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BATTERY CHARGER
Instruction Manual

BEFORE USING OUR BATTERY CHARGER, READ IN DETAILS ALL INSTRUCTIONS CONTAINED IN THIS MANUAL. KEEP THIS MANUAL IN A SAFE PLACE AS YOU MAY NEED TO USE IT AT A LATER DATE.

We draw the attention of all users of this device: please follow the safety and maintenance instructions which are part of this manual. Also read the caution markings on the charger, the manual, and the gift box.



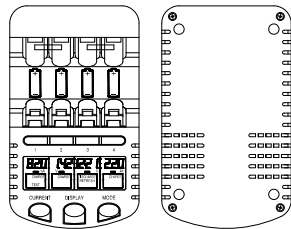
INTRODUCTION:

Congratulations on purchasing this intelligent charging unit which enables quick and optimum charging to "AA" and "AAA" rechargeable batteries. With charging, discharging, refreshing and capacity test functions as well as individual LCD displays for charging compartments; this charging unit is reliable, user-friendly and ideal for use in the home, office or on journey.

INVENTORY OF CONTENTS

1. Charging unit
2. Transformer
3. Instruction Manual

The Charging unit



CAUTIONS:

1. The charger is restricted to **charging NiCd and NiMH rechargeable batteries only.** Never adopt this charger to other types of batteries such as alkaline, lithium, carbon zinc or other types that are not specified.
2. The charging unit shall only be used only at normal indoor room conditions.
3. Always follow the charging instructions for the rechargeable battery. Observe the recommended charging current of the rechargeable batteries. Never adopt a charging current higher than recommended in the charging process.
4. Never use any power cable and transformer other than those originally supplied with the charging unit.
5. The rechargeable batteries may become hot during charging (especially when high charging current is chosen). User shall take extra care when taking out the batteries after charging.
6. Unplug the charging unit from the power source when not in use.

FEATURES:

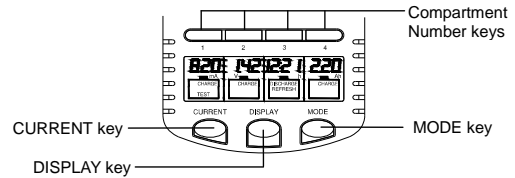
The Charging unit

- Charging the rechargeable battery in various current value (200, 500 or 700 mA)
- Individual LCD display for compartments
- Charging both "AA" and "AAA" rechargeable batteries simultaneously

- Overheat detection to protect rechargeable batteries from over-charging
- Minus delta voltage (-dV) detection for charge termination
- Damaged batteries detection
- Discharge mode (first discharging and then charging) to remove memory effect of rechargeable batteries
- Refreshing old rechargeable batteries by discharging/ charging cycles
- Test function to check the capacities of rechargeable batteries
- Different Charging/ Discharging functions can be launched independently and simultaneously to each rechargeable battery in the compartments
- Various display modes during charging/ discharging – the charging current (in mA), time elapsed (in hh:mm), the terminal voltage (in V) and accumulated capacities (in mAh or Ah)

FUNCTION KEYS:

There are three easy-to-use function keys and four number keys in the charging unit:



Compartment Number key

Press and release the Number key to select a particular battery compartment for charge modes and/or display mode adjustment.

MODE key

The mode key shall first be pressed and held for about 5 seconds to activate the mode change. The subsequent pressing of the mode key will enable to toggle between the "Charge", "Discharge", "Test" and "Refresh" mode. To change the operating mode for an individual rechargeable battery, first press corresponding NUMBER key then press the MODE key.

DISPLAY key

Press and release to select the displays of the charging current (in mA), time elapsed (in hh:mm), the terminal voltage (in V) and accumulated capacities (in mAh or Ah) during the charging or discharging process.

To change the display content of a particular rechargeable battery, first press corresponding NUMBER key then press the DISPLAY key.

CURRENT key

Press to select the amount of current to be applied (within the first 8 seconds after batteries are inserted) in different operating modes (also see "Start charging the rechargeable batteries" below).

OPERATING MODES OF THE CHARGING UNIT

This powerful charging unit provides the following operating modes:

- Charge up the rechargeable battery (**CHARGE**) – to charge up the rechargeable battery, automatically switch to trickle charge after rechargeable battery is full.
- Discharge then charge up the rechargeable battery (**DISCHARGE**) – to discharge the rechargeable battery then charge it for minimizing the memory effect.
- Refresh the rechargeable battery (**REFRESH**) – to refresh the rechargeable battery to its maximum capacity by charging and discharging the rechargeable battery

repeatedly until no further increase in the capacity is estimated. For old rechargeable batteries or those have not been used for a long times, refreshing may bring the rechargeable battery back to the optimum condition.

- Check the rechargeable battery capacity in mAh/ Ah (**TEST**)

CHARGE MODE

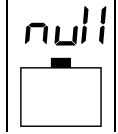
Charging at 200 mA is the default-operating mode of the charging unit. User may select a charging current of 200, 500 or 700 mA.

The estimated time of charging by various charging current is tabulated in Table 1.

Size of battery	Battery Capacity	Charging current selected (mA)	Estimated charging time
AA	2500 mAh	700	~3 hr 35 min
		500	~5 hr
		200	~13 hr
AAA	700 mAh	700	~60 min
		500	~84 min
		200	~3 hr 30 min

Note:

- User shall always observe the recommended maximum charging current of the rechargeable batteries. In general, 200 mA is a recommended charging current if rapid charging is not necessary. It is definitely safe and optimum to the rechargeable batteries.
- It may be necessary to charge and discharge the new rechargeable batteries for several times in the beginning before the optimum capacity of the rechargeable batteries can be obtained. And user is recommended to adopt once the "Refresh" mode to the new rechargeable batteries in order to achieve the optimum battery capacity.
- When the transformer has been plugged to the power source, the version number of the charger (for example "29") will be displayed first. Then all the segments will light up momentarily and the "null" sign will be shown before batteries are placed. If damaged batteries are placed to the charging unit, the charger will also show "null" on LCD.



"null" displayed - No battery or damaged battery is placed to the charging unit

START CHARGING THE RECHARGEABLE BATTERIES

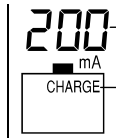
Once a rechargeable battery is inserted after the transformer has been plugged to the power source, the battery voltage (for example, "1.39V") will be displayed for 4 seconds. Then "200 mA Charge" (default mode) will be shown on LCD for another 4 seconds, indicating that charging with 200 mA is to be started if no alternation in setting is made.

Within this 8-second time from inserting the batteries the user may first select the operating mode by the MODE key. Press and hold the MODE button for 5 seconds. Then within 8 seconds from the last key pressing, user may select the charging/ discharging current by pressing the CURRENT key.

Note:

- The mode key shall first be pressed and held for about 5 seconds to activate the mode change. The subsequent pressing of the mode key will enable to toggle between the "Charge", "Discharge", "Test" and "Refresh" mode.
- There is a 8-second time allowed for choosing further functions after each key pressing. If no more key is pressed, the LCD will blink one time to indicate the end of setting. Afterward, the current can no longer be changed during the process and the selected mode will be undergone.

After 8 seconds from no more keys pressing, the LCD will blink once to indicate the setting is confirmed and the selected mode activated

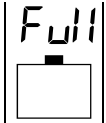


Charging current: 200 mA

Charge Mode

During charging, the different displays- Charging current (in mA), Time elapsed (in hh:mm), Terminal voltage (in V) and Accumulated capacities (in mAh or Ah) may be toggled and selected by pressing the DISPLAY key (refer Table 4).

After the rechargeable battery is fully charged, "Full" sign will be shown on the display and the user may take them out at this time. Or if the rechargeable batteries are kept placed in the compartments, trickle charging will start. The trickle charging current is around 5% of the selected charging current to keep the rechargeable batteries full.

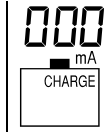


"Full" sign is shown -The battery is fully charged

Note :

- The current cannot be altered once the setting has been confirmed in the initial stage. Therefore, the user can avoid changing the current setting accidentally while setting up other rechargeable batteries. If one wants to change the applied current afterward, the rechargeable batteries must be taken out and inserted again.
- The maximum charging current of other rechargeable batteries is restricted by the current setting of the first inserted rechargeable battery. For instance, if the first inserted rechargeable battery is set to charge at 500 mA, then the second, third and fourth rechargeable batteries can be only set to charging at a maximum current of 500 mA. Therefore, the user is recommended to place the battery with the highest expected charging current in Compartment 1 first. To release the restriction of setting charging current, user shall take out all four rechargeable batteries from the charging unit.
- To change the operating mode during charging, one can press the MODE key (for selecting all rechargeable batteries) or NUMBER key then MODE key (for selecting an individual rechargeable battery). 8 seconds after the last key is pressed the LCD will blink one time to indicate the end of changing.
- When overheating condition occurs (usually due to too high of a charging current selected), the charging will be stopped immediately and the display will shown "000 mA", the charging process will only resume once the temperature of the rechargeable

batteries drops to a safe level. If overheat conditions continue to occur, the rechargeable batteries shall be taken out to cool down and then charged at a lower current.



When the battery is overheated the charging ceases automatically. "000 mA" will be displayed.

- For a new rechargeable battery it is recommended to charge it with 200 mA current for re-conditioning it from the long storage status.

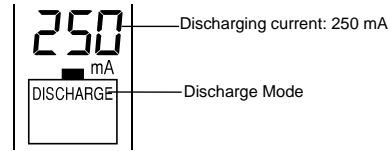
DISCHARGE MODE

Discharge mode will first discharge the rechargeable battery then charge it. It is for removing the memory effects of rechargeable batteries.

By pressing the MODE key within 8 seconds after inserting the rechargeable batteries, the Discharge mode can be selected. (The mode key shall first be pressed and held for about 1 second to activate the mode change. The subsequent pressing of the mode key will enable to toggle between the "Charge", "Discharge", "Test" and "Refresh" mode.)

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Then user may also select a different discharging current (see Table 2) by pressing the CURRENT key, within 8 seconds after inserting the batteries. (The display will blink once to indicate the setting has been confirmed and the current cannot be changed afterward.)



Note: The discharging current is always set to be half of the coming charging current whose upper limit is 700 mA (see Table 2). Therefore user is recommended to carefully select the discharging current so that the charging current afterward will not be too high.

User-selected Discharging current	100 mA	250 mA	350 mA
Thereafter Charging current	200 mA	500 mA	700 mA

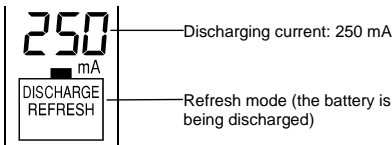
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Finally batteries will be fully charged in discharge mode and "Full" will be displayed. If user presses DISPLAY key at this time, "charge" icon instead of "discharge" icon will be displayed.

REFRESH MODE

Old rechargeable batteries and those have not been used for a long time require refreshing. This process will recover the optimum capacity of the rechargeable batteries. By pressing the MODE key within 8 seconds after inserting the rechargeable batteries, the Refresh mode can be selected.

Refresh mode will start with discharging the rechargeable battery, then charging it. The repeated discharging and charging cycles will be launched until no further increase in the measured capacities is estimated.



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Note:

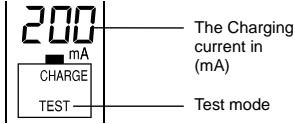
- By pressing the MODE key within 8 seconds after inserting the rechargeable batteries, the Refresh mode can be selected. (The mode key shall first be pressed and held for about 5 seconds to activate the mode change. The subsequent pressing of the mode key will enable to toggle between the "Charge", "Discharge", "Test" and "Refresh" mode.) Then user may also select a different discharging current by pressing the CURRENT key (see "Note" in Discharge mode and Table 2), within 8 seconds after inserting the batteries. (Or the display will blink once to indicate the end of setting and the current cannot be changed afterward.)
- It may take up to several days to finish the refreshing process, depending on the selected discharging current.
- The maximum refresh current is 350 mA.

TEST MODE

In Test mode the rechargeable batteries will first be fully charged and then discharged to determine the capacities. Finally, the rechargeable batteries are charged up again and the capacity in (mAh) of (Ah) will be estimated and shown after the discharging ends. By pressing the MODE key within 8 seconds after inserting the rechargeable batteries, the Test mode can be selected. (The mode key shall first be pressed and held for about 5

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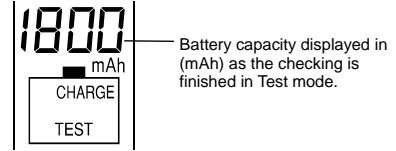
seconds to activate the mode change. The subsequent pressing of the mode key will enable to toggle between the "Charge", "Discharge", "Test" and "Refresh" mode.)



- Note:**
- After selecting the Test mode, user may select a different charging current in the Test mode by pressing the CURRENT key, within 8 seconds after the batteries are inserted. The afterward-discharging current will be half of the selected charging current (see Table 3).

User-selected Charging current	200 mA	500 mA	700 mA
Thereafter Discharging current	100 mA	250 mA	350 mA

- The maximum charging current is 700 mA.
- After the test mode is finished, the display will shift between the "Full" sign and the battery capacity (in mAh or Ah) automatically in 3-second intervals until the rechargeable batteries are removed. User can switch to other displays by pressing the DISPLAY key.



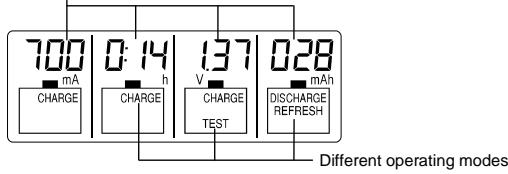
TRICKLE CHARGING

After the rechargeable battery is fully charged in any of the operating modes, the charger will give a small amount of current to the rechargeable batteries to maintain the fully charged level. This mode is automatically launched after rechargeable batteries are fully charged and kept at the charging unit. The signal "Full" will be displayed on the LCD.

DISPLAY MODE INFORMATION

User can use different display modes to monitor the rechargeable battery condition during the different operations (see below figure and Table 4 to 7).

Different display modes are exhibited: Charging current, Time, Voltage and Capacity



Stage in Charge mode	Various displays (toggled by pressing DISPLAY key)			
	Voltage (V)	Current (mA)	*Time (hh:mm)	Capacity (mAh/ Ah)
During charging	Instantaneous Battery voltage	Charging current	Charging time elapsed	Accumulated capacity
Full stage		Trickle charging current		

Stage in Discharge mode	Various displays (toggled by pressing DISPLAY key)			
	Voltage (V)	Current (mA)	*Time (hh:mm)	Capacity (mAh/ Ah)
During discharging	Instantaneous Battery voltage	Discharging current	Discharging time elapsed	Capacity during discharging
During charging		Charging current		
Full stage		Trickle charging current	Charging time elapsed	Accumulated capacity

Stage in Refresh mode	Various displays (toggled by pressing DISPLAY key)			
	Voltage (V)	Current (mA)	*Time (hh:mm)	Capacity (mAh/ Ah)
During discharging processes	Instantaneous Battery voltage	Discharging current	Discharging time elapsed	Capacity during discharging
During charging processes	Instantaneous Battery voltage	Charging current	Charging time elapsed	Capacity determined in last time discharging
Full stage	Instantaneous Battery voltage	Trickle charging current	Elapsed time of last discharging	Maximum battery capacity determined in discharging

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Stage in Test mode	Various displays (toggled by pressing DISPLAY key)			
	Voltage (V)	Current (mA)	*Time (hh:mm)	Capacity (mAh/ Ah)
During charging	Instantaneous Battery voltage	Charging current	Charging time elapsed	"--- mAh"
During discharging		Discharging current	Discharging time elapsed	"--- mAh"
During 2nd charging		Charging current	2nd charging time elapsed	Capacity of the battery determined in discharging
Full stage		Trickle charging current	Discharging time elapsed	Capacity of the battery determined in discharging

Note:

- *The timer will be resumed and counted from 00:00 again after the time elapsed is longer than 20 hours. (For example, 1:45 will be shown after the battery has been refreshed for 21 hr and 45 min.)

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- In case the power source is shortly interrupted or terminated when the charger is being operated, the operational mode will automatically be set to "Charge mode at 200 mA" to charge up the battery once the power source is back to normal, regardless of the operating mode (Charge, Discharge, Refresh or Test) which has been selected by user before.

CARE AND MAINTENANCE:

- Extreme temperatures, vibration and shock should be avoided as these may cause damage to the unit
- When cleaning the displays and casings, use a soft damp cloth only. Do not wet the exposed metal part of the charging unit. Do not use solvents or scouring agents as they may mark the LCD and casing.
- Do not spill water to the charging unit.
- Do not make any repair attempts to the units. Return it to its original point of purchase for repair by a qualified engineer. Opening and tampering with the units may invalidate its guarantee.
- Do not expose the unit to extreme and sudden temperature changes, this may lead to damage to the electronic parts in the unit.

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SPECIFICATIONS:

Input voltage for AC/DC adapter	: 100-240 VAC
Charging current range	: 200 mA - 700 mA
Max charging capacity (capacity of rechargeable batteries)	: 3000 mAh
Dimensions (L x H x W) of Charging unit	: 2.95" x 5.11" x 1.57" (75 x 130 x 40 mm)

LIABILITY DISCLAIMER:

- The manufacturer and supplier cannot accept any responsibility for any improper or incorrect use and any consequences occurred.
- Any performance of repairs or alternations by someone other than the original supplier will invalidate the warranty.
- This product is only designed to be used by people who have read and understood this instruction manual.
- The specifications of this product may change without prior notice.
- This product is not a toy. Keep out of the reach of children.
- No part of this manual may be reproduced without written consent of the manufacturer.

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WARRANTY

La Crosse Technology, Ltd provides a 1-year limited warranty on this product against manufacturing defects in materials and workmanship.

This limited warranty begins on the original date of purchase, is valid only on products purchased and used in North America and only to the original purchaser of this product. To receive warranty service, the purchaser must contact La Crosse Technology, Ltd for problem determination and service procedures. Warranty service can only be performed by a La Crosse Technology, Ltd authorized service center. The original dated bill of sale must be presented upon request as proof of purchase to La Crosse Technology, Ltd or La Crosse Technology, Ltd's authorized service center.

La Crosse Technology, Ltd will repair or replace this product, at our option and at no charge as stipulated herein, with new or reconditioned parts or products if found to be defective during the limited warranty period specified above. All replaced parts and products become the property of La Crosse Technology, Ltd and must be returned to La Crosse Technology, Ltd. Replacement parts and products assume the remaining original warranty, or ninety (90) days, whichever is longer. La Crosse Technology, Ltd will pay all expenses for labor and materials for all repairs covered by this warranty. If necessary repairs are not covered by this warranty, or if a product is examined which is not in need of repair, you will be charged for the repairs or examination. The owner must pay any shipping charges incurred in getting your La Crosse Technology, Ltd product to a La Crosse Technology, Ltd authorized service

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center. La Crosse Technology, Ltd will pay ground return shipping charges to the owner of the product to a USA address only.

Your La Crosse Technology, Ltd warranty covers all defects in material and workmanship with the following specified exceptions: (1) damage caused by accident, unreasonable use or neglect (including the lack of reasonable and necessary maintenance); (2) damage occurring during shipment (claims must be presented to the carrier); (3) damage to, or deterioration of, any accessory or decorative surface; (4) damage resulting from failure to follow instructions contained in your owner's manual; (5) damage resulting from the performance of repairs or alterations by someone other than an authorized La Crosse Technology, Ltd authorized service center; (6) units used for other than home use (7) applications and uses that this product was not intended or (8) the products inability to receive a signal due to any source of interference.. This warranty covers only actual defects within the product itself, and does not cover the cost of installation or removal from a fixed installation, normal set-up or adjustments, claims based on misrepresentation by the seller or performance variations resulting from installation-related circumstances.

LA CROSSE TECHNOLOGY, LTD WILL NOT ASSUME LIABILITY FOR INCIDENTAL, CONSEQUENTIAL, PUNITIVE, OR OTHER SIMILAR DAMAGES ASSOCIATED WITH THE OPERATION OR MALFUNCTION OF THIS PRODUCT. THIS PRODUCT IS NOT TO BE USED FOR MEDICAL PURPOSES OR FOR PUBLIC INFORMATION. THIS PRODUCT IS NOT A TOY. KEEP OUT OF CHILDREN'S REACH.

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This warranty gives you specific legal rights. You may also have other rights specific to your State. Some States do not allow the exclusion of consequential or incidental damages therefore the above exclusion of limitation may not apply to you.

For warranty work, technical support, or information contact:

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2809 Losey Blvd. South
La Crosse, WI 54601
Phone: 608.782.1610
Fax: 608.796.1020

e-mail: support@lacrossetechnology.com
(warranty work)

sales@lacrossetechnology.com
(information on other products)

web: www.lacrossetechnology.com

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FAQ's

What is the charger capacity?

Maximum charging capacity is 3000 mAh

My batteries are getting warm.

It is common for batteries to get warm while charging. The charger has a built in temperature sensor which will stop the charging cycle if it has become too hot. Charging may resume when the battery has cooled.

Allow batteries to cool before placing into a product to be used.

I cannot change modes.

Within 8 seconds of installing a battery, press and hold the MODE button for 5 seconds to change modes.

Why does my display flash a number?

Your station will flash when first plugged in. You're a/c cord may be defective.

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What type of batteries can I charge?

NiMH (Nickel Metal Hydride) or NiCd (Nickel Cadmium) rechargeable batteries only may be used in this product. Charging other types of batteries may result in failure of the charger.

My battery reads "Null".

This charger requires at least .9v in the battery in order to charge it. If the battery is depleted below that point, you will not be able to charge it on this battery charger.

You may want to invest in a small charger/holder that will bring the battery back above .9v when attached for 20-30 seconds. The battery can then be charged in our charger.

Why do my new batteries not show full capacity?

Due to storage and shipping times, you should charge your batteries fresh out of the package. All rechargeable batteries need to be used in a product "under load", then charged, used, charged, at least 5 times or more to reach full

capacity. Batteries sitting in storage may lose some charge over time.

It is not recommended to "condition" batteries until after they have been charged and used 10 times.

As you use your batteries they will gain greater capacity and last longer. It is common for your batteries to run down quickly at first.

Storing batteries

Store between 40 and 80 degrees F. Do not refrigerate.

Batteries will self-discharge if left unused. If unused for 30-60 days they may completely deplete of power after long storage.

NiMh batteries should be stored fully charged and recharged every 30 days to keep in peak capacity.

NiCd batteries should be stored fully discharged.

Do not "store" batteries in the charger.

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