

EA-EL 9000 B 15U/24U 10.8 kW - 43.2 kW



大功率可编程直流电子负载 Programmable high power electronic DC loads



EA-EL 9000 B 15U



EA-EL 9000 B 24U



USB Option: IFAB

- 宽范围输入电压90...264 V
- 多个额定功率级
- 电压级: 80 V, 200 V, 360 V, 500 V, 750 V
- 电流高达3060 A
- 预配置, 预连线, 即可可安装
- 基于EA-EL 9000 B系列电子负载:
 - 真实函数发生器
 - 内置USB与模拟接口
 - 可选接口模块插槽, 适合Profinet, Profibus, CAN, CANopen, RS232, Ethernet, ModBus TCP
 - 支持SCPI与ModBus指令
 - 彩色TFT触摸屏

概要

新系列电子负载EA-EL 9000 B 15U 与 EA-EL 9000 B 24U, 是EA-EL 9000 B系列大功率型号装于可移动19"机柜组成的。因此会有20组不同的配置, 形成不同的功率级别。一个机柜系统可被当作一个扩大功率的单机负载, 在具有EA-EL 9000 B系列标准型号的基本特性外, 也有手动操作与远程控制。

本系列供有两种机柜尺寸, 15U或24U, 根据型号不同, 可配3至6台负载。有些型号通过重装, 增加另外一台负载, 则可扩展更大功率。这些机柜有可锁定后门与前门, 以及四个可固定的脚轮。机柜系统可完全配置好出货, 待安装到指定位置后即可使用。

- Wide AC supply for 90...264 V
- Various power ratings
- Voltages: 80 V, 200 V, 360 V, 500 V, 750 V
- Currents of up to 3060 A
- Pre-configured, pre-wired, ready to be installed
- Based on electronic loads of series EA-EL 9000 B with:
 - True function generator
 - USB and analog interface built in
 - Slot for optional interface modules Profinet, Profibus, CAN, CANopen, RS232, Ethernet, ModBus TCP
 - Support for SCPI and ModBus commands
 - Colour TFT touch panel

General

The new series EA-EL 9000 B 15U and EA-EL 9000 B 24U extend the electronic load series EA-EL 9000 B with high power models in mobile 19" cabinets. There is a choice of 20 different configurations with various power ratings. A cabinet system is considered as a single electronic load device with extended power, with manual handling and remote control being usual, while offering the same features like the standard models of EA-EL 9000 B series.

There are two cabinet sizes with 15U or 24U, which are equipped with 3 to 6 load units, depending on the model. Some models even offer to further extend the available power by adding another load unit through retrofitting. The cabinets have lockable rear and front doors, as well as four casters which can be fixed. The system will be shipped completely configured and will be ready to use right after installation on location.

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功率等级、电压和电流

本系列有0...80 V DC至0...750 V DC输出电压的多个型号，单台机器的输入电流就高达3060A。本系列有多个功率级，有10.8 kW至27 kW固定功率，与10.8 kW至43.2 kW峰值功率的型号。

功率降额

EA-EL 9000 B 15U/24U系列产品具有热降额功能，当产品在最大功率下运行时避免过热。环境温度越低，冷却状况越好，负载可吸收的功率就越大。功率降额后可持续吸收的功率是在21°C室温条件下定义的，并当温度上升时会快速减少。

显示器与控制键

输出电压、电流和功率清晰显示于彩色显示器上。彩色的TFT屏幕为点触式，用一个手指就能控制所有功能。

通过旋钮或者数字键盘直接输入参数，也可调节设定电压、电流、功率或阻值（内阻模拟）。若想防止意外操作，可锁定所有操作键。

Power ratings, voltages, currents

The available voltage range portfolio goes from models with 0...80 V DC up to models with 0...750 V DC. Input currents up to 0...3060 A with only one cabinet are available. The series offers various power classes with 10.8 kW up to 27 kW steady power and 10.8 kW up to 43.2 kW peak power.

Power derating

The devices of the EA-EL 9000 B 15U/24U series are equipped with thermal derating in order to avoid overheating when operating in the maximum power range. The lower the ambient temperature and the better the cooling, the higher the power that the load can take. The nominal intake power before the derating starts is defined at 21°C ambient temperature.

Display and control panel

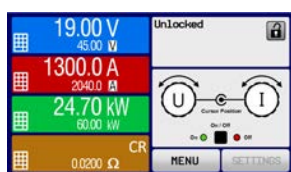
Set values and actual values of output voltage, output current and output power are clearly represented on the graphic display. The colour TFT screen is touch sensitive and can be intuitively used to control all functions of the device with just a finger.

Set values of voltage, current, power or resistance can be adjusted using the rotary knobs or entered directly via a numeric pad.

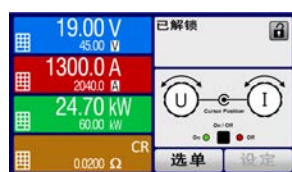
To prevent unintentional operations, all operation controls can be locked.



多语言控制面板

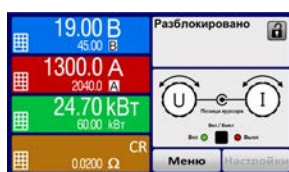


英文 / English

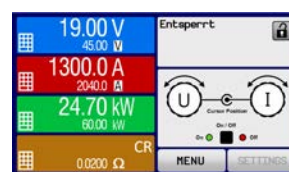


中文 / Chinese

Multi-language control panel



俄文 / Russian



德文 / German

函数发生器

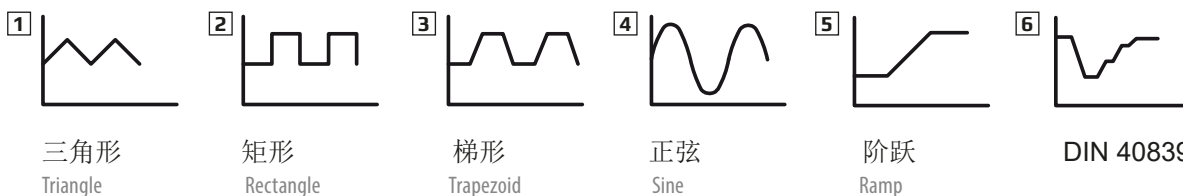
本系列所有型号都具有一可形成如下典型函数的真实函数发生器，并能将它们应用于输入电压或输入电流上。发生器可通过前板的触摸屏设置，或经某一数字接口远程配置。

预设函数会为用户提供所有必须的参数，如Y偏差值，时间/频率或幅度，整套配置完成。

Function generator

All models within this series include a true function generator which can generate typical functions, as displayed in the figure below, and apply them to either the input voltage or the input 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.



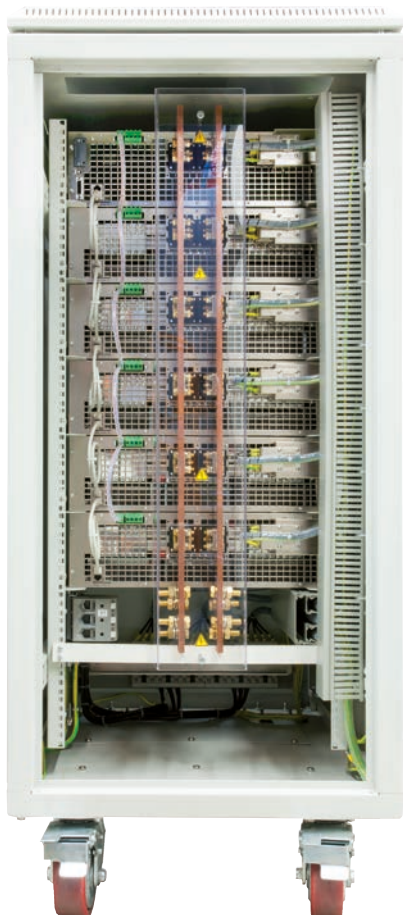
可选项

- 可插拔、可替换的数字接口模块，适合RS232, CAN, CANopen, ModBus TCP, Profibus, ProfiNet I/O EtherCAT 或 Ethernet。接口插槽位于产品后板（仅针对标准型号），方便用户插入新接口，或更换现有接口。且会被产品自动识别，并要求设置几步或无需设置。可参见第134页。
- 带停止开关、门磁开关以及外部断路器接触器用螺丝端子的紧急停止系统

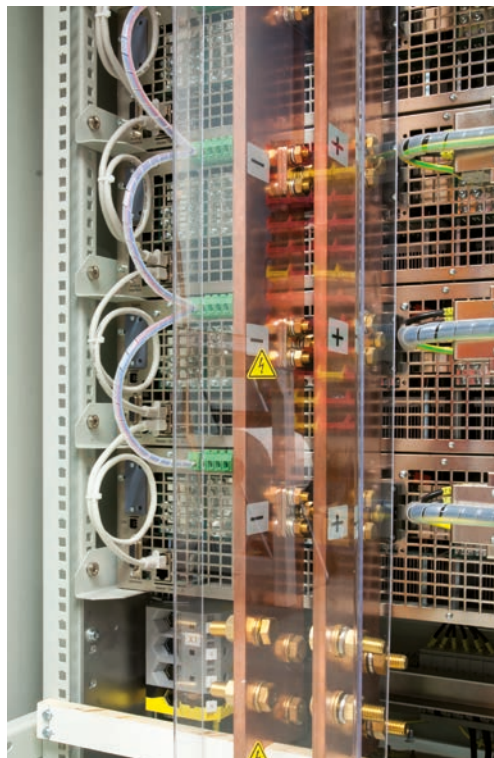
Options

- Digital interface modules for RS232, CAN, CANopen, ModBus TCP, Profibus, Profinet, EtherCAT or Ethernet. The interface slot is located on the rear panel (standard models only), making it easy for the user to plug in a new interface or to replace an existing one. The interface will be automatically detected by the device and requires no or only little configuration. See page 134.
- Emergency stop system with stop switch, door contacts and screw terminals for external breaker contacts

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24U 90 kW型号后视图 /
Rear view 24U 90 kW



直流总线端子 /
DC bus terminal

型号	P _{峰值}	P _{MAX} @ 21°C	P _{MAX} @ 35°C	电压	电流	阻值	重量	高度	订购编号 ⁽¹⁾
Model	P _{PEAK}	P _{MAX} @ 21°C	P _{MAX} @ 35°C	Voltage	Current	Resistance	Weight	Height	Ordering number ⁽¹⁾
EA-EL 9080-1530 B 15U	21.6 kW	0...13.5 kW	0...10.8 kW	0...80 V	0...1530 A	0.005...1.6666 Ω	~ 120 kg	15 HE / U	33240600
EA-EL 9200-630 B 15U	18 kW	0...13.5 kW	0...10.8 kW	0...200 V	0...630 A	0.0266...85 Ω	~ 120 kg	15 HE / U	33240601
EA-EL 9360-360 B 15U	16.2 kW	0...13.5 kW	0...10.8 kW	0...360 V	0...360 A	0.09...30 Ω	~ 120 kg	15 HE / U	33240602
EA-EL 9500-270 B 15U	10.8 kW	0...10.8 kW	0...10.8 kW	0...500 V	0...270 A	0.1667...55.666 Ω	~ 120 kg	15 HE / U	33240603
EA-EL 9750-180 B 15U	10.8 kW	0...10.8 kW	0...10.8 kW	0...750 V	0...180 A	0.4...120 Ω	~ 120 kg	15 HE / U	33240604
EA-EL 9080-2040 B 24U	28.8 kW	0...18 kW	0...14.4 kW	0...80 V	0...2040 A	0.0038...1.25 Ω	~ 170 kg	24 HE / U	33240605
EA-EL 9200-840 B 24U	24 kW	0...18 kW	0...14.4 kW	0...200 V	0...840 A	0.02...7 Ω	~ 170 kg	24 HE / U	33240606
EA-EL 9360-480 B 24U	21.6 kW	0...18 kW	0...14.4 kW	0...360 V	0...480 A	0.0675...22.5 Ω	~ 170 kg	24 HE / U	33240607
EA-EL 9500-360 B 24U	14.4 kW	0...14.4 kW	0...14.4 kW	0...500 V	0...360 A	0.125...41.75 Ω	~ 170 kg	24 HE / U	33240608
EA-EL 9750-240 B 24U	14.4 kW	0...14.4 kW	0...14.4 kW	0...750 V	0...240 A	0.3...90 Ω	~ 170 kg	24 HE / U	33240609
EA-EL 9080-2550 B 24U	36 kW	0...22.5 kW	0...18 kW	0...80 V	0...2550 A	0.003...1 Ω	~ 187 kg	24 HE / U	33240610
EA-EL 9200-1050 B 24U	30 kW	0...22.5 kW	0...18 kW	0...200 V	0...1050 A	0.016...5.6 Ω	~ 187 kg	24 HE / U	33240611
EA-EL 9360-600 B 24U	27 kW	0...22.5 kW	0...18 kW	0...360 V	0...600 A	0.054...18 Ω	~ 187 kg	24 HE / U	33240612
EA-EL 9500-450 B 24U	18 kW	0...18 kW	0...18 kW	0...500 V	0...450 A	0.1...33.4 Ω	~ 187 kg	24 HE / U	33240613
EA-EL 9750-300 B 24U	18 kW	0...18 kW	0...18 kW	0...750 V	0...300 A	0.24...72 Ω	~ 187 kg	24 HE / U	33240614
EA-EL 9080-3060 B 24U	43.2 kW	0...27 kW	0...21.6 kW	0...80 V	0...3060 A	0.0025...0.833 Ω	~ 204 kg	24 HE / U	33240615
EA-EL 9200-1260 B 24U	36 kW	0...27 kW	0...21.6 kW	0...200 V	0...1260 A	0.0133...4.6666 Ω	~ 204 kg	24 HE / U	33240616
EA-EL 9360-720 B 24U	32.4 kW	0...27 kW	0...21.6 kW	0...360 V	0...720 A	0.045...15 Ω	~ 204 kg	24 HE / U	33240617
EA-EL 9500-540 B 24U	21.6 kW	0...21.6 kW	0...21.6 kW	0...500 V	0...540 A	0.0833...27.833 Ω	~ 204 kg	24 HE / U	33240618
EA-EL 9750-360 B 24U	21.6 kW	0...21.6 kW	0...21.6 kW	0...750 V	0...360 A	0.2...60 Ω	~ 204 kg	24 HE / U	33240619

(1) 此为标准版的订购编号，带选项功能的则会不同 / Ordering number of the standard version, models with options will be different

EA-EL 9000 B 15U/24U 10.8 kW - 43.2 kW

技术参数	Technical Data	Series EA-EL 9000 B 15U & EA-EL 9000 B 24U / 系列	
交流: 供电	AC: Supply		
- 电压	- Voltage	90...264 V, 1ph+N	
- 频率	- Frequency	45...66 Hz	
- 功率损耗	- Power consumption	最大 / max. 390 W - max. 780 W (依型号而定 / depending on model)	
直流: 电压	DC: Voltage		
- 精确度	- Accuracy	<额定值的0.1% / <0.1% of rated value	
直流: 电流	DC: Current		
- 精确度	- Accuracy	<额定值的0.2% / <0.2% of rated value	
- 1-100% ΔU_{DC} 的负载调整率	- Load regulation 1-100% ΔU_{DC}	<额定值的0.1% / <0.1% of rated value	
- 10-90%斜率	- Slew rate 10-90%	<50 μ s	
直流: 功率	DC: Power		
- 精确度	- Accuracy	<额定值的0.5% / <0.5% of rated value	
直流: 内阻	DC: Resistance		
- 精确度	- Accuracy	\leq 最大阻值的1% + 额定电流的0.3% / $\leq 1\% + 0.3\%$ of nominal current	
保护功能	Protection	OT, OVP, OPP, PF, OCP ⁽¹⁾	
污染等级	Degree of pollution	2	
保护等级	Protection class	1	
显示器与控制面板	Display and control panel	带触摸屏的彩色显示器 / Graphics display with touch panel	
数字接口	Digital interfaces		
- 内置	- Built-in	1x 通讯用B类USB端口 / 1x USB type B for communication	
- 插槽	- Slot	1x 更换内置模块用 / 1x for retrofittable plug-in modules	
模拟接口	Analog interface	内置, 15极D-Sub连接器, 电隔离 / Built in, 15-pole D-Sub (female), galvanically isolated	
- 信号范围	- Signal range	0...5V 或 0...10V (可转换) / 0...5V or 0...10V (switchable)	
- 输入脚	- Inputs	U, I, P, R, 远程开-关, 直流输出开-关, 内阻模式开-关 / U, I, P, R, Remote on-off, DC input on-off, resistance mode on-off	
- 输出脚	- Outputs	U, I, 过压, 报警, 参考电压 / U, I, overvoltage, alarms, reference voltage	
- U / I / P / R 精确度	- Accuracy U / I / P / R	0...10V: <0.2%	0...5V: <0.4%
串联操作	Series operation	否 / No	
并联操作	Parallel operation	否 / No	
制冷方式	Cooling	温控风扇 / Temperature controlled fans	
环境温度	Ambient temperature	0...50 °C	
储存温度	Storage temperature	-20...70 °C	
相对湿度	Relative humidity	<80%, 无凝露 / non-condensing	
工作高度	Operation altitude	<2000 m	
后板端子	Terminals on rear		
- 直流输入	- DC input	螺丝端 / Screw terminal	
- 模拟接口	- Analog interface	15极Sub-D连接器 / Sub-D connector 15 pole	
- 数字接口	- Digital interfaces	模块插座 / Module socket USB	
尺寸 ⁽¹⁾ (宽 x 高 x 深)	Dimensions (W x H x D)	19" x 15 HE / U x 688 mm	19" x 24 HE / U x 688 mm

(1) 见第146页 / See page 146

