

## BC1000 FAQs

*The links below will work in most PDF viewers and link to the topic area by clicking the link. We recommend Adobe Reader version 10 or greater available at: <http://get.adobe.com/reader>*

### Table of Contents

Why are all the batteries not at full capacity out of the package? .....	2
Why do I need to charge brand new rechargeable batteries?.....	2
I charged my new batteries and they did not show full capacity even though the charger said FULL. ....	2
Why does one battery sold with the charger lose its charge faster than the others?.....	2
How can I tell the current voltage in my battery?.....	2
How does a charger determine battery capacity? .....	3
How do I use TEST MODE to tell the capacity left in my battery? .....	3
When do I need to discharge/refresh my batteries? .....	3
Do NiMH batteries develop a memory like NiCad batteries? .....	3
How long will rechargeable batteries last? .....	4
How do I keep the AAA batteries from falling out of the charger? The AA batteries fit, but the AAA batteries do not. ....	4
How long does it take to refresh batteries?.....	4
Does the battery charger provide protection if a battery is inserted backwards? .....	5
What are the different readings on the display?.....	5
Operating Modes (Charge, Discharge, Refresh, Test).....	6
Can I plug the battery charger into a power inverter? .....	6
How do I charge my "C" & "D" batteries with the adapters? .....	6
How much power is used to charge the batteries?.....	6
There is a low humming coming from my charger. Is this normal?.....	6
Is it possible to use the BC1000 charger with a 12V auto plug? .....	6
Can the charger be used to test standard alkaline or lithium batteries? .....	7
Why does my charger show 0.00 in the display?.....	7
Does the battery charger have overheat protection?.....	7
Can I keep the batteries in the charger for any length of time? .....	7
Q: Can I charge AA Lithium rechargeable batteries such as those made by Ray-O-Vac? 7	
How do I read the "aH values" on my Battery Charger? The "mAh" and the "aH" value shows numbers like "2.29" and "2.34".....	8
What does the Manual mean by Trickle Charge?.....	8
What does it mean when you see NULL in the charger display.....	8
Can I use batteries of different capacities in my product?.....	8
Can I Charge or Test other types of batteries?.....	8
Charge four batteries with different modes at the same time .....	9

## Why are all the batteries not at full capacity out of the package?

- All NiMH batteries will self-discharge in storage. Stored at 70 degrees F, a battery will lose 40%-60% of their charge per month.
- Batteries discharge at different rates. Four batteries from the same package can have a different charge when the package is opened. It is best to charge all batteries before using.

## Why do I need to charge brand new rechargeable batteries?

- NiMH rechargeable batteries will self-discharge in 30-60 days.
- New batteries just purchased have been sitting in a warehouse or store shelf for an unknown period of time.
- For best performance charge them before using them.

## I charged my new batteries and they did not show full capacity even though the charger said FULL.

- Rechargeable batteries become better over time. It is best to charge batteries before their first use or after a long storage. Then use them in a device, charge them, use them, charge them, 5-10 times before "refreshing" the batteries.
- The REFRESH mode will discharge and recharge the battery up to 20 times to reach its fullest capacity.
- The REFRESH or conditioning mode works best on batteries that have been used under load for awhile first. It is also a great way to renew old rechargeable batteries.
- **Note:** Discharge current will be half of charging current selected.

## Why does one battery sold with the charger lose its charge faster than the others?

- Batteries discharge at different rates. Four batteries from the same package can have a different charge when the package is opened.
- This is true of all rechargeable and non-rechargeable batteries.
- It is best to charge new rechargeable batteries before using.
- If one battery seems to lose charge faster than the other batteries use it and charge it several times then use the discharge/refresh cycle with the battery.

## How can I tell the current voltage in my battery?

1. Insert the battery into the charger.
2. Press and release the DISPLAY button until V (voltage) and a number show in the display.
3. The number will be the current voltage of the battery.

**Note:** This is not the capacity of the battery but only the current voltage. To check capacity use the Test mode.

## How does a charger determine battery capacity?

- The battery charger determines the **capacity** of a battery by counting the amount of power **removed** from a fully charged battery:
- During the Test mode the rechargeable batteries will be:
  - Charged fully
  - Discharged to determine the battery capacity
  - Charged fully again for use.
- The **discharge capacity** in (mAh) or (Ah) will be estimated and shown after the discharging ends.
- Once the discharge cycle is done, the discharge capacity reading will not change as the battery is fully charged again.

## How do I use TEST MODE to tell the capacity left in my battery?

- Insert the battery for TEST into a charging bay.
- Within 8 seconds press the corresponding charging bay button. The number display will flash.
- Press and hold the MODE button for 2 seconds then press and release the MODE button to select the TEST mode for the charging bay
- Within the 8 seconds after the last button press, select the charging current for test mode:  
**Note:** Although the individual bays are operated in different modes, the charging current of the second, third and fourth battery placed into the charger cannot be set higher than that of the first placed battery.
- 8 seconds after the last button press, the display will blink once to indicate that the time allowed for setting is over and the Test mode will start.  
Once charging has started, the current can no longer be changed.
- When 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

## When do I need to discharge/refresh my batteries?

- If you use a radio or camera for short times then recharge the batteries it is best to use the Discharge/Refresh cycle occasionally to refresh the battery.
- **Note:** Discharge current will be half of charging current selected.
- Old rechargeable batteries that do not seem to be charging should be refreshed.
- The Discharge/Refresh cycle will discharge then charge the battery up to 20 times or until the charger cannot remove more capacity from the battery in discharge mode, it will charge the battery full, and complete the refresh cycle.  
**Note:** This is best performed after the batteries have been used under load at least 5-10 times.  
**Note:** Discharge current will be half of charging current selected.

## Do NiMH batteries develop a memory like NiCad batteries?

- They are not prone to it, but it is possible. Overused NiMH can develop reduced capacity such as the memory issue referred to in the NiCad type batteries.
- That's where the BC1000 chargers can help by using the discharge/fresh modes to condition the batteries.

## How long will rechargeable batteries last?

- Generally you can charge batteries well over 500 times.
- Lifespan is dependent on how the batteries are used and how often.
- The more often rechargeable batteries are used, the better they become.

### TIPS:

- Do not drop batteries.
- Remove batteries from the charger when charging is complete. If left in an unplugged charger they will discharge.
- Store batteries in a cool environment, between 40 and 80 degrees. Refrigeration is not recommended.
- If batteries are cold, bring to room temperature before using.
- Fully charge batteries before storage.

## How do I keep the AAA batteries from falling out of the charger? The AA batteries fit, but the AAA batteries do not.

- Look for a narrower silver curve, below the AA battery connection.
- Slide the negative end of the AAA battery back so that it is laying in this narrow curve and the press down on the positive end of the battery until it is flat in the charging bay.
- The battery will catch the clip that holds the AAA batteries.



Insert AAA batteries into lower clip.

Insert AA batteries into upper clip.

## How long does it take to refresh batteries?

- This will depend on the age and condition of the batteries.
- The Discharge/Refresh mode will discharge and charge the batteries up to 20 times or until the charger can no longer remove additional power from the batteries.
- The capacity of the battery is determined by how much power can be **removed**.

**Note:** Discharge current will be half of charging current selected.

## Does the battery charger provide protection if a battery is inserted backwards?

- When the battery is put in backwards it cannot make contact because of design (unless extreme force is used) so no harm to charger or battery should occur.

## What are the different readings on the display?

- **Milliamp: mA** is the charging current or speed of charge in that charge bay.
- **Milliamp hours: mAh** is the capacity of the battery or the amount of charge added to a battery. If a 2600mAh capacity battery is already half full and you charge it you will not add 2600mAh of capacity to the battery.
- **Amp hours: Ah** is the capacity of the battery or the amount of charge added to a battery. When the battery charger shows values above 1999mAh, it changes to Amp hours. Due to the limited space on the four displays the charger cannot display over 1999mAh. When the mAh (Milliampere hour) reaches 2000 the display switches to Ah (Ampere hour) by moving the decimal point. A mAh is 1/1000 of an Ah. Example: 2.29Ah and 2.34 Ah would be 2290mAh and 2340 mAh.
- **Time elapsed: h.** Shows the charging time.
- **Voltage: V.** measures battery voltage.
- **NULL:** Will show when:
  - No battery in the charging bay.
  - The battery is below .9 volts and the charger thinks the battery is damaged so will not charge it.
  - 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.
- **FULL:** Will show when the battery has completed its charging cycle. The FULL display may alternate with a trickle charge display.
- **CHARGE:** The batteries are charging at the current you chose (default 200mA).
- **DISCHARGE:** The battery will be discharged then charged one time.
- **DISCHARGE/REFRESH:** Batteries will be discharged and recharged up to 20 times or until the charger can not remove additional charge. The battery will receive a final charge and has reached it's capacity.
- **TEST:** Batteries are charged to full, then discharged to measure capacity, then recharged to full.
- **Note:** For Discharge, Refresh and Test modes, Discharge current will be half of charging current selected.

## Operating Modes (Charge, Discharge, Refresh, Test)

Regardless of operation mode, the batteries will end up fully charged.

- **Charge:** Charge up the rechargeable battery (it will automatically switch to trickle charge after rechargeable battery is full).
- **Discharge:** Discharges the rechargeable battery then charges it one time to minimize any memory effect.
- **Refresh:** Batteries will be discharged and recharged up to 20 times or until the charger cannot *remove* additional charge. The battery will receive a final charge and has reached its capacity. 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.
- **Test:** Batteries are charged to full, then discharged to measure capacity, then recharged to full. Capacity is measured in Ah/mAh.

**Note:** In Discharge, Refresh and Test modes, the Discharge current will be half of charging current selected.

## Can I plug the battery charger into a power inverter?

- It is not recommended to plug the battery charger into a power inverter as it may cause damage.

## How do I charge my "C" & "D" batteries with the adapters?

- The battery charger can only charge "AA" and "AAA" batteries.
- The "C" and "D" adapters are for use with the "AA" batteries.
- Insert the "AA" battery into the adapter. Then use battery in a flashlight, radio or other products that requires a "C" or "D" cell battery.

## How much power is used to charge the batteries?

- The BC1000 use the following power in watts:
  - Charging 1 battery at 200 mA uses 0.75 watt.
  - Charging 4 batteries at 200 mA uses 3 watts.
  - Charging 4 batteries at 1000 mA uses 13 watts.
- It will use the same amount of power whether charging a 2000 mAh battery or a 2800 mAh battery. The difference will come in the length of time needed to charge based on the capacity of the battery when charging begins.

## There is a low humming coming from my charger. Is this normal?

- Yes.

## Is it possible to use the BC1000 charger with a 12V auto plug?

- We do not recommend trying to use the BC1000 charger with a 12V auto plug. It may damage the charger.

- The BC500 does come standard with a car adapter. This adapter will not work with the other chargers.

## Can the charger be used to test standard alkaline or lithium batteries?

- No. We recommend using a multimeter to test the batteries.
- Inserting batteries that are not NiMH or NiCd may damage the battery and the charger.

## Why does my charger show 0.00 in the display?

- If you are looking at Time Elapsed (h) and you just put batteries in, you will see 0.00.
- When an overheating condition occurs (usually due to too high of a charging current selected), the charging will be stopped immediately and the display will show "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.

## Does the battery charger have overheat protection?

- When overheating condition occurs (over about 53°C, 127.4 F usually due to too high a charging current selected), the charging will be stopped immediately for all charging bays (charging and discharging), 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.

## Can I keep the batteries in the charger for any length of time?

- No - Leaving the batteries in the charger for extended periods of time can potentially damage the batteries or the charger. Batteries should be removed after they are fully charged or removed within roughly 24 hours for professional use.

## Q: Can I charge AA Lithium rechargeable batteries such as those made by Ray-O-Vac?

- The BC1000, are designed to be used with NiCd (Nickel Cadmium) or NiMH (Nickel Metal Hydride) batteries only.
- Charging other types of batteries may damage the charger or the batteries.

**Note:** Some rechargeable batteries require a specific type of charger. Please look on the battery packaging for this information.

## How do I read the "mAh values" on my Battery Charger? The "mAh" and the "Ah" value shows numbers like "2.29" and "2.34".

- Due to the limited space on the four displays the charger cannot display over 1999mAh.
- When the mAh (Milliampere hour) reaches 2000 the display switches to Ah (Ampere hour) by moving the decimal point.
- A mAh is 1/1000 of an Ah. In the above example the 2.29 and the 2.34 Ah would be 2290 and 2340 mAh.

## What does the Manual mean by Trickle Charge?

- ✓ 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.
- ✓ Trickle charge is automatically launched after rechargeable batteries are fully charged and kept at the charging unit.
- ✓ The signal "Full" will be displayed on the LCD.

## What does it mean when you see NULL in the charger display.

- This means either you have a battery that has depleted its voltage to less than .9v of power and there is not enough energy in it to take a charge, or you have a bad battery.
- 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.

## Can I use batteries of different capacities in my product?

- It is best to use batteries of the same capacity and use them in matched sets. This will provide better performance from the batteries.
- If you have a product that uses three batteries and one battery is weaker it will discharge faster and shorten the run time.
- If you have one weak battery it is possible that the weak battery may reverse polarity and damage the battery. This is why this battery charger will not charge a battery that is below .9volts.

## Can I Charge or Test other types of batteries?

- The BC1000 is designed to be used with NiCd (Nickel Cadmium) or NiMH (Nickel Metal Hydride) batteries only.
- Charging other types of batteries may damage the charger or the batteries.  
**Note:** Some brands of NiMH rechargeable batteries require a specific type of charger. Please look on the specific battery packaging for this information.



## Charge four batteries with different modes at the same time

### **Example: Two batteries at charge mode, one at discharge mode and one at test mode.**

1. Plug the AC power cord to the power source.
2. Insert the two batteries for charging in bays 1 & 2
3. "Charge" will be displayed in the LCD as Charge mode is the default mode.
4. Within 8 seconds:
  - Press the CURRENT button to select the charging current at 200, 500 or 700 mA.
  - After 8 seconds, the display will blink once to confirm and end changes.
5. Insert the third battery for "Test" in bay 3.
6. Within 8 seconds:
  - Press the BAY 3 button. The No. 3 display will flash.
  - Press the MODE button to select the "Test" mode.

**Note:** Press the BAY 3 button before pressing the MODE button; or the mode of all bays will be changed at the same time.

- Press the CURRENT button to select the charging current in the test mode: 200, 500 or 700 mA.
  - After 8 seconds, the display will blink once to confirm and end changes.
7. Insert the fourth battery for "Refresh" into bay 4.
    - Press the BAY 4 button. The No. 4 display will flash:
    - Press the MODE button to select the "Refresh" mode.

**Note:** Press the BAY 4 button before pressing the MODE button; or the mode of all bays will be changed at the same time.

- Press the CURRENT button to select the discharge current in the refresh mode: 100, 250 or 350 mA.
  - After 8 seconds, the display will blink once to confirm and end changes.
8. The "Full" sign will be displayed once the battery is fully charged from any operating mode.