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- - **Rcaccessory's Bantam BC8DX Dual Port Charger Review**  
(<http://www.rcgroups.com/forums/showthread.php?t=923484>)

#1 78dave

Mar 04, 2009 06:52 AM

## Rcaccessory's Bantam BC8DX Dual Port Charger Review

94 Attachment(s)

### INTRODUCTION

There are at least a couple of types of readers that will be interested in this charger, but I have reviewed the BC8DX from the perspective of the typical end user who values his investment. Personally, I want a charger that is easy to use, charges within the parameters of my battery capacities and types and one that gets me into the air as soon as possible.

The BC8DX replaces the BC8 and adds to the already impressive lineup of Bantam Hobby Technologies. It is designed and built with high power capabilities, with two 160 watt maximum charge and 25 watt discharge independent outputs pushing up to nine amps charging power and 5 amps discharge each simultaneously. A huge 128 x 64 LCD screen, dual cooling fans and PC based software make this one powerful charger. Oh, did I mention it can charge up to 44 cells of NiCd or NiMH or 16 lithium batteries all at the same time? What Bantam and their largest distributor [Rcaccessory](#) have available for the RC battery charging market is arguably one of the best chargers available.

### KIT CONTENTS

Kit Contents

- Charger
- 2 connection boards of your choice
- Power clip leads
- eStation software
- USB cable
- One set of unwired charging cables



|  |   |
|--|---|
| <b>Operating Power Range:</b>            | 10.0 ~ 18.0V DC                           |
| <b>Circuit Power Charge:</b>             | Maximum 160 watts per output              |
| <b>Circuit Power Discharge:</b>          | Maximum 25 watts per output               |
| <b>Charge Current:</b>                   | 0.1 ~ 9.0 amps                            |
| <b>Discharge Current:</b>                | 0.1 ~ 5.0 amps                            |
| <b>NiCd/NiMH Battery Cell Count:</b>     | 1 ~ 22 cells per output                   |
| <b>Lithium Battery Cell Count:</b>       | 2 ~ 28V per output                        |
| <b>Pb Battery Voltage:</b>               | 1 ~ 22 cells per output                   |
| <b>Battery Data Memory:</b>              | 5 memories per program                    |
| <b>Delta-peak Sensitivity:</b>           | Disable/Delicate/5 ~ 20mV adjustable      |
| <b>Temperature Cut-off Range:</b>        | 20 ~ 80C/68 ~ 176F                        |
| <b>Trickle Charge Current:</b>           | Off, 50 ~ 300mA adjustable (N/A for Lixx) |
| <b>Cycle Count:</b>                      | 1 ~ 10 times (N/A for Lixx)               |
| <b>Cycle Cool-off Waste Time:</b>        | 0 ~ 60 minutes adjustable                 |
| <b>Current Drain for Balancing Lixx:</b> | 200mAh/cell                               |

- Temperature probe
- One set of Pb charging leads
- Well written instruction manual

**Weight:** 1100g / 2.42 lbs  
**Dimensions:** 200 x 150 x 55 mm / 7.87 x 5.91 x 2.17 inches  
**MSRP:**> \$359.95

Manufacturer: [Bantam Hobby Technology](#)



Box serves well for storage



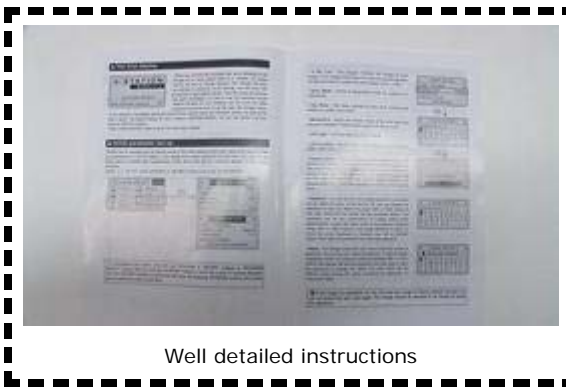
Mine arrived well protected



The kit comes as you request with charging connectors to meet your needs



Instructions for the software are provided on the CD



Well detailed instructions

**Kit Options**

- Additional Connection boards
- Multiple battery connection boards
- Power supply

The features of the charger are numerous. I will try my best to walk you through each one and provide comments.

## A QUICK TOUR AROUND THE BC8DX

### Main Panel



Lots of power in a small package

The large LCD screen is yellow and backlit and is large enough to read easily with characters that stand out well. There are clearly labeled STOP/ESC and START/ENTER buttons on the right side and CHANNEL and MODE buttons on the left side. Below the screen there are UP/DOWN buttons that move you through the features and DEC/INC buttons that increase and decrease the values you need for each feature.

### Specifications

|                                      |  |   |
|--------------------------------------|--|---|
| DC Power 10V to 18V                  | 9 Amp Max Charge Rate per Channel            | Up to 8S Lithium (LiPo, Li-Ion, Li-FE (A123)) |
| 160 Watts Charge Power per Channel   | 5 Amp Max Discharge Rate per Channel         | Up to 22 cells NiCd.NiMH                      |
| 25 Watts Discharge Power per Channel | Balancer Bleed Rate: 200 mAh/cell            | Up to 28V Pb(SLA/Lead Acid)                   |
| 5 battery Memories per Program       | Delta Peak Sensitivity 5mV to 20mV           | NiCD/NiMH Formation Charging Timed            |
| 3 types of Lithium battery           | LiPo, Li-Ion, LiFe                           | Low and high voltage parameters programmed    |
| 5 types of charge/discharge          | Normal, Balance, Storage, Fast and Discharge |   |
| Warranty                             | 12 months                                    | Prepaid shipping                              |



The complete panel

There is some additional information regarding the number of Lixx cells, NiCAD/NiMH and Pb cells you can charge, charge rate parameters, discharge parameters, charge/discharge cycles and temperature memory.

The unit measures 200mm (7.8") x 150mm (5.9") x 55mm (2.2") and weighs 1100 grams (2.42 lbs). It includes two cooling fans for each output side. The unit is 12 volt and requires at least a 20 amp power supply. On the right side there are positive and negative output ports, the individual cell port, a temperature port and a USB port. On the left side there are also output ports, the individual cell port, temp and the power cords.



The right end



The left end

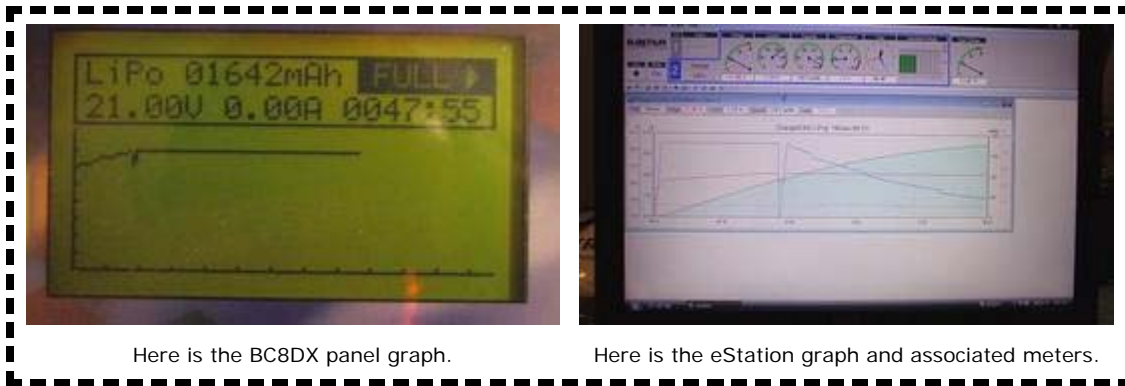


The back

## Special features

### Interface with Bantam's eStation software

While the BC8DX has its own operating software, it also interfaces with Bantam's eStation software via the new EAC300 software. The BC8DX graphs the outputs of your battery but it only shows the voltage curve as an X/Y axis as the battery is charging. Even though the screen is large, it is not capable of showing all of the details of your charge. With the eStation software you can monitor your volts, current in amps, capacity in mAh, time, and you can also see your power output to the charger on analog dials and in digital numbers. Individual cell voltage is provided in bar graphs which also show temperature if you use the optional (included) probe. While the graph is operating, you can pick and choose where you want to read the outputs by putting your cursor on the graph. During the charge the graph will adjust itself by scale to provide you more detail throughout the charge cycle. The graph compresses as the charge continues and is also completely in view with the software.



Here is the BC8DX panel graph.

Here is the eStation graph and associated meters.

## User Friendly

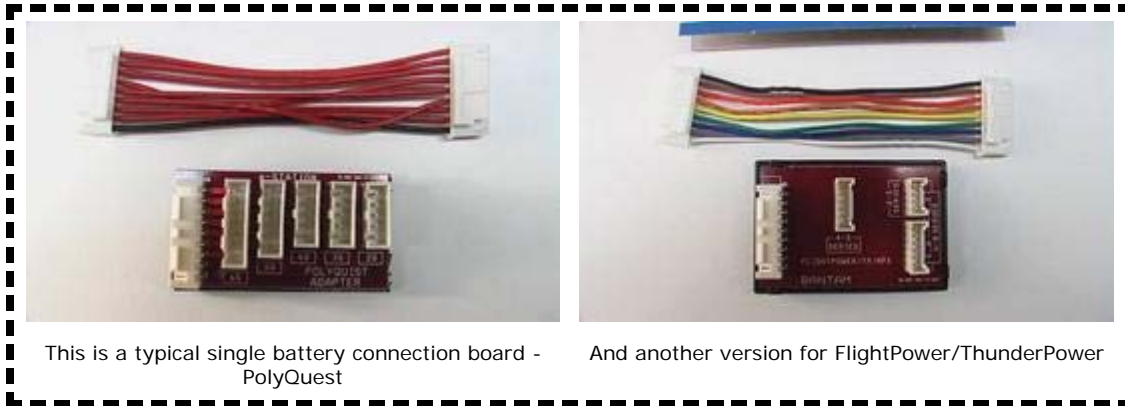
I am not sure there are chargers more simple to use than the BC8DX. The firmware is integrated and ready to go. It does not include software upgrades, so what you see and use is what you get. But unless you have a very unique situation, there's really no need. I have several chargers and have never had a need to make upgrades; For those of us using typical lithium chemistries including Lithium Ion, Lithium Polymer or Lithium Ion Nano-Phosphate (LiFe-123) and NiCd and NiMh upgrading isn't likely necessary.

The high power output is really something. You can charge an 18.5 3,200 mAh LiPo on one output for your big .46 size Chipmunk and a 450 mAh 7.4 volt LiPo for your 3D foamy on the other output. That's what I call real charging diversity.



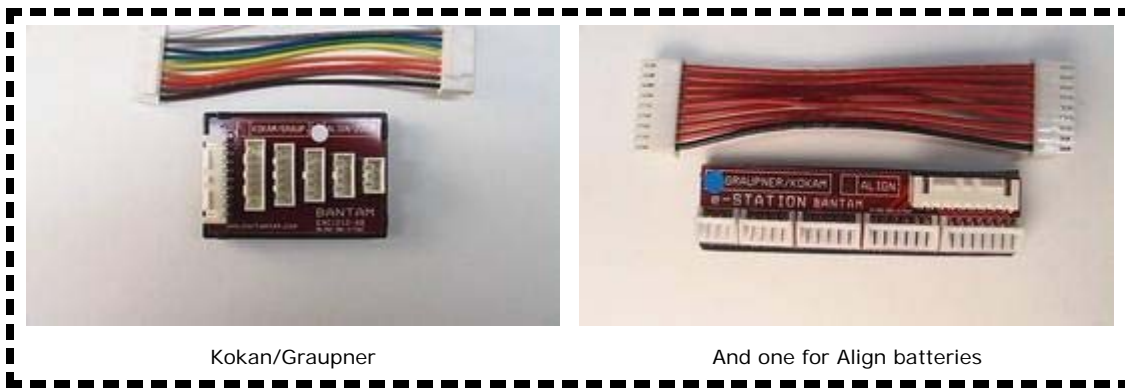
Two separate channels provide real flexibility.

It also balances through adaptors, of which two are included. There are 2S, 3S, 4S, 5S and 6S taps plus a multi-tap for the charger. You can get the following:



This is a typical single battery connection board - PolyQuest

And another version for FlightPower/ThunderPower



Kokan/Graupner

And one for Align batteries

The taps are also available for multiple battery applications allowing up to (2) 3S LiPos or (3) 2S Lipos to be charged serially.



Here you see multiple battery sizes on the left on one connector and multiple batteries in pairs and triple applications on the right.

| Multiple Battery Balancing Taps |                           |
|---------------------------------|---------------------------|
| EAC-131                         | Open ended                |
| EAC-133                         | Polyquest, Hyperion       |
| EAC-134                         | Align/Dualsky             |
| EAC-138                         | Kokam                     |
| EAC-139                         | ThunderPower/Flight Power |



This is a typical multiple battery charging connection board.



Kokam/Align



Another version FlightPower/ ThunderPower

Multiple Battery Balancing Taps

- EAC- 131 Open ended
- EAC- 153 Polyquest, Hyperion
- EAC- 154 Align/Dualsky
- EAC- 158 Kokam
- EAC- 159 Thunder Power/Flight Power

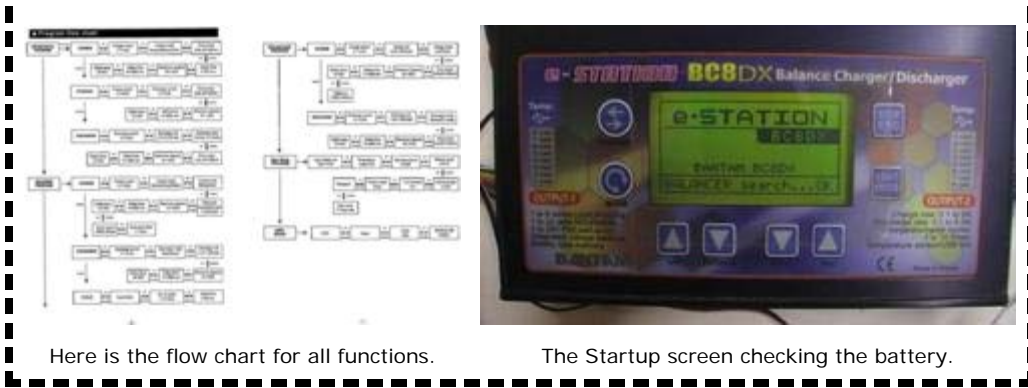
## CHARGING

The charging programs are easy to get used to. I like the ability to store battery information and then easily come back to it the next time you charge. I tend to fly a plane or a group of planes within the five memory capacity per channel. My foamies are in the 450 mAh to 2100 mAh range, and five memories per battery type is plenty. My built up balsa models typically have a higher range of mAh.

### **Startup**

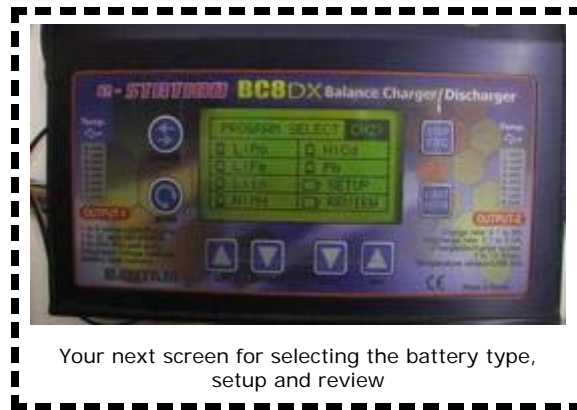
When you power up the BC8DX, the program immediately scans your battery's balancer capabilities. If everything is OK, it continues to balance charge. If not, it will still charge in the normal mode.





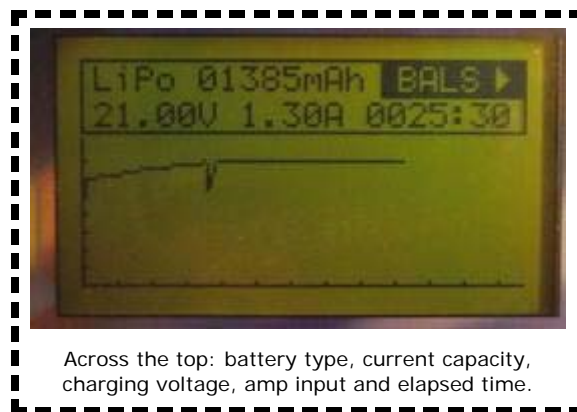
Here is the flow chart for all functions.

The Startup screen checking the battery.

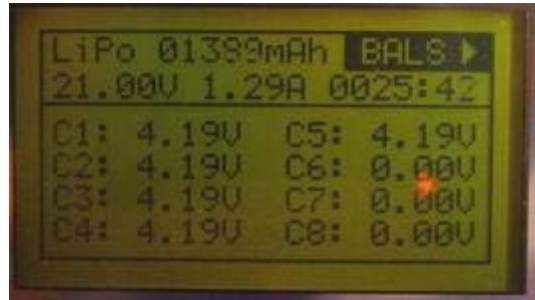


Your next screen for selecting the battery type, setup and review

The next screen selects your battery type, the default setup and a review screen of the completed charge process. The user setup includes the ability to set the low voltage-in alarm (which may be important if you are not using a powerful enough power source), temp mode in Centigrade and Fahrenheit, whether you want the keys to beep as you use them, the melody you will hear for the alarms, the LCD lighting, contrast, factory default settings and four digit password programming.



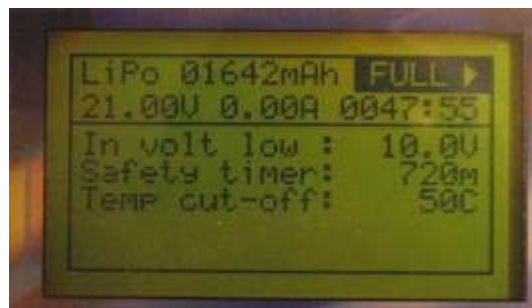
Across the top: battery type, current capacity, charging voltage, amp input and elapsed time.



Note the time has changed and the mAh capacity has increased. Cell voltages for this 5S 18.5 battery are shown and look good.



Full charge: the review screen and the original settings



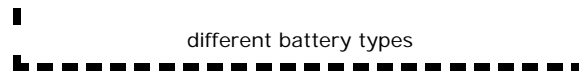
Here is the final review screen

You can charge LiPo, LiFe, and LiLo as well as NiMH, NiCD and lead cell. You easily select the one you wish to charge and set the charge program number, the cell size and voltage and the parameters for the charger (this includes the charge current in 0.0amps, charge mode between normal (through the power leads), balance (through the balance tap) and fast).

The normal charge still requires you to connect using the power leads only. You may have packs that do not have a balance connector. The balance charge uses the balance tap to monitor and control the voltage to each cell. You will have to also connect the power leads. The fast mode is really just modifying the Constant Voltage mode by increasing the charge toward the end of the program to 1/5th the initial value instead of 1/10th of the initial value which will reduce your charge time, but not significantly.



You will need to make a set of leads and prepare for



The end current can be adjusted or you can select the Automatic mode. Your selection can range from 60 to 500mA. In the Auto mode, the ending current will be 1/10th the initial value. This function is very specific to battery chemistry. Increasing the end current will decrease the charge time and lower the capacity charged. This is an advanced function for users specifically looking to terminate the charge by not reaching full capacity of the battery. Some people try to incorrectly do this via voltage.

A check time function is provided to take a deeper look into your cell count if the initial program indicates the number is incorrect. If you inadvertently discharged a pack (during use), it is possible a miscount can occur with regard to the number of cells. The default is ten minutes, but for larger batteries, you can increase this to a maximum of 250 minutes. This is also used as a low cell recovery where the charger will maintain very low amperage to raise the voltage to where it can begin a normal charge rate.

Always be sure you are aware of your battery type. For example, the charged voltage of a LiPo is 4.2 volts, 4.1 volt for LiLo and 3.6 volts for LiFe per cell. The last function allows you to set the maximum capacity of your battery. This is more intended for storage of Lixx cells and for NiMh racing cells that need extra capacity or setting to a lower rate to not charge the pack all the way. This is based on capacity, not voltage.

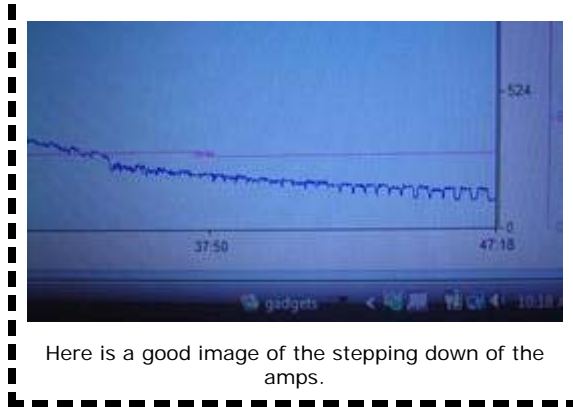
A storage function is provided for Lixx batteries. While you may be inclined to peak charge batteries for storage, this is not the best way to store Lixx batteries. The program automatically discharges the cell and charges it back to a safe level for long-term storage. Charge, discharge, ending current and maximum capacity can all be set to specified values. The Storage program automatically detects the voltage of the pack and the either charges or discharges the pack to the storage voltage.

The discharge current can be programmed between 0.1 and 5.0 amps. The discharge voltage is adjustable between 2.7 and 3.7 volts for lithium batteries. There are two discharge modes: Normal which will discharge the battery continuously until the voltage is reached and CV mode which will gradually decrease the discharge of the battery for maximum discharging.

## CC/CV charging processes

It is important to understand the charging process. According to the manual, "As the process starts, the CC phase, in which the charging current is maintained at a constant level until the battery reaches the final charge voltage, commences first. Next is the CV phase where the voltage is maintained at a constant level. At this point, the battery already has been charged to about 80-90% full. The charging current will start to decrease until it reached 1/10th of the starting amount, and then the charger will stop the charging process. The battery is virtually fully charged at this point."





Here is a good image of the stepping down of the amps.

## NICD AND NIMH BATTERY CHARGING

For the most part NiCD and NiMH options are similar to Lixx, but with these battery chemistries you can also cycle the batteries. You can select the program, cell count and voltage and mAh for each pack. In the charge mode you can charge between 0.1 amp and 9.0 amps.

There are three different charging methods: Normal, Linear and Reflex.

- Normal mode: the charger feeds the current in 90 second cycles with 6 second waste times
- Linear mode: the charger feeds current continuously with no hesitation
- Reflex: the charge pulses between high rate charge and discharge currents, helping to correct battery memory

Current is adjustable between Manual and Auto:

- Manual mode: the current is forced throughout the process
- Auto mode: the current is near the top limit of the charge parameter.

Delta peak is also available in three modes:

- Disable mode: no peak is detected, and the parameters are maintained through the charge cycle. This is designed for NiMH batteries.
- Delicate mode: senses slight variations at full charge and makes correction to complete the charge.
- Default mode: simply applies 15mV/cell for NiCD and 10mV/cell for NiMH.

Trickle current is also selectable between 50 and 300mA, and a peak delay option is also available providing the delta-peak detection is held off for 1 – 15 minutes. Many RC car racers use this function to make sure their batteries are fully charged at race time.

## **NiCD and NiMH discharging and cycling**

There are two functions that make discharging your non-Lixx batteries simple:

- Manual discharge takes the battery down to a preset voltage
- Automatic mode takes the battery down to 0.90 volts per cell. Discharge voltage can be set

from 0.0 to 1.2 volt per cell with a default of 0.90 volts per cell.

Cycling can be set to occur up to ten cycles. You can charge-discharge or discharge-charge the battery. Waste times (delay) between cycles can be set from 0 to 60 minutes. This allows the battery to cool before the process begins again.

## Lead cell charging, discharging and cycling

Lead cell batteries between 2 and 28 volts can be charged. The charge current is optimal at 1/10th of the capacity. You can set the program, identify the cell count and voltage, and set the charge current between 0.1 and 9.0 amps is set. Voltage per cell can be set between 2.2 and 2.5 volts per cell with the default at 2.45/cell.

There are two charge modes for NiMH and NiCD batteries.

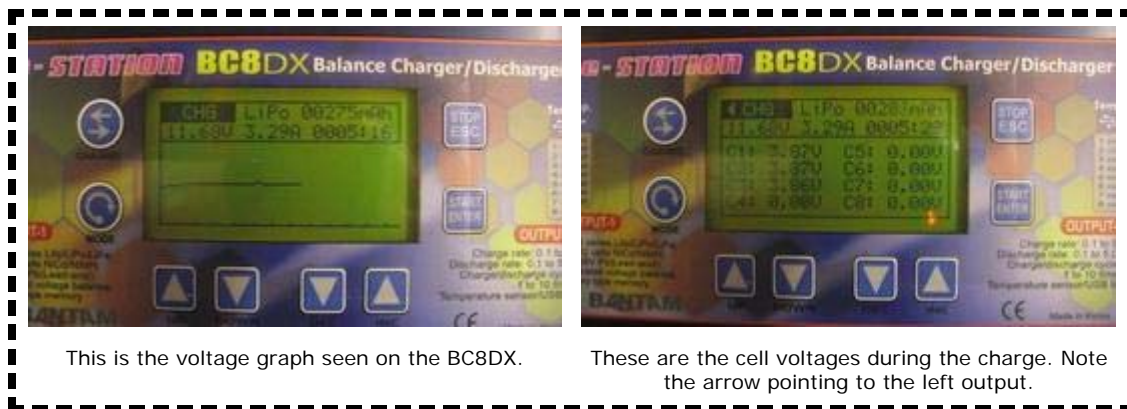
- Linear mode
- Pulse mode - waste time is 3 seconds while the current is suspended at 30 second intervals. Ending current is automatic with a trickle charge option from 50 – 300mA. Discharging current from .01 to 5.0 amps with a final cell voltage option of from 1.4 to 1.80 is programmable.

There are two discharge modes:

- Normal - linear to the final setting
- CV - decreases the current gradually to the final discharge setting. End current is also programmable with a value of 1/10th the initial charge.

## SCREEN DISPLAYS AND ESTATION SOFTWARE

To fully understand the charging process you should connect your BC8DX to your PC. I was amazed at how much more I could see using the software. The BC8DX's LCD screen does provide a voltage curve, but does not show the amperage current, mAh or temperature on the graph or the input voltage. It does provide that information in digital format, but really nothing like the eStation software.



This is the voltage graph seen on the BC8DX.

These are the cell voltages during the charge. Note the arrow pointing to the left output.



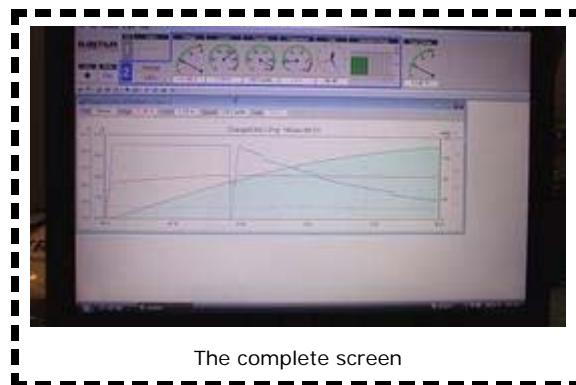
## eStation

I found eStation easy to work with. Initially I had a bad USB connector, but once that was resolved I was ready to go. The software installs on any PC (not Mac) and can operate using Windows 2000, Windows XP and Vista. The expanded offering is so much more than the BC8DX stand alone.


Once the software is installed follow the instructions and plug in your BC8DX through the USB cable to your CPU. Make sure you are inserting the cable into the correct plug on the right side of the charger (not the temp plug). Once connected the eStation software will link up to the charger, and you will notice a yellow light flashing on the red USB connector. A yellow light will also flash on the software indicating you are linked to the charger.

Click on the channel you want to watch throughout the charge. The top information bar includes the voltage, amperage, mAh and elapsed time and the right shows your power input. The cells are depicted with a bar graph. Move your cursor over the bars, and you will see the digital numeric number for the charge in each cell.

The lower half of the screen is the charging graph where you can clearly see in detail the voltage, amperage, mAh and temperature. There is an option of turning off and on each of the features. The digital number for the charge at the current time is along the top of the graph. Moving your cursor over any point in any of the features will change the digital output to reflect the charge status at that time.

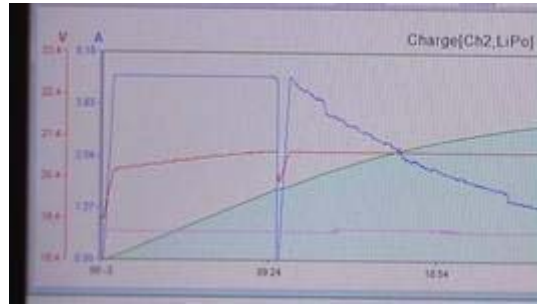


### Downloads

| Type  | Name  | Size    |
|---|---|---------|
|  | <a href="#">This is what you see during the charge sequence</a> | 6.51 MB |

As the graph begins, the voltage and amps very quickly spike to the constant current levels. The mAh begin at (0,0) and climb from that point. Everything below the mAh line will be tinted in a light green to indicate the capacity. As the charge continues the elapsed time will move the graph from right to left. The graph gradually compresses to accommodate the entire charge in one field. The scale along the Y axis will also adjust itself as necessary to increases.

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Note the quickly increased voltage, amps and gradual increase in mAh

### Downloads

Type Name

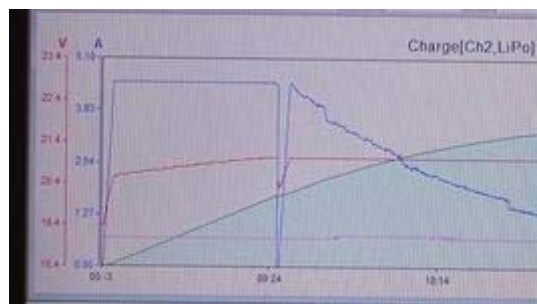
Size



This video shows several changes that occur through the charge cycle.

22.51 MB

At approximately 80-90% of the charge, the Constant voltage will change over from the constant current, and the amps will begin to drop. Voltage will remain steady, and mAh will slowly increase as the charge is completing. Once the charge is finished, you can save the file to view later.



The change from CC to CV is right at the drop out.

The video below provides a look at the charging process and shows the dropout that occurs during charging. "The charger has several means of testing the cells to see how they are holding voltage. One of the ways is to drop the amperage to 0 and see the voltage drop on the cells/pack. Under charge, voltage is increased. Remove the charge, voltage drops. This is how the CC/CV programming works. Once the end voltage is reached, amperage is reduced to maintain the voltage. CV termination takes place at 1/10 the initial charge value by default. What is cool about the BC8DX, is that you can adjust the CV termination values [being careful of battery chemistry]" Evan Chapkis.

### Downloads

Type Name



Lots of detail in the program

Size

12.49 MB

## **MULTIPLE CELL CHARGING**

One of the great features of the BC8DX is its ability to charge multiple packs simultaneously, one each channel. It is well known that when using multiple packs they should begin their lives in similar fashion. In other words, if you are going to create a 6S 22.2 volt 3000 mAh system using 2, 3S 11.1 volt 1500 mAh packs, you need to make sure the packs are matched for that series. If you are going to make a 6S 11.1 volt 3000 mAh pack using two 3S 11.1 volt 3000 mAh packs, both should be matched from the start. The life of a dual pack is extended by charging them using the BC8DX charger and the provided multiple charging adapters. These adaptors will accommodate two or three cell packs in pairs. The balancing of these packs is accomplished through the multiple input capacity of the BC8DX. It has the ability to charge them and keep them in synch with each other, increasing the life of the battery and improving the performance of the battery combination.

## **CONCLUSION**

I believe this is one heck of a great charger with the duality of separate and programmable outputs. It is worth the investment and is likely the only charger you will need for a very long time. I really like the dual charging as I am always deciding to fly at the last minute and want to get in the air fast.

Pluses:

- Dual outputs obviously
- Power to handle several packs at once
- Simple to use
- Programmable
- RCAccessory customer service is absolutely Excellent!

Negatives

- Considerable investment but amortizes across many years of successful charging

All times are GMT -5. The time now is 07:29 AM.

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