

# PS 9000 1U Series

1500 W to 3000 W



Programmable  
DC Power  
Supplies

**INTEPRO**  
SYSTEMS

THE POWER TEST EXPERTS

# PS 9000 1U Series

1500 W to 3000 W



## Product Overview



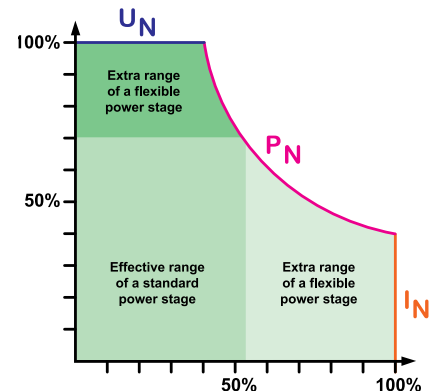
PS 9000 1U

The microprocessor controlled laboratory power supplies of series PS 9000 1U offers many functions and features in their standard version, making the use of this equipment remarkably easy and most effective. All this comes in a flat design with only 1.75" of height.

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.

## 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.



## AC Input

All units are provided with an active Power Factor Correction circuit and models up to 1.5 kW are even suitable for a worldwide operation on a supply from 100 VAC up to 264 VAC.

Both power classes reduce the output power automatically when the input supply is low, so the 1.5 kW models can still provide 1 kW power with an input supply of 100...150 VAC and the 3 kW models can still provide 2.5 kW at 180...207 VAC.

## DC Output

DC output voltages between 0...80 V and 0...750 V, output currents between 0...6 A and 0...100 A and output power ratings of 0...1500 W or 0...3000 W 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.

## Featured Benefits

- *Wide input range 100...264 V (1500W models)*
- *High efficiency up to 95%*
- *Output power ratings: 0..1500 W or 0...3000 W*
- *Output voltages: 0...40 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*
- *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*
- *Very low height of only 1 U (44 mm)*
- *Temperature controlled fans for cooling*
- *Standard USB and Ethernet port integrated*
- *EMC according to EN 55022 Class B*
- *SCPI command language supported*

## 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.

## Remote Sensing

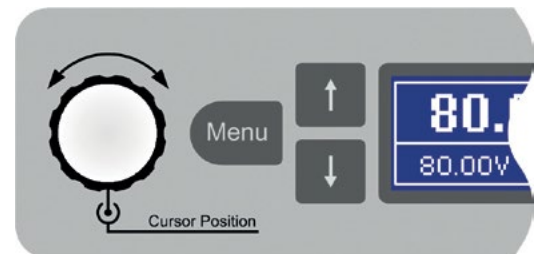
Remote sensing can be done via a dedicated input which is directly connected to the load equipment, in order to compensate voltage drops along the load cables up to a certain degree. The power supply detects automatically whether the sensing input is connected and will stabilise the voltage directly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

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

## Display & Controls

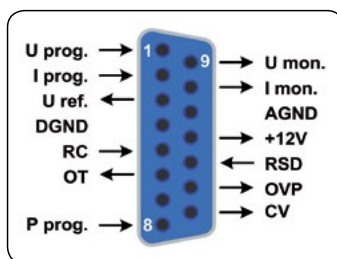
All important information is clearly visualised on a dot matrix display.

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.



## 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 V...10 V or 0 V...5 V.

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

## Digital Interfaces

All models features two galvanically isolated, digital interfaces by default. It is 1x USB and 1x Ethernet. Both can be used to control and monitor the devices with SCPI language commands or Modbus protocol.

## Options

- *GPIB*

Technical Data	Series PS 9000 1U	
<b>Input AC</b>		
- Voltage	100...264 V, 1ph+N (Models 1500 W), 180...264 V, 1ph+N (Models 3000 W), 180...265 V, 2ph+N (Models 3000W)	
- Frequency	45...65 Hz	
- Power factor	>0.99	
<b>Output: Voltage DC</b>		
- Accuracy	<0.1%	
- Load regulation 0-100%	<0.05%	
- Line regulation $\pm 10\% \Delta U_{AC}$	<0.02%	
- Regulation 10-100% load	<2.2 ms	
- Rise time 10-90% (CV)	Max. 15 ms	
<b>Output: Current</b>		
- Accuracy	<0.2%	
- Load regulation 0-100% $\Delta I$	<0.15%	
- Line regulation $\pm 10\% \Delta U_{AC}$	<0.05%	
<b>Output power</b>		
- Accuracy	<1%	
<b>Overvoltage category</b>	2	
<b>Protection</b>	OTP, OVP, OCP, OPP, PF <sup>(1)</sup>	
<b>Isolation</b>		
- Input to enclosure	2500 V DC	
- Input to output	2500 V DC	
- Output to enclosure (PE)	Negative: max. 400 V DC, positive: max. 400 V DC + output voltage	
<b>Pollution degree</b>	2	
<b>Protection class</b>	1	
<b>Analog interface</b>	Built in, 15-pole D-Sub, female	
- Input range	0...5 V or 0...10 V (switchable)	
- Accuracy U / I	0...10 V: <0.2%	0...5 V: <0.4%
- Programming resolution	See table below	
<b>Series operation</b>	Possible (with max. potential of all negative outputs 400 V DC against PE)	
- Master-Slave	No	
<b>Parallel operation</b>	Possible, via Share Bus operation or via analog interface	
- Master-Slave	Restricted	
<b>Standards</b>	EN 60950, EN 61326, EN 55022 Class B	
<b>Cooling</b>	Fan(s)	
<b>Operation temperature</b>	0...50 °C	
<b>Storage temperature</b>	-20...70 °C	
<b>Humidity</b>	<80%	
<b>Operation altitude</b>	<2000 m	
	1500 W	3000 W
<b>Weight <sup>(1)</sup></b>	~10.5 kg	~11 kg
<b>Dimensions (W H D) <sup>(2)</sup></b>	19" 1 HE/U 463 mm	19" 1 HE/U 463 mm

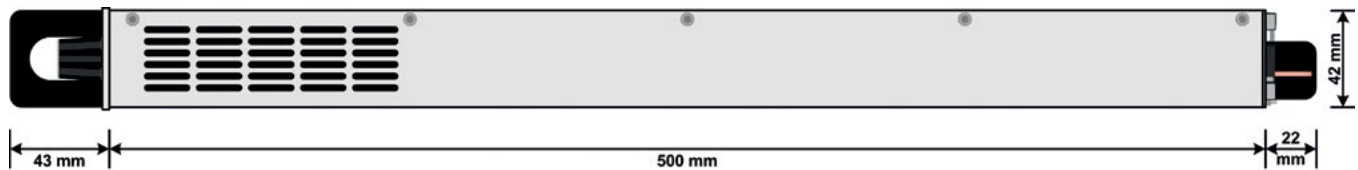
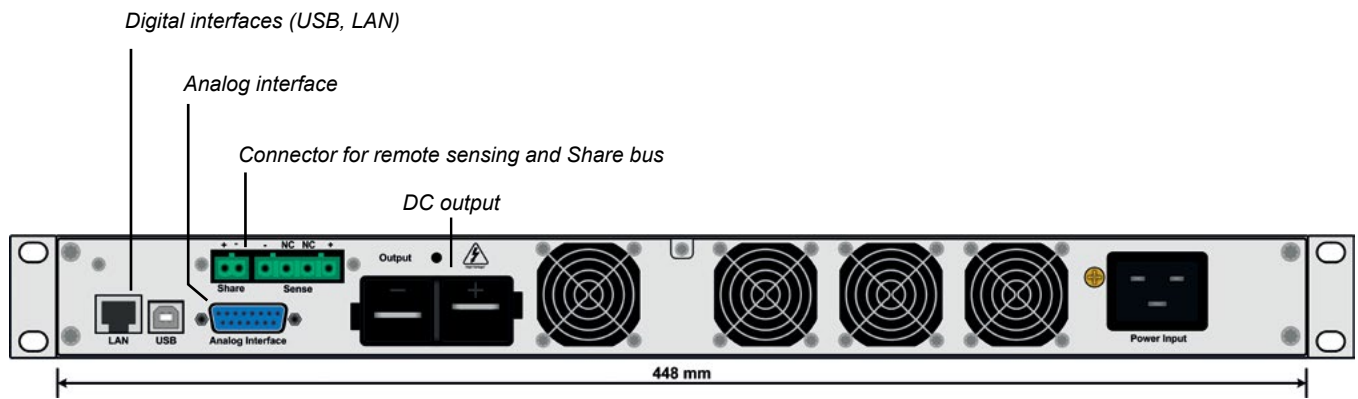
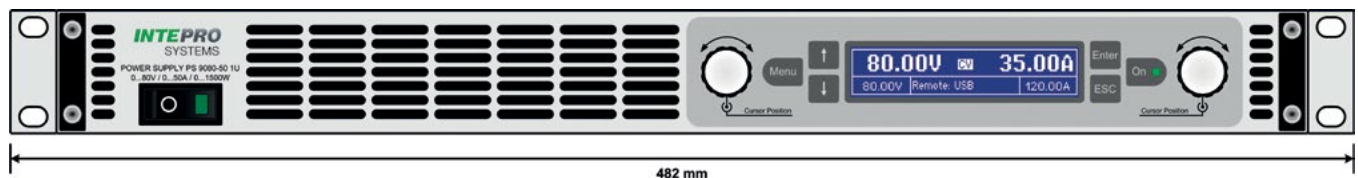
(1) Standard version, models with options may vary

(2) Enclosure of the standard version and not overall size, versions with options may vary

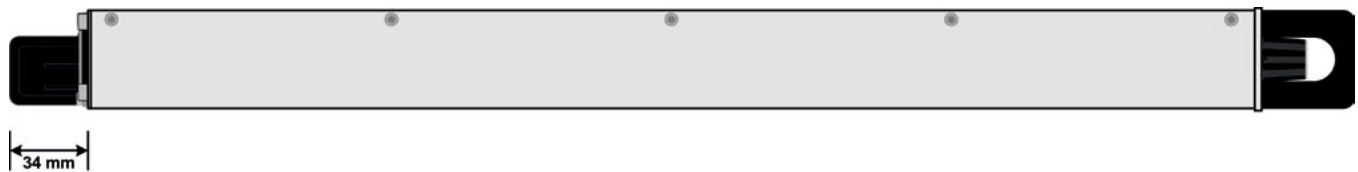
Model	Voltage	Current	Power	Efficiency	Ripple U max.	Ripple I max.	U (typ.)	I (typ.)
PS 9080-50 1U	0...80 V	0...50 A	0...1500 W	≤91%	100 mV <sub>PP</sub> / 5.2 mV <sub>RMS</sub>	75 mA <sub>PP</sub>	3 mV	2 mA
PS 9200-25 1U	0...200 V	0...25 A	0...1500 W	≤93%	293 mV <sub>PP</sub> / 51 mV <sub>RMS</sub>	29 mA <sub>PP</sub>	8 mV	1 mA
PS 9360-15 1U	0...360 V	0...15 A	0...1500 W	≤94%	195 mV <sub>PP</sub> / 33 mV <sub>RMS</sub>	10 mA <sub>PP</sub>	14 mV	0.6 mA
PS 9500-10 1U	0...500 V	0...10 A	0...1500 W	≤94%	293 mV <sub>PP</sub> / 63 mV <sub>RMS</sub>	9.2 mA <sub>PP</sub>	20 mV	0.4 mA
PS 9750-06 1U	0...750 V	0...6 A	0...1500 W	≤95%	260 mV <sub>PP</sub> / 40 mV <sub>RMS</sub>	4.1 mA <sub>PP</sub>	30 mV	0.25 mA
PS 9080-100 1U	0...80 V	0...100 A	0...3000 W	≤92%	76 mV <sub>PP</sub> / 4.2 mV <sub>RMS</sub>	114 mA <sub>PP</sub>	3 mV	4 mA
PS 9200-50 1U	0...200 V	0...50 A	0...3000 W	≤93%	234 mV <sub>PP</sub> / 40 mV <sub>RMS</sub>	29 mA <sub>PP</sub>	8 mV	2 mA
PS 9360-30 1U	0...360 V	0...30 A	0...3000 W	≤93%	156 mV <sub>PP</sub> / 26 mV <sub>RMS</sub>	10 mA <sub>PP</sub>	14 mV	1.5 mA
PS 9500-20 1U	0...500 V	0...20 A	0...3000 W	≤93%	234 mV <sub>PP</sub> / 50 mV <sub>RMS</sub>	9.2 mA <sub>PP</sub>	20 mV	0.8 mA
PS 9750-12 1U	0...750 V	0...12 A	0...3000 W	≤93%	260 mV <sub>PP</sub> / 40 mV <sub>RMS</sub>	4.1 mA <sub>PP</sub>	30 mV	0.5 mA

(1 Programmable resolution without device error

(2 RMS value: measures at LF with BWL 300kHz, PP value: measured at HF with BWL 20MHz



View from the right side



View from the left side, with DC cover

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