



Elektro-Automatik



## PS 9000 1U

Microprocessor-controlled programmable high efficiency DC power supplies | 1.5 kW | 3.0 kW

**Flexible Autoranging Output:** Offers a wide range of voltage and current combinations, reducing the need for multiple devices.

**High Efficiency:** Achieves up to 95% efficiency, minimizing energy loss and heat generation.

**Compact Design:** Slim 1U rack height ensures efficient use of space in laboratory or industrial settings.

**Advanced Protection:** Includes overvoltage, overcurrent, overpower, and overtemperature protection for enhanced safety and reliability.

**Comprehensive Interfaces:** Features built-in USB and Ethernet for digital control, with support for SCPI and ModBus RTU protocols.

# EA-PS 9000 1U

## 1.5 kW - 3kW

Programmable DC Power Supply



## Features

- Wide AC supply voltage range: 100...264 V (1500W models), with active PFC
- High efficiency: up to 95%
- Output power ratings: 0...1500 W or 0...3000 W
- Output voltages: 0...80 V up to 0...750 V
- Output currents: 0...6 A up to 0...100 A
- 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 sensing
- Share bus for support of parallel connection
- Galvanically isolated analog and digital (USB, Ethernet) interfaces
- Very low height of only 1U
- Temperature-controlled fans for cooling
- SCPI command set and ModBus RTU support
- LabView VIs and control software for Windows

## General

The PS 9000 1U series is a microprocessor-controlled, compact laboratory power supply offering advanced features and ease of use in a slim 1U height design. Its clear and user-friendly control panel includes rotary knobs, pushbuttons, and an illuminated blue LCD for precise monitoring of actual values, set values, and system statuses. These devices are engineered for both standalone use and integration into 19-inch racks, making them versatile for a variety of applications.

## AC Supply

Equipped with active Power Factor Correction (PFC), the PS 9000 1U models operate efficiently across a wide input range. The 1.5 kW models support input voltages from 100 to 264 VAC, making them suitable for global use. Even at lower input voltages, such as 100–150 VAC, the units maintain up to 1 kW output power. For 3 kW models, input ranges from 180 to 264 VAC, providing reliable 2.5 kW power at lower inputs of 180–207 VAC.

## DC Output

The PS 9000 1U offers flexible and precise DC outputs, with voltage ranges from 0–80 V to 0–750 V and current ranges up to 100 A. Output power is available at 1.5 kW or 3 kW, and the devices support continuous adjustment of voltage, current, and power from 0% to 100%, whether controlled locally or remotely. The rear-mounted DC output ensures secure connections and efficient cable management.

## Power

The integrated autoranging output stage in the PS 9000 1U allows for higher voltage at lower current or higher current at lower voltage, always limited to the device's rated power. This adaptability enables a single unit to handle a wide variety of applications, reducing the need for multiple power supplies and enhancing operational flexibility.

## Discharge Circuit

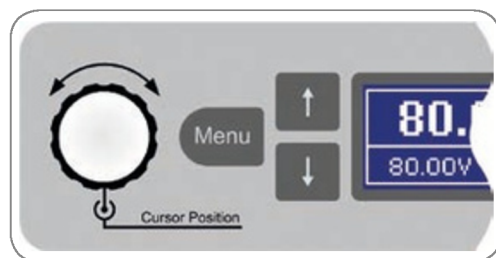
For models with nominal output voltages of 200 V or higher, a built-in discharge circuit ensures that output voltages drop to below 60 V DC when the DC output is switched off. This safety feature helps protect users and connected equipment by quickly neutralizing dangerous voltage levels during low or no-load conditions.

## Protective Features

Comprehensive protection circuits, including Overvoltage Protection (OVP), Overcurrent Protection (OCP), Overpower Protection (OPP), and Overtemperature Protection (OTP), safeguard connected devices and the power supply itself. When a threshold is reached, the DC output shuts off immediately, generating a clear status signal on the display and interfaces to prevent damage or system failure.

## Display and Controls

A bright dot-matrix display clearly visualizes key parameters, including actual and set values for voltage and current, control modes (CV, CC, CP), and status alarms. Rotary knobs allow users to switch between decimal positions for precise adjustments, while a panel lock feature protects settings and loads from unintentional misuse, ensuring operational safety.



## Analog Interface

A galvanically isolated analog interface located on the device's rear provides versatile control options. It allows users to set voltage, current, and power from 0–100% via control voltages of 0–10 V or 0–5 V. Additionally, analog outputs enable monitoring of output voltage and current, and several I/O options facilitate device status control and monitoring.

## Digital Interfaces

The PS 9000 1U includes two default galvanically isolated digital interfaces: USB and Ethernet. These interfaces support remote control and monitoring using SCPI commands or ModBus RTU protocol. Users can operate the device through the included EA Power Control software or integrate it into custom applications via programming documentation and LabView Virtual Instruments (VIs).

## Available Models

Model	Voltage (V)	Current (A)	Power (W)	Efficiency (%)	Ripple U max. (pp / rms)	Ripple I max. (rms)	Programming Resolution (U / I)
PS 9080-50 1U	0...80 V	0...50 A	0...1500 W	≤91%	100 mVPP / 5.2 mVRMS	4 mARMS	3 mV / 2 mA
PS 9200-25 1U	0...200 V	0...25 A	0...1500 W	≤93%	293 mVPP / 51 mVRMS	8 mARMS	8 mV / 1 mA
PS 9360-15 1U	0...360 V	0...15 A	0...1500 W	≤94%	195 mVPP / 33 mVRMS	1.6 mARMS	14 mV / 0.6 mA
PS 9500-10 1U	0...500 V	0...10 A	0...1500 W	≤94%	293 mVPP / 63 mVRMS	1.4 mARMS	20 mV / 0.4 mA
PS 9750-06 1U	0...750 V	0...6 A	0...1500 W	≤95%	260 mVPP / 40 mVRMS	0.6 mARMS	30 mV / 0.25 mA
PS 9080-100 1U	0...80 V	0...100 A	0...3000 W	≤92%	76 mVPP / 4.2 mVRMS	6 mARMS	3 mV / 4 mA
PS 9200-50 1U	0...200 V	0...50 A	0...3000 W	≤93%	234 mVPP / 40 mVRMS	10 mARMS	8 mV / 2 mA
PS 9360-30 1U	0...360 V	0...30 A	0...3000 W	≤93%	156 mVPP / 26 mVRMS	1.9 mARMS	14 mV / 1.5 mA
PS 9500-20 1U	0...500 V	0...20 A	0...3000 W	≤93%	234 mVPP / 50 mVRMS	1.9 mARMS	20 mV / 0.8 mA
PS 9750-12 1U	0...750 V	0...12 A	0...3000 W	≤93%	260 mVPP / 40 mVRMS	0.7 mARMS	30 mV / 0.5 mA

# SPECIFICATIONS

## AC Supply

- **1500 W models:** 100...264 V, 1ph+N or 2ph, 45...65 Hz, PF = 0.99
- **3000 W models:** 180...264 V, 1ph+N or 2ph, 45...65 Hz, PF = 0.99

## Derating

- **1500 W models:** < 150 V AC to Pout max 1000 W
- **3000 W models:** < 207 V AC to Pout max 2500 W

## DC: Voltage

- Accuracy <0.1% of rated value
- Load regulation 0-100% <0.05% of rated value
- Line regulation  $\pm 10\%$   $\Delta UAC$  <0.02% of rated value
- Regulation 10-100% load <2.2 ms
- Rise time 10-90% (CV) Max. 15 ms

## DC: Current

- Accuracy <0.2% of rated value
- Load regulation 1-100%  $\Delta UDC$  <0.15% of rated value
- Line regulation  $\pm 10\%$   $\Delta UAC$  <0.05% of rated value

## DC: Power

- Accuracy <1% of rated value

**Overvoltage category:** 2

**Protection:** OTP, OVP, OCP, OPP, PF

## Insulation

- **AC input to enclosure:** 2500 V DC
- **AC input to DC output:** 2500 V DC
- **DC output to enclosure (PE):** Negative: max. 400 V
- **DC positive:** max. 400 V DC + output voltage

**Degree of pollution:** 2

**Protection class:** 1

## Analog Interface

- Built in, 15 pole D-Sub (female), galvanically isolated
- **Signal range:** 0...5 V or 0...10 V (switchable)
- **Accuracy U / I / P:** 0...10 V: <0.2%, 0...5 V: <0.4%
- **Inputs:** U, I, P, remote control on-off, DC output on-off
- **Outputs:** U, I, overvoltage, alarms, reference voltage

## Parallel Operation

- Possible, via Share Bus operation or via analog interface
- **Master-Slave:** No

## Standards

- EN 60950
- EN 61326
- EN 55022 Class B

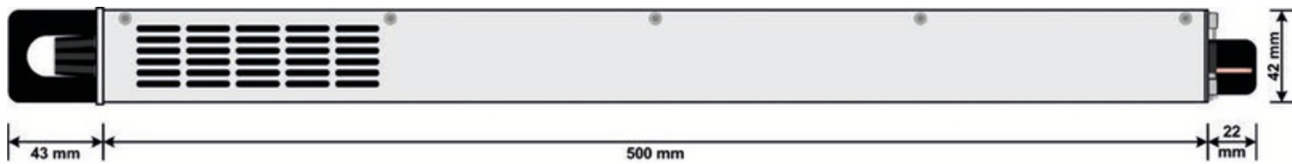
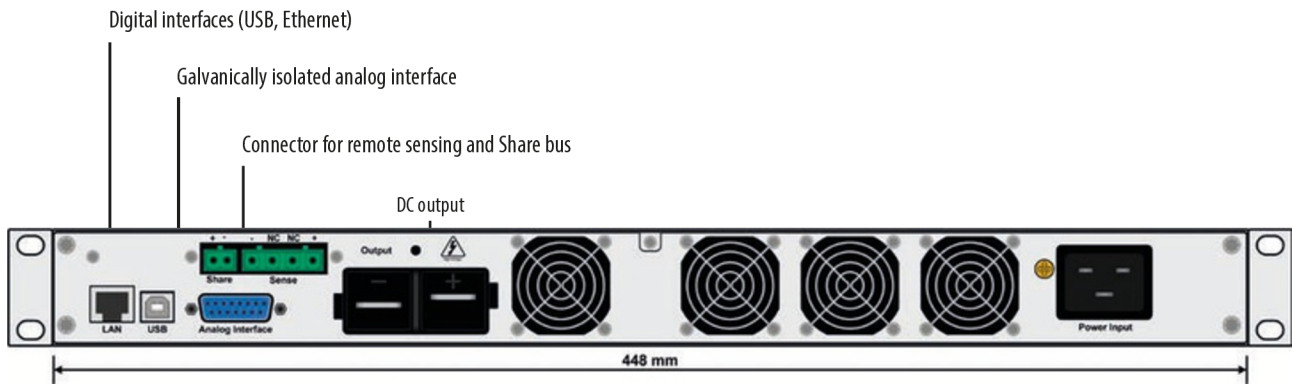
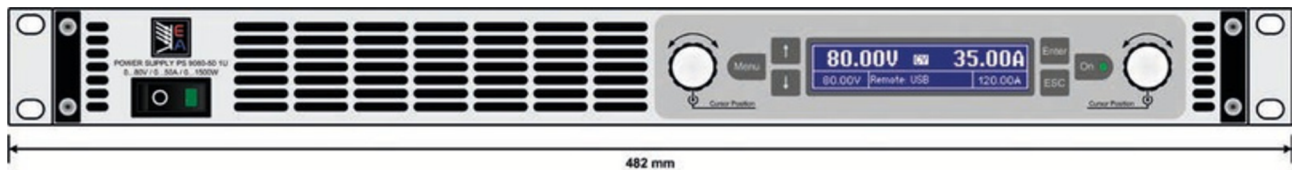
## Environmental Conditions

- **Operation temperature:** 0...50 °C
- **Storage temperature:** -20...70 °C
- **Humidity:** <80%, non-condensing
- **Operation altitude:** <2000 m (1.242 mi)

## Mechanical Construction

- **Cooling:** Temperature-controlled fans
- **1500 W**
  - Weight (2:  $\approx 10.5$  kg (23.1 lb))
  - Dimensions (W x H x D) (3: 19" x 1U x 500 mm (19.7"))
- **3000 W**
  - Weight (2: 11 kg (24.2 lb))
  - Dimensions (W x H x D) (3: 19" x 1U x 500 mm (19.7"))

# EA-PS 9000 1U 1500 W & 3000 W



View from the right side



View from the left side, with DC cover

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