

EA-BCI 800 R 320W - 1500W

通用型可编程电池充电器 / PROGRAMMABLE UNIVERSAL BATTERY CHARGERS



外壳结构类型 1 / Enclosure type 1

EA-BCI 812-20 R

- 宽范围输入电压90...264V带PFC
- 输出功率: 320W 至 1500W
- 输出电压: 12V, 24V 或 48V
- 充电电流高达60A
- 适合于: Li-Ion和Pb, NiCd, NiMH
- 温控充电特性
- 自由编程充电特性
- 可当电源使用
- 图形显示器显示所有数值和功能
- 有短路保护和反接保护
- 有过压保护(OVP)
- 有过温保护(OT)
- 可自动检测的远程感测端
- 模拟接口
- 自然风冷却*
- 温控风扇制冷**
- 可选件数字接口卡

- **Wide range input 90...264V with PFC**
- **Output power ratings: 320W up to 1500W**
- **Output voltages: 12V, 24V or 48V**
- **Charging currents up to 60A**
- **Suitable for: Li-Ion and Pb, NiCd, NiMH**
- **Temperature controlled charging**
- **Programmable charging profiles**
- **Power supply mode**
- **Graphic display for all values and status**
- **Short-circuit and reverse polarity protection**
- **Overvoltage protection (OVP)**
- **Overtemperature protection (OT)**
- **Remote sense with automatic detection**
- **Analogue interface**
- **Natural convection cooling***
- **Temperature controlled fans for cooling****
- **Optional, digital interface cards**

概要

EA-BCI 800 R系列是一款由单片机控制的电池充电器。它具有几乎满足所有需求的多种功能和特点。

图形显示器上的清晰菜单快速、简便地指导用户进行正确的设置。本系列通过可选数字接口可编程、遥控和监控。这样可管理、分析和评估一个或多个电池的所有相关数据。

充电循环

EA-BCI 800 R系列非常适合充Li-Ion电池，也可充铅性、NiCd、NiMH电池。用户可针对特定电池类型简便地预编程。

锂离子电池的充电循环阶段

针对锂离子电池，可编程修复充电、预充、快充和峰值充电的各项参数。

可编程的参数有：比如充电电压、电流、时间、温度补偿。按此种方式每个电池可单独充电，从而使充满容量和寿命得到最大优化。

还可在允许的可调宽范围内编辑几乎任何电池参数，该项特征使得本产品成为任何类型锂电池的理想充电器。

* 600W以下型号

** 1kW以上型号

General

The microprocessor controlled battery chargers of the series EA-BCI 800 R have a multitude of functions and features covering all needs.

The clear menu in the graphic display provides a fast and simple guide to correct settings. The chargers can be programmed, remotely controlled and monitored using the optional digital interface cards. Thus all the data for one or more batteries can be administered, analysed and evaluated.

Charging profiles

The chargers in the EA-BCI 800 R series are very suitable for Lithium ion batteries. But also lead, NiCd or NiMH batteries can be charged. The built-in charging profiles are easily parameterised by the user for specific batteries.

Charging cycles for Lithium ion batteries

For Lithium ion batteries the parameters for maintenance charge, precharge, fast charge and peak charge are programmable.

Charging voltage, current, time, temperature compensation are some examples of the parameters which can be modified. In this way, every battery can be individually charged and battery capacity and life are optimised.

The possibility to edit virtually any battery parameter within a wide adjustment range makes the chargers ideal for any type of Lithium batteries.

* Models up to 600W

** Models from 1kW

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铅酸电池的充电阶段

本产品可用4个充电循环阶段来充液态、GEL或AGM铅酸电池，也可用5个循环阶段来充，包含存储和刷新模式。

铅酸电池分四个充电阶段的情况

电池接到充电器上后，单片机检测电池极性和电压，确定是否开始充电。如果电池极性错误或完全过放($<0.2 \times U_{Nom}$)，则不开始充电。只过放一点点的电池(>0.2 至 $<0.9 \times U_{Nom}$)，则以减小后的电流开始预充循环阶段。

然后紧接着进行快充阶段，以全电压和最大电流进行，直到充电电流下降到输出电流的80%以下。

接着进入补足充电阶段，以恒压进行，直到电流下降到额定充电电流的15%，或已完成12个小时充电时间而结束。

第四阶段是涓充循环阶段，此时一直保持给电池充电。

铅酸电池分五个充电阶段的情况

如果电池在很长一段时间内一直与充电器相连，且不释放任何能量，24小时后存储的电量会被减少。此时以较低电压对闲置电池进行储存充电，可以延长电池寿命。定期进行的维护充电可修复电池以补偿自放电释放的电量。

NiCd 和 NiMH 电池的充电循环阶段

针对NiCd 和 NiMH电池，可编程预充、主充和POST充。另外，充满识别条件可选择 ΔU 或 ΔT 或两者的结合。

可编程参数有，如：充电电压、电流、时间、温度补偿。按此种方式每个电池可单独充电，从而使充满容量和寿命得到最大优化。

由于对电池充电器所有参数进行编程的特点，使得产品适合所有类型的NiCd 和 NiMH电池。

温度补偿充电循环

电池充电时建议用一温度感测器，根据电池的温度，调节电压，从而限制危险气体的释放，防止过充。

针对NiCd 和 NiMH电池，该温度感测器不仅可以帮助辨别充满状态，也可防止释放危险气体。

输出

本系列有不同型号，可选择5A至60A输出电流，320W至1500W输出功率的类型。

远程感测输入端

远程感测输入端可直接连到负载输入端，以补偿连线上的压降。如果输入端已接上电池，本充电器将自动纠正输出电压，确保电池获得准确所需的电压。

Charging profile for lead-acid batteries

The devices use either a 4-stage charging cycle for charging lead-acid batteries with liquid, gel or felt soaked (AGM) electrolyte, or a 5-stage cycle which includes a storage and refresh mode.

Four step charging for lead-acid batteries

After connecting the battery, the microprocessor checks the polarity and voltage of the battery, and determines if and when the charging process should begin. False polarity or complete discharge ($<0.2 \times U_{Nom}$) will not be charged. Lowly discharged batteries (>0.2 to $<0.9 \times U_{Nom}$) start with a **precharge cycle** at reduced current.

This stage is followed by a **boost charge**, using full power and maximum current until the charging current sinks below 80% of the nominal current.

There follows an **absorption charge** at constant voltage until either the current has fallen below 15% or a charging time of 12 hours is reached.

The fourth stage is a **trickle charge** in which the total charge in the battery is kept constant.

Five step charging for lead-acid batteries

If a battery remains connected to a charger for a long period without delivering any energy, the maintenance charge is reduced after 24 hours. This storage charge with reduced voltage for an unused battery leads to a longer battery life. At regular intervals the maintenance charge refreshes the battery to compensate for autodischarge.

Charging cycles for NiCd and NiMH batteries

For NiCd and NiMH batteries the parameters for precharge, main charge and post charge are programmable. In addition the recognition of fully-charged can be selected as either ΔU or ΔT or as a combination of both.

Charging voltage, current, time, temperature compensation are some examples of the parameters which can be programmed. In this way every battery can be individually charged and the capacity and life optimised.

The possibility of programming the battery charger for all parameters makes it suitable for all types of NiCd and NiMH batteries.

Temperature compensated charging cycles

It is recommended that a temperature sensor is used for lead-acid battery charging. The charging voltage can then be adjusted to the temperature of the battery thus limiting the emissions of dangerous gases and overcharging. For NiCd and NiMH batteries a temperature sensor can help not only with fully-charged recognition, but also as protection against dangerous gas emission.

Output

Chargers with charging currents from 5A up to 60A and powers from 320W up to 1500W are available.

Sense input

The sense input can be connected directly to the battery to compensate voltage drops alongs the power leads. If the sense input is connected to the load, the battery charger will correct the voltage automatically, in order to ensure that the accurate required voltage is available on the battery.

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模拟接口

模拟输入脚上有温度补偿功能。想要监控充电电压和电流，需在模拟输出脚接上0V...10V电压。此外，还有数个输入脚和输出脚，用来控制和监控产品状态。

Analogue interface

An analogue input for temperature compensation is available. For monitoring the charging voltage and current, analogue outputs are available with voltages of 0V...10V. Several digital inputs and outputs are available for controlling and monitoring the status.

可选项

- 可用RS232, CAN或USB隔离数字接口进行远程控制和监控。在产品前方有一接口卡插槽。也可见64页。

Options

- Isolated, digital interface cards for RS232, CAN or USB for remote control and monitoring. There is an interface slot on the front of the devices. Also see page 64.

技术参数	Technical Data	EA-BCI 800 R
输入电压	Input voltage	90...264V
-频率	-Frequency	45...65Hz
-功率因数	-Power factor	>0.99
输出: 电压	Output: Voltage	
-精确度	-Accuracy	<0.2%
-负载0-100%时的稳定度	-Stability at 0-100% load	<0.05%
-在 $\pm 10\% \Delta U_{IN}$ 时的稳定度	-Stability at $\pm 10\% \Delta U_{IN}$	<0.02%
-负载10%-100%调整需时	-Regulation 10-100% load	<2ms
-过压保护值	-Overvoltage protection	可调 / adjustable
输出: 电流	Output: Current	
-精确度	-Accuracy	<0.2%
-负载0-100%时的稳定度	-Stability at 0-100% ΔU_{OUT}	<0.15%
-在 $\pm 10\% \Delta U_{IN}$ 时的稳定度	-Stability at $\pm 10\% \Delta U_{IN}$	<0.05%
过压类别	Overvoltage category	2
污染等级	Pollution degree	2
保护级别	Protection class	1
模拟编程	Analogue programming	启动, 停止, 温度感测 / Start, Stop, Temperature sensor
制冷方式	Cooling	640W以下: 自然冷却, 1000W以上: 风扇制冷 / Up to 640W: convectional, from 1000W: fan
安规标准	Standards	EN 60950, EN 61326, EN 55022 级别 B / Class B
工作温度	Operation temperature	0...50°C
储存温度	Storage temperature	-20...+70°C

型号	充电电压	电流	功率	U纹波	I纹波	尺寸 WxHxD	安装尺寸 WxHxD	外壳类型	重量	产品编号
Model	Charging voltage	Charging current *	Power	Ripple U	Ripple I	Dimensions WxHxD	Installation dimensions WxHxD	Housing type	Weight	Article number
BCI 812-20 R	12V	max. 20A	320W	<40mV _{pp}	<60mA _{pp}	218x163x83mm	218x190x85mm	1	2.2kg	27150401
BCI 824-10 R	24V	max. 10A	320W	<100mV _{pp}	<35mA _{pp}	218x163x83mm	218x190x85mm	1	2.2kg	27150402
BCI 848-05 R	48V	max. 5A	320W	<150mV _{pp}	<12mA _{pp}	218x163x83mm	218x190x85mm	1	2.2kg	27150403
BCI 824-20 R	24V	max. 20A	640W	<100mV _{pp}	<65mA _{pp}	218x163x83mm	218x190x85mm	1	2.2kg	27150404
BCI 848-10 R	48V	max. 10A	640W	<150mV _{pp}	<25mA _{pp}	218x163x83mm	218x190x85mm	1	2.2kg	27150405
BCI 812-40 R	12V	max. 40A	640W	<10mV _{pp}	<19mA _{pp}	90x360x240mm	90x370x265mm	2	6.5kg	27150406
BCI 812-60 R	12V	max. 60A	1000W	<10mV _{pp}	<19mA _{pp}	90x360x240mm	90x370x265mm	2	6.5kg	27150407
BCI 824-40 R	24V	max. 40A	1500W	<10mV _{pp}	<19mA _{pp}	90x360x240mm	90x370x265mm	2	6.5kg	27150408
BCI 824-60 R	24V	max. 60A	1500W	<10mV _{pp}	<19mA _{pp}	90x360x240mm	90x370x265mm	2	6.5kg	27150409
BCI 848-40 R	48V	max. 40A	1500W	<10mV _{pp}	<19mA _{pp}	90x360x240mm	90x370x265mm	2	6.5kg	27150410

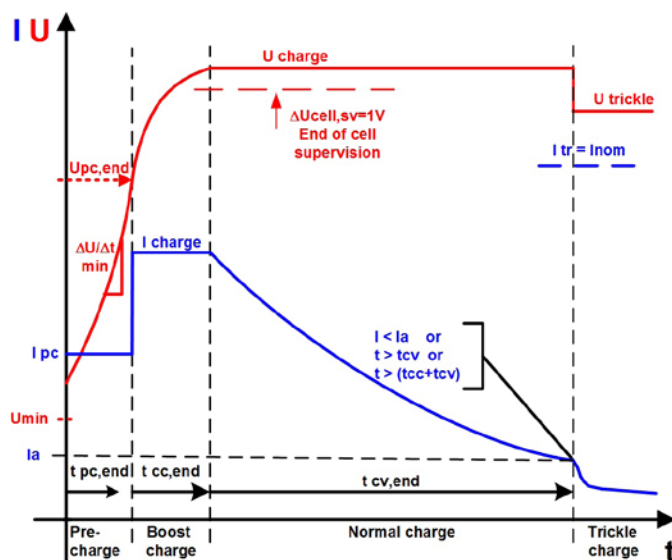
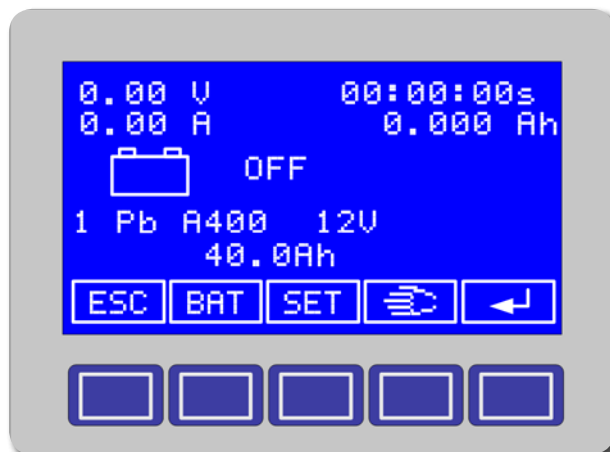
* 最大电流始终由自动功率调整的最大功率限制 / the max. current is always limited by the max. power of the auto-ranging power stage

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外壳类型 2
Housing type 2



数字接口 / Digital interfaces

