INTRODUCTION
Thank you for purchasing the EcoPower "Electron 65 AC" Charger. This product is a fast charger with a high performance microprocessor and specialized operating software. Please read this entire operating manual completely and carefully before using this product, as it covers a wide range of information on operating and safety.

Specifications

Operating voltage range:	11.0~18.0 V DC
	AC to DC adapter (11.0~18.0V DC/5A)
Maximum circuit power:	Charge: 50W
	Discharge: 5W
Charge current range:	0.1~5.0A
Discharge current range:	0.1~1.0A
Discharge current for LiPo balancing:	300mAh/cell
NiCd/NiMH battery cell count:	1~15 cells
Li-Ion/LiPo cell count:	1~6 cells
Pb battery voltage:	2V~20V
Weight:	855g
Dimensions:	117 x 85.5 x 30mm

Optimized operating software
The EcoPower "Electron 65 AC" Chargers AUTO function automatically sets the charge/discharge current by automatically detecting the type, size, and number of cells in the battery pack; this can prevent safety hazards due to overcharging, especially the explosion of lithium-based batteries. The EcoPower "Electron 65 AC" chargers internal programming will automatically shut down any activity and sound an alarm if a problem is detected during the charge process. These adjustments are among the many user-specified parameters.

Internal independent lithium battery balancer
The EcoPower "Electron 65 AC" Charger features an internal cell balancer for lithium-based battery packs. No external balancer is necessary.

Discharge balance individual cells
During the process of discharging, the EcoPower "Electron 65 AC" Charger can monitor and balance each cell of the battery individually. If the voltage of any cell is abnormal, an error message will appear and the process will be ended automatically.

Lithium compatible
The EcoPower "Electron 65 AC" Charger can safely charge various types of lithium-based batteries, such as Li-Ion, LiPo, and LiFe.

Multiple lithium charging modes
Along with its standard charge mode, the EcoPower "Electron 65 AC" Charger also offers FAST and STORAGE charge modes for lithium-based batteries; FAST charge shortens the time necessary to charge large capacity batteries, while STORAGE charging a pack to a user-specified value prepares it for long-term storage.

Maximum safety
The EcoPower "Electron 65 AC" Charger uses Delta-peak sensitivity to automatically terminate the charging process once the battery's voltage exceeds the specified threshold; this prevents the battery from being over-charged.

Automatic charging current limit
For safety and extra protection against battery damage, a user-determined maximum current limit can set when charging small-capacity NiCD or NiMH cells with low internal resistance.

Capacity limit
The charged capacity listed on-screen is calculated by multiplying charging current and charge time. If the charging capacity exceeds this user-specified limit, the process will be terminated automatically.

Temperature threshold*
The battery's internal chemical reaction during charging or discharging may cause the temperature of the battery to rise. If the user-specified temperature limit is exceeded, the charging process will be terminated automatically.
*This function is available by connecting optional temperature probe, not included.

Time limit
The user can set the maximum charge/discharge time. If the time limit is reached, the process will be terminated automatically.

Input power monitoring
To protect the input power source from damage, the EcoPower "Electron 65 AC" Charger automatically monitors input voltage. If the input voltage drops below the minimum specified value, the process will be terminated automatically.
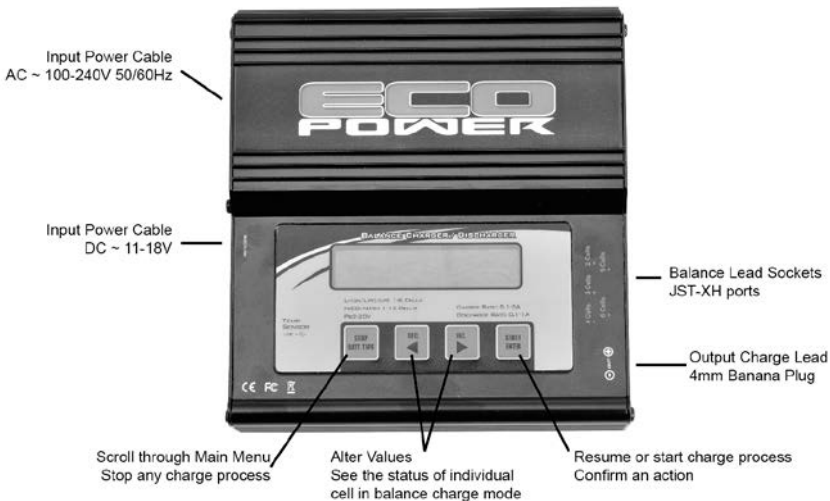
Programmable memory
The EcoPower "Electron 65 AC" Charger can store up to five (5) different charge/discharge profiles for your convenience. These stored profiles can be recalled quickly, with no additional program required.

Continuous charge/discharge cycles
The EcoPower "Electron 65 AC" Charger can automatically cycle batteries up to five times; this is useful to refresh and balance old batteries after long-term storage.

Input Power Cable
AC ~ 100-240V 50/60Hz

Input Power Cable
DC ~ 11-18V

Balance Lead Sockets
JST-XH ports

Output Charge Lead
4mm Banana Plug

Scroll through Main Menu
Stop any charge process

Alter Values
See the status of individual
cell in balance charge mode

Resume or start charge process
Confirm an action

LITHIUM POLYMER BALANCE CHARGE PROGRAM CONNECTION DIAGRAM

This diagram shows the correct way to connect your battery to the EcoPower "Electron 65 AC" Charger while charging in the balance charge program mode only.

WARNING:
Failure to connect as shown in this diagram will damage this charger.

The main battery leads must be connected along with the balance lead connector as shown before charging your battery.

⚠ WARNING:

- **If using alligator clips as shown in above diagram, ensure they are unable to touch together!**

♣ WARNING AND SAFETY NOTES

These warnings and safety notes are particularly important. Please follow the instructions for maximum safety; failure to adhere to these instructions may damage the charger and/or battery and may cause a fire.

❍ Never leave the charger unattended when connected to its power supply. If any malfunction is occurs, **TERMINATE THE PROCESS AT ONCE** and refer to the operation manual.

❍ Keep the charger well away from dust, moisture, rain, heat, direct sunshine and vibration. Never drop it.

❍ The correct input voltage is 11-18V DC

❍ This charger and the battery should be put on a heat-resistant, nonflammable, and nonconductive surface. Never place these items on a car seat, carpet or similar surface. Keep all the inflammable and volatile materials away from the operating area.

Make sure you know the specifications of the battery to be charged or discharged to ensure that it is compatible with this charger. If the charging program is set up incorrectly the battery and/or charger may be damaged; this can cause fire or explosion due to overcharging. This warranty is not valid for any damage or subsequent damage arising as a result of a misuse or failure to observe the procedures outlined in this manual.

NiCd/NiMH
    Voltage level: 1.2V/cell
    Allowable fast charge current: 1C-2C (depends on the performance of the cell)
    Discharge 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
    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

❍ To avoid a short circuit between the charge lead always connect the charge cable to the charger first before connecting the battery. Reverse the sequence when disconnecting.

❍ Do not connect more than one battery pack to this charger at any one time.

❍ Never attempt to charge or discharge the following types of batteries.

> A battery pack which consists of different types of cells (including different manufacturers)
>
> A battery that is already fully charged or just slightly discharged.
>
> Non-rechargeable batteries (Explosion hazard).
>
> Batteries that require a different charge technique than those available: NiCd, NiMH, LiPo or gel cell (lead acid).
>
> A faulty or damaged battery.
>
> A 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 manufacturer to be suitable for the currents the charger delivers during the charge process.

○ Please keep in mind the following points before commencing charging:

> Did you select the appropriate program suitable for the type of battery you are charging?
>
> Did you set up adequate current for charging or discharging?
>
> Have you checked the battery voltage? Lithium battery packs can be wired in either parallel or series, i.e., a 2 cell pack can be 3.7V (in parallel) or 7.4V (in series).
>
> Have you checked that all connections are firm and secure? Make sure there are no intermittent contacts at any point in the circuit.

○ **Charging**

> During the charge process, a specific quantity of electrical energy is fed into the battery. The charge quantity is calculated by multiplying charge current by charge time. The maximum permissible charge current varies depending on the battery type or its performance, and can be found in the information by the battery manufacturer. Only batteries that are expressly stated to be capable of quick-charge should be charged at rates higher than the standard charge current.
>
> A charge lead must be used to connect the battery to the terminal of the charger (red is positive and black is negative). Due to the difference between the electrical resistance of wires and connectors, and because the charger cannot detect the resistance of the battery pack, a charge lead made of appropriately sized wire and high-quality, gold-plated connectors is essential for the EcoPower "Electron 65 AC" Charger to work correctly.

> Always refer to the battery manufacturer's instructions pertaining to charging methods, recommended charging current, and charging time; Lithium-based batteries especially should be charged by the strict instructions of the battery manufacturer.
> Special attention should be paid to polarity when plugging in a lithium battery.
> Do not attempt to disassemble the battery pack.
> Please be advised that lithium battery packs can be wired in either parallel or series. When wired in parallel, the battery's capacity is calculated by multiplying the single battery's capacity by the number of cells, assuming the voltages are the same, and any imbalance may cause a fire or explosion. It is recommended that lithium batteries be only charged in series.

❍ **Discharging**

> The main purpose of discharging is to clean residual capacity of the battery by reducing the battery's voltage to a defined level. The same attention should be paid to the discharging process as charging. The final discharge voltage should be set up correctly to avoid deep discharging. Lithium batteries cannot be discharged lower than the minimum voltage, as this may cause a rapid loss of capacity and/or a total failure. Generally, Lithium batteries don't need to be discharged. When discharging, please pay attention to the minimum voltage of the Lithium battery to protect it from damage.
> NiCd and NiMH rechargeable batteries have a memory effect. If they are partly used and recharged before the whole discharge is accomplished, they will only use that part of their capacity next time. This is a "memory effect." NiCd has a stronger memory effect than NiMH.
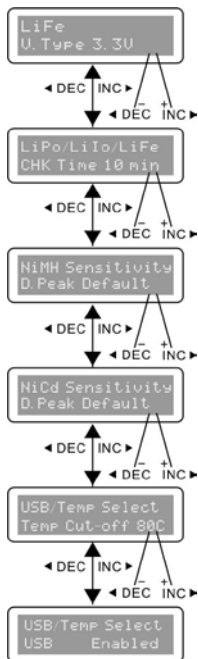> It is recommended than Lithium batteries are partially, rather than fully, discharged. Frequent full discharging should be avoided if possible; instead, charge the battery more often or use a battery of larger capacity. Full capacity cannot be used until it has been subjected to 10 or more charge cycles, as the first few charging cycles will help to optimize the capacity of battery pack.

○ **Program flow chart**
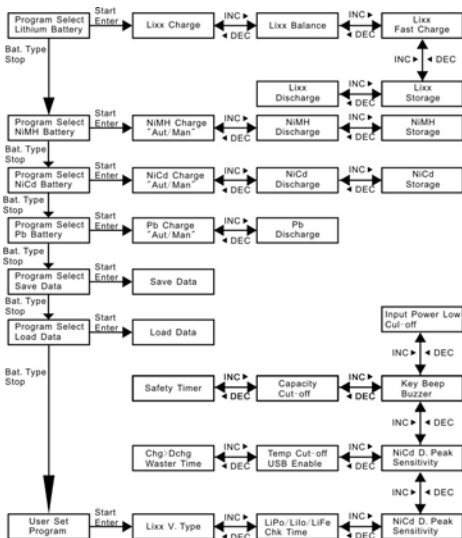
The EcoPower "Electron 65 AC" Chargers default settings will be active when plugged into a power source for the first time. The screen displays the following information in sequence and the user can change the parameter on each screen.

To alter the parameter value in the program, press the "Start/Enter" key until the desired value blinks, then change the value with the "INC" and "DEC" keys. The value will be stored by pressing "Start/Enter" key once more.

LiFe
V. Type 3.3U

◄ DEC | INC ►
▼ ◄ DEC | INC ►

LiPo/LiIo/LiFe
CHK Time 10 min

◄ DEC | INC ►
▼ ◄ DEC | INC ►

NiMH Sensitivity
D. Peak Default

◄ DEC | INC ►
▼ ◄ DEC | INC ►

NiCd Sensitivity
D. Peak Default

◄ DEC | INC ►
▼ ◄ DEC | INC ►

USB/Temp Select
Temp Cut-off 80C

◄ DEC | INC ►
▼ ◄ DEC | INC ►

USB/Temp Select
USB   Enabled

The screen shows the nominal voltage of the Lithium battery the user intends to charge. There are three kinds of Lithium batteries: LiFe (3.3V), Li-Ion (3.6V), and LiPo (3.7V). It is critical that this setting matches the type of battery to be charged, as battery damage or fire can occur if set to a different value.

To avoid charging with incorrect settings, the EcoPower "Electron 65 AC" Charger detects the cell count of a Lithium battery automatically at the beginning of charge or discharge process (unless the battery is too deeply discharged). To avoid this error, the time used by the processor to verify the cell count can be limited; normally, 15 seconds are enough to detect the cell count correctly. You may need to extend the time term limit for the battery of large capacity, but the charge or discharge process may come to an end within the time term if set too long for a small capacity battery, which could cause damage to the battery. Usually, the default setting is sufficient.

This shows the voltage threshold for automatic charge termination of NiMH and NiCd batteries. The value ranges from 5 to 20mV per cell. Setting the trigger voltage higher brings the danger of overcharging; whereas setting it lower brings a possibility of an incomplete charge. Please refer to the technical specification of the battery.
Default settings:
NiCd: 12mV
NiMh: 7mV

There is a 3-pin port on the left of the charger used as USB interface or temperature sensor port. When set as a USB port, you can connect the charger to your PC through the optional USB cable to monitor the charging process through optional software. When temperature is selected, you can attach the optional temperature probe to monitor the battery during charging. The maximum temperature of the battery can be set during the charge process. Once the temperature of battery reaches this value the process will be terminated automatically.

‹DEC INC›

```
Waste time
CHG/DCHG 5min
```

‹DEC ‹DEC INC› ‹DEC INC›
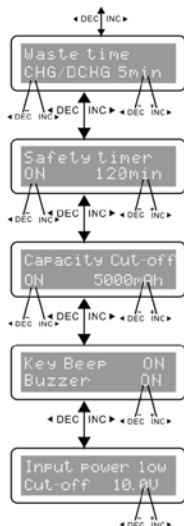
The battery becomes warm during charge/discharge cycles. The program will insert a time delay after each cycle to allow the battery enough time to cool down before beginning next cycle. The value ranges from 1 to 60 minutes.

```
Safety timer
ON    120min
```

‹DEC INC INC› ‹DEC INC›

When the charge process starts, the integrated safety timer starts to run simultaneously. If an error is detected or the charger cannot determine if the battery is fully charged, this unit is programmed to prevent overcharging and will stop automatically. Please refer to the below statement to calculate the timer the recommended timer value.

```
Capacity Cut-off
ON    5000mAh
```

‹DEC INC› ‹DEC INC›

The program provides maximum capacity protection. If the Delta-peak voltage cannot be detected or the safety timer times out, the charge process will stop automatically when the battery reaches the user-set maximum charge capacity.

```
Key Beep    ON
Buzzer      ON
```

‹DEC INC› ‹DEC INC›

The beep to confirm users' operation sounds every time a button is pressed. The beep or melody sounds at various times during operation to confirm different mode change. These sounds can be switched on or off.

```
Input power low
Cut-off 10.0V
```

‹DEC INC›

This function monitors the voltage of the input battery used to power this charger. If the voltage is lower than user-set value, the program will end forcibly to protect the input battery.

Safe timer Calculation

When charging NiCd or NiMH batteries, divide the capacity by current, then divide the result by 11.9; set this number of minutes as the value for the safety timer. If the charger stopped at this time threshold, about 140% of the capacity will have been fed into the battery.

For example:

Capacity	Current	Safety Time
2000mAh	2.0A	(2000/2.0=1000)/11.9= 84 minutes
3300mAh	3.0A	(3300/3.0=1100)/11.9= 92 minutes
1000mAh	1.2A	(1000/1.2=833)/11.9= 70 minutes

Lithium (Li-ion/LiPo/LiFe) program

The program is only suitable for charging/discharging lithium-polymer batteries with a nominal voltage of 3.6/3.7/3.3V per cell. Different batteries have different charging techniques. There are two methods termed as constant voltage and constant current. The charge current varies according to battery capacity and specification. The final voltage is very important; it should precisely match the voltage of the battery: Li-ion is 4.1V, LiPo is 3.7V, LiFe is 3.6V per cell. The current and voltage of the battery should be correctly set.

When you want to change the values of any parameter, please press START/ENTER key to make it blink and then use DEC or INC to change the value. Then press START/ENTER key again to store the value.

Charging of lithium battery
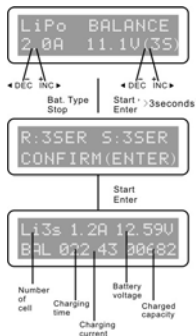
The left side of the first line shows the type of battery you choose. The value on the left of the second line of the charger is the setting for charge current. After setting the current and voltage, press and hold the START/ENTER key for more than 3 seconds to start the process.
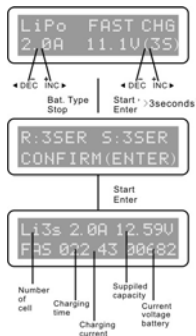
This displays both the number of cells you set up ("S"), and the number of cells that the processor detects ("R"). If both numbers are identical you can start charging by press START/ENTER button. If not, press BATT TYPE/STOP button to go back to the previous screen to carefully check the number of cells of the battery pack before going ahead.

This screen shows the real-time status during the charge process. Press BATT TYPE/STOP key once to stop the charge process.

Charging lithium battery in balance mode
This function is for balancing the voltage of lithium-polymer battery cells while charging. In balance mode, the battery needs to have a balance lead to connect to the individual port at the right side of the charger in addition to connecting the battery's output plug to the charger's output.

Charging in this mode is different from the normal modes because the built-in processor monitors voltage of each individual cell and controls input current fed into each cell to normalize the voltage across the pack.
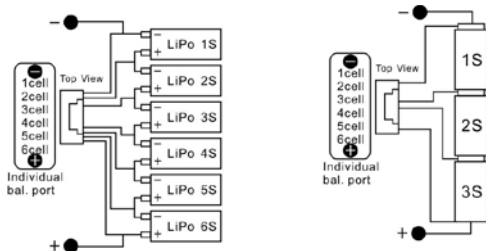
The value on the left side of the second line indicates the charge current. The value on the right side of the second line indicates the battery pack's voltage. After setting the current and voltage, press and hold the START/ENTER key for more than 3 seconds to start the process.
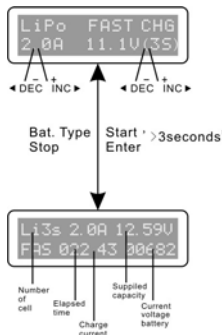
This displays both the number of cells you set up ("S"), and the number of cells that the processor detects ("R"). If both numbers are identical you can start charging by press START/ENTER button. If not, press BATT TYPE/STOP button to go back to the previous screen to carefully check the number of cells of the battery pack before going ahead.

This screen shows the real-time status during the charge process. Press BATT TYPE/STOP key once to stop the charge process.

Individual Cell Connection Diagram [Pin-assignment of 8-pin]

Fast charging of Lithium battery

```
LiPo   FAST CHG
2.0A    11.1V/3S
◄DEC INC►   ◄DEC INC►
```

Number of cell | Bat. Type Stop | Start Enter >3seconds | Supplied capacity

```
Li3s 2.0A 12.59V
FRS 022:43 00682
```
Number of cell | Elapsed time | Charge current | Supplied capacity | Current voltage battery

In any LiPo mode, charging current will be automatically reduced near the end of the charging process. In Fast Charge mode, a specific CV process will be reduced to end the charging process earlier. Fast Charge mode will reduce the charge current to 20% of its original setting, rather than 10% during normal charging mode. Charging capacity will be a little smaller than normal charging, but charging time will be shortened accordingly.

In Fast Charge mode you can set up the charging current and voltage of the battery pack. Press START/ENTER key to display voltage confirmation, then press START/ENTER key again to confirm and begin to charge.

This screen shows the real-time status during the charge process. Press BATT TYPE/STOP key once to stop the charge process.

Storage charging of Lithium battery
This function is for charging or discharging batteries to prepare them for storage. This program is designed to return the cells to their original resting voltage: 3.75V Li-ion, 3.85V LiPo, and 3.3V LiFe. The program will begin to discharge if the original state of the battery exceeds the voltage level of storage.

LiPo STORAGE
2.0A   11.1V(3S)

◄DEC INC►   ◄DEC INC►
Bat. Type   Start / >3seconds
Stop   Enter
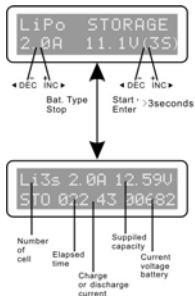
At this screen, you can set up the current and voltage values of the battery pack to be charged. Charging and discharging will condition the battery to be properly stored.

Li3s 2.0A 12.59V
STO 0?:2.43 00682

Number
of
cell   Elapsed   Supplied
            time   capacity
                          Current
            Charge   voltage
            or discharge battery
            current

This screen shows the status of the charging process in real time. Press BATT TYPE/STOP key once to stop the charge process.

Discharging of Lithium battery

LiPo DISCHARGE
1.0A   11.1V(3S)

◄DEC INC►   ◄DEC INC►
Bat. Type   Start / >3seconds
Stop   Enter
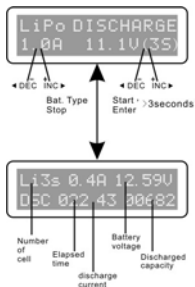
The value of discharge current on the left cannot exceed 1C, and the value on the right cannot be less than the voltage recommended by the manufacturer to avoid deep discharging. Press START/ENTER for more than 3 seconds to start charging.

Li3s 0.4A 12.59V
DSC 0?:2.43 00682

Number
of
cell   Elapsed   Battery
            time   voltage
                          Discharged
            discharge   capacity
            current

This shows the status of the discharging process in real time. Press BATT TYPE/STOP key to stop discharging.

**Voltage balancing and monitoring the discharge process**

The EcoPower "Electron 65 AC" Chargers internal processor monitors the voltage of each cell during the "storage" and "discharging" processes. To achieve this feature, plug the battery into the charger's balancing port. If voltage of any cell is abnormal, or if the battery is disconnected, the EcoPower "Electron 65 AC" Charger will show an error message and terminate the program. You can see the error message and may press INC to determine which cell is damaged.
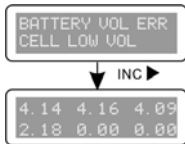
The processor detects voltage of one cell is too low.

This screen shows that the 4th cell in a 4-cell pack was damaged. (Note: A value of 0.00 volts may indicate a connection issue. In this instance the final two cells do not exist.)

Charging of NiCd/NiMH battery
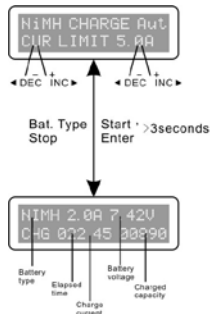
This program is for charging and discharging of NiCd/NiMH batteries associated with R/C applications. To change a specific parameter, press the START/ENTER until its value blinks, then use INC or DEC to change the parameter value. Press START/ENTER key to store the value.

This program charges the battery using the settings configured by the user. You should set the upper limit of the charge current to avoid damage by excessive charging current. You may change the charging mode by pressing the BATT TYPE/STOP button to reach the value on the screen, and then pressing INC and DEC at the same time to switch the charging mode.

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The screen shows the status of the discharge process in real time. Press BATT TYPE/STOP key to end the program. The EcoPower "Electron 65 AC" Charger will emit a sound to indicate the end of program.

Discharge of NiCd/NiMH battery
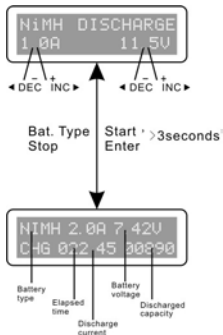
Set discharge current (0.1-1.0A) on the left and the final voltage (0.1-25.0V) on the right. Press START/ENTER key for more than 3 seconds to start the program.

The screen indicates the state of the discharging cycle. You can press the START/ENTER key to alter discharge current. Press START/ENTER again to store the value. Press BATT TYPE/STOP key to stop discharging. The emitted sound alerts the end of the discharging process.

Charge/discharge and discharge/charge cycle of NiCd/NiMH battery
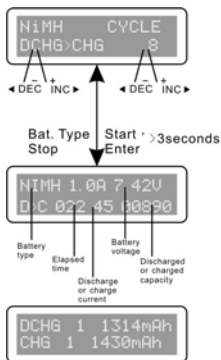
You can determine the order of the sequence on the left and the number of cycles (up to 5) on the right. This function allows you to balance, refresh and break-in the battery. The user can also select and configure a delay between cycles to allow the battery time to cool.

Press BATT TYPE/STOP key to stop program. You can also press START/ENTER key to alter charge current. A sound indicates the end of program.

When the cycling process approaches its end, you can see the capacity of the battery being charged or discharged. You can press INC or DEC key to display result of each cycle.

Pb (lead-sulfuric acid) battery program

This program is only suitable for charging Pb (lead-acid) batteries with a nominal voltage from 2 to 20V. A Pb (lead-acid) battery is completely different from NiCd/NiMh batteries. These batteries can only deliver current lower in comparison to their capacity; the same restriction applies to the charging process. Consequently, the optimum charge current can only be 10% of the capacity. Pb batteries cannot be fast charged. Please follow the instructions provided by the battery manufacturer when charging Pb batteries.

You can press START/ENTER key to make the battery type and charge current blink, and alter the value of parameters using INC or DEC key. Press START/ENTER key to store the value.
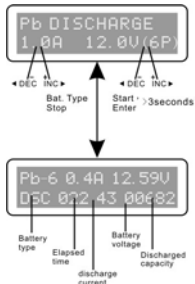
Charging of Pb batteries
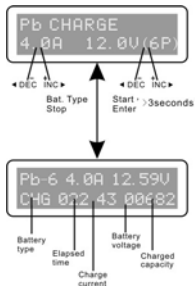
Set the charge current (0.1A-5.0A) on the left and nominal voltage on the right. The voltage should match that of the battery being charged. Press START/ENTER key for more than 3 seconds to start charging.

The screen displays the status of the discharge process in real time. Press START/ENTER key to alter discharge current. Press START/ENTER key again to store the parameter value. Press BATT TYPE/STOP key to end the program.

Discharging of the Pb battery

Set the charge current (0.1A-5.0A) on the left and nominal voltage on the right. The voltage should match that of the battery being charged. Press START/ENTER key for more than 3 seconds to start discharging.

The screen displays the status of the discharge process in real time. Press START/ENTER key to alter discharge current. Press START/ENTER key again to store the parameter value. Press BATT TYPE/STOP key to end the program.
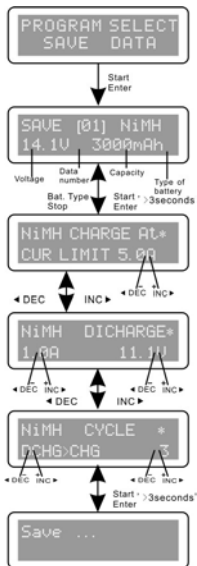
Data storage program

For your convenience, the EcoPower "Electron 65 AC" Charger has a data storage and load program and can store up to five different charging profiles. You can call back the data when charging or discharging without setting up the program again.

PROGRAM SELECT
SAVE DATA

Start Enter

Press BATT TYPE/STOP key until the Program Select Save Data screen appears.

SAVE [01] NiMH
14.1V   3000mAh

Voltage   Data number   Capacity   Type of battery

Bat. Type Stop   Start Enter '3seconds'

Press BATT TYPE/STOP to highlight a value, and then press INC or DEC to change it. Press INC and DEC key simultaneously to make the current field blink to switch the charge mode.

NiMH CHARGE At*
CUR LIMIT 5.0A

◀DEC   INC▶   ◀DEC INC▶

Set up the charge current in Manual mode, or the current limit in Auto mode.

NiMH   DISCHARGE*
1.0A   11.1V

◀DEC INC▶   ◀DEC INC▶
◀DEC   INC▶

Set up the discharge current and the nominal voltage of the battery to be discharged.

NiMH   CYCLE   *
DCHG>CHG   3

◀DEC INC▶   ◀DEC INC▶

Set up the charge/discharge cycle.

Start Enter '3seconds'

Save the data.

Save ...

Load data program

This program will load the charge profiles stored with the "Save Data" program. Press START/ENTER key to make the data field blink and press INC or DEC for more than 3 seconds to load the data.
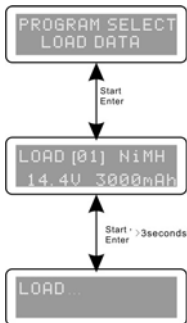
PROGRAM SELECT
LOAD DATA

Press BATT TYPE/STOP key until the Program Select Save Data screen appears.

_____

Start
Enter

LOAD [01] NiMH
14.4V 3000mAh

Choose the charge profile you want to call back. The data you want to call back will be displayed.

_____

Start ·>3seconds
Enter

LOAD...

Load the data.

Displaying information

The EcoPower "Electron 65 AC" Charger can display information on the LCD screen during the charging and discharging processes. Press DEC key to display the user's settings. Press INC key to monitor voltage of each cell while the battery is connected to the balance port of the charger.
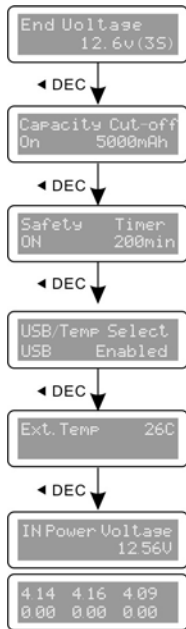
End Voltage 12.6v(3S)	Final voltage configured for active charging profile.
◄ DEC	
Capacity Cut-off On 5000mAh	Maximum capacity configured for active charging profile.
◄ DEC	
Safety Timer ON 200min	Safety timer configured for active charging profile
◄ DEC	
USB/Temp Select USB Enabled	This screen indicates that the 3-pin connector is selected to be the USB port.
◄ DEC	
Ext. Temp 26C	The external temperature is displayed when the temperature probe is used.
◄ DEC	
IN Power Voltage 12.56V	Input voltage displayed in real time.
4.14 4.16 4.09 0.00 0.00 0.00	When plugged into the charger's balance port, the voltage of each specific cell can be viewed in real time

Warning and error information

The EcoPower "Electron 65 AC" Charger incorporates a variety of functions for the systems to verify processes and the condition of the electronics. In case of an error the screen will display the cause of error and emit an audible sound.

REVERSE POLARITY	Incorrect polarity. Please check the polarity of the battery connectors.
CONNECTION BREAK	Battery connection is interrupted. Please ensure the battery is connected properly.
SHORT ERR	Output terminals have short-circuited. Prevent the battery connectors from touching.
INPUT VOL ERR	Input voltage is not correct. Please check input voltage to ensure it is within 11-18 volts.
VOL SELECT ERR	The voltage of the battery pack has been selected incorrectly. Please check the voltage of the battery pack.
BREAK DOWN	The charger has malfunctioned. Discontinue use immediately and contact Eco Power.
BATTERY CHECK LOW VOLTAGE	The battery's voltage is lower than the value set in the charger. Please check the number of cells in the battery pack.

BATTERY CHECK HIGH VOLTAGE	The battery's voltage is higher than the value set in the charger. Please check the number of cells in the battery pack.
BATTERY VOLTAGE CELL LOW VOL	Voltage of one cell in the battery pack is too low. Please check the voltage of each cell.
BATTERY VOLTAGE CELL HIGH VOL	Voltage of one cell in the battery pack is too high, Please check the voltage of each cell.
BATTERY VOLTAGE CELL CONNECT	Balance port is connected incorrectly; please check the connector and cable.
TEMP OVER ERR	The internal temperature is too high. Discontinue use and allow the unit to cool down.
CONNTROL FAILURE	The charger has malfunctioned. Discontinue use immediately and contact EcoPower.

⚠ **Warranty and service**

We guarantee this product to be free of manufacturing and assembly defects for a period of 90 days from the time of purchase. The warranty only applies to material or operational defects, which are present at the time of purchase. During that period, we will repair or replace free of service charge for products deemed defective due to those causes.

You will be required to produce proof of purchase (invoice or receipt). This warranty is not valid for any damage or subsequent damage arising as a result of misuse, modification or as a result of failure to observe the procedures outlined in this manual.