INSTRUCTION MANUAL

QUATTRO B6AC

Built-In AC Power Supply

Professional Balance Charger/Discharger

SKYRC

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INTRODUCTION

Congratulations on your choice of the SKYRC QUATTRO B6AC digital intelligent charger from SKYRC Technology Co., Ltd. You are now the owner of a compact charger with battery management and integral balancer.

The unit is simple to use, but the operation of a sophisticated automatic charger such as the SKYRC QUATTRO B6AC does require some knowledge on the part of the user. These operating instructions are designed to ensure that you quickly become familiar with its functions.

It is therefore important that you read right through the Operating Instructions, Warning and Safety Notes before you attempt to use your new automatic charger for the first time. We hope you have many years of pleasure and success with your new battery charger.

SKYRC QUATTRO B6AC is a high-performance, micro processor control charge/discharge station with battery management suitable for use with all current battery types. With integral equalizer for six-cell Lithium-Ion (LiIon), Lithium-Polymer (LiPo) and Lithium-Ferrum (LiFe) batteries.

Maximum 6A charge current; can be powered by a 12 Volt car battery or from 100V-240V via the built in switch-mode power supply.

And the circuit features four totally independent identical power outputs which are powered 50 watts each. Total powers are 200 watts. As a result , it can charge or discharge up to 4 x 15 cells of NiCd/NiMH or 4 x 6 series of Lithium batteries simultaneously. Quattro B6AC has four individual cell voltage balancer at each outputs, so it does not required any balancer separately when charging Lithium Battery (LiPo/LiIon/LiFe) for voltage balancing.

When a Nickel battery is fully charged, the unit terminates the process using the Delta-Peak method. Lithium and lead (Pb) batteries are charged using the CC-CV method.

The fan cooling system is so smart and efficient. The fan speed is controlled by internal temperature sensor.

Following instructions only apply to one of the four chargers, as all of them operate according to same principle.

Please BE SURE to read these instructions and Warning and Safety Notes before you use the charger for the first time.
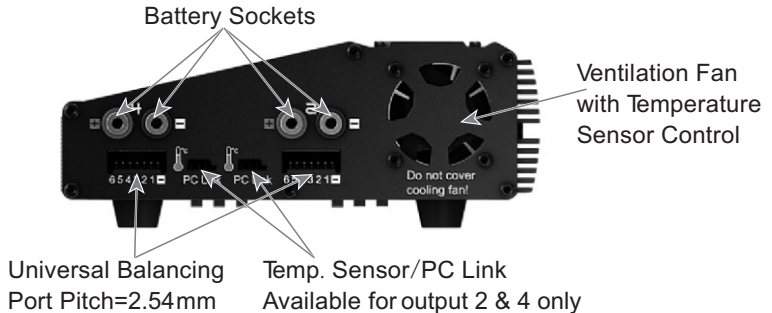
It can be dangerous to mis-handle batteries and battery chargers, as there is always a risk of batteries catching fire and exploding.

Liability Exclusion

This charger is designed and approved exclusively for use with the types of battery stated in these Instruction Manual. SKYRC accepts no liablility of any kind if the charger is used for any purpose other than that stated. We are unable to ensure that you follow the instructions supplied with the charger, and we have no control over the methods you employ for using, operating and maintaining the device. For this reason we are obliged to deny all liability for loss, damage or costs which are incurred due to the incompetent or incorrect use and operation of our products, or which are connected with such operation in any way. Unless otherwise prescribed by law, our obligation to pay compensation, regardless of the legal argument employed, is limited to the invoice value of those SKYRC products which were immediately and directly involved in the event in which the damage occurred.

INTRODUCTION

Please read this entire operating manual completely and attentively before using this product, as it covers a wide range of information on operating and safety. Or please do use this product in company with a specialist!

LCD Screen

Menu Control Buttons

Menu Control Buttons

Battery Sockets

DC Input Socket

Battery Sockets

AC Input Power Port

100-240V AC

Universal Balancing Port Pitch=2.54mm

Temp. Sensor/PC Link Available for output 1 & 3 only

Battery Sockets

Ventilation Fan with Temperature Sensor Control

Universal Balancing Port Pitch=2.54mm

Temp. Sensor/PC Link Available for output 2 & 4 only

SPECIAL FEATURES

SKYRC QUATTRO B6AC allows you to plug 4 batteries into one charger simultaneously, and it will intelligently and automatically charge all 4 of them at once to their maximum capacity. To top of it, the batteries being charged do not even need to have the same configuration. You can connect different chemistry（Ni-MH/Ni-CD/LiPo/LiFe）batteries into any of the charging ports. No more staying up late for charging batteries.

Optimized operating software

SKYRC QUATTRO B6AC features the so-called AUTO function that set the feeding current during the process of charging or discharging. Especially for Lithium batteries, it can prevent the overcharging which may lead to an explosion due to the user's fault. It can disconnect the circuit automatically and alarm once detecting any malfunction. All the programs of this product were controlled through two way linkage and communication, to achieve the maximum safety and minimize the trouble. All the settings can be configured by users!

Internal independent lithium battery balancer

SKYRC QUATTRO B6AC employs an individual-cell-voltage balancer. It isn't necessary to connect an external balancer for balance charging.

Balancing individual cells battery discharging

During the process of discharging, SKYRC QUATTRO B6AC can monitor and balance each cell of the battery individually. Error message will be indicated and the process will be ended automatically if the voltage of any single one cell is abnormal.

Adaptable to various type of lithium battery

SKYRC QUATTRO B6AC is adaptable to various types of Lithium batteries, such as Li-ion, LiPo and the new LiFe series of batteries.

SPECIAL FEATURES

Fast and storage mode of lithium battery
Purposes to charge Lithium battery varies, 'fast' charge reduce the duration of charging, whereas 'store' state can control the final voltage of your battery, so as to store for a long time and protect useful time of the battery.

Maximum safety
Delta-peak sensitivity: The automatic charge termination program based on the principle of the Delta-peak voltage detection. When the battery's voltage exceeds the threshold, the process will be terminated automatically.

Automatic charging current limit
You can set up the upper limit of the charging current when charging your NiCd or NiMH battery, it is useful for the NiMH battery of low impedance and capacity in the 'AUTO' charging mode.

Capacity limit
The charging capacity is always calculated as the charging current multiplied by time. If the charging capacity exceeds the limit, the process will be terminated automatically when you set the maximum value.

Temperature threshold*
The battery's internal chemical reaction will cause the temperature of the battery to rise. If the temperature limit is reached, the process will be terminated.
This function is available by connecting optional temperature probe, which is not included in the package.

Processing time limit:
You can also limit the maximum process time to avoid any possible defect.

Data store/load
The maximum ten batteries' data can be stored for each output(10X4SET). You can keep the data pertaining to program setting of the battery of continuous charging or discharging. Users can call out these data at any time without any special program setting.

Cyclic charging/discharging
1 to 5 cyclic and continuous process of charge>discharge or discharge>charge is operable for battery refreshing and balancing to stimulate the battery's activity.

Terminal voltage control(TVC)
The charger allows user to change the end voltage.

Lipo battery meter
The user can check battery's total voltage, the highest voltage, the lowest voltage and each cell's voltage.

PFC (Power Factor Correction) internal integrated

WARNING AND SAFETY NOTES

These warnings and safety notes are particularly important. Please follow the instructions for maximum safety; otherwise the charger and the battery can be damaged or at worst it can cause a fire.

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

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

❗ The allowable DC input voltage is 11-18V DC.

❗ The allowable AC input voltage is 100-240V AC.

❗ This charger and the battery should be put on a heat-resistant, non-flammable and non-conductive surface. Never place them on a car seat, carpet or similar surface. Keep all flammable volatile materials away from the operating area.

❗ Make sure you know the specifications of the battery to be charged or discharged to ensure it meets the requirements of this charger. If the program is set up incorrectly, the battery and charger may be damaged. Fire or explosion can occur 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.

❗ To avoid short circuiting between the charge lead, always connect the charge cable to the charger first, then connect the battery. Reverse the sequence when disconnecting.

❗ **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 (pose an explosion hazard)
- Batteries that require a different charge technique from NiCd, NiMh, LiPo or gel cell
  (Pb, lead-acid battery)
- 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

WARNING AND SAFETY NOTES

❶ Please bear 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 parallel and in 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.

Standard Battery Parameters

	LiPo	LiIon	LiFe	NiCd	MiMH	Pb
Nominal Voltage	3.7V/cell	3.6V/cell	3.3V/cell	1.2V/cell	1.2V/cell	2.0V/cell
Max Charge Voltage	4.2V/cell	4.1V/cell	3.6V/cell	1.5V/cell	1.5V/cell	2.46V/cell
Storage Voltage	3.8V/cell	3.7V/cell	3.3V/cell	n/a	n/a	n/a
Allowable Fast Charge	≦1C	≦1C	≦4C	1C-2C	1C-2C	≦0.4C
Min. Discharge Voltage	3.0-3.3V/cell	2.9-3.2V/cell	2.6-2.9V/cell	0.1-1.1V/cell	0.1-1.1V/cell	1.8V/cell

Be very careful to choose the correct voltage for different types of battery otherwise you may cause damage to the batteries. Incorrect settings could cause the cells to fire or explode.

❗ Charging

During 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 are allowed to be charged at rates higher than the standard charge current.

Connect the battery to the terminal of the charger: red is positive and black is negative. Due to the difference between resistance of cable and connector, the charger can not detect resistance of the battery pack, the essential requirement for the charger to work properly is that the charge lead should be of adequate conductor cross-section, and high quality connectors which are normally gold-plated should be fitted to both ends.

Always refer to the manual by the battery manufacturer pertaining to charging methods. Operate according to their recommended charging current and charging time. Lithium batteries, in particular, should be charged strictly according to the manufacturer's instruction.

Close attention should be paid to the connection of Lithium batteries.

Do not attempt to disassemble the battery pack arbitrarily.

Please get highlighted that Lithium battery packs can be wired in parallel and in series. In the parallel connection, the battery's capacity is calculated by multiplying single the battery's capacity by the number of cells, bearing in mind that total voltage stays the same. If the voltage is imbalanced, it may cause a fire or explosion. Lithium batteries are recommended to charge in series.
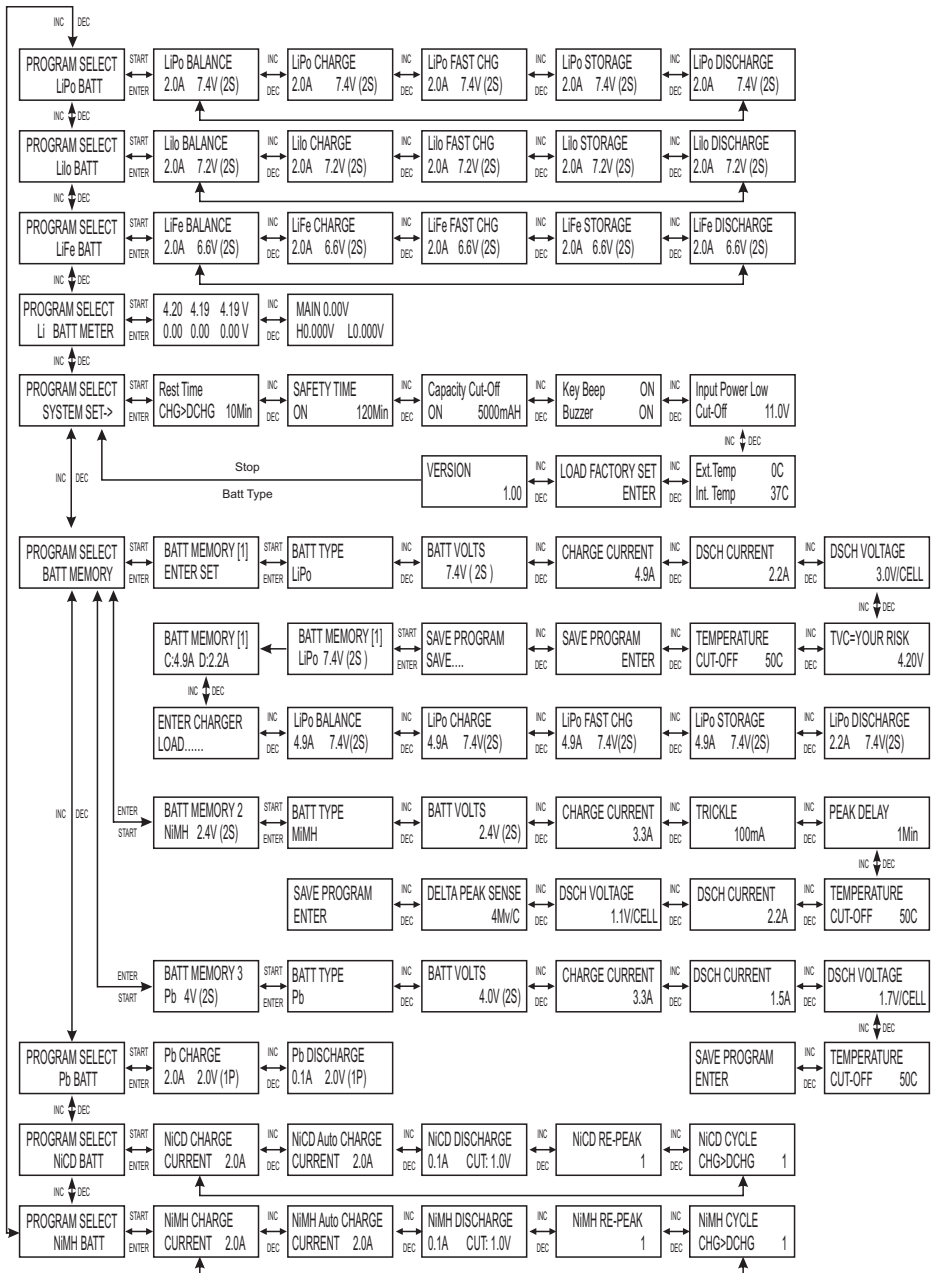
WARNING AND SAFETY NOTES

❶ Discharging

The main purpose of discharging is to clean the residual capacity of the battery, or to reduce the battery' voltage to a defined level. The same attention should be paid to the discharging process as the charging process. The final discharge voltage should be set up correctly to avoid deep discharging. Lithium batteries cannot be discharged to lower than the minimum voltage, or it will cause a rapid loss of capacity or a total failure. Generally, Lithium batteries don't need to be discharged. Please pay attention to the minimum voltage of Lithium batteries to protect them.

Some rechargeable batteries have a memory effect. If they are partly used and recharged before the whole charge is accomplished, they remember this and will only use that part of their capacity next time. This is a 'memory effect' It is said that NiCd and NiMH batteries are suffering from memory effect. NiCd has more 'memory effect' than NiMH.

Lithium batteries are recommended to be discharged partially rather than fully. 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 reached until it has been subjected to 10 or more charge cycles. The cyclic process of charge and discharge will optimize the capacity of battery pack.

PROGRAM FLOW CHART

PROGRAM SELECT LiPo BATT	LiPo BALANCE 2.0A 7.4V (2S)	LiPo CHARGE 2.0A 7.4V (2S)	LiPo FAST CHG 2.0A 7.4V (2S)	LiPo STORAGE 2.0A 7.4V (2S)	LiPo DISCHARGE 2.0A 7.4V (2S)
PROGRAM SELECT LiIo BATT	LiIo BALANCE 2.0A 7.2V (2S)	LiIo CHARGE 2.0A 7.2V (2S)	LiIo FAST CHG 2.0A 7.2V (2S)	LiIo STORAGE 2.0A 7.2V (2S)	LiIo DISCHARGE 2.0A 7.2V (2S)
PROGRAM SELECT LiFe BATT	LiFe BALANCE 2.0A 6.6V (2S)	LiFe CHARGE 2.0A 6.6V (2S)	LiFe FAST CHG 2.0A 6.6V (2S)	LiFe STORAGE 2.0A 6.6V (2S)	LiFe DISCHARGE 2.0A 6.6V (2S)
PROGRAM SELECT Li BATT METER	4.20 4.19 4.19 V 0.00 0.00 0.00 V	MAIN 0.00V H0.000V L0.000V			

PROGRAM SELECT SYSTEM SET->	Rest Time CHG>DCHG 10Min	SAFETY TIME ON 120Min	Capacity Cut-Off ON 5000mAH	Key Beep ON Buzzer ON	Input Power Low Cut-Off 11.0V
	Stop Batt Type		VERSION 1.00	LOAD FACTORY SET ENTER	Ext.Temp 0C Int. Temp 37C

PROGRAM SELECT BATT MEMORY	BATT MEMORY [1] ENTER SET	BATT TYPE LiPo	BATT VOLTS 7.4V (2S)	CHARGE CURRENT 4.9A	DSCH CURRENT 2.2A	DSCH VOLTAGE 3.0V/CELL
	BATT MEMORY [1] C:4.9A D:2.2A	BATT MEMORY [1] LiPo 7.4V (2S)	SAVE PROGRAM SAVE....	SAVE PROGRAM ENTER	TEMPERATURE CUT-OFF 50C	TVC=YOUR RISK 4.20V
	ENTER CHARGER LOAD......	LiPo BALANCE 4.9A 7.4V(2S)	LiPo CHARGE 4.9A 7.4V(2S)	LiPo FAST CHG 4.9A 7.4V(2S)	LiPo STORAGE 4.9A 7.4V(2S)	LiPo DISCHARGE 2.2A 7.4V(2S)
	BATT MEMORY 2 NiMH 2.4V (2S)	BATT TYPE MiMH	BATT VOLTS 2.4V (2S)	CHARGE CURRENT 3.3A	TRICKLE 100mA	PEAK DELAY 1Min
		SAVE PROGRAM ENTER	DELTA PEAK SENSE 4Mv/C	DSCH VOLTAGE 1.1V/CELL	DSCH CURRENT 2.2A	TEMPERATURE CUT-OFF 50C
	BATT MEMORY 3 Pb 4V (2S)	BATT TYPE Pb	BATT VOLTS 4.0V (2S)	CHARGE CURRENT 3.3A	DSCH CURRENT 1.5A	DSCH VOLTAGE 1.7V/CELL

PROGRAM SELECT Pb BATT	Pb CHARGE 2.0A 2.0V (1P)	Pb DISCHARGE 0.1A 2.0V (1P)		SAVE PROGRAM ENTER	TEMPERATURE CUT-OFF 50C
PROGRAM SELECT NiCD BATT	NiCD CHARGE CURRENT 2.0A	NiCD Auto CHARGE CURRENT 2.0A	NiCD DISCHARGE 0.1A CUT: 1.0V	NiCD RE-PEAK 1	NiCD CYCLE CHG>DCHG 1
PROGRAM SELECT NiMH BATT	NiMH CHARGE CURRENT 2.0A	NiMH Auto CHARGE CURRENT 2.0A	NiMH DISCHARGE 0.1A CUT: 1.0V	NiMH RE-PEAK 1	NiMH CYCLE CHG>DCHG 1

LITHIUM BATTERY(LIPO/LILO/LIFE)PROGRAM

CONNECTING THE CHARGER

SKYRC QUATTRO B6AC comes with the built in switching power supply. You can connect the AC power cord directly to the main AC socket. (100-240V AC) For attaching directly to 12V car batteries. It is critically important that you use a fully charged 13.8V car battery .

Using terminal
clip attaching
to car battery

CONNECTING THE BATTERY

Important!!! Before connecting a battery it is absolutely essential to check one last time that you have set the parameters correctly. If the settings are incorrect, the battery may be damaged, and could even burst into flames or explode. To avoid short circuits between the banana plugs, always connect the charge leads to the charger first, and only then to the battery. Reverse the sequence when disconnecting the pack.

Balance socket:
The balance wire attached to the battery must be connected to the charger with the black wire aligned with the negative marking. Take care to maintain correct polarity! (See the wiring diagram below.)

This diagram shows the correct way to connect your battery to the SKYRC QUATTRO B6AC while charging in the balance charge program mode only.
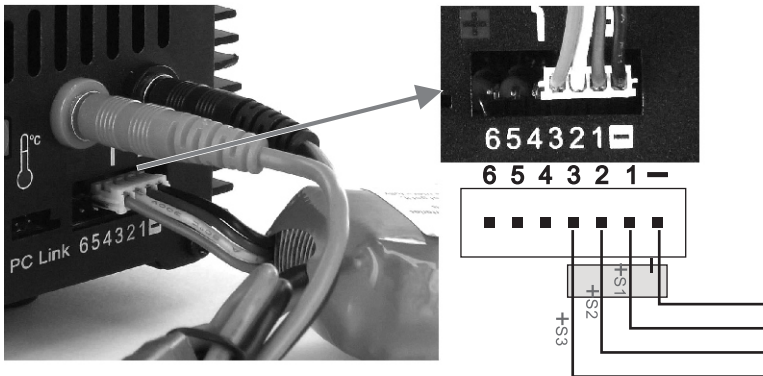
WARNING:
⚠ Failure to connect as shown in this diagram will damage this charger.

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 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 3.6 V 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 AT BALANCE MODE

This function is for balancing the voltage of Lithium-polymer battery cells while charging.
In the balance mode, the battery needs to have a balance lead to connect to the battery's power lead to the output of charger.
In this mode, the charging process will be different from ordinary charging mode. The internal processor of the charger will monitor the voltages of each cell of the battery pack and controls charging current that is feeding to each cell to normalise the voltage.
Note: We recommends charging lithium batteries with a balance lead in the balance mode only.

```
LiPo    BALANCE
2.0A  11.1V(3S)
```
◄DEC INC►   ◄DEC INC►
Batt type   Start
Stop   Enter '> 3 seconds'

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 current user set. After setting the current and voltage, press Start/Enter key for more than 3 seconds to start the process.(charge current: 0.1-6.0A, voltage: 2S-6S).

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

This displays the number of cells you set up and the processor detects. R shows the number of cells detected by the charger and S is the number of cells set by you at the previous screen. 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 previous screen to carefully check the number of cells of the battery pack before going ahead.
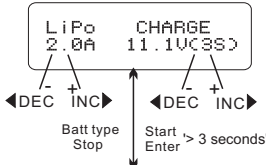
```
Li3s 1.2A 12.59V
BAL 022:43 00682
```
Number Charging   Battery Charged
of   time   voltage capacity
cells   Charging
             current

This screen shows the real-time status during charge process. Press Batt Type/Stop key once to stop the charge process.
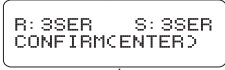
CHARGING OF LITHIUM BATTERY

This charging mode is for charging Li-Po/Ion/Fe battery without balance lead.
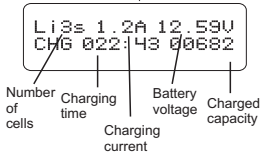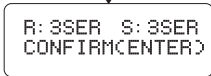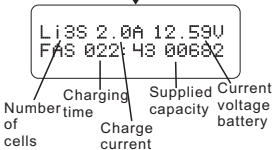Note: We recommends charging lithium batteries with a balance lead in the balance mode only.

LITHIUM BATTERY(LIPO/LILO/LIFE)PROGRAM

```
 LiPo   CHARGE
 2.0A  11.1V(3S)
```
◄DEC INC►   ◄DEC INC►

Batt type   Start
Stop   Enter '> 3 seconds'

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 current user set. After setting the current and voltage, press Start/Enter key for more than 3 seconds to start the process.(charge current: 0.1-6.0A, voltage: 1S-6S).

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

Start
Enter

This displays the number of cells you set up and the processor detects. R shows the number of cells detected by the charger and S is the number of cells set by you at the previous screen. 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 previous screen to carefully check the number of cells of the battery pack before going ahead.
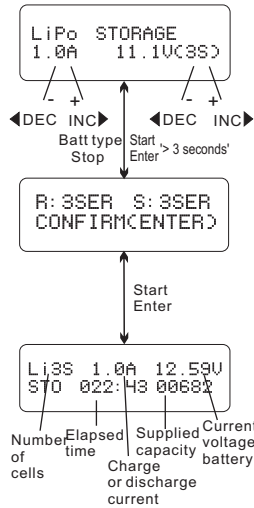
```
Li3s 1.2A 12.59V
CHG 022:43 00682
```

Number   Charging   Battery   Charged
of   time   voltage   capacity
cells   Charging
              current

This screen shows the real-time status during charge process. Press Batt Type/Stop key once to stop the charge process.

'FAST' CHARGING OF 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. Actually, 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 '> 3 seconds'
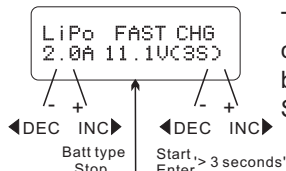
The value on the left side of the second lines sets the charge current. The value on the right side of the second lines sets the battery pack's voltage. After setting current and voltage, press Star/Enter for more than 3 seconds to start the process.

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

Start
Enter

This displays the number of cells you set up and the processor detects. R shows the number of cells detected by the charger and S is the number of cells set by you at the previous screen. 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 previous screen to carefully check the number of cells of the battery pack before going ahead.

```
Li3S 2.0A 12.59V
FAS 022:43 00682
```

Number Charging   Supplied   Current
time   capacity   voltage
of   Charge   battery
cells   current

This screen shows the real-time status during charge process. Press Batt Type/Stop key once to stop the charge process.

'STORAGE' CONTROL OF 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 battery, 3.75V for LiIo, 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
1.0A   11.1V(3S)
```
- +   - +
◀DEC INC▶   ◀DEC INC▶
Batt type | Start > 3 seconds'
Stop | Enter

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

```
Li3S 1.0A 12.59V
STO 022:43 00682
```
Number of cells | Elapsed time | Supplied capacity | Current voltage battery
Charge or discharge current

At this screen, you can set up the current and voltage of the battery pack. Charging and discharging will make the batteries come to the voltage level of storage state.

This displays the number of cells you set up and the processor detects. R shows the number of cells detected by the charger and S is the number of cells set by you at the previous screen. 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 previous screen to carefully check the number of cells of the battery pack before going ahead.
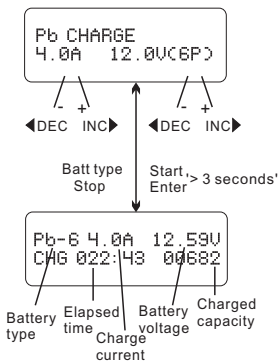
This screen shows the real-time status charging. Press Batt Type/Stop key once to stop the charge process.

DISCHARGING LITHIUM BATTERY

```
LiPo   DISCHARGE
.0A    11.1V(3S)
```
+   +
◀DEC INC▶   ◀DEC INC▶
Batt type | Start > 3 seconds'
Stop | Enter

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

```
Li3S 0.4A 12.59V
DSC 022:43 00682
```
Number of cells | elapsed time discharge current | Battery voltage | Discharged capacity
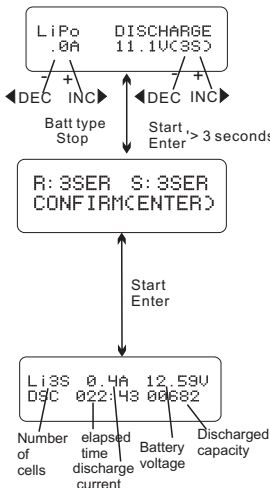
The value of discharge current on the left can not exceed 1C, and the value on the right can not be under the voltage recommended by the manufacturer to avoid deep discharging. Press Start/Enter for more than 3 seconds to start discharging.

This displays the number of cells you set up and the processor detects. R shows the number of cells detected by the charger and S is the number of cells set by you at the previous screen. 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 previous screen to carefully check the number of cells of the battery pack before going ahead.

This shows the real-time status of discharging, you can press Batt Type/Stop key to stop discharging.

PB(LEAD-SULPHURIC ACID) BATTERY PROGRAM

This is programmed for charging Pb(lead-sulphuric acid) battery with nominal voltage from 2 to 20V. Pb batteries are totally different from NiCd or NiMH batteries. They can only deliver relatievely 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 manufacturer 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 OF PB BATTERY

```
Pb CHARGE
4.0A   12.0V(6P)
```
‹ DEC INC ›   ‹ DEC INC ›

Batt type / Stop   Start / Enter '> 3 seconds'

```
Pb-6 4.0A  12.59V
CHG 022:43 00682
```
Battery type | Elapsed time | Battery voltage | Charged capacity
Charge current

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 6.0A 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.

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 OF PB BATTERY
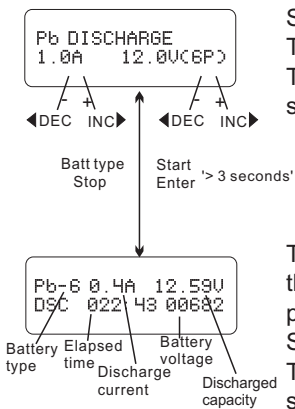
```
Pb DISCHARGE
1.0A   12.0V(6P)
```
‹ DEC INC ›   ‹ DEC INC ›

Batt type / Stop   Start / Enter '> 3 seconds'

```
Pb-6 0.4A  12.59V
DSC  022:43 00682
```
Battery type | Elapsed time | Battery voltage | Discharged capacity
Discharge current

Set discharge current on the left and final voltage on the right. The discharge current ranges from 0.1 to 2.0A.
To start the process, press Start/Enter key for more than 3 seconds.

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.

These programs are for charging or discharging NiMH (Nickel-Metal-Hydride) or NiCd (Nickel-Cadmium) battery commonly used for R/C model aplications. To alter the value at the display, press Start/Enter key to make it blink then change the value using INC or 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 OF NICD/NIMH BATTERY

The charger will charge NiCd and NiMh batteries using the charge current set by the user.

```
NiMH CHARGE
CURRENT    2.0A
```
Battery type
◀DEC INC▶
Batt type Stop
Start Enter '> 3 seconds'
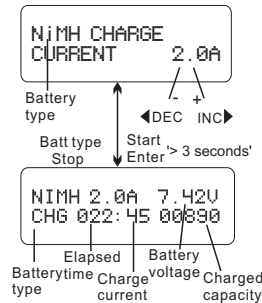
This program is for charging of NiCd/NiMH batteries. You can press Start/Enter key to make it blink and then Inc or Dec to change the parameter value. Press START/ENTER key to store the value.

```
NIMH 2.0A  7.42V
CHG 022:45 00890
```
Battery type
Elapsed time
Charge current
Battery voltage
Charged capacity

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

CHARGING NICD/NIMH BATTERY IN THE AUTO CHARGE MODE

In this program the charger detects the condition of the battery which is connected to the output and automatically charges the battery. In this mode, you should set up the upper limit of the charge current to avoid damage by excessive feeding current. Some batteries of low resistance and capacity can lead to higher current in the auto charging mode.

```
NiMH Auto  CHARGE
CURRENT    2.0A
```
ENTER /START

```
NiMH 2.0A  9.52V
AUT 000:13  00000
```
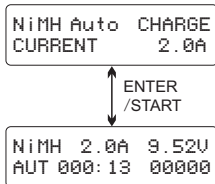
This program is for charging of NiCd/NiMH batteries. You can press the Start/Enter button to make it blink and then press the Dec/Inc button to change the parameter value. Press the Start/Enter button more than 3 seconds to start the charging process.

DISCHARGING OF NICD/NIMH BATTERY
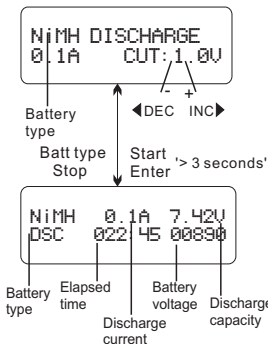
```
NiMH DISCHARGE
0.1A    CUT:1.0V
```
Battery type
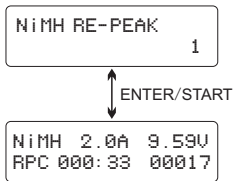◀DEC INC▶
Batt type Stop
Start Enter '> 3 seconds'

Set discharge current on the left and final voltage on the right. The discharge current ranges from 0.1 to 2.0A and the final voltage ranges from 0.1 to 25.0V). To start the process, press Start /Enter key more than 3 seconds.

```
NiMH   0.1A  7.42V
DSC   022:45 00890
```
Battery type
Elapsed time
Discharge current
Battery voltage
Discharged capacity

The screen indicates the discharging state. You can press 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 discharging.
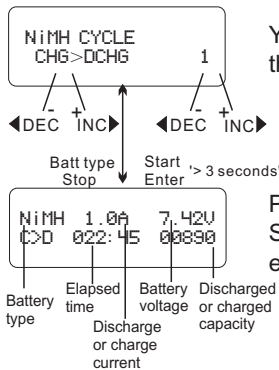
NIMH/NICD BATTERY PROGRAM

CHARGING NICD/NIMH BATTERY IN RE-PEAK CHARGE MODE

Re-peak Charge Mode (NiCd and NiMH batteries only): In re-peak charge mode, the charger can peak charge the battery once, twice or three times in a row automatically. This is good for confirming the battery is fully charged, and for checking how well the battery receives fast charges. A five minute cool-off delay occurs after each re-peak charge. See the diagram below for using re-peak charge mode. To start charging, press the Start/Enter button for 3 seconds.

```
NiMH RE-PEAK
             1
```
ENTER/START
```
NiMH 2.0A  9.59V
RPC 000:33  00017
```

"Re-peak cycle: 1" shows on the display. Press the Start/Enter button to make the re-peak cycle number blink and press the Dec/Inc button to find the desired number of times to re-peak. Press the Start/Enter button to confirm selection.

CHARGE/DISCHARGE & DISCHARGE/CHARGE CYCLE OF NIMH/NICD BATTERY

```
NiMH CYCLE
CHG>DCHG     1
```
◄DEC INC►   ◄DEC INC►

Batt type   Start '> 3 seconds'
Stop   Enter

```
NiMH  1.0A  7.42V
C>D  022:45  00890
```

Battery | Elapsed | Battery | Discharged
type | time | voltage | or charged
| Discharge | | capacity
| or charge
| current

You can set up sequence on the left and the number of cycles on the right. Range of the cycle number is 1-5.

Press Batt Type/Stop key to stop program, you can press Start/Enter key to alter charge current. The sound indicates the end of program.

BATTERY MEMORY SET

The charger can store up to 10 different charge/discharge profiles for your convenience, and the stored profiles can be recalled quickly without having to go through the setup process.

```
BATT MEMORY【1】
ENTER SET
```
ENTER/START >3 seconds
```
BATT TYPE
LiPo
```
◄DEC INC►
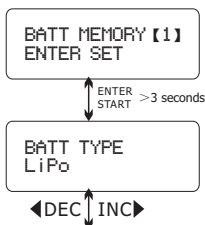
Enter the battery memory program, you can change the battery type(Lipo, Lilo, LiFe, NiMH, NiCd, Pb battery), voltage, charge current by pressing the Start/Enter button to make the value blink, the INC or DEC buttons to change the value, and Start/Enter button once more to store the value and move to the next value or screen. (Note: The battery used for this example is a 2S(7.4V) Lipo battery.)
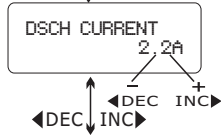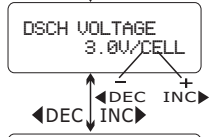
```
BATT VOLTS
      7.4V(2S)
```
◀DEC INC▶
◀DEC ↕ INC▶
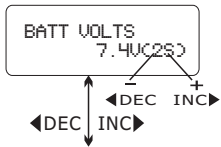
Set the voltage and number of cells, along with the normal voltage (1-6S).

```
CHARGE CURRENT
          4.9A
```
◀DEC INC▶
◀DEC ↕ INC▶
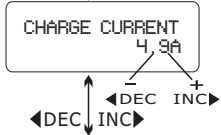
Set the charge current, which can be adjusted(0.1-6.0A).

```
DSCH CURRENT
        2.2A
```
◀DEC INC▶
◀DEC ↕ INC▶

Set the discharge current, which can be adjusted(0.1A-2.0A, each port).

```
DSCH VOLTAGE
     3.0V/CELL
```
◀DEC INC▶
◀DEC ↕ INC▶

Set the discharge voltage, which can be adjusted(3.0V/CELL-3.3V/CELL).

```
TVC=YOUR RISK
        4.20V
```
◀DEC INC▶
◀DEC ↕ INC▶
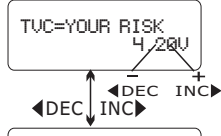
Set the terminal voltage, which can be adjusted(4.18v-4.30v).

```
TEMPERATURE
CUT-OFF    50C
```
◀DEC INC▶
◀DEC ↕ INC▶
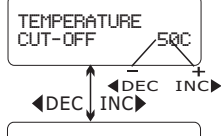
Set the cut-off temperature, which can be adjusted(20C-80C).

```
SAVE PROGRAM
          ENTER
```
◀DEC ↕ INC▶

```
SAVE PROGRAM
           SAVE
```
ENTER
START ↕ >3 seconds

Save the program set by pressing the Start/Enter button for more than three seconds.

```
BATT MEMORY【1】
LiPo 7.4V(2S)
```
↓ next flash
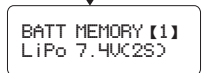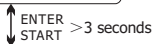
This screen indicate the saved profile.

```
BATT MEMORY【1】
C:4.9A  D:2.2A
```
◀DEC ↕ INC▶

Once you've saved a charge profile, you can load those settings to use later. To load a memory, you have to press the Start/Enter Button for more than 3 seconds. Otherwise you only enter the setting mode.

```
ENTER CHARGER
LOAD·····
```

This screen indicates that the charge profile is being loaded.
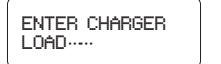
LITHIUM BATTERY METER

```
PROGRAM  SELECT
Li    BATT  METER
```

Press the Start/Enter button to enter the Lithium Battery Meter.

Start
Enter

```
4.19  4.15  4.18V
0.00  0.00  0.00V
```

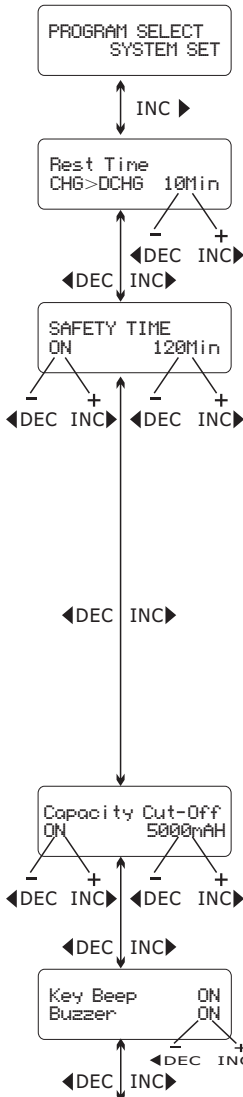The screen indicate each cell's voltage.

INC▶

```
MAIN 12.52V
H4.190V   L4.160V
```

The screen indicate the total voltage, the highest voltage,
the lowest voltage.

It will be operated with the default value of the essential user settings when it is connected to a DC 11~18V batttery 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.

```
┌──────────────────┐
│ PROGRAM SELECT   │
│      SYSTEM SET  │
└──────────────────┘
        ↕ INC ▶

┌──────────────────┐
│ Rest Time        │
│ CHG>DCHG  10Min  │
└──────────────────┘
              − +
          ◀DEC INC▶
   ◀DEC  INC▶

┌──────────────────┐
│ SAFETY TIME      │
│ ON       120Min  │
└──────────────────┘
   −   +      −   +
◀DEC INC▶ ◀DEC INC▶



   ◀DEC  INC▶

┌──────────────────┐
│ Capacity Cut-Off │
│ ON       5000mAH │
└──────────────────┘
   −   +      −   +
◀DEC INC▶ ◀DEC INC▶

   ◀DEC  INC▶

┌──────────────────┐
│ Key Beep      ON │
│ Buzzer        ON │
└──────────────────┘
              − +
          ◀DEC INC▶
   ◀DEC  INC▶
```

User set up starting screen.

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 60 minutes.

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.

Safe timer Calculation

When charging NiCd or NiMH batteries, divide the capacity by current, then divide the result by 11.9, set this number as the value for safety timer setting. If the charger stopped at this 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

This program sets the maximum charge capacity that will be supplied to the battery during charge. If the deltapack voltage is not detected nor the safety timer expired by any reason, this feature will automatically stop the process at the selected capacity value.
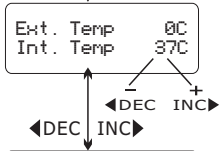
The beep sounds at every time pressing the buttons to confirm your action. The beep or melody sounded at various times during operation to alert different mode changes.
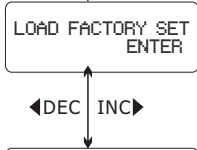
These audible sounds can be on or off.

PROGRAM SET UP

```
Input Power Low
Cut-Off    11.0V
```
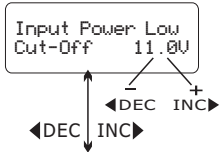
This program monitors the voltage of input battery. If the voltage drops below the value you set the operation forcibly terminated to protect the input battery.

◀DEC INC▶

◀DEC INC▶

```
Ext. Temp    0C
Int. Temp   37C
```

This screen shows the external and internal temperature.

◀DEC INC▶

◀DEC INC▶

```
LOAD FACTORY SET
          ENTER
```

Press and hold the Start/Enter button for more than three seconds to load the factory set.

◀DEC INC▶

```
VERSION
         1.00
```

This screen shows the version.

You can inquire various information on LCD screen 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)
```
It comes to the final voltage when the program ended.

```
IN Power Voltage
            12.56V
```
Present input voltage.

```
Ext. Temp    0C
Int. Temp   37C
```
This screen shows the external and internal temperature.

```
Safety   Time
ON       200min
```
Displayed safety timer is turn on and duration of time in minutes.

```
Capacity Cut-Off
ON      5000mAh
```
Displayed capacity cut-off function is turn on and the setting value of capacity.

```
4.19 4.15 4.18V
0.00 0.00 0.00V
```
The battery is connected with balance lead, you can check voltage of each cell in the battery pack.

WARNING AND ERROR MESSAGE

It incorporates a variety of functions for the systems to verify processes and the state 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 connected. |

| CONNECTION BREAK | The battery is interrupted. |

| CONNECT error
Check Main Port | The Battery connection is wrong. |

| BALANCE CONNECT
ERROR | The balance connect is wrong. |

| DC in too low | Input voltage less than 11V. |

| DC in too high | Input voltage higher than 18V. |

| CELL error
Low Voltage | Voltage of one cell in the battery pack is too low. |

| CELL error
High Voltage | Voltage of one cell in the battery pack is too high. |

| CELL error
Voltage-Invalid | Voltage of one cell in the battery pack is invalid. |

| CELL number
Incorrect | The cell number is wrong. |

| Int.temp.too hi | The internal temperature of the unit goes too high. |

| Ext.temp.too hi | The external temperature of the unit goes too high. |

| Over charge
Capacity Limit | The battery capacity is more than the maximum capacity which the user sets. |

| Over TIME LIMIT | The charging time is longer than the maximum charging time which the user sets. |

| BATTERY WAS FULL | The battery voltage is higher than the maximum voltage which the user sets when charging in balance mode. |

SPECIFICATION

AC Input	100-240V(360-330W)
DC Input	11-18Volt
Charger circuit power	4 x 50W(200W)
Charge current range	0.1-6.0A
Discharge current power	4 x 5W(20W)
Discharge current range	0.1-2.0A
Current drain for balancing port	200mA/cell
NiCd/NiMH battery cell count	1-15Cells
LiPo/LiFe/LiIon cell count	1-6Cells
Pb battery voltage	2-20V
Net weight	1.73kg
Dimension	255x170x66mm

(stated values refer to one charger except built-in power supply, dimension & weight)

THE SET CONTAINS

1. AC Power Cord
2. DC Power Input Cable
3. SKYRC QUATTRO B6AC
4. Plug-in battery clamps
5. Crocodile clip charging cable

6. Tamiya charging cable
7. Futaba RX charging cable
8. JST/BEC charging cable
9. 18AWG wire charging cable
10. TP/FP Adaptor
11. XH Adaptor
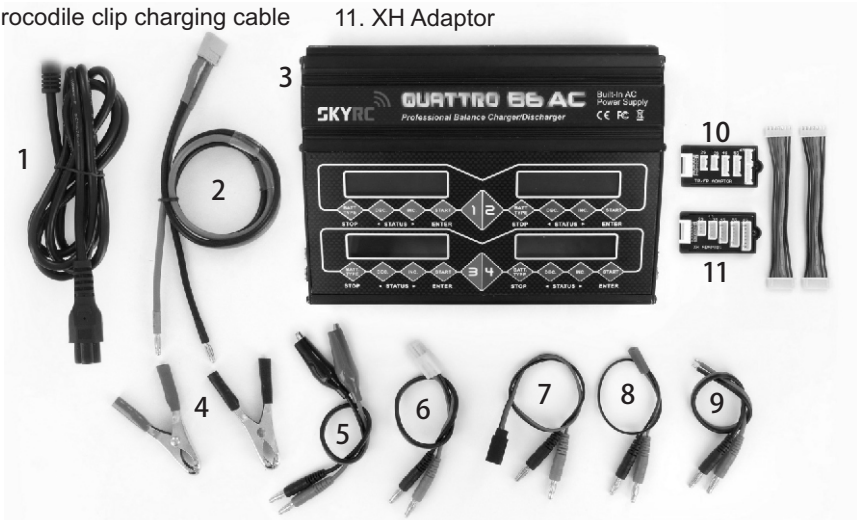
RECOMMENDED ACCESSORIES

Temperature Probe with Magnet
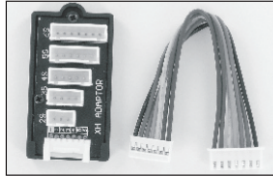SK-600005-01
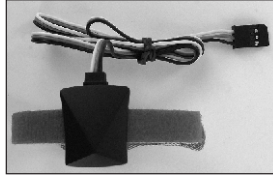
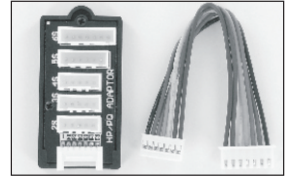Temperature Probe
SK-600040-01
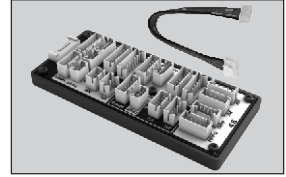
Multi Balance Board Adapter
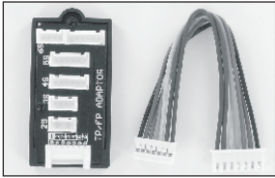SK-600056-01
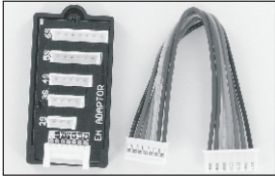
EH Adaptor
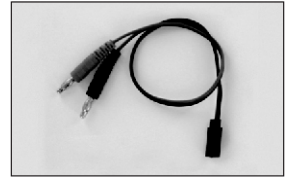SK-600014-01

XH Adaptor
SK-600020-04

HP/PQ Adaptor
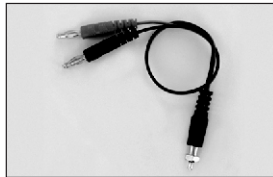SK-600016-03

TP/FP Adaptor
SK-600018-02

Dean charging cable
5201-0012-01

Futaba RX charging cable
5201-0044-01

TRAXXAS charging cable
5201-0033-01

Glow charging cable
5201-0045-01

Crocodile clip charging cable
5201-0031-01

EC3 charging cable
5201-0034-01

Tamiya charging cable
5201-0030-01

JST/BEC charging cable
5201-0043-01

CONFORMITY DECLARATION

SKYRC QUATTRO B6AC satisfy all relevant and mandatory CE directives and FCC Part 15 Subpart B: 2008.

For EC directives:
The product has been tested to meet the following technical standards:

	Test Standards	Title	Result
CE-LVD	EN60335	For safety of household and similar electrical appliances.	Conform
CE-EMC	EN 55014-1:2006	Electromagnetic compatibility-Requirements for household appliances,electric tools and Similar apparaturs - Part 1: Emission	Conform
	EN55014-2:1997 +A1:2001	Electromagnetic compatibility-Requirements for household appliances,electric tools and Similar apparaturs - Part 2: Immunity-Product family standard	Conform
	EN61000-6-1(2007)	Electromagnetic compatibility (EMC) -- Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments.	Conform
	EN61000-6-3(2007)	Electromagnetic compatibility (EMC) -- Part 6-3: Genericstandards - Emission standard for residential, commercial andlight-industrial environments.	Conform
FCC-VOC	FCC Part 15B	Electromagnetic compatibility (EMC), Conduction Emission & Radiation Emission.	Conform

This symbol means that you must dispose of electrical devices from the General household waste when it reaches the end of its useful life. Take your charger to your local waste collection point or recycling centre. This applies to all countries of the European Union, and to other European countries with a separate waste collection system.

WARRANTY AND SERVICE

We guarantee this product to be free of manufacturing and assembly defects for a period of one year from the time of purchase. The warranty only applies to material or operational defects, which are present at t he 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.

CE FC RoHS compliant

All specifications and figures are subject to change without notice.
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