

- U
- I
- P
- R
- OTP
- USB
- RS232
- LAN
- IEEE
- CAN



EA-EL 3160-60

- 功率级别: 0...400 W
- 输入电压: 0...160 V或0...400 V
- 输入电流: 0...60 A或0...25 A
- 过温保护 (OT)
- 带可调占空比与可调升/降时间的脉动操作
- 操作模式
 - 恒流 (CC)
 - 恒压 (CV)
 - 恒功率 (CP)
 - 恒阻 (CR)
- 远程感测, 触发输入, 触发输出*
- 电池测试模式, 带时间和容量计算器
- 选购件, 数字接口
 - RS232, CAN, USB, GPIB (IEEE), Ethernet

- **Power rating: 0...400 W**
- **Input voltages: 0...160 V or 0...400 V**
- **Input currents: 0...60 A or 0...25 A**
- **Overtemperature protection (OT)**
- **Pulsed operation with adjustable duty cycle and variable rise/fall time**
- **Operation modes**
 - **Constant current (CC)**
 - **Constant voltage (CV)**
 - **Constant power (CP)**
 - **Constant resistance (CR)**
- **Remote sense, trigger input, trigger output**
- **Battery test mode with time and capacity counter**
- **Optional, digital interface cards**
 - **RS232, CAN, USB, GPIB (IEEE), Ethernet**

概述

EA-EL 3000系列是一款由微处理器控制的电子负载, 它能满足现代化实验室和工业的各种需求。

操作模式

本负载提供下列几种典型的操作模式: 恒流 (CC), 恒功率(CP), 恒阻(CR)和恒压 (CV)。

用一开关可预选上述操作模式。其它设定则对保护测试设备有效。举例: 恒流模式下可设定一个最大功率, 而恒压、恒功率或恒阻模式则可设定一最大电流。

静态操作

在静态操作模式下, 可通过调节旋钮设定A、B两组数据。用户手动地在这两组数间转换。

经数字或模拟接口执行的远程控制下, 通过合适的机械操纵也能实现很复杂的曲线特性。

动态操作

在动态操作模式下, 产品可以在A和B两数值间转换。这两个数能应用到U, I, P或R四组参数上。这两个值的脉宽能分别在50μs与100 s之间调节, 达到可变占空比。此外, 可设置30μs至200 ms的上跃和下降时间。模拟接口上还有一外部触发输入脚, 用来给外部设备供电, 从而从外部转换A和B数值。

General

The microprocessor controlled electronic loads of the EA-EL 3000 series satisfy practically every need of modern laboratories and industry.

Operation modes

The loads provide the typical operation modes Constant Current (CC), Constant Power (CP), Constant Resistance (CR) and Constant Voltage (CV).

The mode is preselected by a switch. Other settings are additionally effective to protect the test equipment. For example, constant current can have a maximum power setting while constant voltage, power or resistance can have a maximum current setting.

Static operation

In static operation two values, A and B, can be set using an adjustment knob. The user can manually switch between these two values in order to achieve steps.

In remote control via digital or analog interface, even complex characteristics can be realised by using proper control mechanisms.

Dynamic Operation

In dynamic operation, the device switches between two values A and B, which can be applied to all four physical units U, I, P or R. For both values, the pulse width can be adjusted separately between 50μs and 100 s, achieving a variable duty cycle. In addition, rise and fall can be adjusted between 30μs and 200 ms. There is also an external trigger input on the analog interface to feed an external source in order to control the alternation from A to B externally.

电池测试模式

在电池测试模式下，电池以恒流、恒功率或恒阻放电，直至电池电压达到可调极限，然后测试自动终止。放电时间与消耗容量会被测量并显示出来。

显示器

所有重要信息都直接显示于屏幕上。因此关于U, I, P, R的实际输出值或预设值、实际调整模式(CV, CC, CP, CR)、错误信息与设置菜单的设定，在屏幕上都清晰可见。同样地，可选数字接口的设定也会显示出来。

模拟接口

此接口提供有电压、电流、功率和阻值设定值输入脚，电压和电流监控用输出脚，控制输入脚，信号输出脚和触发输入脚。

触发输出

在动态操作模式下，A和B数值转换用的内部触发信号可用于来控制或同步操作其它设备。

数字接口

在产品后板有一个接口插槽，用户可在此装上一个接口卡或者替换原有的接口卡。产品会自动检测接口，无需或只需几步配置。

随接口卡附有一免费Windows软件，适合RS232, USB或Ethernet卡，该软件用来控制与监控，数据记录与半自动序列也可见136与142页。

可选项

- 经RS232, CAN, USB和GPIB (IEEE), Ethernet/LAN绝缘数字接口卡，可用个人电脑控制。

Battery test mode

In the battery test mode, a battery can be discharged with a constant current, constant power or constant resistance until the battery voltage reaches an adjustable threshold, where the test automatically stops. The discharge time and consumed charge (Ah) are measured and displayed.

Display

All important information is directly represented on the display. Thus, information about the actual output values or set values for U, I, P, R, the actual regulation mode (CV, CC, CP, CR), error messages and settings in the setup menu are clearly available. Similarly, settings of the optionally available digital interfaces will be shown.

Analog interface

Inputs for voltage, current, power and resistance set values, outputs for voltage and current monitoring, control inputs, signal outputs and a trigger input are available.

Trigger output

In dynamic operation, the internal trigger signal, which is generated for switching between A and B values, can be used to control or synchronise other applications.

Digital interfaces

There is an interface slot located on the rear panel, making it easy for the user to retrofit an interface or to replace an existing one. The interface will be automatically detected by the device and requires no or only little configuration.

Included with the interface cards is a free Windows software for RS232, USB or Ethernet connection, which provides control and monitoring, data logging and semi-automatic sequences. Also see pages 136 and 142.

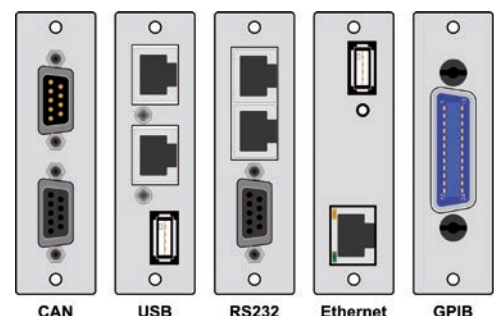
Options

- Isolated, digital interface cards for RS232, CAN, USB, GPIB (IEEE), Ethernet/LAN to control the device by PC.

Software EasyLoad Lite软件



数字接口卡 / Digital interfaces



基本规格参数

General specifications

技术参数	Technical Data	Series EA-EL 3000 / 系列
电源输入电压	Power input voltage	115 V/230 V @ 50/60 Hz
显示器	Display	Display 2x40个字符 / 2x40 characters
电池测试	Batterie testing	
- 关断电压	- Cut off voltage	自由调节 / Freely adjustable
- 显示器显示数值	- Read out at display	放电时间 / Duration of discharge 放电容量 / Capacity of discharge
模拟接口	Analog interface	
- U / I / P / R 设定输入脚	- Setting inputs U / I / P / R	0...10 V
- U / I 监控输出脚	- Monitoring outputs U / I	0...10 V
- 控制信号	- Control signals	Intern / Extern, 内/外, 输入开/关 / Input on/ off/关, R-模式 / R mode
- 状态信号	- Status signals	过压 / Overvoltage 过温 / Overtemperature
- 参考电压	- Reference voltage	10 V
制冷方式	Cooling	温控风扇 / Temperature controlled fan
连接端子	Terminals	前板 / Front panel
- 负载输入	- Load input	安全插座 / Safety sockets
- 感测/触发输出	- Sense / Trigger output	4脚螺丝端子 / 4-pin screw terminal
- 模拟接口	- Analog interface	Sub-D连接器 / Sub-D connector 15 Pin

技术参数	Technical Data	EA-EL 3160-60	EA-EL 3400-25
20°C时恒定输入功率	Steady power input at 20°C	400 W	400 W
DC输入电压	Input voltage DC		
- 调节范围	- Adjustment range	0...160 V	0...400 V
- 显示器分辨率	- Resolution of display	100 mV	100 mV
- 精确度	- Accuracy	≤0.1% von U_{Nenn} / of U_{Nom}	≤0.1% von U_{Nenn} / of U_{Nom}
- 最大电流时的最小电压	- Min. voltage at max. current	约 / approx. 1.4 V	约 / approx. 1.0 V
输入电流	Input current		
- 调节范围	- Adjustment range	0...60 A	0...25 A
- 显示器分辨率	- Resolution of display	10 mA	10 mA
- 精确度	- Accuracy	≤ I_{Nenn} 的0.2% / of I_{Nom}	≤ I_{Nenn} 的0.2% / of I_{Nom}
输入功率	Input power		
- 调节范围	- Adjustment range	0...400 W	0...400 W
- 显示器分辨率	- Resolution of display	100 mW	100 mW
- 精确度	- Accuracy	≤ P_{Nenn} 的2% / of P_{Nom}	≤ P_{Nenn} 的2% / of P_{Nom}
内阻	Resistance		
- 调节范围 1	- Adjustment range 1	0...10Ω	0...40Ω
- 显示器分辨率	- Resolution of display	10 mΩ	10 mΩ
- 调节范围 2	- Adjustment range 2	0...400Ω	0...800Ω
- 显示器分辨率	- Resolution of display	100 mΩ	1Ω
- 精确度	- Accuracy	≤ R_{Nenn} 的2% / of R_{Nom} + ≤ I_{Nenn} 的0.3% / of I_{Nom}	≤ R_{Nenn} 的2% / of R_{Nom} + ≤ I_{Nenn} 的0.3% / of I_{Nom}
动态函数	Dynamic function	2 Pegel / 2 levels	2 Pegel / 2 levels
- A / B 占空比级别	- Pulse width Level A / B	50μs...100 s	50μs...100 s
- 升/降时间	- Rise/fall time	30μs...200 ms	30μs...200 ms
尺寸(宽x高x长)	Dimensions (WxHxD)	240 x 120 x 300 mm	240 x 120 x 300 mm
重量	Weight	6 kg	6 kg
订购编号	Ordering number	35320200	35320201

