
**EPS - Datasheet**

# Series E/PSB 10000 3U

The EPS's power supplies of the »E/PSB 10000 3U« series are so-called bidirectional devices, incorporating the function of a laboratory power supply (source) and an electronic load (sink) into one unit. They allow for easy setup of applications according to the source-sink principle with a minimum of required hardware and cabling. Switching between source and sink operation is seamless and without delay at zero point.

The sink feature furthermore includes an energy recovery function, similar to the one in series EPS/ELR 10000, which inverts the consumed DC energy with an efficiency of up to 95,5% and feeds it back into the local mains. DC voltages between 0-10V and 0-2000V, output currents between 0-20A and 0-1000A and output power ratings of 0-3400W until 15000W are available.
Apart from basic functions of power supplies, set point curves can be generated by the integrated function generator (sine, rectangular, triangular and other curve types). Arbitrary generator curves (99 points) can be saved to and loaded from USB stick. Some of the functions even offer to dynamically switch between source and sink operation mode by setting up positive (for the source) or negative (for the sink) current set values. The integrated functions include a battery test mode, an arbitrary generator and a vehicle start-up curve (DIN 40839). As the internal resistance is adjustable, the functioning of batteries, fuel cells or photovoltaic modules can also be reproduced. The following simulations are available: Battery (SOC and DoD), LV123/LV124LV148, PV (Solar array simulator EN50530+Sandia, determination of the efficiency via the optional software EPS/MC) and FC. The power supply E/PSB can also be used to return the energy in test processes, for example on a drive test rig, to the supply source. Machine standard according to EN60204-1. In addition, the devices offer as standard the possibility for parallel connection in so-called Share bus operation for constant current sharing, plus a true master-slave connection with totaling of all actual values is also provided as standard. Using this operating mode, up to 64 devices can be connected to form a system that offers an increased total output of up to 960 kW.

All models are controlled by microprocessors for fast and exact measurement and display of actual values. Set values and actual values, status and notifications are clearly represented on the intuitive 5" TFT touch panel, too.

For remote control the devices are provided as standard with Ethernet, USB port on the back as well as a galvanically isolated analog interface. Via optional plug-in interface modules, other digital interfaces such as Profibus, ProfiNet, Modbus TCP, CAN, CANopen, EtherCAT or RS232 can be added. These enable the devices to be connected to standard industrial buses simply by replacing or adding a small module. The configuration, if necessary at all, is simple. Thus the power supplies may, for example, be operated with other power supplies or even other types of equipment or controlled by a PC or PLC, all using the digital interfaces.

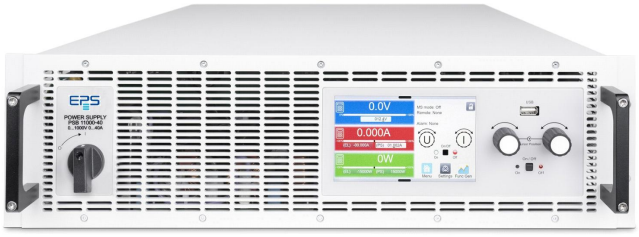
Further options are a grid and system protection, preconfigured cabinet systems, extended warranty and calibration with protocol.
The bidirectional devices are CE, UL as well as CSA certified.

Energy efficiency: Energy recovery, high efficiency, temperature controlled fans

Scope of delivery:
Power Supply Unit
Test report
AC connector plug (clamp type)
Set for AC cable strain relief
Set DC terminal cover
2x Plug for Remote Sense
Terminal cover sense

USB cable 1,8m
USB-Stick with documentation and Software

# E/PSB 10500-90 3U
# Bidirectional DC-Power Supply+energy recovery



E/PSB 10000 3U

## General data

| | |
|---|---|
| Behavior | Bidirectional |
| Technology | Switching |
| Operation modes | CV. CC. CP. CR |
| Mains | 380V/400V/480V AC +-10% 3ph., 208V derating 9 kW |
| Input frequency | 45-66Hz |
| Power factor | >0,99 |
| Power feed back | Standard |
| Display | TFT Touch Panel 5" |
| Voltage resolution | 0,1 V |
| Voltage accuracy | <=0,05% fs |
| Voltage Stability Load | <0,05% (0-100%) |
| Voltage Stability Mains | <0,01% (+-10%) |
| Response time Voltage | <1,5 ms (10-100%) |
| Rise time Voltage | max.20ms (10-90%) |
| Current Resolution | 0,01 A |
| Current Accuracy | <=0,1% fs |
| Current Stability Load | <0,1% (0-100%) |
| Current Stability Mains | <0,01% (+-10%) |
| Rise time Current | max.10ms (10-90%) |
| Output Current Limitation | Standard |
| Power Accuracy | <1% |
| Internal Resistance Regulation | Standard |
| Overvoltage category | 2 |
| Overheat protection | Standard |
| Isolation In-/Output | 3750VDCmax |

## Series E/PSB 10000 3U

| | |
|---|---|
| Isolation Output/Enclosure | neg.+-1500V, pos.+-2000V DC max. |
| Protection class | 1 |
| Parallel operation | Master-Slave |
| Current sharing | Standard |
| Cooling | Fan |
| Operation temperature | 0-50°C |
| Storage temperature | -20...70°C |
| Humidity | <80% n.c |
| Attitude | <2000m |
| Design | 19 inch |
| Standards | EN/UL/CSA-C22.2 61010-1,EN55011 cl.B,EN61326-1 |
| Power fail | Standard |
| Alarmmanagement | Standard |
| Function generator | +arbitrary |
| Output Preset | Standard |
| Memory | 5 Profile |
| Capacity | 540µF |

### Interfaces

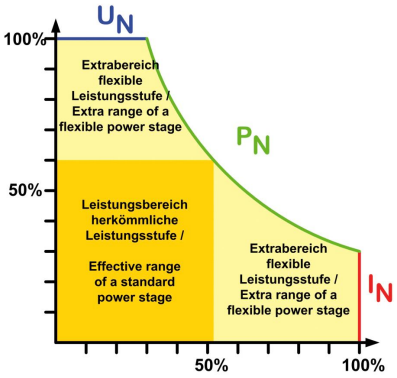
| | |
|---|---|
| Analog Isolation | Standard |
| Accuracy Interface | 0-10V <=0,2%, 0-5V <=0,4% |
| USB Interface | Standard |
| RS232 Interface | Option EPS/IF-AB R |
| CAN Interface | Opt.EPS/IF-AB-CAN/O |
| Profibus | Option EPS/IF-AB PB |
| Ethernet Interface | Standard, Opt.IF-ETH2P |
| Ethercat Interface | Option EPS/IF-AB-ECT |
| Software | Standard EPS/PC, Option EPS/MC |

### Technical data

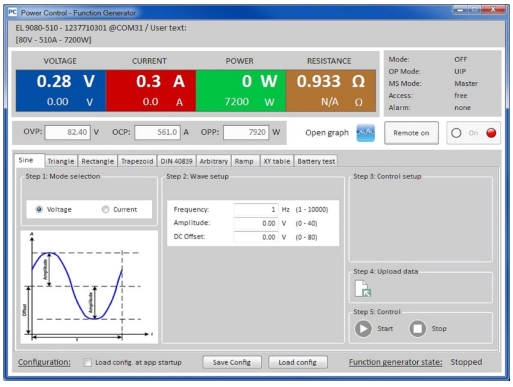
| | |
|---|---|
| Output Voltage | 0-500 VDC |
| Output Current | 0-90 A |
| Output Power | 15kW/ 9kW derating |
| Input Current | 28A max. |
| Efficiency | ≤95,5% |
| Ripple U | 70mVpp(20Mhz)/350mVrms(300k) |
| Ripple I | <48 mArms |
| Resistance Adjustment Range 1 | 0,16-340 Ohm |
| Resistance Resolution Range 1 | 0,01 Ohm |
| Remote Sensing | Standard |
| Dimensions in mm (WxHxD) | 19" x 133 x 668 |
| Weight | 32,8 kg |
| Order code | 200856 |

### Options

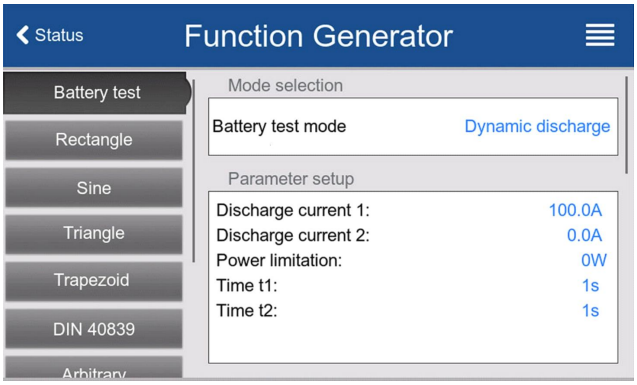
| | |
|---|---|
| Option 1 | Calibration with protocoll EPS/I10000 CAL |
| Option 2 | Extended Warranty 2 / 3 / 5 years EPS/Gx |
| Option 3 | E115035 Grid and System protection |
| Option 4 | EPS/BNC Cable Share-Bus connection cable |
| Option 5 | EPS/SL 4x 2x AWG Master-Slave patch cable |
| Option 6 | Battery simulation Licence EPS/BS-LI / LEAD |



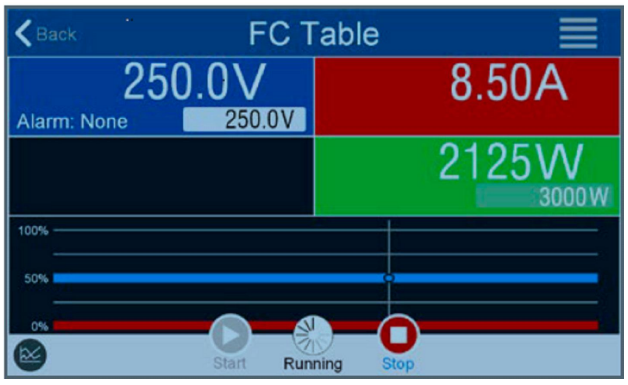

Autoranging



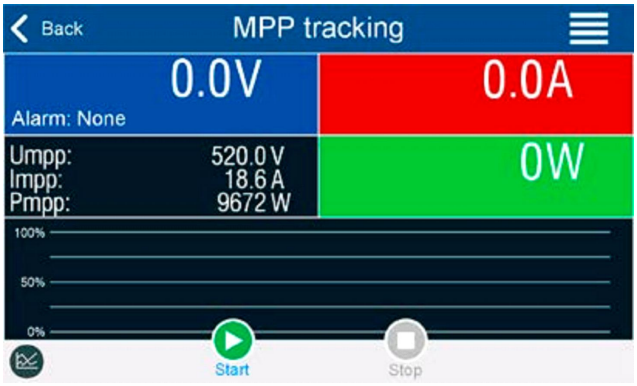

EPS_PowerControlSoftware




EPS/FG dynamic-discharge-function



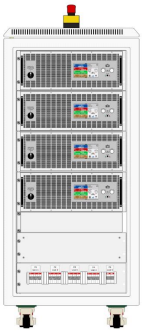

E/PSB 10000 Fuel Cell table




E/PSB MPP Tracking

## Series E/PSB 10000 3U

E/PSB 10000_3U_rear



EPS_Cabinet front example 120kW



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