor	>0.99	
输出: DC电压	Output: Voltage DC		
- 精确度	- Accuracy	<0.2%	
- 负载0-100% 时的稳定度	- Stability at 0-100% load	<0.05%	
- 在±10% Δ U _{IN} 时的稳定度	- Stability at ±10% Δ U _{IN}	<0.02%	
- 负载从10%-100%调整需时	- Regulation 10-100% load	<2ms	
- 负载从10-90%上升需时	- Rise time 10-90%	最长30ms	
输出: 电流	Output: Current		
- 精确度	- Accuracy	<0.2%	
- 负载0-100% Δ U _A 时的稳定度	- Stability at 0-100% Δ U _{OUT}	<0.15%	
- 在±10% Δ U _{IN} 时的稳定度	- Stability at ±10% Δ U _{IN}	<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, OCP, OPP, PF ⁽¹⁾	
隔离耐压	Isolation		
- 输入对外壳	- Input to enclosure	2500V DC	
- 输入对输出	- Input to output	2500V DC	
- 输出对外壳	- Output to enclosure	DC-对PE最大耐压为400V / Max.400V on DC- against PE	
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 / Built in, 15-pole D-Sub, female	
- 输入范围	- Input range	0...5V 或 / or 0...10V (可转换 / switchable)	
- U / I 的精确度	- Accuracy U / I	0...10V: <0.2% 0...5V: <0.4%	
- 编程分辨率	- Programming resolution	见下表 / See table below	
串联操作	Series operation	可实现, 任意直流负极端对PE有最大400V DC的电压转移) / possible (max. potential of any minus DC output: 400V DC against PE)	
- 主-从 (Master-Slave)	- Master-Slave	无 / no	
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	无 / no	
安全标准	Standards	EN 60950, EN 61326, EN 55022 等级 B / Class B	
制冷方式	Cooling	风扇 / Fan(s)	
工作温度	Operation temperature	0...50°C	
储存温度	Storage temperature	-20...70°C	
相对湿度	Humidity	<80%	
使用高度	Operation altitude	<2000m	
		1000W / 1500W	3000W
重量 ⁽²⁾	Weight ⁽²⁾	11.5kg	14.7kg
产品尺寸 (宽x高x长) ⁽³⁾	Dimensions (W H D) ⁽³⁾	19" 2HE/2U 460mm	19" 2HE/2U 460mm

⁽¹⁾ 见133页 / See page 133

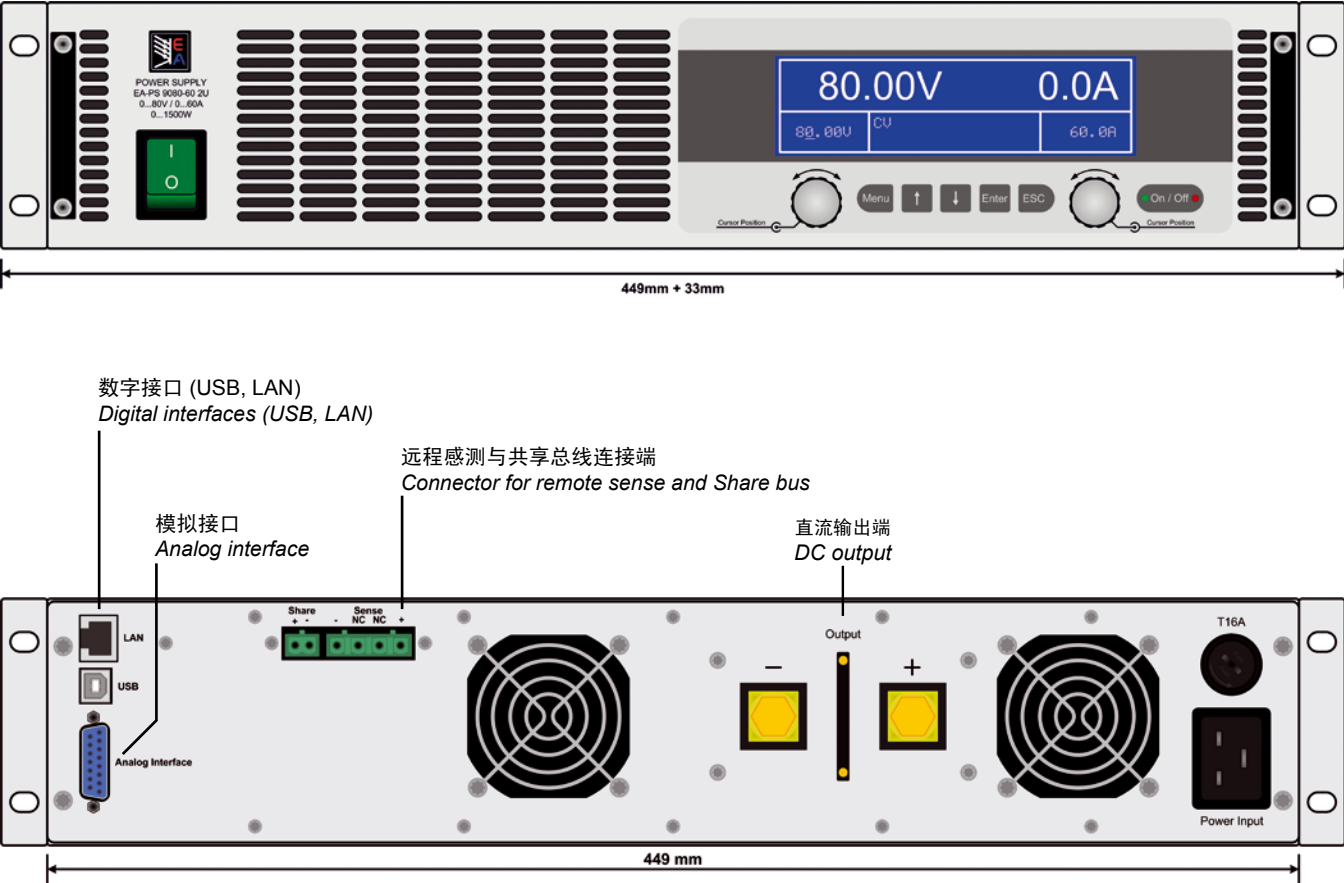
⁽²⁾ 标准型号, 带选项功能的则会不同 / Standard version, models with options may vary

⁽³⁾ 标准型号的外壳尺寸, 非整体尺寸, 带选项功能的还会有不同 / Enclosure of the standard version and not overall size, versions with options may vary

型号	电压	电流	功率	效率	U最大时的纹波 ¹²	I最大时的纹波 ¹²	编程 ¹¹			产品编号
Model	Voltage	Current	Power	Efficiency	Ripple U max.	Ripple I max.	U (typ.)	I (typ.)	P (typ.)	Article number
PS 9040-40 2U	0...40V	0...40A	0...1000W	≤92%	114mV _{PP} / 8mV _{RMS}	53mA _{PP} / 3.7mA _{RMS}	0.8mV	0.8mA	0.06W	06230220
PS 9080-40 2U	0...80V	0...40A	0...1000W	≤92%	114mV _{PP} / 8mV _{RMS}	53mA _{PP} / 3.7mA _{RMS}	1.5mV	0.8mA	0.06W	06230204
PS 9200-15 2U	0...200V	0...15A	0...1000W	≤93%	164mV _{PP} / 34mV _{RMS}	11mA _{PP} / 2.2mA _{RMS}	4mV	0.3mA	0.06W	06230205
PS 9360-10 2U	0...360V	0...10A	0...1000W	≤93%	210mV _{PP} / 59mV _{RMS}	5.5mA _{PP} / 1.6mA _{RMS}	7mV	0.2mA	0.06W	06230206
PS 9500-06 2U	0...500V	0...6A	0...1000W	≤93%	190mV _{PP} / 48mV _{RMS}	1.9mA _{PP} / 0.5mA _{RMS}	10mV	0.1mA	0.06W	06230207
PS 9750-04 2U	0...750V	0...4A	0...1000W	≤93%	212mV _{PP} / 60mV _{RMS}	1mA _{PP} / 0.3mA _{RMS}	15mV	0.1mA	0.06W	06230208
PS 9040-60 2U	0...40V	0...60A	0...1500W	≤92%	114mV _{PP} / 8mV _{RMS}	79mA _{PP} / 5.6mA _{RMS}	0.8mV	1.1mA	0.1W	06230219
PS 9080-60 2U	0...80V	0...60A	0...1500W	≤92%	114mV _{PP} / 8mV _{RMS}	79mA _{PP} / 5.6mA _{RMS}	1.5mV	1.1mA	0.1W	06230209
PS 9200-25 2U	0...200V	0...25A	0...1500W	≤93%	164mV _{PP} / 34mV _{RMS}	16mA _{PP} / 3.3mA _{RMS}	4mV	0.5mA	0.1W	06230210
PS 9360-15 2U	0...360V	0...15A	0...1500W	≤93%	210mV _{PP} / 59mV _{RMS}	8.3mA _{PP} / 2.4mA _{RMS}	7mV	0.3mA	0.1W	06230211
PS 9500-10 2U	0...500V	0...10A	0...1500W	≤93%	190mV _{PP} / 48mV _{RMS}	2.8mA _{PP} / 0.7mA _{RMS}	10mV	0.2mA	0.1W	06230212
PS 9750-06 2U	0...750V	0...6A	0...1500W	≤93%	212mV _{PP} / 60mV _{RMS}	1.5mA _{PP} / 0.5mA _{RMS}	15mV	0.1mA	0.1W	06230213
PS 9040-120 2U	0...40V	0...120A	0...3000W	≤92%	114mV _{PP} / 8mV _{RMS}	158mA _{PP} / 11mA _{RMS}	1.5mV	2.3mA	0.2W	06230214
PS 9080-120 2U	0...80V	0...120A	0...3000W	≤92%	114mV _{PP} / 8mV _{RMS}	158mA _{PP} / 11mA _{RMS}	0.8mV	2.3mA	0.2W	06230221
PS 9200-50 2U	0...200V	0...50A	0...3000W	≤93%	164mV _{PP} / 34mV _{RMS}	32mA _{PP} / 6.5mA _{RMS}	4mV	1mA	0.2W	06230215
PS 9360-30 2U	0...360V	0...30A	0...3000W	≤93%	210mV _{PP} / 59mV _{RMS}	17mA _{PP} / 5mA _{RMS}	7mV	0.6mA	0.2W	06230216
PS 9500-20 2U	0...500V	0...20A	0...3000W	≤93%	190mV _{PP} / 48mV _{RMS}	6mA _{PP} / 1.5mA _{RMS}	10mV	0.4mA	0.2W	06230217
PS 9750-12 2U	0...750V	0...12A	0...3000W	≤93%	212mV _{PP} / 60mV _{RMS}	3mA _{PP} / 0.9mA _{RMS}	15mV	0.2mA	0.2W	06230218

¹¹ 无产品错误时的可编程分辨率 / Programmable resolution without device error

¹² RMS值: LF 0...300kHz, PP值: HF 0...20MHz / RMS value: LF 0...300kHz, PP value: HF 0...20MHz



* 标准型号的高度 / Height of standard model