EA-PSI 9000 DT 320 W - 1500 W

Programmable desktop DC Power supplies

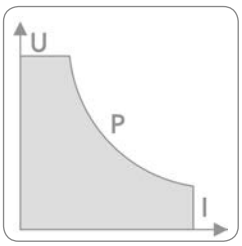
EA-PSI 9080-60 DT

U I P R OVP OCP OPP OTP USB LAN

- **Wide AC supply voltage range: 90...264 V, with active PFC**
- **High efficiency: up to 92%**
- **Output power ratings: 0...320 W up to 0...1500 W**
- **Output voltages: 0...40 V up to 0...750 V**
- **Output currents: 0...4 A up to 0...60 A**
- **Flexible, power regulated output stage**
- **Supervisions and protections (OVP, OCP, OPP, OT)**
- **Intuitive touch panel with display for values, status and notifications**
- **Galvanically isolated interfaces (analog, USB , Ethernet)**
- **Integrated function generator**
- **Internal resistance simulation and regulation**
- **Low ripple**
- **Desktop enclosure with carrying handle and tilt stand**
- **40 V models compliant to SELV**
- **SCPI command set and ModBus RTU support**

General

The microprocessor-controlled laboratory power supplies of series EA-PSI 9000 DT offer a user-friendly, interactive handling concept, along with a extensive set of standard features, which can facilitate operating them. Configuration of output parameters, supervision features and other settings is smart and comfortable. The implemented supervision features for all output parameters can help to reduce test equipment and make it almost unnecessary to install external supervision hardware and software.
The clear control panel with its two knobs, one pushbutton, two LEDs and the touch panel with color display for all important values and status enable the user to handle the device easily with a few touches of a finger.
For the integration into semi-automatic and remotely controlled test and automation systems, the devices offer a set of interfaces (analog and digital) on their rear side.



Autoranging power stage

All models are equipped with a flexible autoranging 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 adjustable power set value or the rated power. Therefore, a wide range of applications can already be covered by the use of just one unit.

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AC supply
The equipment uses an active **P**ower **F**actor **C**orrection (short: PFC), enabling worldwide use on a mains input from 90 V_{AC} up to 264 V_{AC}. Models with 1.5 kW will reduce their output power to 1 kW below input voltages of 150 V_{AC}.

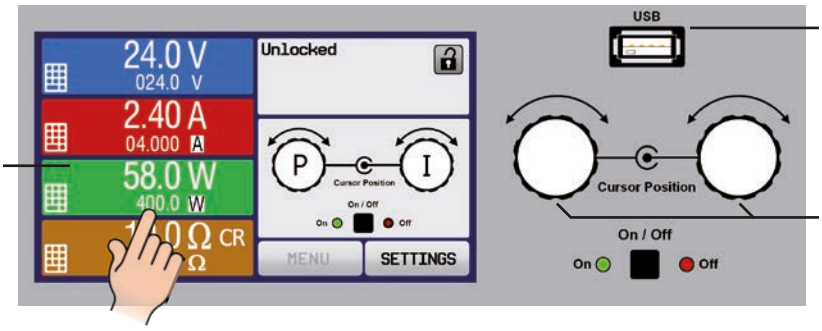
DC output
DC output voltages between 0...40 V and 0...750 V, output currents between 0...4 A and 0...60 A and output power ratings between 320 W and 0...1500 W are available. Current, voltage and power can thus be adjusted continuously between 0% and 100%, no matter if manually or remotely controlled (analog or digital). The output terminals are located on the front side of the devices.
Compared to other power supply series, the PSI 9000 DT feature a built-in, additional output filter to achieve much lower ripple, i. e. low noise on the DC output voltage.

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.

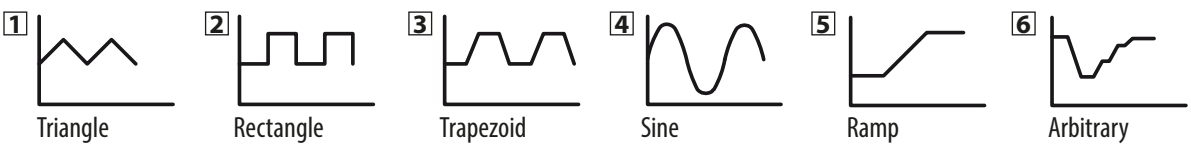
Protective features
For protection of the equipment connected, it is possible to set an overvoltage protection threshold (OVP), as well as one for overcurrent (OCP) and overpower (OPP).
As soon as one of these thresholds is reached for any reason, the DC output will be immediately shut off and a status 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.

Built-in 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, power and resistance 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 0 V...10 V or 0 V...5 V. Also, several inputs and outputs are available for controlling and monitoring the device status.

Display and control panel
Set values and actual values of output voltage, output current and output power are clearly represented on the graphic display. The color TFT screen is touch sensitive and can be intuitively used to control all functions of the device with just a finger tip.
Set values of voltage, current, power or resistance (internal resistance simulation) can be adjusted using the rotary knobs or entered directly via a numeric pad. To prevent unintentional operations, all operation controls can be locked. The screen language can furthermore be selected between English, Russian, Chinese and German.



Function generator
All models of this series include a true function generator which can generate typical functions, as displayed in the figure below, and apply them to either the output voltage or the output current. The generator can be completely configured and controlled by using the touch panel on the front of the device, or by remote control via one of the digital interfaces.
The predefined functions offer all necessary parameters to the user, such as Y offset, time / frequency or amplitude, for full configuration ability. Additionally to the standard functions, which are all based upon a so-called arbitrary generator, this base generator is accessible for the creation and execution of complex sets of functions, separated into up to 99 sequences. These can be used for testing purposes in development and production. The sequences can be loaded from and saved to a standard USB stick via the USB port on the front panel, making it easy to change between different test sequences.



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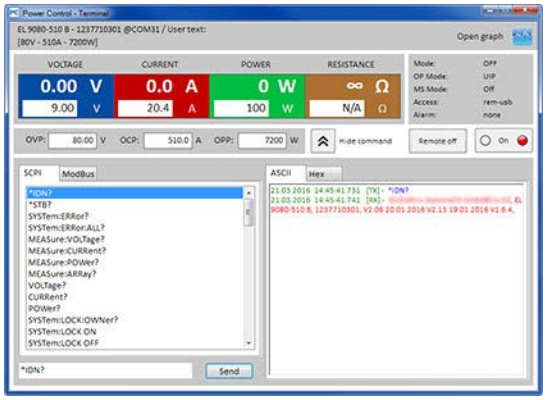
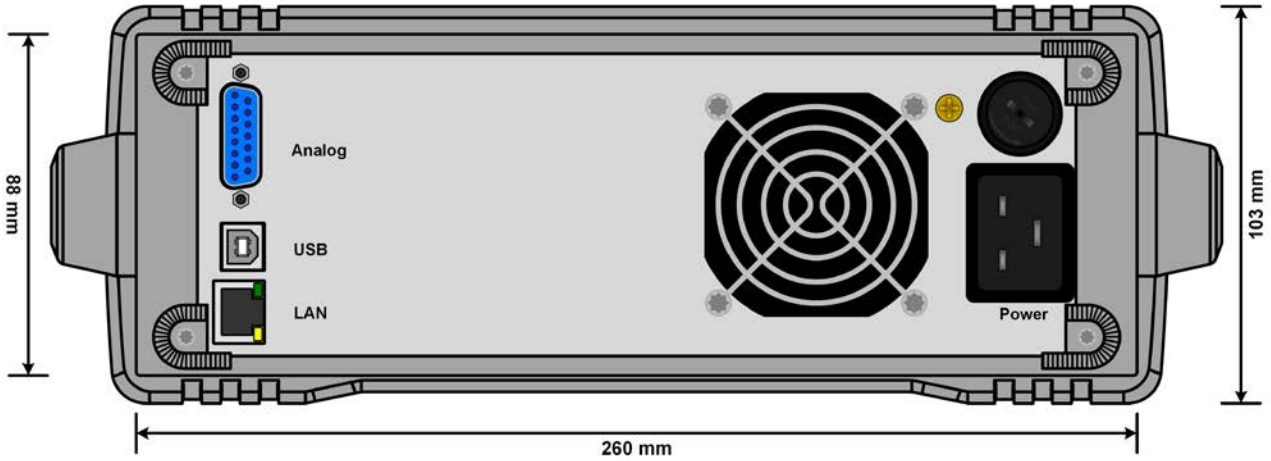
Control software

Included with the device is a control software for Windows PC, which allows for the remote control of multiple identical or even different types of devices. It has a clear interface for all set and actual values, a direct input mode for SCPI and ModBus RTU commands, a firmware update feature and the semi-automatic table control named “Sequencing”.
Optionally unlockable with a license code, the app “Multi Control” can monitor and control up to 20 units at once and in one windows. The sequencing feature and data logging are here available as well.



Product views



Model	Voltage	Current	Power	Efficiency	Ripple U (2	Ripple I	Programming (1			Ordering number
							U (typ.)	I (typ.)	P (typ.)	
PSI 9040-20 DT	0...40 V	0...20 A	0...320 W	≤88%	8 mV_{PP} / 0.8 mV_{RMS}	1 mA_{RMS}	1.5 mV	0.8 mA	0.012 W	06200500
PSI 9080-10 DT	0...80 V	0...10 A	0...320 W	≤89%	8 mV_{PP} / 0.8 mV_{RMS}	1 mA_{RMS}	3.1 mV	0.4 mA	0.012 W	06200501
PSI 9200-04 DT	0...200 V	0...4 A	0...320 W	≤89%	20 mV_{PP} / 2.5 mV_{RMS}	1.5 mA_{RMS}	7.6 mV	0.2 mA	0.012 W	06200502
PSI 9040-40 DT	0...40 V	0...40 A	0...640 W	≤89%	8 mV_{PP} / 0.8 mV_{RMS}	1 mA_{RMS}	1.5 mV	1.5 mA	0.024 W	06200503
PSI 9080-20 DT	0...80 V	0...20 A	0...640 W	≤91%	8 mV_{PP} / 0.8 mV_{RMS}	1 mA_{RMS}	3.1 mV	0.8 mA	0.024 W	06200504
PSI 9200-10 DT	0...200 V	0...10 A	0...640 W	≤92%	20 mV_{PP} / 2.5 mV_{RMS}	1.5 mA_{RMS}	7.6 mV	0.4 mA	0.024 W	06200505
PSI 9040-40 DT	0...40 V	0...40 A	0...1000 W	≤92%	10 mV_{PP} / 1.5 mV_{RMS}	6 mA_{RMS}	1.5 mV	1.5 mA	0.038 W	06200517
PSI 9080-40 DT	0...80 V	0...40 A	0...1000 W	≤92%	10 mV_{PP} / 1.5 mV_{RMS}	6 mA_{RMS}	3.1 mV	1.5 mA	0.038 W	06200506
PSI 9200-15 DT	0...200 V	0...15 A	0...1000 W	≤93%	60 mV_{PP} / 9 mV_{RMS}	1.8 mA_{RMS}	7.6 mV	0.6 mA	0.038 W	06200507
PSI 9360-10 DT	0...360 V	0...10 A	0...1000 W	≤93%	58 mV_{PP} / 11 mV_{RMS}	2 mA_{RMS}	13.7 mV	0.4 mA	0.038 W	06200508
PSI 9500-06 DT	0...500 V	0...6 A	0...1000 W	≤93%	62 mV_{PP} / 13 mV_{RMS}	8 mA_{RMS}	19.1 mV	0.2 mA	0.038 W	06200509
PSI 9750-04 DT	0...750 V	0...4 A	0...1000 W	≤93%	94 mV_{PP} / 16 mV_{RMS}	10 mA_{RMS}	28.6 mV	0.2 mA	0.038 W	06200510
PSI 9040-60 DT	0...40 V	0...60 A	0...1500 W	≤92%	10 mV_{PP} / 1.5 mV_{RMS}	6 mA_{RMS}	1.5 mV	2.3 mA	0.057 W	06200516
PSI 9080-60 DT	0...80 V	0...60 A	0...1500 W	≤92%	10 mV_{PP} / 1.5 mV_{RMS}	6 mA_{RMS}	3.1 mV	2.3 mA	0.057 W	06200511
PSI 9200-25 DT	0...200 V	0...25 A	0...1500 W	≤93%	60 mV_{PP} / 9 mV_{RMS}	1.8 mA_{RMS}	7.6 mV	1 mA	0.057 W	06200512
PSI 9360-15 DT	0...360 V	0...15 A	0...1500 W	≤93%	58 mV_{PP} / 11 mV_{RMS}	2 mA_{RMS}	13.7 mV	0.6 mA	0.057 W	06200513
PSI 9500-10 DT	0...500 V	0...10 A	0...1500 W	≤93%	62 mV_{PP} / 13 mV_{RMS}	8 mA_{RMS}	19.1 mV	0.2 mA	0.057 W	06200514
PSI 9750-06 DT	0...750 V	0...6 A	0...1500 W	≤93%	94 mV_{PP} / 16 mV_{RMS}	10 mA_{RMS}	28.6 mV	0.2 mA	0.057 W	06200515

(1 Programmable resolution disregarding device errors
(2 RMS value: measured at LF with BWL 300 kHz, PP value: measured at HF with BWL 20MHz

EA-PSI 9000 DT 320 W - 1500 W

Technical Data	Series EA-PSI 9000 DT	
AC: Supply		
- Voltage	90...264 V, 1ph+N	
- Frequency	45...65 Hz	
- Power factor	>0.99	
- Derating	Only models with 1500 W: < 150 V AC to $P_{out\,max}$ 1000 W	
DC: Voltage		
- Accuracy	<0.1% of rated value	
- Load regulation 0-100%	<0.05% of rated value	
- Line regulation ±10% ΔU_{AC}	<0.02% of rated value	
- Regulation 10-100% load	<2 ms	
- Rise time 10-90%	Max. 30 ms	
- Overvoltage protection	Adjustable, 0...110% U_{Nom}	
DC: Current		
- Accuracy	<0.2% of rated value	
- Load regulation 1-100% ΔU_{DC}	<0.15% of rated value	
- Line regulation ±10% ΔU_{AC}	<0.05% of rated value	
DC: Power		
- Accuracy	<1% of rated value	
Overvoltage category	2	
Protection	OT, OVP, OCP, OPP, PF (2	
Insulation		
- AC input to enclosure	2500 V DC	
- AC input to DC output	2500 V DC	
- DC output to enclosure	Negative: max. 400 V DC, positive: max. 400 V DC + output voltage	
Degree of pollution / Protection class	2 / 1	
Digital interfaces	1x USB type B (for communication), 1x USB type A (for storage device), 1x Ethernet	
Analog interface	Built in, 15 pole D-Sub (female), galvanically isolated	
- Signal range	0...5 V or 0...10 V (switchable)	
- Inputs	U, I, P, R, remote control on-off, DC output on-off	
- Outputs	U, I, overvoltage, alarms, reference voltage	
- Accuracy	0...10 V: <0.2%	0...5 V: <0.4%
Standards	EN 60950, EN 61326, EN 61010, EN 55022 Class B	
Cooling	Temperature-controlled fan	
Operation temperature	0...50 °C	
Storage temperature	-20...70 °C	
Relative humidity	<80%, non-condensing	
Operation altitude	<2000 m (1.242 mi)	
Mechanics		
- Weight	320 W - 650 W: ≈7.5 kg (16.5 lb)	1000 W - 1500 W: ≈8.2 kg (18.1 lb)
- Dimensions (W x H x D) (1	320 W - 650 W: 308 x 103 x 355 mm (12.1" x 4" x 14")	1000 W - 1500 W: 308 x 103 x 415 mm (12.1" x 4" x 16.3")

(1 Body only
(2 See page 126