



Elektro-Automatik



HIGH-TECH PROGRAMMABLE POWER SUPPLIES AND ELECTRONIC LOADS



DEVELOPING TOMORROW'S VISIONS TODAY...

Technical know-how, flexibility and short lead times make EA the preferred supplier for well-known companies and institutes.

HIGH POWER ELECTRONICS MADE IN GERMANY

EA-Elektro-Automatik LLC is Germany's leading manufacturer of laboratory power supplies, high performance mains units and electronic loads. EA-Elektro-Automatik was founded in 1974 by Helmut Nolden with the vision of developing high quality power supplies for all applications. Today EA-Elektro-Automatik is a modern medium-sized enterprise.

Approximately 250 employees research, develop and manufacture at the ca. 11.500 m² (123,785 sqft) main site in Viersen. With the aid of an extensive dealer network, high-tech technology from Niederrhein is delivered globally.

INNOVATION THROUGH R & D

Innovation is of major significance at EA. We are passionate in our development and production of laboratory and high performance power supplies as well as electronic loads, which set standards for functionality, flexibility and reliability. The results of more than four decades research and development flow directly into new products. With the introduction of flexible output stages in laboratory power supplies and energy recovery from electronic loads we are pioneers of new technologies.

SWITCHED ON: DEVELOPMENT COMPETENCE OF THE HIGHEST LEVEL

Concept, design, technical development and specification of our power supply systems is carried out in-house as a matter of principle. In this way the technical advances made by our development team can be incorporated directly in finished products. Thus our engineers look not only at the market requirements of today but develop solutions for the technical challenges of tomorrow.

ENERGIZED: SHORT TIME-TO-MARKET

Development cycles for new systems are getting shorter. Technological excellence means that we must have flexible production processes so that we can answer short term production-specific customer demands. We guarantee our customers rapid reaction in the event of an emergency.



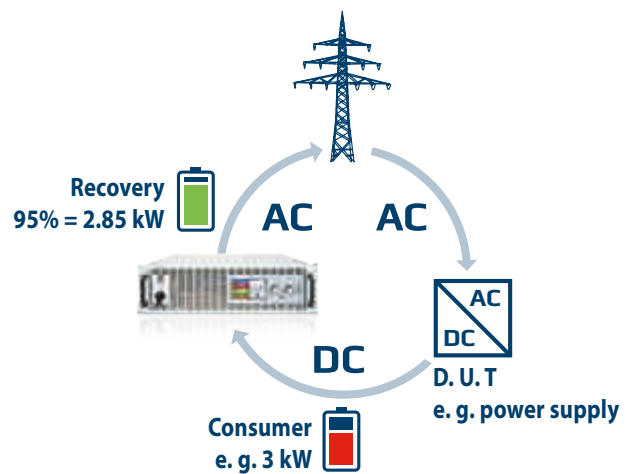
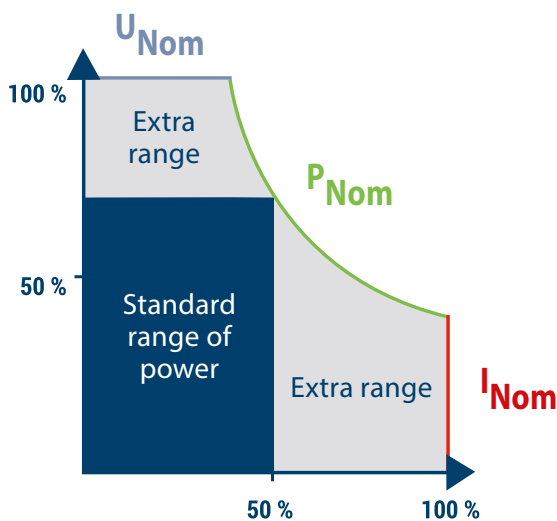


TECHNOLOGICAL LEADERSHIP

COMPETENCE IN TESTING AT OUR OWN LABORATORIES

All EMC measurements and safety related tests are carried out in our in-house testing laboratories. Furthermore, our high-tech devices are TÜV certified to the safety requires of EN 61010-1 and EMI proof according EN 61000-6-3 class B. During the manufacturing process the incorporated modules and building blocks are tested with an automatic test adapter. Subsequently a computer controlled test system calibrates and performs tests for function and all quality relevant parameters.

All test and calibration data are recorded and can be retrieved. Following final control all devices undergo a "burn-in test" under maximum load. These are carried out at an ambient temperature of 40°C using an electronic load with energy feedback. Thus the power consumed in the test is not released as heat but rather fed back into the domestic power supply.



Auto-range principle

Circular energy flow when using recovering devices



PROXIMITY TO CUSTOMERS

We maintain close contact with our customers. Thus we understand their needs. The high level of technical know-how of our associates enable us to deliver power supply units and systems which exactly meet customer requirements. Our highly specialized team are developing innovative solutions today for the technical demands of tomorrow.

FOCUS ON NEW TECHNOLOGY

When it comes to introducing new technologies EA is the leader in its sector. Laboratory power supplies with an auto-ranging feature of a flexible output stage and electronic loads with energy recovery were both the brainchild of EA. Color TFT touch screens for intuitive operation of laboratory power supplies also have their origin at EA.

CUSTOM MADE: PRODUCTS AND SUPPORT

Whether in the laboratory, industry or training, EA offers a wide and deep product spectrum for virtually any application: laboratory and industry power supplies, as well as electronic loads for laboratory desktop applications or 19" plug-in systems. Based on these standard programs we also develop custom built equipment and systems to meet your requirements. A specific attribute is that all our products have an optimized energy usage by reaching an above average efficiency of up to 95%. In addition, our EA team of highly specialized technology experts are there to help with all issues around power supply units and electronic loads.

QUALITY IS OUR STANDARD

A quality management system certified to DIN ISO 9001-2015 ensures that processes in all phases of the value chain are documented. This leads to the high technical reliability of our power supply equipment and electronic loads. We guarantee a continuous high quality, from goods receipt through all manufacturing steps to final inspection.

WELL PREPARED: VIEWING THE FUTURE

With manufacturing sites in Germany and the Far East, EA is well prepared for the future. The signs are set for expansion: technical know-how, flexibility and short lead times make us a globally preferred supplier of well-known companies and institutes.

EA BATTERY SIMULATOR AND EA POWER CONTROL

In order to support end users of EA products in their hardware-in-the-loop (HIL) tests zu, EA has developed the EA Battery Simulator in cooperation with the renowned Fraunhofer Institute. This smart software is compatible to the power supply series EA-PSB 9000 and EA-PSB 10000 and offers extensive battery simulation features.

The Windows software EA Power Control furthermore simplifies remote control of all device series which have been developed since 2012. The optional application "Multi Control" allows for the management and control of up to 20 EA devices at once from one PC, with all their functions available at one glance.

PROGRAMMABLE DC LABORATORY POWER SUPPLIES

1 KW - 3 KW IN 19" FORMAT



PSI 9000 2U



PS 9000 2U

U I P R OVP OCP OPP OTP USB LAN MS

- For 230 V or wide range supply
- Flexible power stage
- 40 V models for SELV
- Intuitive handling due to color TFT panel (PS 9000 2U) or TFT touch panel (PSI)
- Extensive function generator (PSI 9000)
- Simulation of an internal resistance (PSI 9000)
- For photovoltaics, battery and fuel cell tests (PSI 9000)
- Master-slave feature (PSI 9000)
- Protective features (OVP, OCP, OT...)
- USB and analog interface integrated
- Ethernet interface integrated (PS)
- Plug&Play slot for digital interfaces (PSI)
- All interfaces galvanically isolated
- Remote control software EA Power Control
- LabVIEW VI package
- IVI driver package (PSI)
- SCPI & Modbus protocol
- 40V models according to SELV
- 19" chassis in 1U or 2U

TECHNICAL DATA

	SERIES PS 9000 1U	SERIES PS 9000 2U	SERIES PSI 9000 2U
AC	1500 W: 100...264 V (wide range) 3000 W: 180...264 V	1000 W / 1500 W: 90...264 V (wide range) 3000 W: 180...264 V	1000 W / 1500 W: 90...264 V (wide range) 3000 W: 180...264 V
AC CONNECTION	1ph+N, 45...65 Hz, power factor >0.99		
ACCURACY VOLTAGE	≤0.1% of rated value		
ACCURACY CURRENT	≤0.2% of rated value		
ACCURACY POWER	≤1% of rated value		
PROTECTIONS	Overtemperature, overvoltage, overcurrent, overpower, power fail		
INSULATION	DC minus to PE: max. 400 V, DC plus to PE: max. 400 V DC + output voltage		
STANDARDS	EN 61326-1 (EMI and noise suppression), EN 60950 (electrical safety)		
COOLING	Temperature controlled fans		
WEIGHT	1500 W: 10.5 kg (23 lbs) 3000 W: 11 kg (24 lbs)	1000 W / 1500 W: 12 kg (26 lbs) 3000 W: 15 kg (33 lbs)	1000 W / 1500 W: 12 kg (26 lbs) 3000 W: 15 kg (33 lbs)
DIMENSIONS (W x H x D)	19" x 1 U x 500 mm (19.7 in)	19" x 2 U x 463 mm (18.2 in)	19" x 2 U x 463 mm (18.2 in)

OVERVIEW

SERIES	POWER RATINGS	VOLTAGE RATINGS	CURRENT RATINGS	R MODE	HEIGHT	FG ⁽¹⁾	MS ⁽²⁾	DISPLAY	OPTIONAL DIGITAL INTERFACES
PS 9000 1U	1,5 / 3 kW	80 - 750 V	6 - 100 A	no	1 U	no	no	LCD	-
PS 9000 2U	1 / 1,5 / 3 kW	40 - 750 V	4 - 120 A	no	2 U	no	no	TFT	GPIO
PSI 9000 2U	1 / 1,5 / 3 kW	40 - 750 V	4 - 120 A	yes	2 U	yes	yes	TFT Touch	GPIO, CAN, Profibus, Ethernet, CANopen ...

(1) Function generator (2) Master-slave

MODELS "1U"	PS 9080-50 1U	PS 9200-25 1U	PS 9360-15 1U	PS 9500-10 1U	PS 9750-06 1U
VOLTAGE	0...80 V	0...200 V	0...360 V	0...500 V	0...750 V
CURRENT	0...50 A	0...25 A	0...15 A	0...10 A	0...6 A
POWER	0...1500 W	0...1500 W	0...1500 W	0...1500 W	0...1500 W
VOLTAGE RIPPLE	100 mV _{pp} / 5.2 mV _{RMS}	293 mV _{pp} / 51 mV _{RMS}	195 mV _{pp} / 33 mV _{RMS}	293 mV _{pp} / 63 mV _{RMS}	260 mV _{pp} / 40 mV _{RMS}

MODELS "1U"	PS 9080-100 1U	PS 9200-50 1U	PS 9360-30 1U	PS 9500-20 1U	PS 9750-12 1U
VOLTAGE	0...80 V	0...200 V	0...360 V	0...500 V	0...750 V
CURRENT	0...100 A	0...50 A	0...30 A	0...20 A	0...12 A
POWER	0...3000 W	0...3000 W	0...3000 W	0...3000 W	0...3000 W
VOLTAGE RIPPLE	76 mV _{pp} / 4,2 mV _{RMS}	234 mV _{pp} / 40 mV _{RMS}	156 mV _{pp} / 25 mV _{RMS}	234 mV _{pp} / 50 mV _{RMS}	260 mV _{pp} / 40 mV _{RMS}

MODELS "2U"	PSI 9040-40 2U PS 9040-40 2U	PSI 9080-40 2U PS 9080-40 2U	PSI 9200-15 2U PS 9200-15 2U	PSI 9360-10 2U PS 9360-10 2U	PSI 9500-06 2U PS 9500-06 2U	PSI 9750-04 2U PS 9750-04 2U
VOLTAGE	0...40 V	0...80 V	0...200 V	0...360 V	0...500 V	0...750 V
CURRENT	0...40 A	0...40 A	0...15 A	0...10 A	0...6 A	0...4 A
POWER	0...1000 W	0...1000 W	0...1000 W	0...1000 W	0...1000 W	0...1000 W
VOLTAGE RIPPLE	114 mV _{pp} / 8 mV _{RMS}	114 mV _{pp} / 8 mV _{RMS}	164 mV _{pp} / 34 mV _{RMS}	210 mV _{pp} / 59 mV _{RMS}	190 mV _{pp} / 48 mV _{RMS}	50 mV _{pp} / 6 mV _{RMS}

MODELS "2U"	PSI 9040-60 2U PS 9040-60 2U	PSI 9080-60 2U PS 9080-60 2U	PSI 9200-25 2U PS 9200-25 2U	PSI 9360-15 2U PS 9360-15 2U	PSI 9500-10 2U PS 9500-10 2U	PSI 9750-06 2U PS 9750-06 2U
VOLTAGE	0...40 V	0...80 V	0...200 V	0...360 V	0...500 V	0...750 V
CURRENT	0...60 A	0...60 A	0...25 A	0...15 A	0...10 A	0...6 A
POWER	0...1500 W	0...1500 W	0...1500 W	0...1500 W	0...1500 W	0...1500 W
VOLTAGE RIPPLE	114 mV _{pp} / 8 mV _{RMS}	114 mV _{pp} / 8 mV _{RMS}	164 mV _{pp} / 34 mV _{RMS}	210 mV _{pp} / 59 mV _{RMS}	190 mV _{pp} / 48 mV _{RMS}	212 mV _{pp} / 60 mV _{RMS}

MODELS "2U"	PSI 9040-120 2U PS 9040-120 2U	PSI 9080-120 2U PS 9080-120 2U	PSI 9200-50 2U PS 9200-50 2U	PSI 9360-30 2U PS 9360-30 2U	PSI 9500-20 2U PS 9500-20 2U	PSI 9750-12 2U PS 9750-12 2U
VOLTAGE	0...40 V	0...80 V	0...200 V	0...360 V	0...500 V	0...750 V
CURRENT	0...120 A	0...120 A	0...50 A	0...30 A	0...20 A	0...12 A
POWER	0...3000 W	0...3000 W	0...3000 W	0...3000 W	0...3000 W	0...3000 W
VOLTAGE RIPPLE	114 mV _{pp} / 8 mV _{RMS}	114 mV _{pp} / 8 mV _{RMS}	164 mV _{pp} / 34 mV _{RMS}	210 mV _{pp} / 59 mV _{RMS}	190 mV _{pp} / 48 mV _{RMS}	212 mV _{pp} / 60 mV _{RMS}

PROGRAMMABLE DC HIGH EFFICIENCY POWER SUPPLIES

3.3 KW - 15 KW IN 19" FORMAT



PSI 9000 3U



PS 9000 3U

U I P R OVP OCP OPP OTP USB LAN MS

- For 208 V or 400 V supply (PSI / PS)
- For 380 V, 400 V and 480 V supply (PSI WR)
- Flexible power stage
- 40 V models for SELV
- Intuitive handling due to color TFT touch panel
- Extensive function generator (PSI)
- Simulation of an internal resistance (PSI)
- For photovoltaics, battery and fuel cell tests (PSI)
- Master-slave feature (PSI)
- Protective features (OVP, OCP, OT...)
- USB and analog interface integrated
- Ethernet interface integrated (PS)
- Plug&Play slot for digital interfaces (PSI)
- All interfaces galvanically isolated
- Remote control software EA Power Control
- LabVIEW VI package
- IVI driver package (PSI)
- Slave units for power stacking (PSI)
- Custom built cabinet systems up to 480 kW

TECHNICAL DATA

	SERIES PS 9000 3U	SERIES PSI 9000 3U	SERIES PSI 9000 WR
AC	Standard models: 400 V, -10/+15%, 2/3ph 208 V models: 208 V, ±10%, 2/3ph	Standard models: 400 V, -10/+15%, 2/3ph 208 V models: 208 V, ±10%, 2/3ph	380/400/480 V, ±10%
AC CONNECTION	Multi-phase, 45...65 Hz, power factor >0.99		
ACCURACY VOLTAGE	≤0.1% of rated value		
ACCURACY CURRENT	≤0.2% of rated value		
ACCURACY POWER	≤1% of rated value		
PROTECTIONS	Overtemperature, overvoltage, overcurrent, overpower, power fail		
STANDARDS	EN 61010 (electrical safety), EN 61000-6-3 class B, EN 61000-6-2 (EMI and noise suppression), TÜV approved		
COOLING	Temperature controlled fans (optional: water-cooled version)		
DIMENSIONS (W x H x D)	19" x 3 U x 609 mm (24 in)	19" x 3 U x 609 mm (24 in)	19" x 3 U x 669 mm (26.3 in)

OVERVIEW

SERIES	POWER RATINGS	VOLTAGE RATINGS	CURRENT RATINGS	R MODE	HEIGHT	FG ⁽¹⁾	MS ⁽²⁾	DISPLAY	OPTIONAL DIGITAL INTERFACES
PS 9000 3U	5 / 10 / 15 kW	40 - 1500 V	20 - 510 A	no	3 U	no	no	TFT	–
PSI 9000 3U	5 / 10 / 15 kW	40 - 1500 V	20 - 510 A	yes	3 U	yes	yes	TFT Touch	GPIO, CAN, Profibus, Ethernet, CANopen, EtherCAT, RS232
PSI 9000 WR	5 / 10 / 15 kW	60 - 1500 V	20 - 510 A	yes	3 U	yes	yes	TFT Touch	GPIO, CAN, Profibus, Ethernet, CANopen, EtherCAT, RS232

(1 Function generator (2 Master-slave)

MODELS	PSI 9040-170 3U PS 9040-170 3U	PSI 9060-170 WR	PSI 9080-170 3U PSI 9080-170 WR PS 9080-170 3U	PSI 9200-70 3U PSI 9200-70 WR PS 9200-70 3U	PSI 9360-40 3U PSI 9360-40 WR PS 9360-40 3U	PSI 9500-30 3U PSI 9500-30 WR PS 9500-30 3U
VOLTAGE	0...40 V	0...60 V	0...80 V	0...200 V	0...360 V	0...500 V
CURRENT	0...170 A	0...170 A	0...170 A	0...70 A	0...40 A	0...30 A
POWER	0...3300 W	0...5000 W	0...5000 W	0...5000 W	0...5000 W	0...5000 W
INSULATION *	±400 V / ±400 V	±400 V / ±400 V	±400 V / ±400 V	±400 V / ±600 V	±400 V / ±600 V	±725 V / ±1000 V ±1500 V / ±1800 V (WR)
WEIGHT	17 kg (37.5 lbs)	18 kg (39.7 lbs)	17 kg (37.5 lbs) 18 kg (WR) (39.7 lbs)	17 kg (37.5 lbs) 18 kg (WR) (39.7 lbs)	17 kg (37.5 lbs) 18 kg (WR) (39.7 lbs)	17 kg (37.5 lbs) 18 kg (WR) (39.7 lbs)

MODELS	PSI 9750-20 3U PSI 9750-20 WR PS 9750-20 3U	PSI 9040-340 3U PS 9040-340 3U	PSI 9040-510 3U PS 9040-510 3U	PSI 9060-340 WR	PSI 9080-340 3U PSI 9080-340 WR PS 9080-340 3U	PSI 9200-140 3U PSI 9200-140 WR PS 9200-140 3U
VOLTAGE	0...750 V	0...40 V	0...40 V	0...60 V	0...80 V	0...200 V
CURRENT	0...20 A	0...340 A	0...510 A	0...340 A	0...340 A	0...140 A
POWER	0...5000 W	0...6600 W	0...10000 W	0...10000 W	0...10000 W	0...10000 W
INSULATION *	±725 V / ±1000 V ±1500 V / ±1800 V (WR)	±400 V / ±400 V	±400 V / ±400 V	±400 V / ±400 V	±400 V / ±400 V	±400 V / ±600 V
WEIGHT	17 kg (37.5 lbs) 18 kg (WR) (39.7 lbs)	24 kg (53 lbs)	30 kg (66 lbs)	25 kg (55 lbs)	24 kg (53 lbs) 25 kg (WR) (55 lbs)	24 kg (53 lbs) 25 kg (WR) (55 lbs)

MODELS	PSI 9360-80 3U PSI 9360-80 WR PS 9360-80 3U	PSI 9500-60 3U PSI 9500-60 WR PS 9500-60 3U	PSI 9750-40 3U PSI 9750-40 WR PS 9750-40 3U	PSI 91000-30 3U PS 91000-30 3U	PSI 9060-510 WR	PSI 9080-510 3U PSI 9080-510 WR PS 9080-510 3U
VOLTAGE	0...360 V	0...500 V	0...750 V	0...1000 V	0...60 V	0...80 V
CURRENT	0...80 A	0...60 A	0...40 A	0...30 A	0...510 A	0...510 A
POWER	0...10000 W	0...10000 W	0...10000 W	0...10000 W	0...15000 W	0...15000 W
INSULATION *	±400 V / ±600 V	±725 V / ±1000 V ±1500 V / ±1800 V (WR)	±725 V / ±1000 V ±1500 V / ±1800 V (WR)	±725 V / ±1000 V	±400 V / ±400 V	±400 V / ±400 V
WEIGHT	24 kg (53 lbs) 25 kg (WR) (55 lbs)	24 kg (53 lbs) 25 kg (WR) (55 lbs)	24 kg (53 lbs) 25 kg (WR) (55 lbs)	25 kg (55 lbs)	31 kg (68 lbs)	30 kg (66 lbs) 32 kg (WR) (70.5 lbs)

MODELS	PSI 9200-210 3U PSI 9200-210 WR PS 9200-210 3U	PSI 9360-120 3U PSI 9360-120 WR PS 9360-120 3U	PSI 9500-90 3U PSI 9500-90 WR PS 9500-90 3U	PSI 9750-60 3U PSI 9750-60 WR PS 9750-60 3U	PSI 91000-40 3U PSI 91000-40 WR PS 91000-40 3U	PSI 91500-30 3U PSI 91500-30 WR PS 91500-30 3U
VOLTAGE	0...200 V	0...360 V	0...500 V	0...750 V	0...1000 V	0...1500 V
CURRENT	0...210 A	0...120 A	0...90 A	0...60 A	0...40 A	0...30 A
POWER	0...15000 W	0...15000 W	0...15000 W	0...15000 W	0...15000 W	0...15000 W
INSULATION *	±400 V / ±600 V	±400 V / ±600 V	±725 V / ±1000 V ±1500 V / ±1800 V (WR)	±725 V / ±1000 V ±1500 V / ±1800 V (WR)	±725 V / ±1000 V ±1500 V / ±1800 V (WR)	±725 V / ±1000 V ±1500 V / ±1800 V (WR)
WEIGHT	30 kg (66 lbs) 32 kg (WR) (70.5 lbs)	30 kg (66 lbs) 32 kg (WR) (70.5 lbs)	30 kg (66 lbs) 32 kg (WR) (70.5 lbs)	30 kg (66 lbs) 32 kg (WR) (70.5 lbs)	30 kg (66 lbs) 32 kg (WR) (70.5 lbs)	30 kg (66 lbs) 32 kg (WR) (70.5 lbs)

* Left: DC- to PE / right: DC+ to PE

PROGRAMMABLE DC HIGH RATING POWER SUPPLIES

30 KW IN 19" FORMAT



PSI 10000

U I P R OVP OCP OPP OTP USB LAN MS

- For 380 V, 400 V and 480 V supply (standard models)
- For 208 V supply (208 V models)
- Flexible power stage
- 60 V model for SELV
- Power 30 kW (standard) or 15 kW (208 V version)
- Intuitive handling due to multi-language color TFT touch panel
- Extensive function generator
- For photovoltaics, battery and fuel cell tests
- Master-slave feature
- Protective features (OVP, OCP, OT...)
- USB, Ethernet and analog interface integrated
- Plug&Play slot for digital interfaces
- All interfaces galvanically isolated
- Remote control software EA Power Control
- LabVIEW VI package
- IVI driver support
- SCPI and ModBus protocol
- 19" chassis in 4 U
- Optional water cooled variant (hermetic chassis)
- Cabinet systems for up to 1920 kW (p. 18)
- Custom built cabinet systems upon request

TECHNICAL DATA

	SERIES PSI 10000
AC	Standard models: 380/400/480 V, -10/+15%, three-phase, 45...65 Hz, power factor >0.99 208 V models : 208 V, ±10%, three-phase, 45...65 Hz, power factor >0.99
ACCURACY VOLTAGE	≤0.05% of rated value
ACCURACY CURRENT	≤0.1% of rated value
ACCURACY POWER	≤0.3% of rated value
PROTECTIONS	Overtemperature, overvoltage, overcurrent, overpower, power fail
STANDARDS	EN 61010 (electrical safety), EN 61000-6-3 class B, EN 61000-6-2 (EMI and noise suppression)
COOLING	Temperature controlled fans or water (optional, fanless)
FEATURED INTERFACES	USB, Ethernet, Analog
OPTIONAL INTERFACES	CAN, EtherCAT, Profinet, Profibus, RS232, CANopen, ModBus TCP
DIMENSIONS (W x H x D)	19" x 4 U x 670 mm (26.4 in)

OVERVIEW

SERIES	POWER	VOLTAGES	CURRENTS	R MODE	FG ⁽¹⁾	MS ⁽²⁾	DISPLAY	OPTIONAL DIGITAL INTERFACES
PSI 10000	30 kW	60 - 2000 V	40 - 1000 A	yes	yes	yes	TFT Touch	CAN, CANopen, Profibus, Profinet, EtherCAT, RS232

(1) Function generator (2) Master-slave

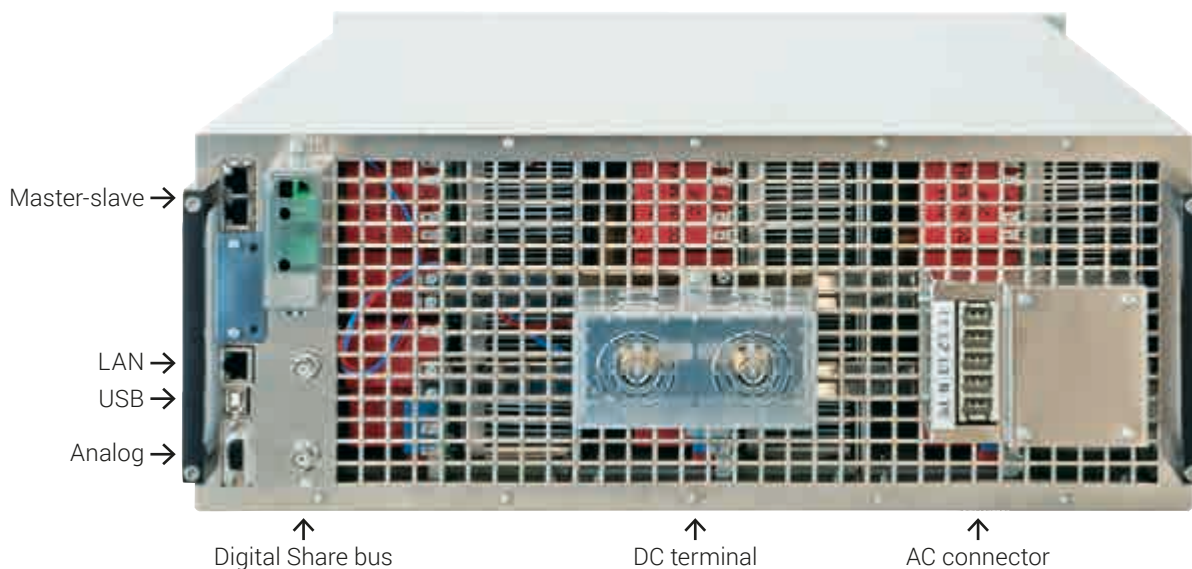
MODELS	PSI 10060-1000	PSI 10080-1000	PSI 10200-420	PSI 10360-240	PSI 10500-180
VOLTAGE	0...60 V	0...80 V	0...200 V	0...360 V	0...500 V
CURRENT	0...1000 A	0...1000 A	0...420 A	0...240 A	0...180 A
POWER (STANDARD)	0...30000 W	0...30000 W	0...30000 W	0...30000 W	0...30000 W
POWER (208 V)	0...15000 W	0...15000 W	0...15000 W	0...15000 W	0...15000 W
INSULATION *	±500 V / ±600 V	±500 V / ±600 V	±800 V / ±1000 V	±1500 V / ±2000 V	±1500 V / ±2000 V
EFFICIENCY	Up to 94%	Up to 94%	Up to 94.2%	Up to 94.6%	Up to 95.3%
WEIGHT	50 kg (110 lbs)	50 kg (110 lbs)	50 kg (110 lbs)	50 kg (110 lbs)	50 kg (110 lbs)

MODELS	PSI 10750-120	PSI 11000-80	PSI 11500-60	PSI 12000-40
VOLTAGE	0...750 V	0...1000 V	0...1500 V	0...2000 V
CURRENT	0...120 A	0...80 A	0...60 A	0...40 A
POWER (STANDARD)	0...30000 W	0...30000 W	0...30000 W	0...30000 W
POWER (208 V)	0...15000 W	0...15000 W	0...15000 W	0...15000 W
INSULATION *	±1500 V / ±2000 V	±1500 V / ±2000 V	±1500 V / ±2000 V	±1500 V / ±2000 V
EFFICIENCY	Up to 95.5%	Up to 94.6%	Up to 95.3%	Up to 95.5%
WEIGHT	50 kg (110 lbs)	50 kg (110 lbs)	50 kg (110 lbs)	50 kg (110 lbs)

* Left: DC- to PE / right: DC+ to PE



Examples from the TFT touch screen with graphical recording feature



BIDIRECTIONAL DC HIGH EFFICIENCY POWER SUPPLIES

5 KW - 15 KW IN 19" FORMAT



PSB 9000

U I P R OVP OCP OPP OTP USB MS

- For 380 V, 400 V and 480 V supply (standard models)
- For 208 V supply (208 V models)
- Flexible power stage
- 60 V model for SELV
- Bidirectional - power supply and electronic load in one
- Energy recovery of consumed energy in sink operation
- Intuitive handling due to multi-language color TFT touch panel
- Extensive function generator
- For photovoltaics, battery and fuel cell tests
- Master-slave feature
- Protective features (OVP, OCP, OT...)
- USB and analog interface integrated
- Plug&Play slot for digital interfaces
- All interfaces galvanically isolated
- Remote control software EA Power Control
- LabVIEW VI package
- IVI driver support
- Slave units for power stacking (15 kW models only)
- 19" chassis in 3U
- Cabinet systems up to 90 kW (p. 16)
- Custom built cabinet systems up to 480 kW

TECHNICAL DATA

SERIES PSB 9000	
AC	Standard models: 380/400/480 V, -10/+15%, three-phase, 45...65 Hz, power factor >0.99 208 V models: 208 V, ±10%, three-phase, 45...65 Hz, power factor >0.99
ACCURACY VOLTAGE	≤0.1% of rated value
ACCURACY CURRENT	≤0.2% of rated value
ACCURACY POWER	≤1% of rated value
ACCURACY RESISTANCE	≤1% of rated resistance + ≤0.3% of rated current
PROTECTIONS	Overtemperature, overvoltage, overcurrent, overpower, power fail
STANDARDS	EN 50160 (grid class 2), EN 61010 (electrical safety), EN 61000 (EMI and noise suppression)
COOLING	Temperature controlled fans / optional: water-cooled version
OPTIONAL INTERFACES	CAN, GPIB, Ethernet, EtherCAT, Profinet, Profibus, RS232, CANopen
DIMENSIONS (W x H x D)	19" x 3 U x 669 mm (26.3 in)

OVERVIEW

SERIES	POWER	VOLTAGES	CURRENTS	R MODE	FG ⁽¹⁾	MS ⁽²⁾	DISPLAY	OPTIONAL DIGITAL INTERFACES
PSB 9000	5 / 10 / 15 kW	60 - 1500 V	20 - 360 A	yes	yes	yes	TFT Touch	CAN, CANopen, Profibus, Profinet, EtherCAT, RS232

(1) Function generator (2) Master-slave

MODELS	PSB 9060-120	PSB 9080-120	PSB 9200-70	PSB 9360-40	PSB 9500-30
VOLTAGE	0...60 V	0...80 V	0...200 V	0...360 V	0...500 V
RIPPLE OF VOLTAGE	≤200 mV _{PP} / ≤16 mV _{RMS}	≤200 mV _{PP} / ≤16 mV _{RMS}	≤300 mV _{PP} / ≤40 mV _{RMS}	≤320 mV _{PP} / ≤55 mV _{RMS}	≤350 mV _{PP} / ≤70 mV _{RMS}
CURRENT	0...120 A	0...120 A	0...70 A	0...40 A	0...30 A
POWER (STANDARD)	0...5000 W	0...5000 W	0...5000 W	0...5000 W	0...5000 W
POWER (208 V)	0...2500 W	0...2500 W	0...2500 W	0...2500 W	0...2500 W
INSULATION *	±400 V / ±400 V	±400 V / ±400 V	±400 V / ±600 V	±400 V / ±600 V	±1500 V / ±1800 V
WEIGHT	18 kg (39.7 lbs)	18 kg (39.7 lbs)	18 kg (39.7 lbs)	18 kg (39.7 lbs)	18 kg (39.7 lbs)

MODELS	PSB 9750-20	PSB 9060-240	PSB 9080-240	PSB 9200-140	PSB 9360-80
VOLTAGE	0...750 V	0...60 V	0...80 V	0...200 V	0...360 V
RIPPLE OF VOLTAGE	≤800 mV _{PP} / ≤200 mV _{RMS}	≤320 mV _{PP} / ≤25 mV _{RMS}	≤320 mV _{PP} / ≤25 mV _{RMS}	≤300 mV _{PP} / ≤40 mV _{RMS}	≤320 mV _{PP} / ≤55 mV _{RMS}
CURRENT	0...20 A	0...240 A	0...240 A	0...140 A	0...80 A
POWER (STANDARD)	0...5000 W	0...10000 W	0...10000 W	0...10000 W	0...10000 W
POWER (208 V)	0...2500 W	0...5000 W	0...5000 W	0...5000 W	0...5000 W
INSULATION *	±1500 V / ±1800 V	±400 V / ±400 V	±400 V / ±400 V	±400 V / ±600 V	±400 V / ±600 V
WEIGHT	18 kg (39.7 lbs)	25 kg (55 lbs)	25 kg (55 lbs)	25 kg (55 lbs)	25 kg (55 lbs)

MODELS	PSB 9500-60	PSB 9750-40	PSB 9060-360 PSB 9060-360 SLAVE	PSB 9080-360 PSB 9080-360 SLAVE	PSB 9200-210 PSB 9200-210 SLAVE
VOLTAGE	0...500 V	0...750 V	0...60 V	0...80 V	0...200 V
RIPPLE OF VOLTAGE	≤350 mV _{PP} / ≤70 mV _{RMS}	≤800 mV _{PP} / ≤200 mV _{RMS}	≤320 mV _{PP} / ≤25 mV _{RMS}	≤320 mV _{PP} / ≤25 mV _{RMS}	≤300 mV _{PP} / ≤40 mV _{RMS}
CURRENT	0...60 A	0...40 A	0...360 A	0...360 A	0...210 A
POWER (STANDARD)	0...10000 W	0...10000 W	0...15000 W	0...15000 W	0...15000 W
POWER (208 V)	0...5000 W	0...5000 W	0...7500 W	0...7500 W	0...7500 W
INSULATION *	±1500 V / ±1800 V	±1500 V / ±1800 V	±400 V / ±400 V	±400 V / ±400 V	±400 V / ±600 V
WEIGHT	25 kg (55 lbs)	25 kg (55 lbs)	32 kg (70.5 lbs)	32 kg (70.5 lbs)	32 kg (70.5 lbs)

MODELS	PSB 9360-120 PSB 9360-120 SLAVE	PSB 9500-90 PSB 9500-90 SLAVE	PSB 9750-60 PSB 9750-60 SLAVE	PSB 91000-40 PSB 91000-40 SLAVE	PSB 91500-30 PSB 91500-30 SLAVE
VOLTAGE	0...360 V	0...500 V	0...750 V	0...1000 V	0...1500 V
RIPPLE OF VOLTAGE	≤320 mV _{PP} / ≤55 mV _{RMS}	≤350 mV _{PP} / ≤70 mV _{RMS}	≤800 mV _{PP} / ≤200 mV _{RMS}	≤1600 mV _{PP} / ≤300 mV _{RMS}	≤2400 mV _{PP} / ≤400 mV _{RMS}
CURRENT	0...120 A	0...90 A	0...60 A	0...40 A	0...30 A
POWER (STANDARD)	0...15000 W	0...15000 W	0...15000 W	0...15000 W	0...15000 W
POWER (208 V)	0...7500 W	0...7500 W	0...7500 W	0...7500 W	0...7500 W
INSULATION *	±400 V / ±600 V	±1500 V / ±1800 V	±1500 V / ±1800 V	±1500 V / ±1800 V	±1500 V / ±1800 V
WEIGHT	32 kg (70.5 lbs)	32 kg (70.5 lbs)	32 kg (70.5 lbs)	32 kg (70.5 lbs)	32 kg (70.5 lbs)

* Left: DC- to PE / right: DC+ to PE

BIDIRECTIONAL DC HIGH RATING POWER SUPPLIES

30 KW IN 19" FORMAT



PSB 10000

U I P R OVP OCP OPP OTP USB LAN MS

- For 380 V, 400 V and 480 V supply (standard models)
- For 208 V supply (208 V models)
- Flexible power stage
- 60 V model for SELV
- Bidirectional - power supply and electronic load in one
- Power 30 kW (standard) or 15 kW (208 V version)
- Energy recovery of consumed energy in sink operation
- Intuitive handling due to multi-language color TFT touch panel
- Extensive function generator
- For photovoltaics, battery and fuel cell tests
- Master-slave feature
- USB, Ethernet and analog interface integrated
- Plug&Play slot for digital interfaces
- All interfaces galvanically isolated
- Remote control software EA Power Control
- Simulation software EA Battery Simulator
- LabVIEW VI package
- 19" chassis in 4 U
- Optional water cooled variant (hermetic chassis)
- Cabinet systems for up to 1920 kW (p. 18)
- Custom built cabinet systems upon request

TECHNICAL DATA

SERIES PSB 10000	
AC	Standard: 380/400/480 V, -10/+15%, three-phase, 45...65 Hz, power factor >0.99 208 V models: 208 V, ±105%, three-phase, 45...65 Hz, power factor >0.99
ACCURACY VOLTAGE	≤0.05% of rated value
ACCURACY CURRENT	≤0.1% of rated value
ACCURACY POWER	≤0.3% of rated value
ACCURACY RESISTANCE	≤0.3% of rated resistance + ≤0.1% of rated current
PROTECTIONS	Overtemperature, overvoltage, overcurrent, overpower, power fail
STANDARDS	EN 50160, EN 61010 (electrical safety), EN 61000-6-3 class B, EN 61000-6-2 (EMI and noise suppression)
COOLING	Temperature controlled fans or water (optional, fanless)
FEATURED INTERFACES	USB, Ethernet, Analog
OPTIONAL INTERFACES	CAN, EtherCAT, Profinet, Profibus, RS232, CANopen, ModBus TCP
DIMENSIONS (W x H x D)	19" x 4 U x 670 mm (26.4 in)

OVERVIEW

SERIES	POWER	VOLTAGES	CURRENTS	R MODE	FG ⁽¹⁾	MS ⁽²⁾	DISPLAY	OPTIONAL DIGITAL INTERFACES
PSB 10000	30 kW	60 - 2000 V	40 - 1000 A	yes	yes	yes	TFT Touch	CAN, CANopen, Profibus, Profinet, EtherCAT, RS232

(1) Function generator (2) Master-slave

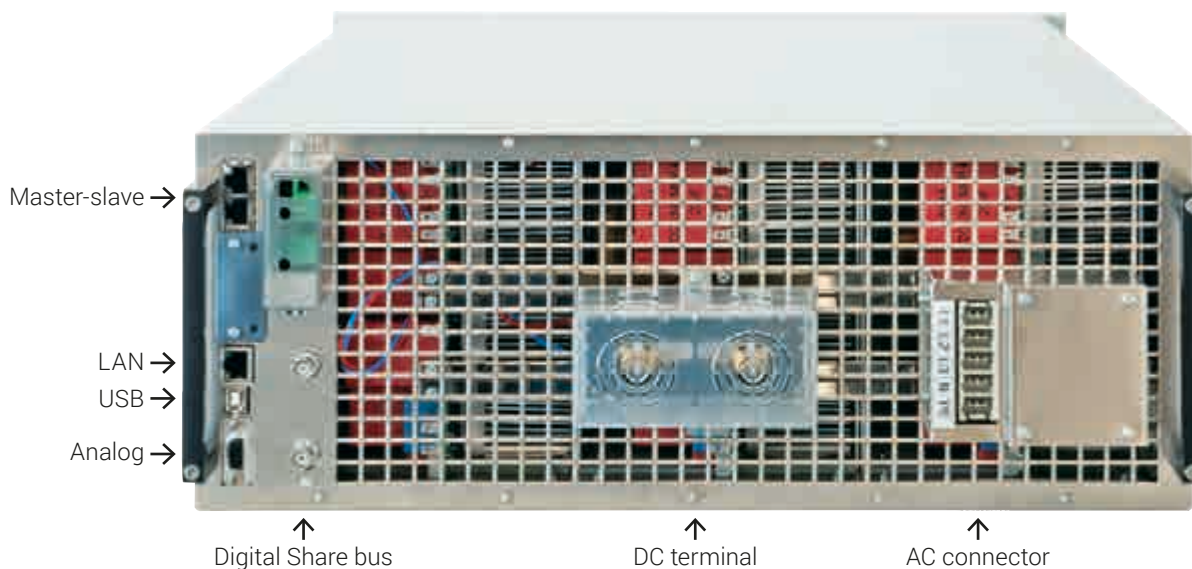
MODELS	PSB 10060-1000	PSB 10080-1000	PSB 10200-420	PSB 10360-240	PSB 10500-180
VOLTAGE	0...60 V	0...80 V	0...200 V	0...360 V	0...500 V
CURRENT	0...1000 A	0...1000 A	0...420 A	0...240 A	0...180 A
POWER (STANDARD)	0...30000 W	0...30000 W	0...30000 W	0...30000 W	0...30000 W
POWER (208 V)	0...15000 W	0...15000 W	0...15000 W	0...15000 W	0...15000 W
RESISTANCE	0.003...5 Ω	0.003...5 Ω	0.016...25 Ω	0.05...90 Ω	0.08...170 Ω
INSULATION *	±500 V / ±600 V	±500 V / ±600 V	±800 V / ±1000 V	±1500 V / ±2000 V	±1500 V / ±2000 V
EFFICIENCY	Up to 94%	Up to 94%	Up to 94.2%	Up to 94.6%	Up to 95.3%
WEIGHT	50 kg (110 lbs)	50 kg (110 lbs)	50 kg (110 lbs)	50 kg (110 lbs)	50 kg (110 lbs)

MODELS	PSB 10750-120	PSB 11000-80	PSB 11500-60	PSB 12000-40
VOLTAGE	0...750 V	0...1000 V	0...1500 V	0...2000 V
CURRENT	0...120 A	0...80 A	0...60 A	0...40 A
POWER (STANDARD)	0...30000 W	0...30000 W	0...30000 W	0...30000 W
POWER (208 V)	0...15000 W	0...15000 W	0...15000 W	0...15000 W
RESISTANCE	0.2...370 Ω	0.4...650 Ω	0.8...1500 Ω	1.7...2700 Ω
INSULATION *	±1500 V / ±2000 V	±1500 V / ±2000 V	±1500 V / ±2000 V	±1500 V / ±2000 V
EFFICIENCY	Up to 95.5%	Up to 94.6%	Up to 95.3%	Up to 95.5%
WEIGHT	50 kg (110 lbs)	50 kg (110 lbs)	50 kg (110 lbs)	50 kg (110 lbs)

* Left: DC- to PE / right: DC+ to PE



Examples from the TFT touch screen with graphical recording feature



HIGH RATING DC POWER SUPPLY SYSTEMS

30 KW - 120 KW IN 19" CABINETS



PSB 10000 24U

U I P R OVP OCP OPP OTP USB LAN

- For 380 V, 400 V and 480 V supply
- Flexible power stage
- 60 V models for SELV
- With bidirectional power supplies with energy recovery (PSB) or standard power supplies (PSI)
- Intuitive handling due to multi-language color TFT touch panel
- Extensive function generator
- For photovoltaics, battery and fuel cell tests
- Master-slave feature (PSI)
- Protective features (OVP, OCP, OT...)
- Plug&Play slot for digital interfaces
- All interfaces galvanically isolated
- Optional: water cooling
- Optional: grid protection ⁽¹⁾ plus emergency stop
- Optional: emergency stop without grid protection
- Remote control software EA Power Control
- LabVIEW VI package
- IVI driver support
- SCPI and ModBus protocol
- 19" cabinet in 24 U
- Extendable to 4 units per cabinet

(1 Grid protection device for backfeeding installations according to VDE AR-N 4105

OVERVIEW

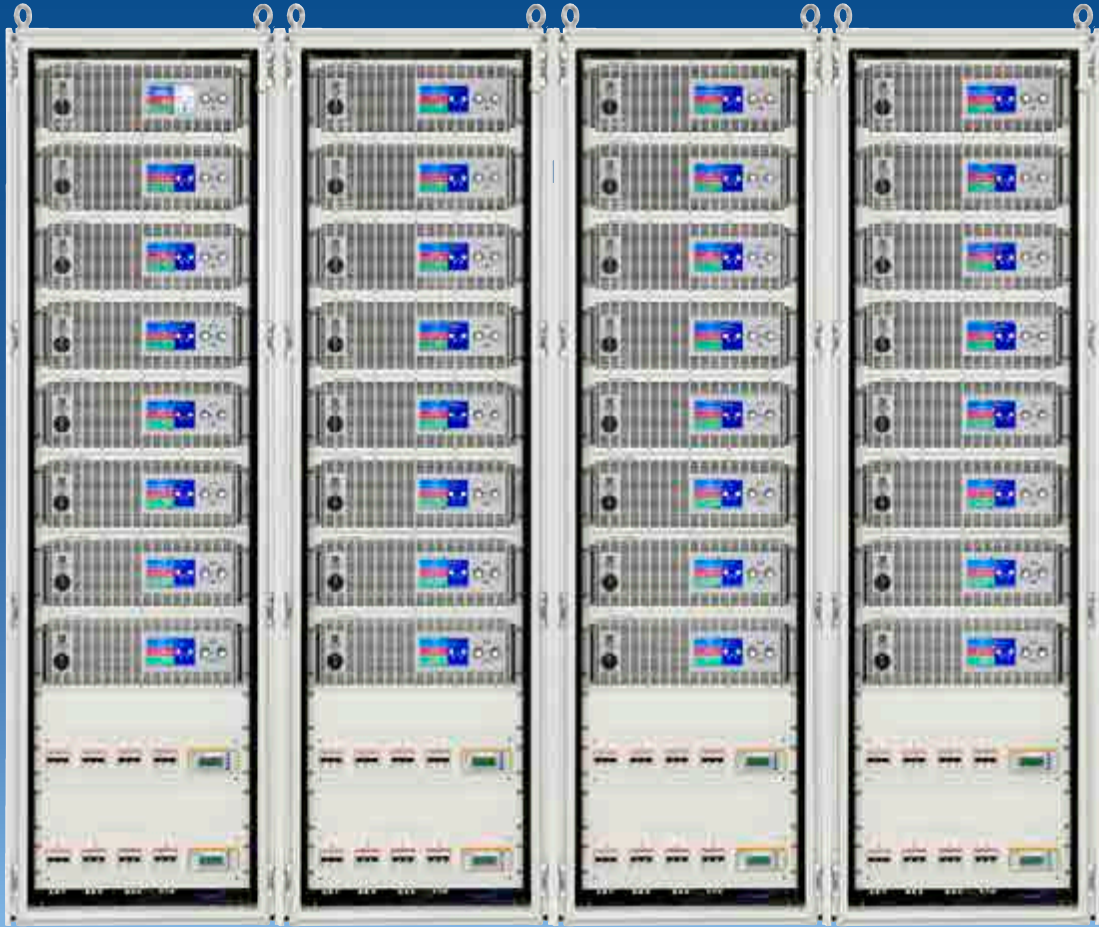
SERIES	POWERS	VOLTAGES	CURRENTS	R MODE	FG ¹	DISPLAY	OPTIONAL DIGITAL INTERFACES
PSB 10000 24U	30 kW - 120 kW	60 - 2000 V	40 - 3000 A	yes	yes	TFT Touch	CAN, CANopen, Profibus, Profinet, EtherCAT, RS232

(1 Function generator (2 Master-Slave

MODELS PSB	MODELS PSI	VOLTAGE RATINGS	CURRENT RATINGS	POWER RATINGS	INSULATION *		INSTALLED UNITS / REMAINING SLOTS
PSB 10060-1000	PSI 10060-1000	0...60 V	0...1000 A	0...30 kW	± 500 V	+ 600 V	1 / 3
PSB 10080-1000	PSI 10080-1000	0...80 V	0...1000 A	0...30 kW	± 500 V	+ 600 V	1 / 3
PSB 10200-420	PSI 10200-420	0...200 V	0...420 A	0...30 kW	± 800 V	+ 1000 V	1 / 3
PSB 10360-240	PSI 10360-240	0...360 V	0...240 A	0...30 kW	± 1500 V	+ 2000 V	1 / 3
PSB 10500-180	PSI 10500-180	0...500 V	0...180 A	0...30 kW	± 1500 V	+ 2000 V	1 / 3
PSB 10750-120	PSI 10750-120	0...750 V	0...120 A	0...30 kW	± 1500 V	+ 2000 V	1 / 3
PSB 11000-80	PSI 11000-80	0...1000 V	0...80 A	0...30 kW	± 1500 V	+ 2000 V	1 / 3
PSB 11500-60	PSI 11500-60	0...1500 V	0...60 A	0...30 kW	± 1500 V	+ 2000 V	1 / 3
PSB 12000-40	PSI 12000-40	0...2000 V	0...40 A	0...30 kW	± 1500 V	+ 2000 V	1 / 3
PSB 10060-2000	PSI 10060-2000	0...60 V	0...2000 A	0...60 kW	± 500 V	+ 600 V	2 / 2
PSB 10080-2000	PSI 10080-2000	0...80 V	0...2000 A	0...60 kW	± 500 V	+ 600 V	2 / 2
PSB 10200-840	PSI 10200-840	0...200 V	0...840 A	0...60 kW	± 800 V	+ 1000 V	2 / 2
PSB 10360-480	PSI 10360-480	0...360 V	0...480 A	0...60 kW	± 1500 V	+ 2000 V	2 / 2
PSB 10500-360	PSI 10500-360	0...500 V	0...360 A	0...60 kW	± 1500 V	+ 2000 V	2 / 2
PSB 10750-240	PSI 10750-240	0...750 V	0...120 A	0...60 kW	± 1500 V	+ 2000 V	2 / 2
PSB 11000-120	PSI 11000-120	0...1000 V	0...80 A	0...60 kW	± 1500 V	+ 2000 V	2 / 2
PSB 11500-120	PSI 11500-120	0...1500 V	0...60 A	0...60 kW	± 1500 V	+ 2000 V	2 / 2
PSB 12000-80	PSI 12000-80	0...2000 V	0...40 A	0...60 kW	± 1500 V	+ 2000 V	2 / 2
PSB 10060-3000	PSI 10060-3000	0...60 V	0...3000 A	0...90 kW	± 500 V	+ 600 V	3 / 1
PSB 10080-3000	PSI 10080-3000	0...80 V	0...3000 A	0...90 kW	± 500 V	+ 600 V	3 / 1
PSB 10200-1260	PSI 10200-1260	0...200 V	0...1260 A	0...90 kW	± 800 V	+ 1000 V	3 / 1
PSB 10360-720	PSI 10360-720	0...360 V	0...720 A	0...90 kW	± 1500 V	+ 2000 V	3 / 1
PSB 10500-540	PSI 10500-540	0...500 V	0...540 A	0...90 kW	± 1500 V	+ 2000 V	3 / 1
PSB 10750-360	PSI 10750-360	0...750 V	0...360 A	0...90 kW	± 1500 V	+ 2000 V	3 / 1
PSB 11000-240	PSI 11000-240	0...1000 V	0...240 A	0...90 kW	± 1500 V	+ 2000 V	3 / 1
PSB 11500-180	PSI 11500-180	0...1500 V	0...180 A	0...90 kW	± 1500 V	+ 2000 V	3 / 1
PSB 12000-120	PSI 12000-120	0...2000 V	0...120 A	0...90 kW	± 1500 V	+ 2000 V	3 / 1
PSB 10200-1680	PSI 10200-1680	0...200 V	0...1680 A	0...120 kW	± 800 V	+ 1000 V	4 / 0
PSB 10360-960	PSI 10360-960	0...360 V	0...960 A	0...120 kW	± 1500 V	+ 2000 V	4 / 0
PSB 10500-720	PSI 10500-720	0...500 V	0...720 A	0...120 kW	± 1500 V	+ 2000 V	4 / 0
PSB 10750-480	PSI 10750-480	0...750 V	0...480 A	0...120 kW	± 1500 V	+ 2000 V	4 / 0
PSB 11000-240	PSI 11000-240	0...1000 V	0...240 A	0...120 kW	± 1500 V	+ 2000 V	4 / 0
PSB 11500-180	PSI 11500-180	0...1500 V	0...180 A	0...120 kW	± 1500 V	+ 2000 V	4 / 0
PSB 12000-160	PSI 12000-160	0...2000 V	0...160 A	0...120 kW	± 1500 V	+ 2000 V	4 / 0

* Left: DC- to PE / right: DC+ to PE

HIGH RATING DC POWER SUPPLY SYSTEMS UP TO 1920 KW IN 19" CABINETS



SYSTEM 960

U I P R OVP OCP OPP OTP USB ...

- For 380 V, 400 V and 480 V supply
 - With bidirectional power supplies with energy recovery (PSB 10000) or electronic loads with energy recovery (ELR 10000) or standard power supplies (PSI 10000)
 - Power ratings of up to 240 kW per cabinet
 - Master-Slave systems with up to 1920 kW
 - Voltage ratings of up to 2000 V per cabinet or system
 - Current ratings of up to 8000 A per cabinet
 - 60 V systems for SELV
 - Intuitive handling with multi-language color TFT touch panel
 - Extensive function generator
 - For photovoltaics, battery and fuel cell tests
 - Protective features (OVP, OCP, OT...)
 - USB, Ethernet and analog interface integrated
 - Plug&Play slot for digital interfaces
 - All interfaces galvanically isolated
 - Built according standard EN 60204-1 (machine safety)
- Various options:
 - Emergency stop circuit
 - Isometer (insulation guard)
 - Grid protection and supervision (for recovering devices)
 - Water cooling
 - 19" cabinets in 24 U or 42 U for following series:
 - PSB 10000
 - PSI 10000
 - ELR 10000

TECHNICAL DATA

	SYSTEM CABINETS							
SYSTEM CODE	240	480	720	960	1200	1440	1680	1920
NR OF CABINETS	1	2	3	4	5	6	7	8
AC SUPPLY	2x three-phase supply per cabinet (L1, L2, L3, N, PE)							
AC VOLTAGE	380 / 400 / 480 V (with installed option "grid protection": 400 V), ±10%, 45-66 Hz, PF > 0.99							
SYSTEM HEIGHT	24 U or 42 U, depending on the number of devices per cabinet							
SYSTEM WIDTH	0.6 m (2 ft)	1.2 m (3.9 ft)	1.8 m (5.9 ft)	2.4 m (7.9 ft)	3 m (9.8 ft)	3.6 m (11.8 ft)	4.2 m (13.8)	4.8 m (15.7 ft)
POSSIBLE NR OF DEVICES	8	9 - 16	17 - 24	25 - 32	33 - 40	41 - 48	49 - 56	57 - 64
MAX. ACHIEVABLE POWER	240 kW	480 kW	720 kW	960 kW	1200 kW	1440 kW	1680 kW	1920 kW

SYSTEM	240	480	720	960
VOLTAGE RATINGS	60 - 2000 V	60 - 2000 V	60 - 2000 V	60 - 2000 V
CURRENT RATINGS	40...8000 A	360...16000 A	680...24000 A	1000...32000 A
POWER RATINGS	(1 - 8) x 30 kW	(9 - 16) x 30 kW	(17 - 24) x 30 kW	(25 - 32) x 30 kW
AC SUPPLY CONNECTORS	2	4	6	8
MAX. AC CURRENT	448 A (2 x 224 A)	996 A (4 x 224 A)	1344 A (6 x 224 A)	1792 A (8 x 224 A)

SYSTEM	1200	1440	1680	1920
VOLTAGE RATINGS	60 - 2000 V	60 - 2000 V	60 - 2000 V	60 - 2000 V
CURRENT RATINGS	1320...40000 A	1640...48000 A	1960...56000 A	2280...64000 A
POWER RATINGS	(33 - 40) x 30 kW	(41 - 48) x 30 kW	(49 - 56) x 30 kW	(57 - 64) x 30 kW
AC SUPPLY CONNECTORS	10	12	14	16
MAX. AC CURRENT	2240 A (10 x 224 A)	2688 A (12 x 224 A)	3136 A (14 x 224 A)	3584 A (16 x 224 A)



Front view of a 24 U model

← Master device →

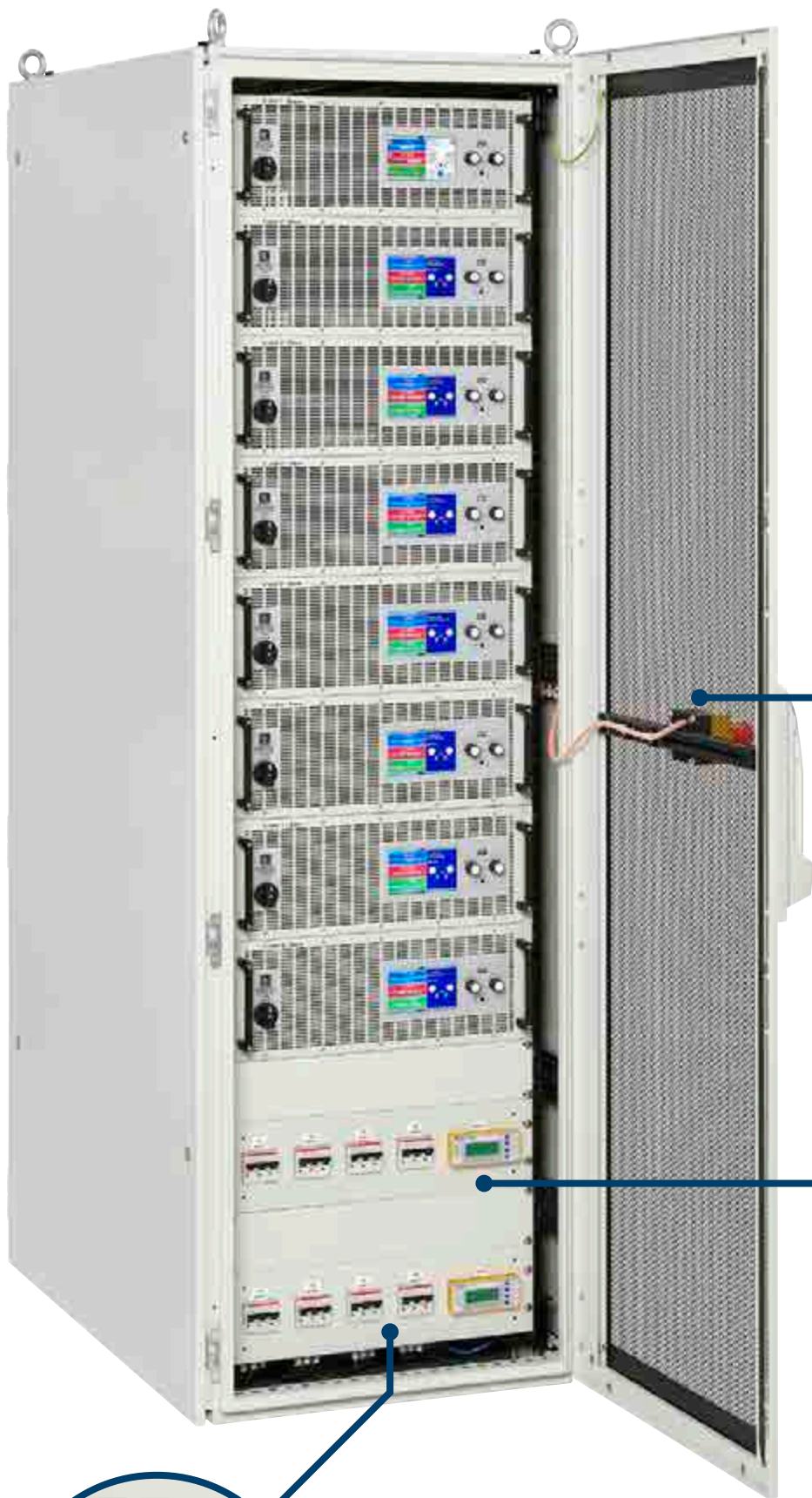
← Slave 1 →

← Slave 2 →

← Slave 3 →



Rear view of a 24 U model



Emergency stop circuit with redundant breakers



Supervision device (optional grid protection for backfeeding systems)



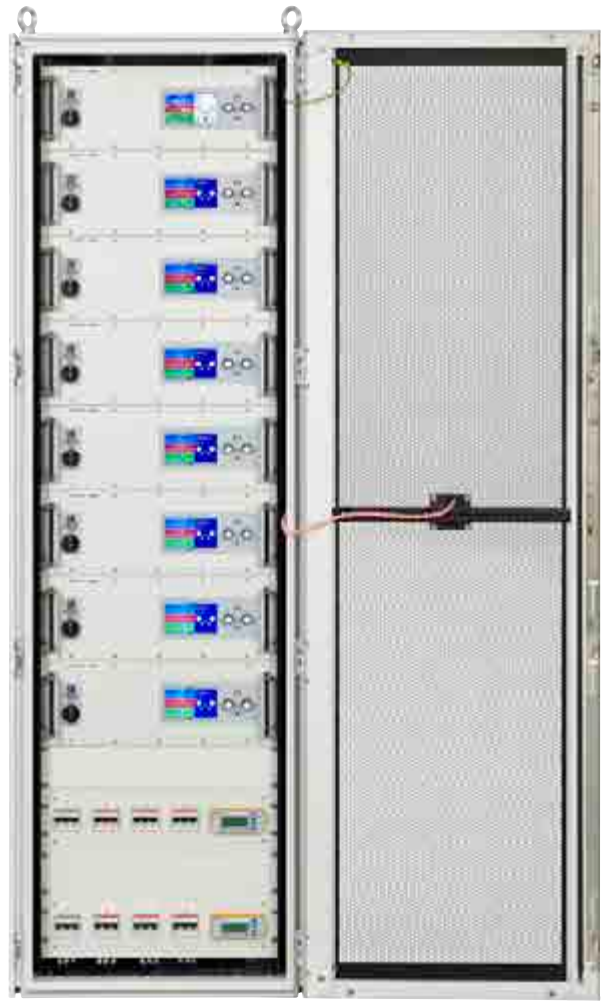
All circuit breakers accessible on the front

Cabinet system 240 kW with 8 units of PSB 10000 in master-slave operation (air cooled)

WATER COOLING



Closeup of the water distribution in a cabinet with eight units and water cooling installed (240 kW system), DC bus



Front view of a water cooled system with eight units in hermetically closed chassis



Closeup of the DC bus (24 U cabinet)



Closeup of Share bus and master-slave bus

PROGRAMMABLE DC LABORATORY POWER SUPPLIES

160 W - 640 W IN DESKTOP ENCLOSURE



PS 3000 C

U I P OVP OCP OPP OTP

- Wide AC input range for worldwide use
- Flexible power stage
- 40 V model for SELV
- Intuitive handling due to color TFT panel
- Multi-language display
- Protective features (OVP, OCP, OT...)
- Optional analog interface
- Optional USB & Ethernet
- All interfaces galvanically isolated
- Remote control software EA Power Control
- LabVIEW VI package
- SCPI & Modbus protocol
- Desktop enclosure with carrying handle

MODELS	PS 3040-10 C	PS 3080-05 C	PS 3200-02 C	PS 3040-20 C	PS 3080-10 C	PS 3200-04 C	PS 3040-40 C	PS 3080-20 C	PS 3200-10 C
AC	90...264 V, 1ph+N, 45...65 Hz, power factor >0.99								
VOLTAGE	0...40 V	0...80 V	0...200 V	0...40 V	0...80 V	0...200 V	0...40 V	0...80 V	0...200 V
CURRENT	0...10 A	0...5 A	0...2 A	0...20 A	0...10 A	0...4 A	0...40 A	0...20 A	0...10 A
POWER	0...160 W	0...160 W	0...160 W	0...320 W	0...320 W	0...320 W	0...640 W	0...640 W	0...640 W
ACCURACY U	≤0.1% of the rated value								
ACCURACY I	≤0.2% of the rated value								
ACCURACY P	≤1% of the rated value								
C _{OUT}	3005 µF	990 µF	194 µF	3005 µF	990 µF	194 µF	4080 µF	2720 µF	500 µF
WEIGHT	2 kg (4.4 lbs)	2 kg (4.4 lbs)	2 kg (4.4 lbs)	2.5 kg (5.5 lbs)	2.5 kg (5.5 lbs)	2.5 kg (5.5 lbs)	3 kg (6.6 lbs)	3 kg (6.6 lbs)	3 kg (6.6 lbs)
COOLING	Temperature controlled fan								
DIMENSIONS	W x H x D: 308 x 103 x 325 mm (12.1 in x 4 in x 12.8 in)						308 x 103 x 350 mm (12.1 in x 4 in x 13.8 in)		

PROGRAMMABLE DC ELECTRONIC LOADS

400 W IN DESKTOP ENCLOSURE



EL 3000 B

CV CC CP CR OVP OCP OPP OTP

- Wide AC input range for worldwide use
- Flexible power stage
- Intuitive handling due to color TFT panel
- Multi-language display
- Function generator for ramps
- Regulation modes CV, CC, CP and CR
- Battery test, MPP tracking simulation
- Protective features (OVP, OCP, OT...)
- Optional analog interface
- Optional USB & Ethernet
- All interfaces galvanically isolated
- Remote control software EA Power Control
- LabVIEW VI package
- SCPI & Modbus protocol
- Desktop enclosure with carrying handle

MODELLE	EL 3080-60 B	EL 3200-25 B	EL 3500-10 B
AC	90...264 V, 1ph+N, 45...65 Hz, max. 40 W power consumption		
VOLTAGE	0...80 V	0...200 V	0...500 V
CURRENT	0...60 A	0...25 A	0...10 A
POWER	0...400 W	0...400 W	0...400 W
RESISTANCE	0.12...40 Ω	1...340 Ω	6...2000 Ω
ACCURACY U	$\leq 0.1\%$ of the rated value		
ACCURACY I	$\leq 0.2\%$ of the rated value		
ACCURACY P	$\leq 0.5\%$ of the rated value		
ACCURACY R	$\leq 1\%$ of the rated resistance + $\leq 0.3\%$ of the rated current		
COOLING / WEIGHT	Temperature controlled fan / 4 kg (8.8 lbs)		
DIMENSIONS	W x H x D: 308 x 103 x 325 mm (12.1 in x 4 in x 12.8 in)		

PROGRAMMABLE DC LABORATORY POWER SUPPLIES

320 W - 1500 W IN DESKTOP ENCLOSURE

PSI 9000 T



PSI 9000 DT



U I P R OVP OCP OPP OTP USB LAN

- Wide AC input range for worldwide use
- Flexible power stage
- 40V models for SELV
- Intuitive handling due to multi-language color TFT touch panel
- Extensive function generator (PSI)
- Simulation of an internal resistance (PSI)
- Protective features (OVP, OCP, OT...)
- Analog interface integrated (PSI 9000 DT)
- USB & Ethernet integrated (PSI 9000 DT)
- USB as standard port
- All interfaces galvanically isolated
- Remote control software EA Power Control
- LabVIEW VI package
- IVI driver package (PSI)
- SCPI & Modbus protocol
- Enclosure as tower or desktop version

TECHNICAL DATA

	SERIES PS 9000 T	SERIES PSI 9000 T	SERIES PSI 9000 DT
AC VOLTAGE RANGE	90...264 V	90...264 V	90...264 V
AC SUPPLY	1ph+N, 45...65 Hz, power factor >0.99		
ACCURACY VOLTAGE	≤0.1% of the rated value		
ACCURACY CURRENT	≤0.2% of the rated value		
ACCURACY POWER	≤1% of the rated value		
PROTECTIONS	Overtemperature, overvoltage, overcurrent, overpower, power fail		
STANDARDS	EN 61326 (EMI and noise immunity), EN 61010 (electrical safety), EN 55022 class B		
COOLING	Temperature controlled fan		
WEIGHT	320 W / 640 W: ≈7 kg (15.4 lbs), 1000W / 1500 W: ≈8 kg (17.6 lbs)		
CHASSIS TYPE	"T" = Tower		"DT" = Desktop (with handle)
DIMENSIONS (W x H x D)	320 W / 640 W: 92 x 239 x 352 mm (3.6 in x 9.4 in x 13.8 in) 1000 W / 1500 W: 92 x 239 x 412 mm (3.6 in x 9.4 in x 16.2 in)		320 W / 640 W: 308 x 103 x 355 mm (12.1 in x 4 in x 14 in) 1000 W / 1500 W: 308 x 103 x 415 mm (12.1 in x 4 in x 16.3 in)

OVERVIEW

SERIES	POWER RATINGS	VOLTAGE RATINGS	CURRENT RATINGS	FUNCTION GENERATOR	DISPLAY	USB	LAN	ANALOG
PS 9000 T	320 W / 640 W / 1000 W / 1500 W	40 - 500 V	4 - 60 A	no	TFT Touch	yes	optional	optional
PSI 9000 T	320 W / 640 W / 1000 W / 1500 W	40 - 500 V	4 - 60 A	yes	TFT Touch	yes	optional	optional
PSI 9000 DT	320 W / 640 W / 1000 W / 1500 W	40 - 750 V	4 - 60 A	yes	TFT Touch	yes	yes	yes

MODELS "T"	PSI 9040-20 T PS 9040-20 T	PSI 9080-10 T PS 9080-10 T	PSI 9200-04 T PS 9200-04 T	PSI 9040-40 T PS 9040-40 T	PSI 9080-20 T PS 9080-20 T	PSI 9200-10 T PS 9200-10 T	PSI 9040-40 T PS 9040-40 T
VOLTAGE	0...40 V	0...80 V	0...200 V	0...40 V	0...80 V	0...200 V	0...40 V
CURRENT	0...20 A	0...10 A	0...4 A	0...40 A	0...20 A	0...10 A	0...40 A
POWER	0...320 W	0...320 W	0...320 W	0...640 W	0...640 W	0...640 W	0...1000 W
RIPPLE OF U	20 mV _{PP} / 2 mV _{RMS}	20 mV _{PP} / 2 mV _{RMS}	50 mV _{PP} / 6 mV _{RMS}	20 mV _{PP} / 2 mV _{RMS}	20 mV _{PP} / 2 mV _{RMS}	50 mV _{PP} / 6 mV _{RMS}	25 mV _{PP} / 4 mV _{RMS}
RIPPLE OF I	1 mA _{RMS}	1 mA _{RMS}	1.5 mA _{RMS}	1 mA _{RMS}	1 mA _{RMS}	1.5 mA _{RMS}	6 mA _{RMS}

MODELS "T"	PSI 9080-40 T PS 9080-40 T	PSI 9200-15 T PS 9200-15 T	PSI 9500-06 T PS 9500-06 T	PSI 9040-60 T PS 9040-60 T	PSI 9080-60 T PS 9080-60 T	PSI 9200-25 T PS 9200-25 T	PSI 9500-10 T PS 9500-10 T
VOLTAGE	0...80 V	0...200 V	0...500 V	0...40 V	0...80 V	0...200 V	0...500 V
CURRENT	0...40 A	0...15 A	0...6 A	0...60 A	0...60 A	0...25 A	0...10 A
POWER	0...1000 W	0...1000 W	0...1000 W	0...1500 W	0...1500 W	0...1500 W	0...1500 W
RIPPLE OF U	25 mV _{PP} / 4 mV _{RMS}	150 mV _{PP} / 23 mV _{RMS}	150 mV _{PP} / 23 mV _{RMS}	25 mV _{PP} / 4 mV _{RMS}	25 mV _{PP} / 4 mV _{RMS}	150 mV _{PP} / 23 mV _{RMS}	155 mV _{PP} / 33 mV _{RMS}
RIPPLE OF I	6 mA _{RMS}	1.8 mA _{RMS}	8 mA _{RMS}	6 mA _{RMS}	6 mA _{RMS}	1.8 mA _{RMS}	8 mA _{RMS}

MODELS "DT"	PSI 9040-20 DT	PSI 9080-10 DT	PSI 9200-04 DT	PSI 9040-40 DT	PSI 9080-20 DT	PSI 9200-10 DT
VOLTAGE	0...40 V	0...80 V	0...200 V	0...40 V	0...80 V	0...200 V
CURRENT	0...20 A	0...10 A	0...4 A	0...40 A	0...20 A	0...10 A
POWER	0...320 W	0...320 W	0...320 W	0...640 W	0...640 W	0...640 W
RIPPLE OF U	8 mV _{PP} / 0.8 mV _{RMS}	8 mV _{PP} / 0.8 mV _{RMS}	20 mV _{PP} / 2.5 mV _{RMS}	8 mV _{PP} / 0.8 mV _{RMS}	8 mV _{PP} / 0.8 mV _{RMS}	20 mV _{PP} / 2.5 mV _{RMS}
RIPPLE OF I	1 mA _{RMS}	1 mA _{RMS}	1.5 mA _{RMS}	1 mA _{RMS}	1 mA _{RMS}	1.5 mA _{RMS}

MODELS "DT"	PSI 9040-40 DT	PSI 9080-40 DT	PSI 9200-15 DT	PSI 9360-10 DT	PSI 9500-06 DT	PSI 9750-04 DT
VOLTAGE	0...40 V	0...80 V	0...200 V	0...360 V	0...500 V	0...750 V
CURRENT	0...40 A	0...40 A	0...15 A	0...10 A	0...6 A	0...4 A
POWER	0...1000 W	0...1000 W	0...1000 W	0...1000 W	0...1000 W	0...1000 W
RIPPLE OF U	10 mV _{PP} / 1.5 mV _{RMS}	10 mV _{PP} / 1.5 mV _{RMS}	60 mV _{PP} / 9 mV _{RMS}	58 mV _{PP} / 11 mV _{RMS}	62 mV _{PP} / 13 mV _{RMS}	94 mV _{PP} / 16 mV _{RMS}
RIPPLE OF I	6 mA _{RMS}	6 mA _{RMS}	1.8 mA _{RMS}	2 mA _{RMS}	8 mA _{RMS}	10 mA _{RMS}

MODELS "DT"	PSI 9040-60 DT	PSI 9080-60 DT	PSI 9200-25 DT	PSI 9360-15 DT	PSI 9500-10 DT	PSI 9750-06 DT
VOLTAGE	0...40 V	0...80 V	0...200 V	0...360 V	0...500 V	0...750 V
CURRENT	0...60 A	0...60 A	0...25 A	0...15 A	0...10 A	0...6 A
POWER	0...1500 W	0...1500 W	0...1500 W	0...1500 W	0...1500 W	0...1500 W
RIPPLE OF U	10 mV _{PP} / 1.5 mV _{RMS}	10 mV _{PP} / 1.5 mV _{RMS}	60 mV _{PP} / 9 mV _{RMS}	58 mV _{PP} / 11 mV _{RMS}	62 mV _{PP} / 13 mV _{RMS}	94 mV _{PP} / 16 mV _{RMS}
RIPPLE OF I	6 mA _{RMS}	6 mA _{RMS}	1.8 mA _{RMS}	2 mA _{RMS}	8 mA _{RMS}	10 mA _{RMS}

PROGRAMMABLE ELECTRONIC DC LOADS

300 W - 1200 W IN DESKTOP ENCLOSURE



EL 9000 DT

EL 9000 T



CV CC CP CR OVP OCP OPP OTP USB LAN

- Wide AC input range for worldwide use
- Flexible power stage
- Intuitive handling due to multi-language color TFT touch panel
- Extensive function generator
- Regulation modes CV, CC, CP and CR
- For photovoltaics and battery tests and more
- Protective features (OVP, OCP, OT...)
- Front USB for loading curves and recording data
- Rear USB as standard, other interfaces available (EL 9000 T)
- USB, Ethernet & analog interface integrated (EL 9000 DT)
- All interfaces galvanically isolated
- Remote control software EA Power Control
- LabVIEW VI package
- SCPI & Modbus protocol
- Enclosure as tower or desktop version
- Compact size and high performance

TECHNICAL DATA

	SERIES EL 9000 T	SERIES EL 9000 DT
AC	90...264 V, 1ph+N, 45...65 Hz, power factor >0.99	
ACCURACY VOLTAGE	≤0.1% of the rated value	
ACCURACY CURRENT	≤0.2% of the rated value	
ACCURACY POWER	≤0.5% of the rated value	
ACCURACY RESISTANCE	≤1% of the rated value resistance + ≤0.3% of the rated current	
PROTECTIONS	Overtemperature, overvoltage, overcurrent, overpower, power fail	
COOLING	Temperature controlled fan(s)	
REMOTE SENSING	Yes (connector on front)	
CHASSIS TYPE	"T" = Tower	"DT" = Desktop (with handle)
DIMENSIONS (W x H x D)	92 x 239 x 352 mm (3.6 in x 9.4 in x 13.8 in)	308 x 103 x 355 mm (12.1 in x 4 in x 14 in)

OVERVIEW

SERIES	POWER RATINGS	VOLTAGE RATINGS	CURRENT RATINGS	HANDLE	OPTIONAL INTERFACES
EL 9000 T	400 W - 1200 W	80 - 750 V	5 - 60 A	no	USB+Ethernet or USB+Ethernet+Analog
EL 9000 DT	400 W - 660 W	80 V / 200 V / 500 V	4 - 60 A	yes	none (USB, Ethernet, Analog included)

MODELS "T"	EL 9080-45 T	EL 9200-18 T	EL 9500-08 T
VOLTAGE	0...80 V	0...200 V	0...500 V
CURRENT	0...45 A	0...18 A	0...8 A
POWER @ 25°C (77°F)	0...660 W	0...500 W	0...400 W
POWER @ 40°C (104°F)	0...550 W	0...500 W	0...400 W
RESISTANCE	0,12...40 Ω	1...340 Ω	6...2000 Ω
WEIGHT	7 kg (15.4 lbs)	7 kg (15.4 lbs)	7 kg (15.4 lbs)

MODELS "DT"	EL 9080-45 DT	EL 9200-18 DT	EL 9360-10 DT	EL 9500-08 DT	EL 9750-05 DT
VOLTAGE	0...80 V	0...200 V	0...360 V	0...500 V	0...750 V
CURRENT	0...45 A	0...18 A	0...10 A	0...8 A	0...5 A
POWER @ 25°C (77°F)	0...600 W	0...500 W	0...450 W	0...400 W	0...400 W
POWER @ 40°C (104°F)	0...500 W	0...500 W	0...450 W	0...400 W	0...400 W
RESISTANCE	0.09...30 Ω	0.5...170 Ω	1.6...540 Ω	3...1000 Ω	7...2200 Ω
WEIGHT	6.5 kg (14.3 lbs)	6.5 kg (14.3 lbs)	6.5 kg (14.3 lbs)	6.5 kg (14.3 lbs)	6.5 kg (14.3 lbs)

MODELS "DT"	EL 9080-60 DT	EL 9200-36 DT	EL 9360-20 DT	EL 9500-16 DT	EL 9750-10 DT
VOLTAGE	0...80 V	0...200 V	0...360 V	0...500 V	0...750 V
CURRENT	0...60 A	0...36 A	0...20 A	0...16 A	0...10 A
POWER @ 25°C (77°F)	0...1200 W	0...1000 W	0...900 W	0...600 W	0...600 W
POWER @ 40°C (104°F)	0...800 W	0...800 W	0...800 W	0...600 W	0...600 W
RESISTANCE	0.09...30 Ω	0.5...170 Ω	1.6...540 Ω	3...1000 Ω	7...2200 Ω
WEIGHT	7.5 kg (16.5 lbs)	7.5 kg (16.5 lbs)	7.5 kg (16.5 lbs)	7.5 kg (16.5 lbs)	7.5 kg (16.5 lbs)



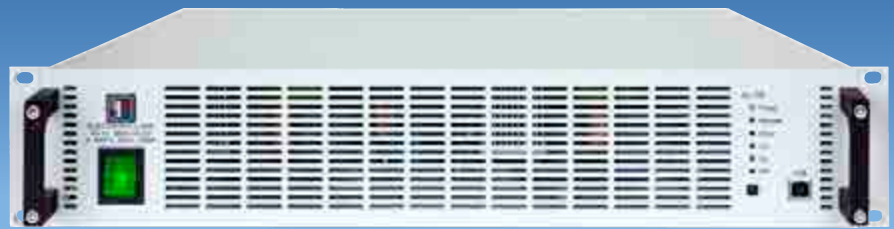
Rear view of EL 9000 DT

PROGRAMMABLE ELECTRONIC DC LOADS

600 W - 2400 W IN 19" FORMAT



EL 9000 B HP



EL 9000 B 2Q

CV CC CP CR OVP OCP OPP OTP USB MS

- Wide AC input range for worldwide use
- Flexible power stage
- Intuitive handling due to multi-language color TFT touch panel (EL 9000 B HP)
- Extensive function generator
- Regulation modes CV, CC, CP and CR
- For photovoltaics and battery tests and more
- Protective features (OVP, OCP, OT...)
- Master-slave feature
- USB as standard port
- Plug&Play slot for digital interfaces
- All interfaces galvanically isolated
- Remote control software (Windows)
- LabVIEW VI package
- SCPI & Modbus protocol
- 2Q models for power extension of the HP models or for two-quadrants operation with power supplies
- 19" chassis in 2 U

TECHNICAL DATA

SERIES EL 9000 B HP & EL 9000 B 2Q	
AC	90...264 V, 1ph+N, 45...65 Hz, power factor >0.99, max. 80 W power consumption
ACCURACY VOLTAGE	≤0.1% of the rated value
ACCURACY CURRENT	≤0.2% of the rated value
ACCURACY POWER	≤0.5% of the rated value
ACCURACY RESISTANCE	≤1% of the rated resistance + ≤0.3% of the rated
PROTECTIONS	Overtemperature, overvoltage, overcurrent, overpower, power fail
COOLING	Temperature controlled fans
REMOTE SENSING	Yes (connector on back)
DIMENSIONS (W x H x D)	19" x 2 U x 464 mm (18.3 in)

OVERVIEW

SERIES	POWER RATINGS	VOLTAGE RATINGS	CURRENT RATINGS	DISPLAY	OPTIONAL INTERFACES
EL 9000 B HP	600 W - 2400 W	80 - 750 V	10 - 170 A	TFT Touch	CAN, Profibus, Profinet, EtherCAT, CANopen, RS232, Ethernet
EL 9000 B 2Q	600 W - 2400 W	80 - 750 V	10 - 170 A	LEDs	CAN, Profibus, Profinet, EtherCAT, CANopen, RS232, Ethernet

MODELS	EL 9080-85 B HP EL 9080-85 B 2Q	EL 9200-35 B HP EL 9200-35 B 2Q	EL 9360-20 B HP EL 9360-20 B 2Q	EL 9500-15 B HP EL 9500-15 B 2Q	EL 9750-10 B HP EL 9750-10 B 2Q
VOLTAGE	0...80 V	0...200 V	0...360 V	0...500 V	0...750 V
CURRENT	0...85 A	0...35 A	0...20 A	0...15 A	0...10 A
POWER @25°C (77°F)	0...1200 W	0...1000 W	0...900 W	0...600 W	0...600 W
POWER @40°C (104°F)	0...1000 W	0...1000 W	0...900 W	0...600 W	0...600 W
RESISTANCE	0.08...30 Ω	0.44...200 Ω	1.4...600 Ω	2.5...1200 Ω	6...2500 Ω
U _{MIN} FOR I _{MAX} ⁽¹⁾	≈2.2 V	≈2 V	≈2 V	≈6.5 V	≈5.5 V
WEIGHT	≈9 kg (19.8 lbs)	≈9 kg (19.8 lbs)	≈9 kg (19.8 lbs)	≈9 kg (19.8 lbs)	≈9 kg (19.8 lbs)

MODELS	EL 9080-170 B HP EL 9080-170 B 2Q	EL 9200-70 B HP EL 9200-70 B 2Q	EL 9360-40 B HP EL 9360-40 B 2Q	EL 9500-30 B HP EL 9500-30 B 2Q	EL 9750-20 B HP EL 9750-20 B 2Q
VOLTAGE	0...80 V	0...200 V	0...360 V	0...500 V	0...750 V
CURRENT	0...170 A	0...70 A	0...40 A	0...30 A	0...20 A
POWER @25°C (77°F)	0...2400 W	0...2000 W	0...1800 W	0...1200 W	0...1200 W
POWER @40°C (104°F)	0...2000 W	0...2000 W	0...1800 W	0...1200 W	0...1200 W
RESISTANCE	0.04...15 Ω	0.22...100 Ω	0.7...300 Ω	1.25...600 Ω	3...1250 Ω
U _{MIN} FOR I _{MAX} ⁽¹⁾	≈2.2 V	≈2 V	≈2 V	≈6.5 V	≈5.5 V
WEIGHT	≈13 kg (28.7 lbs)	≈13 kg (28.7 lbs)	≈13 kg (28.7 lbs)	≈13 kg (28.7 lbs)	≈13 kg (28.7 lbs)

(1) Required minimum input voltage to achieve the rated current

PROGRAMMABLE ELECTRONIC DC LOADS

1200 W - 14400 W IN 19" FORMAT



EL 9000 B 3U

CV CC CP CR OVP OCP OPP OTP USB MS

- Wide AC input range for worldwide use
- Flexible power stage
- Intuitive handling due to multi-language color TFT touch panel (PSI)
- Extensive function generator
- Regulation modes CV, CC, CP and CR
- For photovoltaics and battery tests and more
- Protective features (OVP, OCP, OT...)
- USB as standard port
- Plug&Play slot for digital interfaces
- All interfaces galvanically isolated
- Remote control software EA Power Control
- LabVIEW VI package
- SCPI & Modbus protocol
- Slave units for power stacking
- 19" chassis in 3 U or 6 U
- 19" cabinets in 15 U or 24 U
- Customer specific cabinet systems up to 480 kW

TECHNICAL DATA		
	SERIES EL 9000 B 3U	SERIES EL 9000 B 6U
AC	90...264 V, 1ph+N, 45...65 Hz, max. 130 W power consumption	90...264 V, 1ph+N, 45...65 Hz, max. 260 W power consumption
ACCURACY VOLTAGE	≤0.1% of the rated value	
ACCURACY CURRENT	≤0.2% of the rated value	
ACCURACY POWER	≤0.5% of the rated value	
ACCURACY RESISTANCE	≤1% of the rated resistance + ≤0.3% of the rated current	
PROTECTIONS	Overtemperature, overvoltage, overcurrent, overpower, power fail	
COOLING	Temperature controlled fans	
STANDARDS	EN 60950 (electrical safety), EN 61000 (EMI and noise immunity)	
DIMENSIONS (W X H X D)	19" x 3 U x 461 mm (18.1 in)	19" x 6 U x 461 mm (18.1 in)

OVERVIEW

SERIES	POWER RATINGS	VOLTAGE RATINGS	CURRENT RATINGS	DISPLAY	OPTIONAL INTERFACES
EL 9000 B	1200 W - 14400 W	80 - 750 V	20 - 1020 A	TFT Touch	CAN, Profibus, Profinet, EtherCAT, CANopen, RS232, Ethernet, ModBus TCP

MODELS "3U"	EL 9080-170 B 3U	EL 9200-70 B 3U	EL 9360-40 B 3U	EL 9500-30 B 3U	EL 9750-20 B 3U
VOLTAGE	0...80 V	0...200 V	0...360 V	0...500 V	0...750 V
CURRENT	0...170 A	0...70 A	0...40 A	0...30 A	0...20 A
POWER @21°C (70°F)	1500 W	1500 W	1500 W	1200 W	1200 W
POWER MAX.	2400 W	2000 W	1800 W	1200 W	1200 W
RESISTANCE	0.045...15 Ω	0.25...85 Ω	0.8...270 Ω	1.5...500 Ω	3.5...1100 Ω
WEIGHT	≈9 kg (19.8 lbs)	≈9 kg (19.8 lbs)	≈9 kg (19.8 lbs)	≈9 kg (19.8 lbs)	≈9 kg (19.8 lbs)

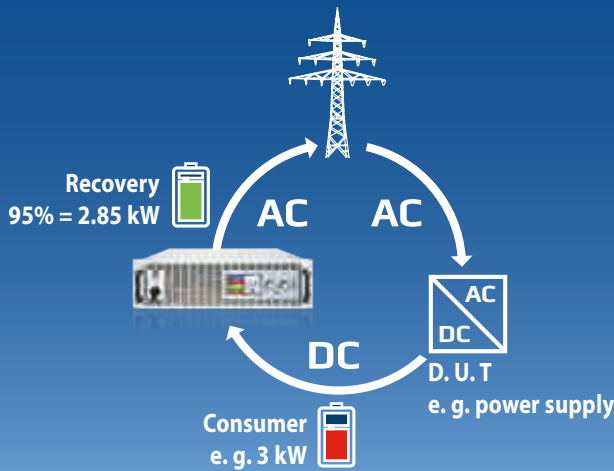
MODELS "3U"	EL 9080-340 B 3U	EL 9200-140 B 3U	EL 9360-80 B 3U	EL 9500-60 B 3U	EL 9750-40 B 3U
VOLTAGE	0...80 V	0...200 V	0...360 V	0...500 V	0...750 V
CURRENT	0...340 A	0...140 A	0...80 A	0...60 A	0...40 A
POWER @21°C (70°F)	3000 W	3000 W	3000 W	2400 W	2400 W
POWER MAX.	4800 W	4000 W	3600 W	2400 W	2400 W
RESISTANCE	0.023...7.5 Ω	0.13...43 Ω	0.4...135 Ω	0.75...250 Ω	1.75...550 Ω
WEIGHT	≈13 kg (28.7 lbs)	≈13 kg (28.7 lbs)	≈13 kg (28.7 lbs)	≈13 kg (28.7 lbs)	≈13 kg (28.7 lbs)

MODELS "3U"	EL 9080-510 B 3U	EL 9200-210 B 3U	EL 9360-120 B 3U	EL 9500-90 B 3U	EL 9750-60 B 3U
VOLTAGE	0...80 V	0...200 V	0...360 V	0...500 V	0...750 V
CURRENT	0...510 A	0...210 A	0...120 A	0...90 A	0...60 A
POWER @21°C (70°F)	4500 W	4500 W	4500 W	3600 W	3600 W
POWER MAX.	7200 W	6000 W	5400 W	3600 W	3600 W
RESISTANCE	0.015...5 Ω	0.08...28 Ω	0.27...90 Ω	0.5...167 Ω	1.2...360 Ω
WEIGHT	≈17 kg (37.5 lbs)	≈17 kg (37.5 lbs)	≈17 kg (37.5 lbs)	≈17 kg (37.5 lbs)	≈17 kg (37.5 lbs)

MODELS "6U"	EL 9080-1020 B 6U	EL 9200-420 B 6U	EL 9360-240 B 6U	EL 9500-180 B 6U	EL 9750-120 B 6U
VOLTAGE	0...80 V	0...200 V	0...360 V	0...500 V	0...750 V
CURRENT	0...1020 A	0...420 A	0...240 A	0...180 A	0...120 A
POWER @21°C (70°F)	9000 W	9000 W	9000 W	7200 W	7200 W
POWER MAX.	14400 W	12000 W	10800 W	7200 W	7200 W
RESISTANCE	0.0075...2.5 Ω	0.04...14 Ω	0.14...45 Ω	0.25...84 Ω	0.6...180 Ω
WEIGHT	≈33 kg (72.7 lbs)	≈33 kg (72.7 lbs)	≈33 kg (72.7 lbs)	≈33 kg (72.7 lbs)	≈33 kg (72.7 lbs)

PROGRAMMABLE, ENERGY RECOVERING DC LOADS

3.5 KW - 15 kW IN 19" FORMAT



ELR 9000

CV CC CP CR OVP OCP OPP OTP USB MS

- For 230 V supply (ELR)
- For 380 V, 400 V and 480 V supply (ELR HP)
- Flexible power stage
- Energy recovery of consumed energy
- Intuitive handling due to multi-language color TFT touch panel
- Extensive function generator
- Regulation modes CV, CC, CP and CR
- For photovoltaics and battery tests and more
- Protective features (OVP, OCP, OT...)
- USB port as standard
- Plug&Play slot for digital interfaces
- All interfaces galvanically isolated
- Remote control software EA Power Control
- LabVIEW VI package
- SCPI & Modbus protocol
- 19" chassis in 3U
- Customer specific cabinets up to 480 kW

TECHNICAL DATA

	SERIES ELR 9000	SERIES ELR 9000 HP
AC	230 V, $\pm 10\%$, 1ph + N, 45...66 Hz	380/400/480 V, $\pm 10\%$, 2ph/3ph, 45...66 Hz
ACCURACY VOLTAGE	$\leq 0.3\%$ of the rated value	$\leq 0.1\%$ of the rated value
ACCURACY CURRENT	$\leq 0.4\%$ of the rated value	$\leq 0.2\%$ of the rated value
ACCURACY POWER	$\leq 1.5\%$ of the rated value	$\leq 1\%$ of the rated value
ACCURACY RESISTANCE	$\leq 1\%$ of the rated resistance + $\leq 0,3\%$ of the rated resistance	
PROTECTIONS	Overtemperature, overvoltage, overcurrent, overpower, power fail	
COOLING	Temperature controlled fans	
REMOTE SENSING	Yes (connector on back)	
DIMENSIONS (W x H x D)	19" x 3 U x 609 mm (24 in)	19" x 3 U x 669 mm (26.3 in)

OVERVIEW

SERIES	POWER RATINGS	VOLTAGE RATINGS	CURRENT RATINGS	DISPLAY	OPTIONAL INTERFACES
ELR 9000	3,5 kW	80 - 750 V	22 - 170 A	TFT Touch	CAN, Profibus, Profinet, EtherCAT, CANopen, ModBus TCP, RS232, Ethernet
ELR 9000 HP	5 kW / 10 kW / 15 kW	80 - 1500 V	20 - 510 A	TFT Touch	

MODELS	ELR 9080-170	ELR 9250-70	ELR 9500-30	ELR 9750-22
VOLTAGE	0...80 V	0...250 V	0...500 V	0...750 V
CURRENT	0...170 A	0...70 A	0...30 A	0...22 A
POWER	3.5 kW	3.5 kW	3.5 kW	3.5 kW
RESISTANCE	0.01...12 Ω	0.09...120 Ω	0.42...480 Ω	0.8...1100 Ω
EFFICIENCY	≤92.5%	≤93.5%	≤94.5%	≤94.5%
WEIGHT	17 kg (37.5 lbs)	17 kg (37.5 lbs)	17 kg (37.5 lbs)	17 kg (37.5 lbs)

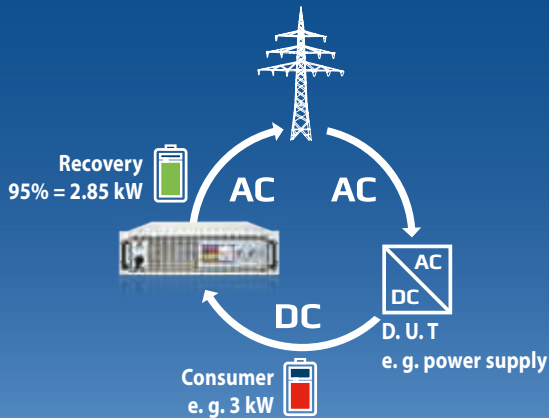
MODELS "HP"	ELR 9080-170 HP	ELR 9200-70 HP	ELR 9360-40 HP	ELR 9500-30 HP	ELR 9750-20	ELR 9080-340 HP
VOLTAGE	0...80 V	0...200 V	0...360 V	0...500 V	0...750 V	0...80 V
CURRENT	0...170 A	0...70 A	0...40 A	0...30 A	0...20 A	0...340 A
POWER	5 kW	5 kW	5 kW	5 kW	5 kW	10 kW
RESISTANCE	0.02...25 Ω	0.1...150 Ω	0.3...520 Ω	0.5...1000 Ω	1.2...2200 Ω	0.01...13 Ω
EFFICIENCY	≤92.5%	≤93.5%	≤93.5%	≤94.5%	≤94.5%	≤92.5%
WEIGHT	18 kg (39.7 lbs)	18 kg (39.7 lbs)	18 kg (39.7 lbs)	18 kg (39.7 lbs)	18 kg (39.7 lbs)	18 kg (39.7 lbs)

MODELS "HP"	ELR 9200-140 HP	ELR 9360-80 HP	ELR 9500-60 HP	ELR 9750-40	ELR 9080-510 HP	ELR 9200-210 HP
VOLTAGE	0...200 V	0...360 V	0...500 V	0...750 V	0...80 V	0...200 V
CURRENT	0...140 A	0...80 A	0...60 A	0...40 A	0...510 A	0...210 A
POWER	10 kW	10 kW	10 kW	10 kW	15 kW	15 kW
RESISTANCE	0.05...75 Ω	0.15...260 Ω	0.25...500 Ω	0.6...1100 Ω	0.006...10 Ω	0.033...50 Ω
EFFICIENCY	≤93.5%	≤93.5%	≤94.5%	≤94.5%	≤92.5%	≤93.5%
WEIGHT	25 kg (55.1 lbs)	25 kg (55.1 lbs)	25 kg (55.1 lbs)	25 kg (55.1 lbs)	25 kg (55.1 lbs)	25 kg (55.1 lbs)

MODELS "HP"	ELR 9360-120 HP	ELR 9500-90 HP	ELR 9750-60	ELR 91000-40 HP	ELR 91500-30 HP
VOLTAGE	0...360 V	0...500 V	0...750 V	0...1000 V	0...1500 V
CURRENT	0...120 A	0...90 A	0...60 A	0...40 A	0...30 A
POWER	15 kW	15 kW	15 kW	15 kW	15 kW
RESISTANCE	0.1...180 Ω	0.16...340 Ω	0.4...740 Ω	0.8...1300 Ω	2.5...3000 Ω
EFFICIENCY	≤93.5%	≤94.5%	≤94.5%	≤93.5%	≤94.5%
WEIGHT	32 kg (70.5 lbs)	32 kg (70.5 lbs)	32 kg (70.5 lbs)	32 kg (70.5 lbs)	32 kg (70.5 lbs)

PROGRAMMABLE, ENERGY RECOVERING DC LOADS

30 kW IN 19" FORMAT



ELR 10000



CV CC CP CR OVP OCP OPP OTP USB MS LAN

- For 380 V, 400 V and 480 V supply (standard models)
- For 208V supply (208 V models)
- Power 30 kW (standard models) or 15 kW (208 V models)
- 60 V model for SELV
- Flexible power stage
- Energy recovery of consumed energy
- Intuitive handling due to multi-language color TFT touch panel
- Extensive function generator
- Regulation modes CV, CC, CP and CR
- For photovoltaics and battery tests and more
- Protective features (OVP, OCP, OT...)
- Master-slave feature
- USB port as standard
- Plug&Play slot for digital interfaces
- All interfaces galvanically isolated
- Remote control software EA Power Control
- LabVIEW VI package
- SCPI & Modbus protocol
- IVI driver support
- 19" chassis in 4 U
- Optional water cooled variant (hermetic chassis)
- Cabinet system with up to 1920 kW (p. 18)
- Customer specific cabinets upon request

TECHNICAL DATA

SERIES ELR 10000	
AC	380/400/480 V, ±10%, 3ph, 45...66 Hz
ACCURACY VOLTAGE	≤0.05% of the rated value
ACCURACY CURRENT	≤0.1% of the rated value
ACCURACY POWER	≤0.3% of the rated value
ACCURACY RESISTANCE	≤0.3% of the rated resistance + ≤0.1% of the rated current
PROTECTIONS	Overtemperature, overvoltage, overcurrent, overpower, power fail
COOLING	Temperature controlled fans or water (optional, fanless)
REMOTE SENSING	Yes (connector on back)
DIMENSIONS (W x H x D)	19" x 4 U x 670 mm (26.4 in)
WEIGHT	≈ 50 kg (110 lbs)

OVERVIEW

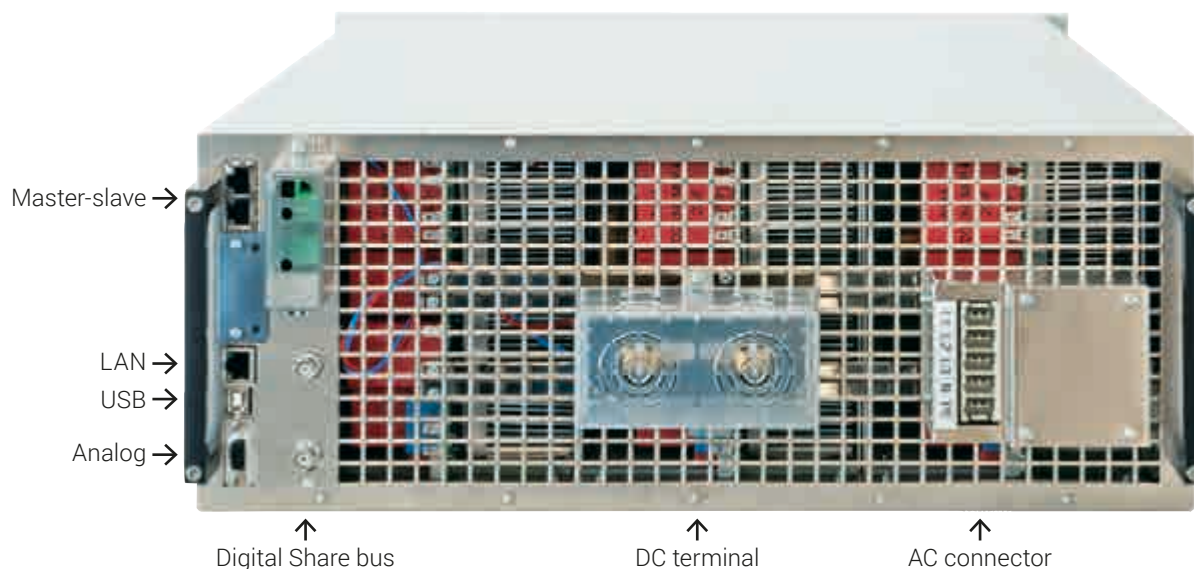
SERIES	POWER RATINGS	VOLTAGE RATINGS	CURRENT RATINGS	DISPLAY	OPTIONAL INTERFACES
ELR 10000	30 kW	60 - 2000 V	40 - 1000 A	TFT Touch	CAN, Profibus, Profinet, EtherCAT, CANopen, RS232

MODELS	ELR 10060-1000	ELR 10080-1000	ELR 10200-420
VOLTAGE	0...60 V	0...80 V	0...200 V
CURRENT	0...1000 A	0...1000 A	0...420 A
POWER	30 kW	30 kW	30 kW
RESISTANCE	0.003...5 Ω	0.003...5 Ω	0.016...25 Ω
EFFICIENCY	Up to 92.5%	Up to 92.5%	Up to 93.5%
INSULATION *	±500 V / + 600 V	±500 V / + 600 V	±800 V / + 1000 V

MODELS	ELR 10360-240	ELR 10500-180	ELR 10750-120
VOLTAGE	0...360 V	0...500 V	0...750 V
CURRENT	0...240 A	0...180 A	0...120 A
POWER	30 kW	30 kW	30 kW
RESISTANCE	0.05...90 Ω	0.08...170 Ω	0.2...370 Ω
EFFICIENCY	Up to 93.5%	Up to 94.5%	Up to 94.5%
INSULATION *	±1500 V / + 2000 V	±1500 V / + 2000 V	±1500 V / + 2000 V

MODELS	ELR 11000-80	ELR 11500-60	ELR 12000-40
VOLTAGE	0...1000 V	0...1500 V	0...2000 V
CURRENT	0...80 A	0...60 A	0...40 A
POWER	30 kW	30 kW	30 kW
RESISTANCE	0.4...650 Ω	0.8...1500 Ω	1.7...2700 Ω
EFFICIENCY	Up to 93.5%	Up to 94.5%	Up to 94.5%
INSULATION *	±1500 V / + 2000 V	±1500 V / + 2000 V	±1500 V / + 2000 V

* Left: DC- to PE / right: DC+ to PE





We are a global supplier

The EA supply chain covers the whole world. Our headquarters site and main research center is placed directly in the strategic heart of Europe, in Viersen.

There, and in our subsidiaries in Germany, China (Shanghai, Shenzhen, Hongkong), USA (San Diego) and Russia (Moscow), we employ approx. 250 members of staff. They all work to provide the optimal solutions to the requirements of each and every customer, now and in the future.

EA Elektro-Automatik GmbH & Co. KG
Helmholtzstraße 31-37, 41747 Viersen, Deutschland

Telefon: +49 (0) 21 62 / 37 85 - 0
Mail: ea1974@elektroautomatik.de
Web: www.elektroautomatik.de



Elektro-Automatik

www.elektroautomatik.com