B8 PRO Balance Charger

B8 PRO

imaxRC
B8 PRO

LiPo/LiIon/LiFe charge: 0.1A-7A
NiCd/NiMH: 1-27 cells
Pb-voltage: 2-36 V
Up to 8 cells balance charger

Discharge: 0.1A-5A
Lithium: 1-8 series
1-5 cycles of charge/discharge
Storage up to 10 charging data

Batt. Type   Dec.   Inc.   Start

ImaxRC

Instruction Manual

Thank you for purchasing ImaxRC B8 PRO charger. This is high-speed recharge/discharge equipment manufactured with high technology & professional control software. It enables you maintain your battery with optimal status with high level of safety.

Features

Optimized user interface

When charging or discharging, B8 has an "AUTO" function that sets the feeding current automatically. Especially for Lithium batteries, it can prevent the over-charging that can lead to an explosion by user's fault. Every program in the unit is controlled with mutual links and communication for every possible error for maximum safety. These can be set at user's option.

Special recharge plugs port for receiver, transmitter and igniter charger. And for frequently used charger port such as multi purpose crocodile pin etc.

It provides most convenient balance charge port for Lithium batteries, with separated 2,3,4,5,6,7,8 charge port, and external reverse connector.

High-power and high-performance circuit

B8 PRO employs the circuit that has maximum output power of 150W. As a result it can charge or discharge up to 27 cells of NiCd/NiMH and 8 series of Lithium batteries with maximum current of 7.0A. Furthermore the cooling system is so efficient that can hold such a power without any trouble of running the CPU or the operating program.

Individual voltage balance for Lithium batteries inside

B8 PRO has an individual-cell-voltage balancer inside. This does not require any extra balancer when charging Lithium batteries (Lilo/LiPo/LiFe) for cell voltage balancing.

Balance individual cells on discharge

B8 PRO also can monitor and balance individual cells of the Lithium battery pack during the discharge process. If the voltage of nay one cell varies abnormally, the process will be stopped with the error message.

Suitable for various types of Lithium batteries

B8 PRO can accept three types of Lithium batteries-Lilo, LiPo and LiFe. They have different characteristics by their chemistry. You can select any one of them that you are going to process before the job. For their specifications, refer "Warnings and safety notes" section.

Lithium battery "Fast" and "Storage" mode

You can charge Lithium battery for special purposes. "Fast" charge reduces the charging time of Lithium battery and "Storag" mode controls the final voltage of the battery to be suit for long time storage.

Maximum Safety

Delta-Peak Sensitivity: The automatic charge termination program works on the principle of the Delta-peak voltage detection.

Auto-charge current limit: When charging NiCd or NiMH at "AUTO" current mode,

you can set the upper limit of charge current to avoid from high current charging. This is very useful when charging the low impedance and small capacity NiMH battery in "AUTO" mode.

Capacity Limit: The charging capacity always calculated by multiple of the charging current and time. If the charging capacity exceeds the limit the process will be terminated automatically when you set the maximum value.

Temperature Limit: The temperature of the battery on charging will rise by its internal chemical reaction. If you set the limit of temperature the process will be expired forcibly when the limit has reached.

Processing Time Limit: You can also restrain the maximum process time to prevent from any possible defect.

Input Power Monitor: To protect the car battery using as input power from being damaged the voltage of it always monitored. If it drops below the lower limit the process will be ended automatically.

Data Store/Load

For users conMMnience it can store maximum 10 data of different batteries. You can establish the data contains program setting of the battery to charge or discharge continually. These data can be called out at any time you need and the process can be executed without program setting.

Cyclic charging/discharging

Perform 1 to 5 cycles of charge?discharge or discharge?charge continually for battery refreshing and balancing.

PC based analysis using USB communication

For technical expert, B8 PRO offers PC based program can analysis the characteristic of the battery by USB port. It shows a graph of voltage, current, capacity and temperature curves. It also shows the individual voltage of each cell in the Lithium battery pack.
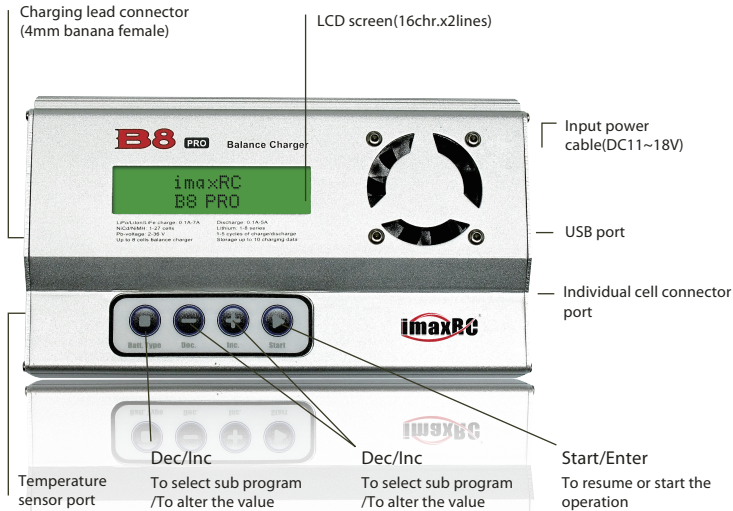
*PC analysis software and USB Link wire are not included

Multi-use wires

Five kinds of wires are provided with the B8 PRO charger. You can charge and discharge your battery easily with these wires.

Exterior of the unit

Charging lead connector
(4mm banana female)

LCD screen(16chr.x2lines)

Input power
cable(DC11~18V)

USB port

Individual cell connector
port

Temperature
sensor port

Dec/Inc
To select sub program
/To alter the value

Dec/Inc
To select sub program
/To alter the value

Start/Enter
To resume or start the
operation

This diagram shows the correct way to connect your battery to the B8 PRO charger while charging in the balance charge program mode only.

⚠ WARNING:

Failure to connect will damage this charger. The right approach is as follows:
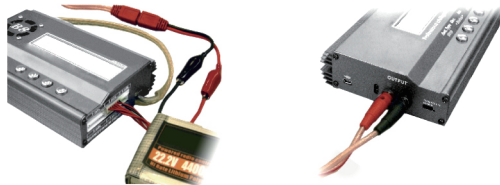
*The main battery leads must be connected along with the balance lead connector as shown before charging your battery .

⚠ WARNING:

If using crocodile clips as shown in above diagram, make sure they are unable to touch Together!

Warning and Satety Notes

Never leave the charger unsupervised when it is connected to its power supply. If any malfunction is observed immediately terminate the process and refer to the operation manual.

Keep the unit away from dust, damp, rain, heat, direct sunshine and vibration. Do not drop it.

The circuit of the unit is designed to be powered by a 11-18 DC only.

This unit and the battery to charge or discharge should be set up on a heat-resistant, non inflammable and non-conductive surface. Never place them on a car se at, carpet or similar. Keep all the inflammable volatile materials well away from operating area.

Cooling vent of charger can not be covered or closed in order to keep good ventilation.

Make sure to completely understand the feature of batteries to be charged or discharged. If the program is set up incorrectly, the battery may be severely damaged. Especially for Lithium battery, it may cause fire or explode if charged incorrectly or overcharged.

NiCd/NiMH	Voltage level: 1.2V/cell Allowable fast charge current: 1C~2C depends on the performance of cellDischarge voltage cut off level: 0.85V/cell(NiCd), 1.0V/cell(NiMH)
Li-ion	Voltage level: 3.6V/cell Max charge voltage: 4.1V/cell Allowable fast charge current: 1C or less Min. discharge voltage cut off level: 2.5V/cell or higher
LiPo	Voltage level: 3.7V/cell Max charge voltage: 4.2V/cell Allowable fast charge current: 1C or less Discharge voltage cut off level: 3.0V/cell or higher
LiFe	Voltage level: 3.3V/cell Max charge voltage: 3.6V/cell Allowable fast charge current: 4C or less(e.g. A123M1) Discharge voltage cut off level: 2.0V/cell or higher
Pb	Voltage level: 2.0V/cell Max charge voltage: 2.46V/cell Allowable fast charge current: 0.4C or less Discharge voltage cut off level: 1.75V/cell or higher

Warning and Satety Notes

To avoid short-circuits between the charge lead, always connect the charge cable to the unit first and only then to the batter to be charged or discharged. Reverse the sequence when disconnecting.

① Very Important!

Do not connect more than one battery pack to the charge lead at any one time.

① The charger is not suitable for the following battery types

Battery pack, which consists of different types of cell (including different manufactures)

Battery which is already fully charged or just slightly discharged

Non-rechargeable batteries (Explosion hazard).

Batteries that require a different charge technique from NiCd, NiMH, Lilo, LiPo, LiFe or Pb.

Faulty or damaged battery

Battery fitted with an integral charge circuit or a protection circuit.

Batteries installed in a device, or which are electrically linked to other components.

Batteries that are not expressly stated by the manufacture to be suitable for the currents the charger delivers during the charge process.

① Please bear in mind of checking the following point before charge operation:

Did you select the appropriate program, which are suitable for the type of battery?

Did you set up adequate current for charging or discharging?

Lithium battery pack can be composed with parallel and series circuits mixed. You have to check the composition of the battery pack carefully before charging

Are all connections firm and safe, or is there an intermittent contact at any point in the circuit?

① Charging

A specific quantity of electrical energy is fed into the battery during charge process. The charge quantity is calculated by multiplying charge current by charge time. The maximum permissible charge current varies according to the battery types or its performance, and can be found in the information provided by the battery manufacture. It is only allowed to charge batteries at rates higher then the standard charge current if they are expressly stated to be capable of quick-charge.

Connect the battery to charge to output terminal of the charger using suitable charge

lead. They are red, positive (+) and black, negative (-). Since the charger cannot detect the difference between the internal resistances of the battery pack, cable resistance and connector transfer resistance, the first requirement if the charger to work properly is that the charge lead should be of adequate conductor cross-section. And also high-quality connectors (normally gold-contact type) must be fitted to both ends.

Refer to the information provided by the battery manufacture regarding charging methods, and verify the recommended charge current and charge time. Especially for Lithium batteries, you have to follow the charge instruction provided by the manufacturer strictly.

Do not attempt to disassemble the battery pack arbitrarily.

You have to pay attention to verify the capacity and the voltage of the Lithium battery pack. It may be composed of parallel and series connection mixed. In parallel link the capacity of the battery pack is multiplied by the number of cells but the voltage remains the same. That kind of voltage imbalance causes a fire or explosion during charge process. We recommend you compose the Lithium batter pack in series only.

① Discharge

The typical purpose of discharge is to determine the residual capacity of the battery, or to lower the voltage of battery to a defined level. When you discharge the battery you also have to pay attention on the process same as charging. To avoid the battery becoming deep-charged, set the final discharge voltage correctly. Lithium batteries should not be deep-charged to lower than the minimum voltage, as this leads to a rapid loss of capacity or a total failure. Generally, you do not need to discharge Lithium battery voluntarily.
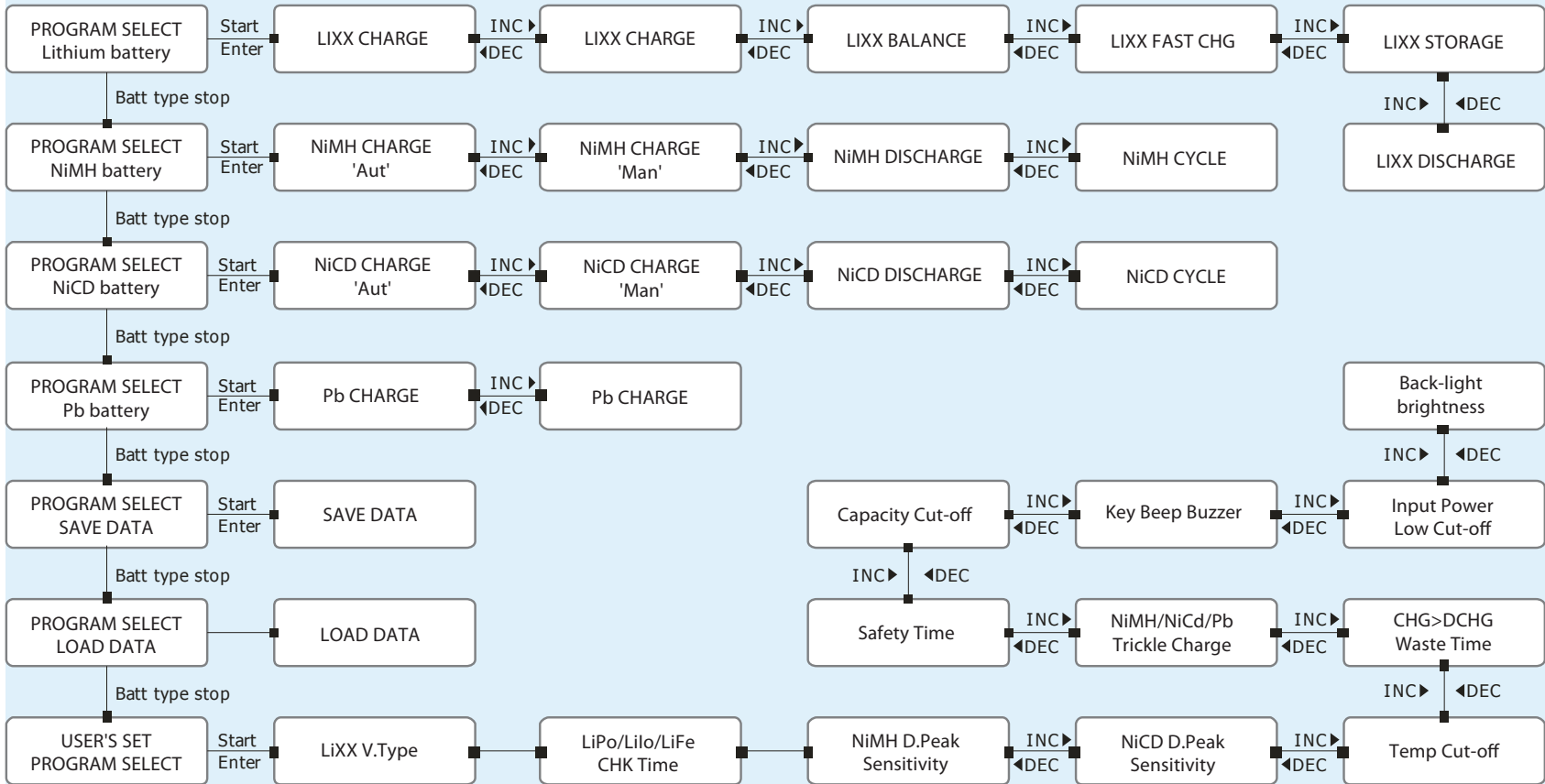
Some rechargeable batteries are said to have a memory effect. If they are partly used and recharged before the whole charge is drawn out, they remember this and next time will only use that part of their capacity. This is a memory effect NiCd and NiMH batteries are said to suffer from memory effect. They prefer complete cycles; fully charge then use until empty, do not recharge before storage-allow them to self-discharge during storage. NiMH batteries have less memory effect than NiCd.

The Lithium battery prefers a partial rather than a full discharge. Frequent full discharges should be avoided if possible. Instead, charge the battery more often or use a larger battery.

The brand-new NiCd battery pack is partially useful with its capacity until it has been subjected to 10 or more charge cycles in any case. The cyclic process of charge and discharge will lead to optimize the capacity of battery pack.

> Those warning and safely notes are particularly important. Please follow the instructions for a maximum safely; otherwise the charger and the battery can be damaged violently. And also it can cause a fire to injure a human body or to lose the property.

Program flow chat

| PROGRAM SELECT Lithium battery | Start Enter | LIXX CHARGE | INC▶ ◀DEC | LIXX CHARGE | INC▶ ◀DEC | LIXX BALANCE | INC▶ ◀DEC | LIXX FAST CHG | INC▶ ◀DEC | LIXX STORAGE |

Batt type stop

INC▶ ◀DEC (between LIXX STORAGE and LIXX DISCHARGE)

| PROGRAM SELECT NiMH battery | Start Enter | NiMH CHARGE 'Aut' | INC▶ ◀DEC | NiMH CHARGE 'Man' | INC▶ ◀DEC | NiMH DISCHARGE | INC▶ ◀DEC | NiMH CYCLE | LIXX DISCHARGE |

Batt type stop

| PROGRAM SELECT NiCD battery | Start Enter | NiCD CHARGE 'Aut' | INC▶ ◀DEC | NiCD CHARGE 'Man' | INC▶ ◀DEC | NiCD DISCHARGE | INC▶ ◀DEC | NiCD CYCLE |

Batt type stop

| PROGRAM SELECT Pb battery | Start Enter | Pb CHARGE | INC▶ ◀DEC | Pb CHARGE |

Back-light brightness

Batt type stop

INC▶ ◀DEC (under Back-light brightness)

| PROGRAM SELECT SAVE DATA | Start Enter | SAVE DATA |

| Capacity Cut-off | INC▶ ◀DEC | Key Beep Buzzer | INC▶ ◀DEC | Input Power Low Cut-off |

Batt type stop

INC▶ ◀DEC (under Capacity Cut-off)

| PROGRAM SELECT LOAD DATA | | LOAD DATA |

| Safety Time | INC▶ ◀DEC | NiMH/NiCd/Pb Trickle Charge | INC▶ ◀DEC | CHG>DCHG Waste Time |

Batt type stop

INC▶ ◀DEC (under CHG>DCHG Waste Time)

| USER'S SET PROGRAM SELECT | Start Enter | LiXX V.Type | | LiPo/LiIo/LiFe CHK Time | | NiMH D.Peak Sensitivity | INC▶ ◀DEC | NiCD D.Peak Sensitivity | INC▶ ◀DEC | Temp Cut-off |

Initial parameter set up(Users set up)

B8 PRO will be operated with the default value of the essential user settings when it is connected to a 12V battery for the first time. The screen displays the following information in sequence and the user can change the value of parameter on each screen.

When you are willing to alter the parameter value in the program, press Start/Enter key to make it blink then change the value with Inc> or <Dec key. The value will be stored by pressing Start/Enter key once.

```
USER SET
        PROGRAM
```

This informs you of its designation.

INC ▶

```
LiFe V. Type
          9.9V
```

◀DEC INC ▶

◀DEC   INC ▶

The screen displays the nominal voltage of Lithium battery. There are three kinds of Lithium battery: LiFe(3.3V), Lilo(3.6V) or LiPo(3.7V). This is very important so you have to check the battery carefully and set it up correctly. If it is different from correct value the battery explode during charge process.

```
LiPo/LiIo/LiFe
CHK Time    10min
```

◀DEC INC ▶

B8 PRO recognize the cell count of Lithium battery automatically at the beginning of charge or discharge process to avoid from erroneous setting by user. But deeply discharged battery can be perceived incorrectly. To prevent the error, you can set the time term to verify the cell count by the processor. Normally, 10 minutes are enough to perceive the cell count correctly. For the battery of larger capacity, you may extend the time term. But if you set the time term to long for the battery of smaller capacity, the charge or discharge process can be finished within the time term with the erroneous cell count. This may cause the fatal result. If the processor recognizes the cell count incorrectly at the beginning of charge or discharge process, you may extend the time. Otherwise, you had better use with the default value.

◀DEC   INC ▶

```
NiMH Seneitivity
D.Peak    Default
```

◀DEC INC ▶
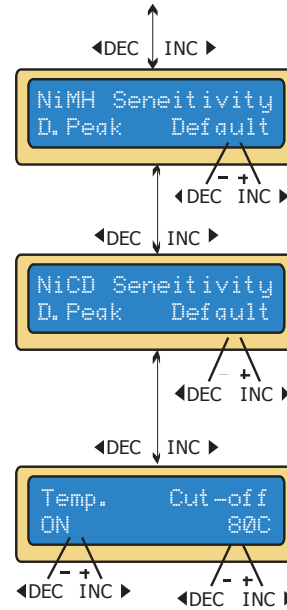
This shows the trigger voltage for automatic charge termination of NiMH and NiCd battery. The effective value ranges from 5 to 20mV per cell. If the trigger voltage is set higher, there is a danger of overcharging the battery; if it is set lower, there is a possibility of premature termination. Please refer the technical specification of the battery. (NiCd default: 12mV, NiMH default: 7mV)

◀DEC   INC ▶

```
NiCD Seneitivity
D.Peak    Default
```

◀DEC INC ▶

An optional feature using temperature probe contacting the surface of battery, the temperature cut-off can be on or off. If it is on, set the maximum temperature at which the charger should allow battery to reach during charge. Once a battery reaches this temperature during charge, the process will be terminated to protect the battery.

◀DEC   INC ▶

```
Temp.    Cut-off
ON         80C
```

◀DEC INC ▶   ◀DEC INC ▶

The battery is on the cyclic process of charge and discharge can often become warm after charge or discharge period. The program can insert a time delay to occur after each charge and discharge process to allow the battery adequate time to cool down before being subjected to the next process. The value ranges from 1 to 6 0 minutes.

You can set the trickle charge mode on or off. If it is on, the charger will automatically supply the trickle charge current to achieve the full charge without overheating the battery after fast charge has been terminated.
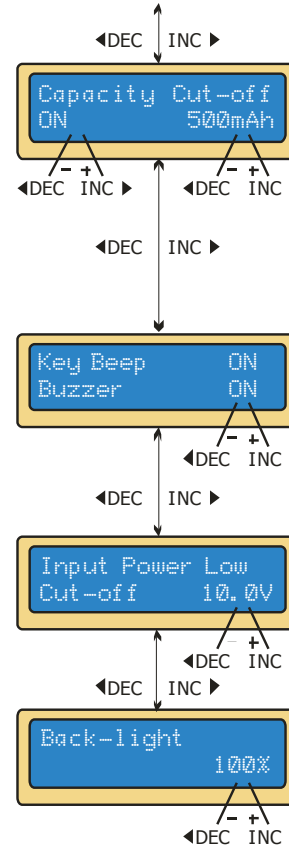
When you start a charge process, the integral safety timer automatically starts running at the same time. This is programmed to prevent overcharge the battery if it proves to be faulty, or if the termination circuit cannot detect the battery full. The value for the safety timer should be generous enough to allow a full charge of the battery.

Initial parameter set up(Users set up)

◀DEC ┃ INC ▶

```
Waste Time
CHG/DCHG    5min
```
◀DEC INC ▶   ◀DEC INC ▶
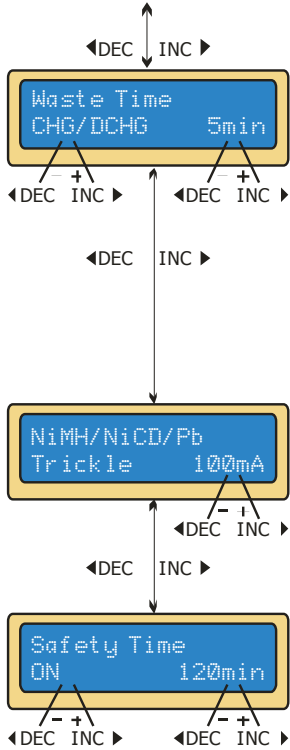
This program sets the maximum charge capacity that will be supplied to the battery during charge. If the delta-peak voltage is not detected nor the safety timer expired by any reason, this feature will automatically stop the process at the selected capacity value.

◀DEC ┃ INC ▶

```
NiMH/NiCD/Pb
Trickle    100mA
```
◀DEC INC ▶

The beep sounds at every time pressing the buttons to confirm your action. The beep or melody sounded at various times during operation to alert different mode changes. These audible sounds can be turned on or off.

◀DEC ┃ INC ▶

```
Safety Time
ON        120min
```
◀DEC INC ▶   ◀DEC INC ▶

◀DEC ┃ INC ▶

```
Capacity Cut-off
ON        500mAh
```
◀DEC INC ▶   ◀DEC INC ▶

This program monitors the voltage of input battery. If the voltage drops below the value you set the operation forcibly terminated to protect the input battery.
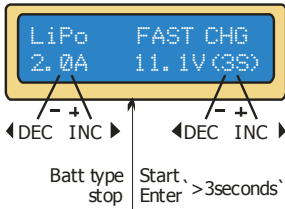
◀DEC ┃ INC ▶

```
Key Beep      ON
Buzzer        ON
```
◀DEC INC ▶

You can adjust the brightness of LCD   screen at the charger.

◀DEC ┃ INC ▶

```
Input Power Low
Cut-off    10.0V
```
◀DEC INC ▶

◀DEC ┃ INC ▶

```
Back-light
          100%
```
◀DEC INC ▶

Lithium battery(LiPo/LiFe/Lilo) program

These programs are only suitable for charging and discharging Lithium batteries with a nominal voltage of 3.3V, 3.6V and 3.7V per cell. These batteries need to adopt different charge technique that is termed a constant voltage (CV) and constant current (CC) method. The charge current varies according to the battery capacity and performance.

The final voltage of charge process is also very important; it should be precisely matched with the charade voltage of the battery. They are 4.2V for LiPo, 4.1V for Lilo, and 3.6V for LiFe. The charge current and nominal voltage as for cell count set on the charge program must always be correct for the battery to be charged.

When you are willing to alter the parameter value in the program, press Start/Enter key to make it blink then change the value with Inc> or <Dec key. The value will be stored by pressing start/enter key once.

Charging Lithium battery

```
LiPo      CHARGE
2.0A     11.1V(3S)
```
◀DEC INC▶   ◀DEC INC▶

Batt type Start `>3seconds`
stop Enter

The left side of the first line shows the type of battery you select at the users setting. The value on the left side of second line sets a charge current and the value on the right side of second line sets the voltage of the battery pack.

After setting the current and voltage press Start/Enter key for more than 3 seconds to start the process. (Charge current: 0.1~0.7A, Voltage: 1~8 series)

```
R:3SER     S:3SER
CONFIRM(ENTER)
```

Start
Enter

This shows the number of cells you set up and the processor detects. 'R' shows the number of cells found by the charger and 'S' is the number of cells selected by you at the previous screen. If both numbers are identical you can start charging by pressing Start/Enter button. If not press Batt.type/Stop button to go back to previous screen. Then carefully check the number of cells of the battery pack to charge again.

```
Li3s 2.0A 12.59V
CHG 022:43 00682
```

number of cells | charging time | battery voltage
charge current | charged capacity

The screen shows the present situation during charge process. To stop charging press Batt.type/Stop key once.

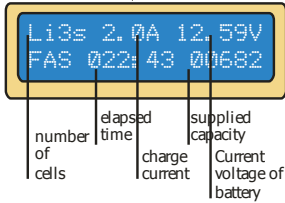## *'Fast' charging Lithium battery*

The charging current is getting smaller as the process goes to the near end term of Lithium battery charging. To finish charging process earlier, this program eliminate certain term of CV process. The charging current will goes to 1/5 from the initial value to end the process while the normal charging goes to 1/10 during CV term. The charging capacity may be a bit smaller than normal charging but the process time will be reduced.

```
LiPo    FAST CHG
2.0A    11.1V(3S)
```

‹ – + ›
‹DEC INC›   ‹DEC INC›

Batt type / Start、
stop / Enter > 3seconds`

You can set up the charging current and the voltage of the battery pack being charged. As you press Start/Enter button on the voltage confirmation will be displayed. And then, if you confirm the voltage and current, press Start/Enter button again to start charging.

```
Li3s 2.0A 12.59V
FAS 022:43 00682
```

number of cells | elapsed time | charge current | supplied capacity | Current voltage of battery

This shows the present state of 'FAST' charging. To stop charging arbitrary, press Batt.type/Stop key once.

'Storage' control Lithium battery

This is for charging or discharging Lithium battery not to be used for the time being. The program will determine to charge or discharge the battery to the certain voltage depending on the voltage of the battery at its initial stage. They are different from the type of the batter, 3.75V for Lilo, 3.85V for LiPo and 3.3V for LiFe per cell. If the voltage of battery at its initial stage is over the voltage level to storage. The program will start to discharge.

```
LiPo    STORAGE
2.0A    11.1V(3S)
```

‹ + ›
‹DEC INC›   ‹DEC INC›

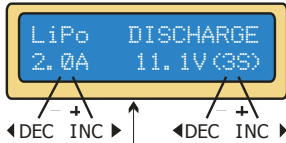Batt type / Start、
stop / Enter > 3seconds`
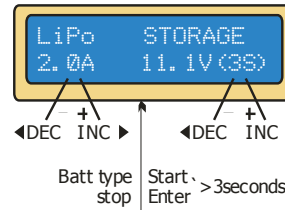
You can set up the current and the voltage of the battery pack to be charged. The current will be used for charge or discharge the battery to reach the 'storage' level of voltage.
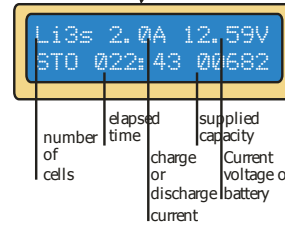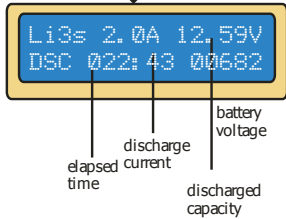
```
Li3s 2.0A 12.59V
STO 022:43 00682
```

number of cells | elapsed time | charge or discharge current | supplied capacity | Current voltage of battery

The screen shows the present situation during charge process. To stop charging press Batt.type/Stop key once.

Dishcharging Lithium battery

```
LiPo   DISCHARGE
2.0A    11.1V(3S)
```

◄DEC INC ►   ◄DEC INC ►

Batt type │ Start `
stop   │ Enter ` >3seconds`

The value of discharge current on the left side of screen may not exceed 1C for a maximum safety and the final voltage on the right should not be under the voltage level that is recommended by the battery manufacture to avoid deep discharging.

To start to discharge press Start/Enter key for more than 3 seconds.
(Discharge current:0.1~5.0A)

```
Li3s 2.0A 12.59V
DSC 022:43 00682
```

battery voltage

discharge current

elapsed time

discharged capacity

This shows the present state of discharge. To stop discharging press Batt.type/Stop key once.

Voltage balancing and monitoring during the discharge

The processor monitors the voltage of individual cells during 'storage-mode' and 'discharge' of Lithium battery pack. It tries to normalize the voltage to be equal. For this feature, the individual plug of the battery pack should be connected to the individual port of the charger.

If the voltage of an one or more cells varies abnormally during the procedure, B8 PRO terminates the process forcibly with the error messages. If this happens, the battery pack contains the bad cell, or the bad connection of the cable or plug. You can easily know which one cell is bad by pressing Inc> button at time of showing the error messages.

```
BATTERY VOL  ERR
   CELL LOW VOL
```
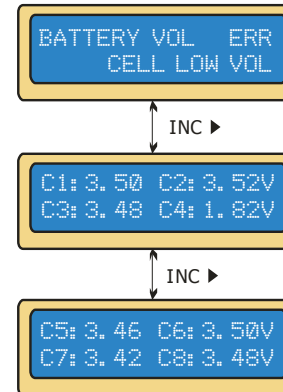
The processor found that the voltage of one of the cell in the Lithium battery pack is too low.

INC ►

```
C1:3.50 C2:3.52V
C3:3.48 C4:1.82V
```

In this case, the 4th cell is bad. If there happen the connection-break of the cable or plug, the voltage value may show zero.

INC ►

```
C5:3.46 C6:3.50V
C7:3.42 C8:3.48V
```

NiCd/NiMH battery program

These programs are for charging or discharging NiMH(Nickel-Metal-Hydride) or NiCd(Nickel-Cadmium) battery commonly used for R/C model applications. To alter the value at the display, press Start/Enter key to make it blink then change the value using Inc> and <Dec key. The value will be stored by pressing Start/Enter key once.

To start the process, press Start/Enter button for more than 3 seconds.

Charging NiCd/NiMH battery

```
NiMH   CHARGE Aut
CUR  LIMIT  5.0A
```

◀DEC INC ▶

Batt type / stop   Start、Enter 、>3seconds`
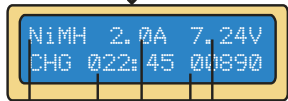
This program simply charges the battery using the current you set. In 'Aut' mode, You need to set the upper limit of charge current to avoid from higher feeding current that may damage the battery. Because some batteries of low impedance and small capacity can lead to the higher charge current by the processor at automatic charge mode. But in 'Man' mode, it will charge the battery with the charge current you set at the display. Each mode can be switched by pressing Inc> and <Dec button simultaneously when the current field is blinking.

```
NiMH  2.0A  7.24V
CHG 022:45 00890
```

battery type | elapsed time | battery voltage | charge current | discharged capacity

The screen displays the current state of charging. To stop the process, press Batt.type/Stop key once. The audible sound indicated you the end of process.

Discharging NiCd/NiMH battery
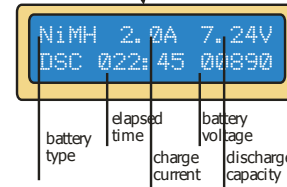
```
NiMH    DISCHARGE
3.0A       11.5A
```

◀DEC INC ▶   ◀DEC INC ▶

Batt type / stop   Start、Enter 、>3seconds`

Set discharge current on the left and final voltage on the right. The discharge current ranges from 0.1 to 5.0A and the final voltage ranges from 0.1 to 30.0V. to start the process, press Start/Enter key for more than 3 seconds.

```
NiMH  2.0A  7.24V
DSC 022:45 00890
```

battery type | elapsed time | battery voltage | charge current | discharged capacity

The screen displays the current state of discharge. You can alter the discharge current by pressing Start/Enter key during the process. Once you change the current value, store it by pressing Start/Enter button again. To stop discharging press Batt.type/Stop key once. The audible sound indicates you at the end of process.

Charge-to-discharge & discharge-to-charge cycle NiCd/NiMH battery

```
NiMH      CYCLE
DHCG>CHG      3
```
◀DEC INC ▶   ◀DEC INC ▶

Batt type stop | Start/Enter `>3seconds`
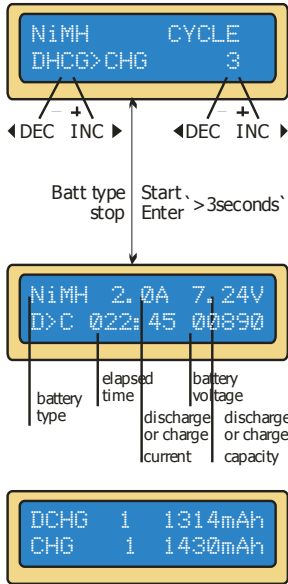
Set the sequence on the left and the number of cycle on the right. You can use this function for balancing, refreshing and break-in the battery. To avoid rising temperature of the battery, there will be a brief cool-off period that already fixed at 'User setting' after each charge and discharge process. The cycling number ranges from 1 to 5.

```
NiMH 2.0A 7.24V
D>C 022:45 00890
```
battery type | elapsed time | battery voltage
discharge or charge current | discharge or charge capacity

To stop the process, press Batt.type/Stop key once.
You can change the discharge or charge current by pressing Start/Enter key once during the process. The audible sound indicates you the end of process.

```
DCHG  1  1314mAh
CHG   1  1430mAh
```

At the end of the process, you can see charged or discharged electric capacities of the battery at each cyclic process. By pressing Inc> or <Dec button, the screen shows the result of each cycle in order.

Pb(Lead-sulphuric acid) battery program

This is programmed for charging Pb(lead-acid) battery with nominal voltage from 2 to 36V. Pb batteries are totally different from NiCd or NiMH batteries. They can only deliver relatively lower current compare to their capacity, and similar restrictions definitely apply to charge. So the optimal charge current will be 1/10 of the capacity. Pb batteries must not be charged rapidly. Always follow the instruction is supplied by the manufacture of battery.

When you are willing to alter the parameter value in the program, press Start/Enter key to make it blink then change the value with Inc> or <Dec key. The value will be stored by pressing Start/Enter key once.

Charging Pb battery

```
Pb    CHARGE
4.0A   12.0V(6P)
```
◀DEC INC ▶   ◀DEC INC ▶

Batt type stop | Start/Enter `>3seconds`
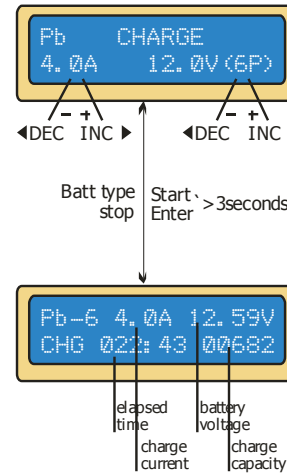
Set up the charge current on the left and the nominal voltage of the battery on the right. The charge current ranges from 0.1 to 7.0A and the voltage should be matched with the battery being charged.
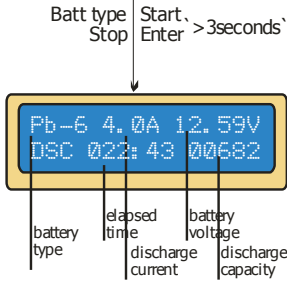
Start the charge process by pressing Start/Enter key for more than 3 seconds.

```
Pb-6 4.0A 12.59V
CHG 022:43 00682
```
elapsed time | battery voltage
charge current | charge capacity

The screen displays the state of charging process. To stop charging forcibly, press Batt.type/Stop key once. The audible sound indicates you at the end of process.

Discharging Pb Battery
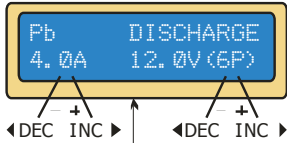
```
Pb      DISCHARGE
4.0A    12.0V(6P)
```

◀DEC INC ▶   ◀DEC INC ▶

Set discharge current on the left and final voltage on the right. The discharge current ranges from 0.1 to 5.0A. To start the process, press Start/Enter key for more than 3 seconds.

Batt type / Stop   Start / Enter >3seconds`

```
Pb-6 4.0A 12.59V
DSC 022:43 00682
```

battery type | elapsed time | battery voltage
discharge current | discharge capacity

The screen displays the current state of discharge. You can alter the discharge current by pressing Start/Enter key during the process. Once you change the current value, store it by pressing Start/Enter button again.

To stop discharging press Batt.type/Stop key once. The audible sound indicates you at the end of process.
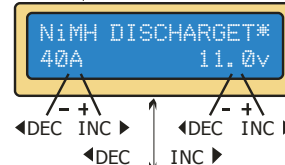
Save Data Program

B8 PRO has a data storage and load program for your convenience. This feature can store up to 10 battery data by number that represent the individual specification of batteries you are using. They can be called back for the process of charging or discharging without setting up the program again. To set up the parameter value in the program, press Start/Enter key to make it blink then change the value with Inc> or <Dec key.

```
PROGRAM   SELECT
      SAVE DATA
```

Start Enter

```
SAVE  [01]  NiMH
14.4V      3000mAh
```

voltage | date number | capacity | Type of battery

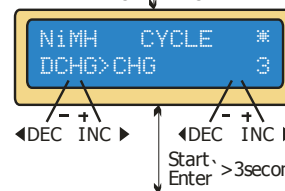Batt type / Stop   Start / Enter >3seconds`

The parameter value setting up in this screen does not affect charge or discharge process. They only represent the specification of the battery. The following screens will automatically be displayed exactly matched with the battery type you set up. The example shows the battery pack of NiMH, 12 cells and 3000mAh of capacity.

```
NiMH  CHARGE  AT*
CUR  LIMIT   5.0A
```
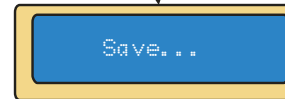
◀DEC   INC ▶ ◀DEC INC ▶
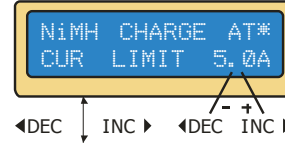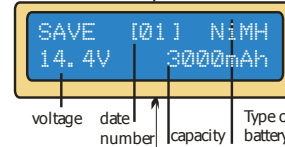
Set up the charge current for manual charge mode, or the current limit for automatic charge mode. Each mode can be switched by pressing Inc> and <Dec button at the same time when the current field is blinking.

```
NiMH DISCHARGET*
40A        11.0v
```

◀DEC INC ▶ ◀DEC INC ▶
◀DEC   INC ▶

Setting up discharge current and final voltage

```
NiMH   CYCLE   *
DCHG>CHG      3
```

◀DEC INC ▶ ◀DEC INC ▶

Start / Enter >3seconds`

Setting up the sequence of charge and discharge, and the cycling number

```
    Save...
```
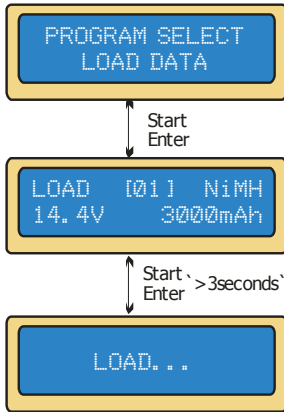
Saving the data

Load Data Program

This program calls back the data that was stored at 'Save Data' program.

To load the data, press **Start/Enter** key once to blink the data number field and select the number using **Inc>** or **<Dec** key then press **Start/Enter** key for more than 3 seconds.
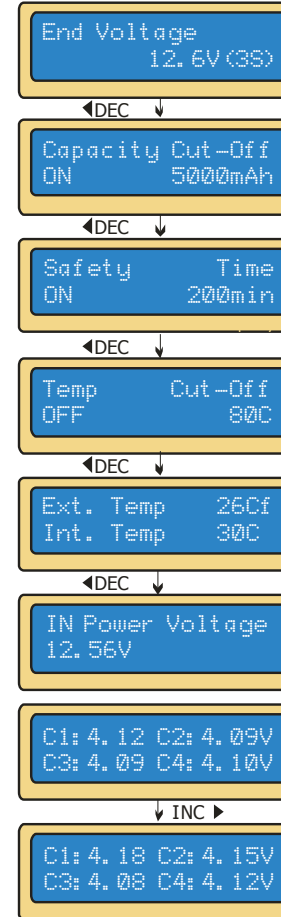
```
PROGRAM SELECT
  LOAD DATA
```
Select the data number to be called back.
The data matched with the number will be displayed at this time.

Start
Enter

```
LOAD  [01]  NiMH
14.4V     3000mAh
```

Start `> 3seconds`
Enter

```
  LOAD...
```
Loading the data.

Various Information during the process

You can inquire various information on LCD display during charging or discharging process. When you press **<Dec** button the charger shows the establishment of user settings. And also you can monitor the voltage of individual cell by pressing **Inc>** button when the individual connection cable is linked to the Lithium battery being processed.

```
End Voltage
      12.6V(3S)
```
The final voltage will be reached at the end of process.

◀DEC

```
Capacity Cut-Off
ON        5000mAh
```

◀DEC

```
Safety      Time
ON        200min
```

◀DEC

```
Temp     Cut-Off
OFF          80C
```
The internal temperature of the charger and the temperature of battery being charged.

(The external temperature only will be displayed when using the thermal probe.)

◀DEC

```
Ext. Temp    26Cf
Int. Temp    30C
```

◀DEC

```
IN Power Voltage
12.56V
```
The present voltage of input DC power.

```
C1: 4.12 C2: 4.09V
C3: 4.09 C4: 4.10V
```
Using the individual connection cable to the battery, you can check the individual voltages of each cell in the battery pack. When connect the cable to the port on the right side of the charger the program shows them for maximum 8 cells in sequence. To utilize this feature, the battery pack must have output connector that linked to each cells.

↓ INC ▶

```
C1: 4.18 C2: 4.15V
C3: 4.08 C4: 4.12V
```

Warning and Error messages

B8 PRO incorporates a various functions of protective and monitoring the system to verify functions and the state of its electronics. In any case of occurring error, the screen displays the cause of error that is self explanatory with audible sound.

REVERSE POLARITY

The output is connected to a battery with incorrect polarity

CONNECTION BREAK

This will be displayed in case of detecting an interruption of the connection between battery and output or voluntarily disconnecting the charge lead during the operation of charge or discharge on output.

SHOT ERR

A short-circuit at output. Please check the charging leads.

INPUT VAL ERR

The voltage of input power drops below the limit.

VOL SELECT ERR

The voltage of Lithium battery pack was selected incorrectly. Verify the voltage of battery back carefully.

BREAK DOWN

There happens the malfunction at the charger circuit by any reason.

BATTERY CHECK LOW VOLTAGE

The processor detects the voltage is lower than you set at Lithium program. Please check the cell count of the battery pack.

BATTERY CHECK HIGH VOLTAGE

The processor detects the voltage is higher than you set at Lithium program. Please check the cell count of the battery pack.

BATTERY VOLTAGE CELL LOW VOL

The voltage of one of the cell in the Lithium battery pack is too low. Please check the voltage of the cell one by one.

BATTERY VOLTAGE CELL HIGH VOL

The voltage of one of the cell in the Lithium battery pack is too high. Please check the voltage of the cell one by one.

BATTERY VOLTAGE CELL CONNECT

There is bad connection at the individual connector. Please check the connector and cables carefully.

TEMP OVER ERR

The internal temperature of the unit goes too high. Cool down the unit.

CONTROL FAILURE

The processor can not continue to control the feeding current by any reason. The unit needs to be repaired.

Specifications

Operating voltage range: 10.0~18.0 Volt

Circuit power: max. 150W

Charge current range: 0.1~7.0A

Discharge current range: 0.1~5.0A

Current drain for balancing Li-Po: 300mAh/cell

NiCd/NiMH battery cell count: 1~27 cells

Lithium bettery cell count: 1~8 Series

Pb battery voltage: 2 to 36V

Weight: 574g(Net Weight)

Dimensions: 170X110X35mm

⚠ *Warranty and Services*

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 o   f incorrect accessories.