

EA-PSI 9000 WR 3U 5 kW - 15 kW



宽范围输入的高效直流电源

High efficiency DC Power supplies with extended AC input range



EA-PSI 9200-210 WR 3U



- 多相输入342 - 528 V_{AC}
- 效率高达95.5%
- 输出功率等级：5 kW, 10 kW, 或15 kW, 还可扩展至480 kW
- 输出电压：40 V 至 1500 V
- 输出电流：30 A 至 510 A, 还可扩展至5100 A
- 灵活的功率调整输出级
- 各种保护功能 (OVP, OCP, OPP, OTP)
- 内置真实函数发生器
- 光伏方阵模拟功能
- 内阻模拟与调整

- Multi-phase input for 342 - 528 V_{AC}
- High efficiency up to 95.5%
- Output power ratings: 5 kW, 10 kW or 15 kW, expandable up to 480 kW
- Output voltages: 40 V up to 1500 V
- Output currents: 30 A up to 510 A, expandable up to 5100 A
- Flexible, power regulated output stage
- Various protection circuits (OVP, OCP, OPP, OTP)
- Integrated true function generator
- Photovoltaic array simulation
- Internal resistance simulation and regulation

概要

EA-PSI 9000 WR 3U系列是一款由微处理器控制的高效实验室电源，它是流行机EA-PSI 9000 3U系列在交流供电方面的升级版。其供电端可连接到额定电压为**380 V, 400 V或480 V**的通用公共电网上。

本系列增加了一个功能，加强了直流输出对地的隔离（见规格参数表）。这对太阳能板模拟这样的光伏应用是非常重要的，因为太阳能逆变器要与电源连接，进行终端测试。

交流供电

系列名称中,“WR”代表“宽范围”，指**342 V - 528 V**宽范围的交流输入电压。所有其它功能与多数技术参数都与EA-PSI 9000 3U系列一样。

General

The microprocessor controlled high efficiency power supplies of series EA-PSI 9000 WR 3U are an advancement of the well-known series EA-PSI 9000 3U regarding the AC supply connection to common international grids with **380 V, 400 V or 480 V** nominal voltage.

The series furthermore features increased insulation of the DC output against ground (see technical specifications). This is especially required for photovoltaics applications such as solar panel simulation, in which solar inverters are connected to the power supply while running end tests.

AC supply

The “WR” in the name stands for “wide range” and point to the extended AC input range of **342 - 528 V**. All other functionality and most of the technical specifications are identical to series EA-PSI 9000 3U.

EA-PSI 9000 WR 3U 5 kW - 15 kW

扩展功能

本系列15 kW型号的功率可以扩展至480 kW，合并所谓的从机系列EA-PSI 9000 WR 3U Slave可以实现。它们需在主-从模式下运行，并与本系列的一个型号作为主机并联。一个该系统总共可以扩展32台机器。

按需求，我们可以提供全部配置好即时使用的机柜，也可供多机柜系统。更多信息请参考页面138。

直流输出

与EA-PSI 9000 3U系列相比，本系列多出4个额外的型号，其中一个就是第一次才有的60 V型号。这个电压级别特别应用于需超低压（SELV）的应用中。因此用户可在60 V至1500 V直流电压，20 A至510 A，功率为5 kW至15 kW之间的型号进行选择。

选项

- 适用于RS232, CAN, CANopen, ModBus TCP, Profibus, Profinet/IOT, EtherCAT 或 Ethernet的数字接口模块。接口插槽位于产品后板（仅标准版，无3W选项的方有）。用户只需插入新的接口，就能轻易更换旧款。接口卡能被产品自动检测到，且无需或仅需很少的配置。可参考页面134。
- 带固定 GPIB端口的三路接口（3W）可以代替可拆装接口模块默认插槽
- 告诉跃变选项（见页面144）*
- 水冷选项（按需可供，也见页面145）

* 非所有电压级别的都有-请咨询后再报价

Extensibility

For power extension of the 15 kW models in this series up to 480 kW there are so-called slave units from series EA-PSI 9000 WR 3U Slave available. Those are intended to run in **master-slave mode** and parallel connection with a master unit of this series, while the system can be extended to have up to 32 units in total.

Upon request, fully configured and ready-to-use cabinets, even as multi-cabinet system, are available. More information about these system can be found from page 138.

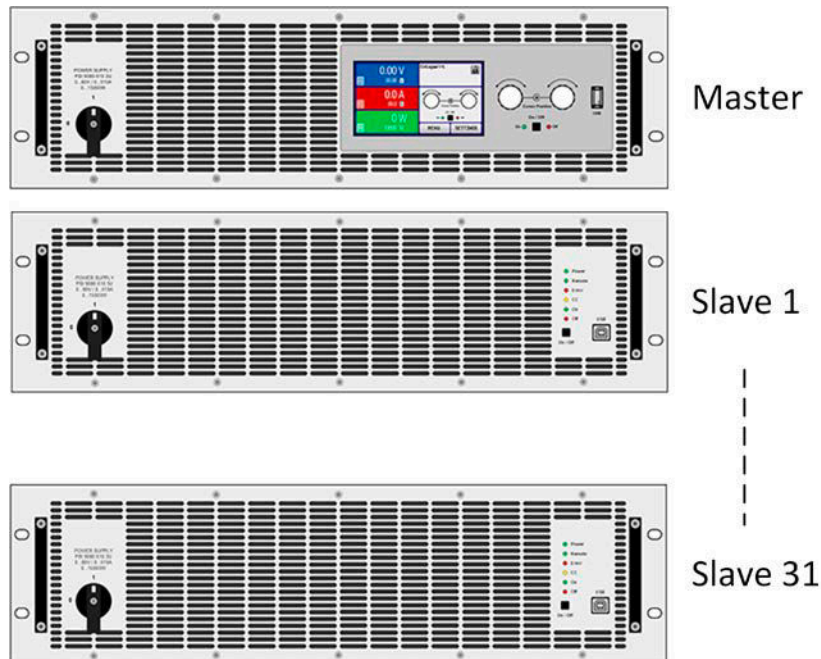
DC output

Compared to series EA-PSI 9000 3U this series features four additional models, amongst them for the first time models with 60 V rating. These are intended especially for the use in applications which requires extra low safety voltages (SELV). Thus the user can choose between models with DC voltages of 60 V to 1500 V, currents of 20 A to 510 A and power ratings of 5 kW to 15 kW.

Options

- Digital interface modules for RS232, CAN, CANopen, ModBus TCP, Profibus, Profinet/I/O, EtherCAT or Ethernet. The interface slot is located on the rear panel (only standard models without option 3W), making it easy for the user to plug in a new interface or to replace an existing one. The interface will be automatically detected by the device and requires no or only little configuration. See page 134.
- Three-way interface (3W) with a rigid GPIB port installed instead of the default slot for retrofittable interface modules
- High Speed ramping (see page 144) *
- Water cooling (upon request, also see page 145)

* Not available for all voltages - please quote for availability



PSI 9000 WR 与 PSI 9000 WR Slave系列的连接原理图

Principle view of PSI 9000 WR with PSI 9000 WR Slave

EA-PSI 9000 WR 3U 5 kW - 15 kW



技术参数	Technical Data	Serie / Series PSI 9000 WR 3U
交流: 供电	AC: Supply	
- 电压	- Voltage	342...528 V, 2ph/3ph
- 频率	- Frequency	45...66 Hz
- 功率因数	- Power factor	>0.99
直流: 电压	DC: Voltage	
- 精确度	- Accuracy	<额定值的0.1% / <0.1% of rated value
- 0-100%的负载调整率	- Regulation 0-100% load	<2 ms
- 带载10-90%的斜率	- Slew rate 10-90%	最大 / Max. 30 ms
- 过压保护	- Overvoltage protection	可调, 0...110% U _{Nom} / Adjustable, 0...110% U _{Nom}
- 直流关闭时空载放电时间	- No load discharge time on DC off	100% U 降至 / to <60 V: 少于 10 s / less than 10 s
直流: 电流	DC: Current	
- 精确度	- Accuracy	<额定值的0.2% / <0.2% of rating
直流: 功率	DC: Power	
- 精确度	- Accuracy	<额定值的1% / <1% of rated value
过压类别	Overvoltage category	2
保护功能	Protection	OT, OVP, OCP, OPP, PF ⁽²⁾
隔离耐压 1	Insulation 1	
- 交流输入对外壳	- AC input to enclosure	2500 V DC
- 交流输入对直流输出	- AC input to DC output	2500 V DC
- 直流输出对外壳 (PE)	- DC output to enclosure (PE)	依型号而定, 具体见后面表格 / Depending on model, see tables
显示器与面板	Display and panel	带触摸面板的图形显示器 / Graphics display with touch panel
并联操作	Parallel operation	可实现, 通过真实主-从, 可接多达32台产品 (经共享总线) / Yes, with true master-slave, up to 32 units (via Share bus)
制冷方式	Cooling	温控风扇 (可选水冷) / Temperature controlled fans (optional: water)

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

(2 可参考页面146 / See page 146)

型号	功率	电压	电流	重量	是否可接从机?	隔离 2		订购编号 ⁽¹⁾
						直流负极对外壳	直流正极对外壳	
Model	Power	Voltage	Current	Weight	Slave extension?	Insulation 2		Ordering number ⁽¹⁾
						DC- to enclosure	DC+ to enclosure	
EA-PSI 9060-170 WR	0...5000 W	0...60 V	0...170 A	~ 18 kg	-	±400 V _{DC}	±400 V _{DC}	06270350
EA-PSI 9080-170 WR	0...5000 W	0...80 V	0...170 A	~ 18 kg	-	±400 V _{DC}	±400 V _{DC}	06270351
EA-PSI 9200-70 WR	0...5000 W	0...200 V	0...70 A	~ 18 kg	-	±400 V _{DC}	±600 V _{DC}	06270352
EA-PSI 9360-40 WR	0...5000 W	0...360 V	0...40 A	~ 18 kg	-	±400 V _{DC}	±600 V _{DC}	06270353
EA-PSI 9500-30 WR	0...5000 W	0...500 V	0...30 A	~ 18 kg	-	±1500 V _{DC}	±1800 V _{DC}	06270354
EA-PSI 9750-20 WR	0...5000 W	0...750 V	0...20 A	~ 18 kg	-	±1500 V _{DC}	±1800 V _{DC}	06270355
EA-PSI 9060-340 WR	0...10000 W	0...60 V	0...340 A	~ 25 kg	-	±400 V _{DC}	±400 V _{DC}	06270356
EA-PSI 9080-340 WR	0...10000 W	0...80 V	0...340 A	~ 25 kg	-	±400 V _{DC}	±400 V _{DC}	06270357
EA-PSI 9200-140 WR	0...10000 W	0...200 V	0...140 A	~ 25 kg	-	±400 V _{DC}	±600 V _{DC}	06270358
EA-PSI 9360-80 WR	0...10000 W	0...360 V	0...80 A	~ 25 kg	-	±400 V _{DC}	±600 V _{DC}	06270359
EA-PSI 9500-60 WR	0...10000 W	0...500 V	0...60 A	~ 25 kg	-	±1500 V _{DC}	±1800 V _{DC}	06270360
EA-PSI 9750-40 WR	0...10000 W	0...750 V	0...40 A	~ 25 kg	-	±1500 V _{DC}	±1800 V _{DC}	06270361
EA-PSI 9060-510 WR	0...15000 W	0...60 V	0...510 A	~ 32 kg	-	±400 V _{DC}	±400 V _{DC}	06270363
EA-PSI 9080-510 WR	0...15000 W	0...80 V	0...510 A	~ 32 kg	是的 / yes	±400 V _{DC}	±400 V _{DC}	06270364
EA-PSI 9200-210 WR	0...15000 W	0...200 V	0...210 A	~ 32 kg	是的 / yes	±400 V _{DC}	±400 V _{DC}	06270365
EA-PSI 9360-120 WR	0...15000 W	0...360 V	0...120 A	~ 32 kg	是的 / yes	±400 V _{DC}	±600 V _{DC}	06270366
EA-PSI 9500-90 WR	0...15000 W	0...500 V	0...90 A	~ 32 kg	是的 / yes	±1500 V _{DC}	±1800 V _{DC}	06270367
EA-PSI 9750-60 WR	0...15000 W	0...750 V	0...60 A	~ 32 kg	是的 / yes	±1500 V _{DC}	±1800 V _{DC}	06270368
EA-PSI 91000-40 WR	0...15000 W	0...1000 V	0...40 A	~ 32 kg	是的 / yes	±1500 V _{DC}	±1800 V _{DC}	06270370
EA-PSI 91500-30 WR	0...15000 W	0...1500 V	0...30 A	~ 32 kg	是的 / yes	±1500 V _{DC}	±1800 V _{DC}	06270369

(1 订购编号为标准版的编号, 特别版或带选项功能的编号则不同 / Ordering number of the standard version, special models or models with options have different ordering numbers)

EA-PSI 9000 WR 3U SLAVE 15 kW

EA-PSI 9000 WR 3U系列从机电源模块 Slave power supply modules for series EA-PSI 9000 WR 3U



EA-PSI 9500-00 WR 3U Slave

一般信息

EA-PSI 9000 WR 3U Slave系列只有15 kW “从机模块”，匹配EA-PSI 9000 WR 3U系列对应型号。其目的就是扩大总功率，并快速组建一个从30 kW至480 kW的电源系统。它们可并联，并进行主-从操作，最多可组合32台。所有技术规格都与EA-PSI 9000 WR 3U系列一模一样，除了几个连接端子外。

操作与配置

扩展后的控制面板精简到剩下几个必要部件。为配合手动操作、状态指示与配置，配有少数几个LED灯，一个按钮，以及一个USB端口。本系列经前板USB端口可通过软件配置，比如EA Power Control (见 136页)。

主-从系统

主-从系统的配置简易又快捷。将从机模块与主机装在一起，比如在一19”机柜内。将产品连至交流供电端，并联他们的直流输出（连线或铜条），再经主-从总线与共享总线连接起来。主机上的操作仅为启动主从操作，然后整个系统将按照通电的机器数量自己配置，并准备好供用户使用或者软件操作。

General

Series EA-PSI 9000 WR 3U Slave features 15 kW “slave modules”, matching the corresponding models of series EA-PSI 9000 WR 3U. Their purpose is to extend the total power and quickly build systems from 30 kW up to 480 kW rated power. They are designed to run in parallel connection and master-slave operation of up to 32 units in total. All technical specification are identical to EA-PSI 9000 WR 3U series, except for the available connectors.

Handling and configuration

The extensive control panel, as usual with regular power supply models, has been reduced to the absolute necessary. For manual handling, status indication and configuration it offers a few LEDs, a pushbutton and an USB port. The devices are configured with software through the front USB port, for example with EA Power Control (see page 136).

Master-slave system

Configuring a master-slave system is done by installing the slave modules and the master unit in, for example, a 19” cabinet. Then they are connected to the AC supply and paralleled on their DC outputs (cables or copper bars), plus also linked via master-slave bus and Share bus. The only thing to do on the master is to enable master-slave and the system will self-configure to the number of powered units and represent itself to the user or a control software accordingly.

型号	功率	电压	电流	重量	适用于	尺寸 (宽x高x深)	订购编号
Model	Power	Voltage	Current	Weight	Suitable for	Dimensions (WxHxD)	Ordering number
EA-PSI 9080-510 WR 3U Slave	0...15000 W	0...80 V	0...510 A	~ 32 kg	EA-PSI 9080-510 WR 3U	483 mm x 3 HE / 3 U x 670 mm	06280364
EA-PSI 9200-210 WR 3U Slave	0...15000 W	0...200 V	0...210 A	~ 32 kg	EA-PSI 9200-210 WR 3U	483 mm x 3 HE / 3 U x 670 mm	06280365
EA-PSI 9360-120 WR 3U Slave	0...15000 W	0...360 V	0...120 A	~ 32 kg	EA-PSI 9360-120 WR 3U	483 mm x 3 HE / 3 U x 670 mm	06280366
EA-PSI 9500-90 WR 3U Slave	0...15000 W	0...500 V	0...90 A	~ 32 kg	EA-PSI 9500-90 WR 3U	483 mm x 3 HE / 3 U x 670 mm	06280367
EA-PSI 9750-60 WR 3U Slave	0...15000 W	0...750 V	0...60 A	~ 32 kg	EA-PSI 9750-60 WR 3U	483 mm x 3 HE / 3 U x 670 mm	06280368
EA-PSI 91000-40 WR 3U Slave	0...15000 W	0...1000 V	0...40 A	~ 32 kg	EA-PSI 91000-40 WR 3U	483 mm x 3 HE / 3 U x 670 mm	06280370
EA-PSI 91500-30 WR 3U Slave	0...15000 W	0...1500 V	0...30 A	~ 32 kg	EA-PSI 91500-30 WR 3U	483 mm x 3 HE / 3 U x 670 mm	06280369