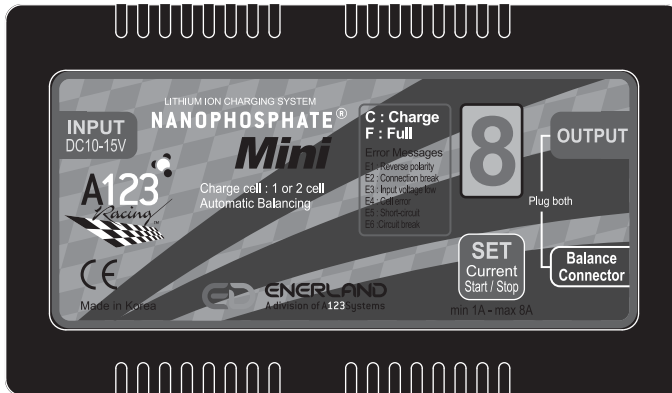




LITHIUM ION CHARGING SYSTEM

NANOPHOSPHATE[®]

Sonic *Mini*



Thank you for the purchase. Please read this entire instruction manual completely and attentively as it contains important information and safety notes. Do not discard this manual, keep in a safe place.

Special features

The 'Sonic Mini' ensures safe charging of rechargeable A123 Nanophosphate® battery which is consisting of serial-wired cells by using advanced charging and balancing to conveniently charge the pack. The charging algorithm reflects the latest technology, and enables you to make full use of your A123 Nanophosphate® batteries at their maximum performance.

- Quick charger

The 'Sonic Mini' Provides 8 amps to charge battery in about 20 minutes, and it will be the best optimized charger for our A123 Nanophosphate® batteries which can be charged/discharged at high rate(max. 8.0A)

- Simple and easy to operate

The charger can be operated using single button to change the charging current and cell-count. The LED display will show what you set by the button in simple manner. And it also will show the error code, if that were to happen. (please note the explanation of error code)

- Micro processor controlled charging process

The charger has a high performance micro-processor to control the charging process properly. It monitors the pack as a whole as well as balances all the cells individually to guarantees the maximum safety.

Basic operation

You can use 12V lead acid battery like your car battery, or DC power supply with the proper voltage as the input power source for the charger. When the input power is connected to the device, the red LED display will show '8' twice with beep sound.

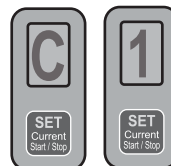
Select the charging current

- Press 'SET/Current' once to increase the charging current. The number of charging current is measured in Amps(A).
- The charging current will be shown in the display from 1 to 8 amps and increases by 1 amp each time you press the button.
- Be sure to choose the correct charging amperage for your battery. Charging the pack to quickly could result in damage to your pack.
- Example; A 6.6V 2300mAh pack can be charged at 8A. ($2.3 \times 4 > 8A$)
A 6.6V 1100mAh pack can be charged at 4A. ($1.1 \times 4 > 4A$)



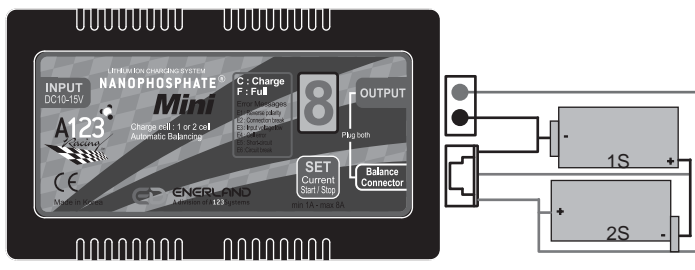
Start and stop the charging process

- Once you set the charging current properly, press and hold the button for more than 3 seconds.
- The charging process will begin with beep sound. And the display will show 'C' and the number of cell-count which is detected by the charger alternatively for 10 seconds. It is time to confirm the cell-count.
- Once the charger confirms the cell-count right, then the display will blink 'C' which means the pack is charging.
- You can stop the process any time by pressing the button during the charging process.
- When the battery is fully charged, the display will show 'F' which means 'Full' with beep sound.



Balance the individual voltages

- To maintain your battery at its best condition, you must balance the voltage of individual cells during charge process.
- To do the job, plug the balance tab of battery to the balance port as well as the output plug is connected to 'OUTPUT' port when charging the battery. In this case, the charger will balance the voltages during charge process.
- The balance procedure may not be seen at the display, but the charger senses the balance port and will do the job automatically.
- The charging time may be longer than the time elapsed by normal charging when the voltages are out of balance.
- When the battery is fully charged and totally balanced, the display will show 'F' which means 'Full' with beep sound.



Error codes

'E1' - Reversed polarity

The charging leads are connected to the battery's output in reversed polarity.

'E2' - Connection break

There is an interruption between the connection between the battery pack and charger's output.

'E3' - Input voltage low

The voltage of input power drops below the limit.

'E4' - Cell count error

The charger detects the voltage is different from the cell count you set. Check the cell count of battery pack carefully.

'E5' - Short-circuit

There are a short-circuit at charger's output. Check the charging lead and battery's output plug and cable.

'E6' - Circuit break-down

There happens the malfunction at the charger circuit by any reason. If the error keeps on happening, the charger should be repaired.

⚠ Warning

If you are going to use AC-DC power supply as input power, which is less than 60 watts, you should set the charge current less than 7A on charging 2 cells. If it is higher, the power supply can be cut-off. However, you can set the charge current on its maximum on charging single cell.

Safety notes

- * This charger should not be used for other type of lithium batteries as it not designed specifically for them. Charging other types of lithium batteries could result in damage and or failure of the pack.
- * The charger is designed to be powered by 12V DC like car battery or similar DC power only.
- * Use the charger exclusively to recharge A123 Nanophosphate® batteries. (max. 2 series)
- * Do not attempt to charge two battery packs simultaneously.
- * Do not leave the charger operating unsupervised.
- * The charger may become hot when operating, take care when touching the unit.
 - Do not cover the charger; provide adequate cooling.
 - Do not subject the charger to direct sunshine.
- * This unit and the battery being charged should be set up on a head-resistant, non-inflammable and non-conductive surface. Keep all the inflammable volatile materials well away from operating area.
- * Protect the charger from damp and dust, store in a dry cool area.

Specification

Type of battery being charged	A123 Nanophosphate® battery only (*DO NOT charge NiCd, NiMH, Pb or other lithium lon batteries)
Input voltage	10 - 15V DC
Charging current	1.0A to 8.0A Max.
Number of cell-count	1 or 2 cells in series (3.3 - 6.6V)
Balance discharge current	200mA
Circuit power	60 Watts
Weight	280 grams
Dimension	123x70x30 mm

Warranty and service

We warrant this product for a period of **one year (12 months)** from the date of purchase. The guarantee applies only to such material or operational defects, which are present at the time of purchasing the product. During that period, we will repair or replace without service charge any product deemed defective due to those causes. You will be required to present proof of purchase (invoice or receipt). This warranty does not cover the damage due to wear, overloading, incompetent handling or using of incorrect accessories.



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Date of purchase/delivery :

Dealer :