



Elektro-Automatik



EL 9000 B 3U / 6U

Programmable Electronic High-Performance DC Loads | 1.2 kW - 14.4 kW

Wide Voltage and Current Ranges: Models available with up to 750 V and 1020 A to meet diverse testing requirements.

FPGA-Based Control: Ensures precise and fast regulation for optimal performance.

Flexible Operation Modes: Includes CV, CC, CP, CR, and advanced two-quadrants operation.

High Power Capability: Offers up to 14.4 kW, with scalability in cabinet systems for up to 460 kW.

User-Friendly Interface: Features a multilingual TFT color touchscreen, rotary knobs, and intuitive navigation.

EA-EL 9000 B 3U / 6U

1.2 kW - 14.4 kW

Programmable Electronic DC Load



Features

- Wide AC supply voltage range: 90...264 V
- Input power ratings: 1.2 kW up to 14.4 kW, expandable in cabinets up to 460 kW
- Input voltages: 80 V up to 750 V
- Input currents: Up to 1020 A per unit
- FPGA-based digital control circuit
- Multilingual color touch panel
- Extensive function generator
- Adjustable protections: OVP, OCP, OPP
- Operation modes: CV, CC, CP, CR
- Galvanically isolated interfaces (analog and USB)
- Master-slave bus for parallel connection
- Slot for a wide selection of industrial interface modules
- SCPI and ModBus RTU/TCP command set
- LabView VIs and remote control software (Windows)

Built-in interfaces

- USB
- Analog
- Master-Slave-Bus
- Share-Bus

Optional interfaces

- CAN
- CANopen
- RS232
- Profibus
- Profinet
- Ethernet
- EtherCAT
- Modbus TCP

Software

- EA - Power Control



General

The EL 9000 B 3U/6U Series combines high-performance DC load capabilities with advanced features tailored for modern testing requirements. Designed for precision and versatility, this series supports applications such as battery testing, renewable energy simulation, and power electronics evaluation. With scalable power capacities, a compact form factor, and cutting-edge FPGA-based control, it offers engineers a robust and reliable solution for demanding test environments.

Power Ratings, Voltages, and Currents

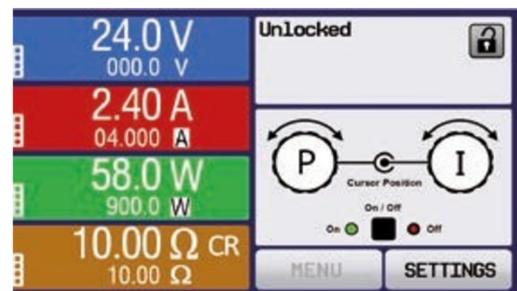
The EL 9000 B 3U/6U Series is engineered to handle a wide range of power ratings from 1.2 kW to 14.4 kW, accommodating both standard and high-power applications. Its flexible voltage range of up to 750 V and current capacities of up to 1020 A make it ideal for diverse test scenarios, from low-power precision testing to high-energy system analysis.

Construction

Compact and robust, the EL 9000 B 3U/6U features a 3U or 6U rack-mountable design, enabling easy integration into existing setups. The modular construction ensures efficient use of rack space, while its durable build guarantees stable operation even in demanding industrial and laboratory environments. The series is designed to maximize space without compromising on performance or reliability.

Handling (HMI)

The intuitive TFT color touchscreen offers an exceptional user experience, providing clear, real-time visualization of key parameters and test progress. Combined with rotary knobs and multilingual support, the interface simplifies configuration, monitoring, and operation, ensuring minimal training time and enhanced productivity.



Share Bus, Parallel Connection, and Two-Quadrant Operation

The Share Bus system enables synchronized operation of multiple units, ensuring balanced load distribution in parallel configurations for higher power capacity. The two-quadrants operation allows the system to seamlessly transition between sourcing and sinking energy, supporting dynamic testing requirements such as battery cycling and regenerative testing.

Thermal Derating

To maintain optimal performance and protect against overheating, the EL 9000 B 3U/6U Series incorporates an intelligent thermal derating system. This feature automatically adjusts power output based on ambient temperature and input conditions, ensuring reliable and consistent operation under various environmental conditions.

Battery Test and MPP Tracking

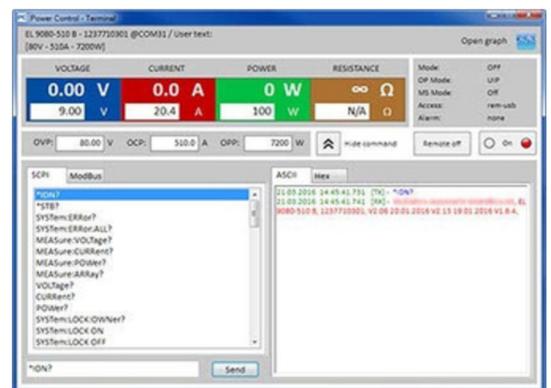
The Battery Test mode provides detailed control for charge/discharge cycles, enabling accurate analysis of battery performance, capacity, and lifecycle. The Maximum Power Point Tracking (MPPT) feature enhances testing of photovoltaic systems, ensuring efficient and accurate power point identification to maximize energy utilization.

Remote Control and Connectivity

The series offers extensive connectivity options, including built-in USB and analog interfaces, with support for optional industrial communication modules such as Profinet, EtherCAT, ModBus, and CANopen. With SCPI command set compatibility and free remote control software, the EL 9000 B 3U/6U integrates seamlessly into automated test systems, providing engineers with flexibility and precision.

Windows users can leverage the free EA Power Control software to streamline their testing processes. This software includes a powerful "Sequencing" feature, allowing users to control the device through a customizable CSV table. This table can represent simple to complex test procedures and is easily created or edited in applications like Microsoft Excel or any CSV editor. Once imported, the software executes automated test runs with precision and efficiency.

For advanced functionality, the software also offers a licensed "Multi Control" feature, enabling the simultaneous management of up to 20 devices. This feature is ideal for large-scale or multi-device test environments, ensuring coordinated operation and monitoring across multiple units. For additional details and guidance, refer to the user manual or the dedicated section of the software documentation.



Options

Customize the EL 9000 B 3U/6U to meet your specific testing needs with a range of optional features. Add interface modules for industrial protocols, or enhance system cooling with optional water cooling solutions for high-power applications. These options provide adaptability and ensure your system is future-proof, ready for evolving testing requirements.



Available Models

SKU	Max Power (W)	Power @ 21°C (W)	Power @ 35°C (W)	Voltage (V)	Current (A)	Resistance (Ω)	Weight (kg)	Height
EL 9080-170 B	2400 W	1500 W	1200 W	0–80 V	0–170 A	0.045–15 Ω	≈9 kg	3U
EL 9200-70 B	2000 W	1500 W	1200 W	0–200 V	0–70 A	0.25–85 Ω	≈9 kg	3U
EL 9360-40 B	1800 W	1500 W	1200 W	0–360 V	0–40 A	0.8–270 Ω	≈9 kg	3U
EL 9500-30 B	1200 W	1200 W	1200 W	0–500 V	0–30 A	1.5–500 Ω	≈9 kg	3U
EL 9750-20 B	1200 W	1200 W	1200 W	0–750 V	0–20 A	3.5–1100 Ω	≈9 kg	3U
EL 9080-340 B	4800 W	3000 W	2400 W	0–80 V	0–340 A	0.023–7.5 Ω	≈13 kg	3U
EL 9200-140 B	4000 W	3000 W	2400 W	0–200 V	0–140 A	0.13–43 Ω	≈13 kg	3U
EL 9360-80 B	3600 W	3000 W	2400 W	0–360 V	0–80 A	0.4–135 Ω	≈13 kg	3U
EL 9500-60 B	2400 W	2400 W	2400 W	0–500 V	0–60 A	0.75–250 Ω	≈13 kg	3U
EL 9750-40 B	2400 W	2400 W	2400 W	0–750 V	0–40 A	1.75–550 Ω	≈13 kg	3U
EL 9080-510 B	7200 W	4500 W	3600 W	0–80 V	0–510 A	0.015–5 Ω	≈17 kg	3U
EL 9200-210 B	6000 W	4500 W	3600 W	0–200 V	0–210 A	0.08–28 Ω	≈17 kg	3U
EL 9360-120 B	5400 W	4500 W	3600 W	0–360 V	0–120 A	0.27–90 Ω	≈17 kg	3U
EL 9500-90 B	3600 W	3600 W	3600 W	0–500 V	0–90 A	0.5–167 Ω	≈17 kg	3U
EL 9750-60 B	3600 W	3600 W	3600 W	0–750 V	0–60 A	1.2–360 Ω	≈17 kg	3U
EL 9080-1020 B	14400 W	9000 W	7200 W	0–80 V	0–1020 A	0.0075–2.5 Ω	≈33 kg	6U
EL 9200-420 B	12000 W	9000 W	7200 W	0–200 V	0–420 A	0.04–14 Ω	≈33 kg	6U
EL 9360-240 B	10800 W	9000 W	7200 W	0–360 V	0–240 A	0.14–45 Ω	≈33 kg	6U
EL 9500-180 B	7200 W	7200 W	7200 W	0–500 V	0–180 A	0.25–88 Ω	≈33 kg	6U
EL 9750-120 B	7200 W	7200 W	7200 W	0–750 V	0–120 A	0.6–180 Ω	≈33 kg	6U

Specifications

AC Supply

- **Voltage:** 90 - 264 V
- **Frequency:** 45 - 66 Hz

DC Voltage

- **Accuracy:** ≤0.1% of rated value

DC Current

- **Accuracy:** ≤0.2% of rated value
- **Load regulation:** 1–100% ΔUDC ≤0.1% of rated value
- **Rise time (10–90%):** ≤50 μs

DC Power

- **Accuracy:** ≤0.5% of rated value

DC Resistance

- **Accuracy:** ≤1% of maximum resistance + 0.3% of rated current

Protective Functions

- Overtemperature (OT)
- Overvoltage Protection (OVP)
- Overpower Protection (OPP)
- Overcurrent Protection (OCP)
- Power Factor (PF)

Display / Control Panel

- **Type:** Graphics display with TFT touch panel

Terminals on Rear Panel

- **DC input:** Screw terminal
- **Share Bus:** Plug connector (2 pole)
- **Sense:** Plug connector (4 pole)
- **Analog interface:** Sub-D (15 pole)
- **Module socket, Master-Slave:** 2x RJ45
- **USB Port**

Digital Interfaces

- **Built-in:** 1x USB type B for communication
- **Slot:** 1x for retrofittable plug-in modules (RS232, CAN, CANopen, Ethernet, EtherCAT, Profinet, Profibus, ModBus TCP)

Analog Interfaces

- **Built-in:** 15 pole D-Sub (female), galvanically isolated
- **Signal range:** 0–5 V or 0–10 V (switchable)

Environmental Conditions

- **Operating Temperature:** 0–50 °C (32–122 °F)
- **Storage Temperature:** -20–70 °C (-4–158 °F)
- **Relative humidity:** ≤80%, non-condensing
- **Altitude:** ≤2000 m (≤6,600 ft)

Mechanical Construction

- **Type:** Temperature-controlled fans
- **Dimensions:**
 - **3U Size:** 19" x 3U x 464 mm
 - **6U Size:** 19" x 6U x 464 mm

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