

I-Peak 545 Dual

Mul ti-functional doubl e charger

Instruction Manual



Ref. Y-022



Warranty

We guarantee this product to be free of manufacturing or assembly defects for a period of one year from time of purchase. This does not affect your statutory rights.

This warranty is not valid for any damage or subsequent damage arising as a result of a misuse, modification or for damage or consequential damage arising as a result of failure to observe the procedures outlined in this manual. Operation of this product is carried out entirely at the risk of the operator. Please note that, whilst every effort is made to ensure the accuracy of instructions and material included with this product, mistakes can occur and neither YES nor its distributors will be held liable for any loss or damage arising from the use of this product or for any loss or damage arising from omissions or inaccuracies in the associated instructions or materials included with this product.

We reserve the right to modify the design of this product, contents and manuals without prior notification.

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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. Also read the chapter "Before you begin".

- Never leave the charger unsupervised when it is connected to a 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 an 11-18V power source .
- This unit and the battery to charge or discharge should be set up on a heat-resistant, nonflammable and nonconducting surface. Never place them on a car seat, carpet or similar surface.
- Never use this charger inside a car, van or any other motor vehicle.
- Keep all inflammable volatile materials well away from the chargers operating area.
- Never charge batteries fitted inside models, always remove them before charging.
- 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 and cause a fire.

NiCd/NiMH	Voltage level: 1.2V/cell Allowable fast charge current: 1C-2C (depends on the performance of 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 (Lead-acid) 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 short-circuits between the charge lead always connect the charge cable to the charger first, then connect the battery. Reverse the sequence when disconnecting.
- Do not attempt to charge or discharge the following types of battery.
 - A battery pack which consists of different types of cell (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 from NiCd, NiMH, Li-Poly or Gel cell

(Pb, 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.

Introduction

Thank you for purchasing the I-PEAK 545 Dual Balance Charger. This product is a rapid charger that has a high performance microprocessor and specialised operating software. The balance charge function helps to keep your LiPo battery pack in optimum condition and also control them safely. Please read this entire operating manual completely and attentively before using this product.

Specifications

Operating voltage range:	11.0 - 18.0V
Circuit power:	50W (x2)
Charge current range:	0.1 - 5.0A
Current drain for balancing Li-Po:	200mAh/cell
NiCd/NiMH battery cell count:	1-14 cells (x2)
Li-ion/Polymer cell count:	1-5 cells (x2)
Gel cell battery voltage:	2V - 12V (x2)
Weight:	580g (Net Weight)
Dimensions:	133 x 191 x 30mm

Special features

Cell balancer and charger in 1

The I-PEAK 545 Dual Balance Charger has an individual-cell-voltage balancer built in so it does not need a separate balancer when charging Lipo batteries.

Maximum safety

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

Capacity limit: The charging capacity is calculated by a 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.

Charge time limit: You can also set a maximum charge time to prevent any possible over charge.

Input power monitor: This function monitors the input voltage from your battery supply and will automatically stop the charge program if your battery falls below the required level.

High-and high-performance circuit

The I-PEAK 545 Dual Balance Charger has a maximum output power of 2x 50w. As a result it can charge up to 14 cells of Nicd/NiMh and 5 series of Li-poly batteries with maximum current of 5.0A per unit.

Controls



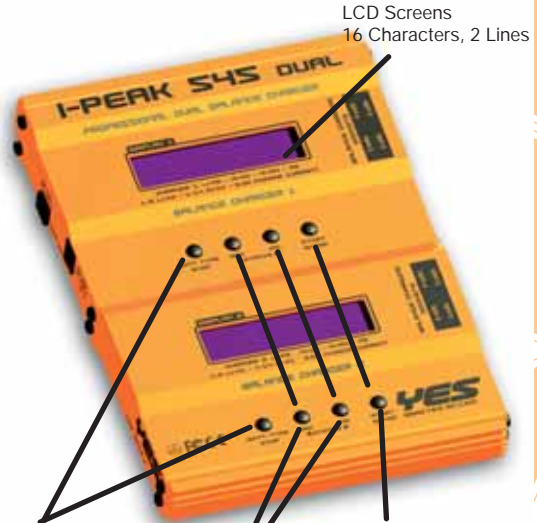
Temperature Sensor port

Input power cable
11-18V DC



Output charge lead
4mm banana plug

Balance Lead sockets
JST-XH ports



LCD Screens
16 Characters, 2 Lines

- Scroll through the Main Menu
- Stop any charge processes
- Alter values
- See the status of individual cells in balance charge mode
- Resume or Start charge processes
- Confirm an action

Important!

Please take note of the proper connection method when charging LiPo batteries (page 8). Incorrect use will damage the charger.

Insultate the croc clips when using the mains supply! When they touch each other, they will cause a short circuit.

Power supply

The I-PEAK 545 Dual Balance Charger comes with crocodile clips for direct DC battery connection and 11-18V socket for mains power adapter.

Main menu

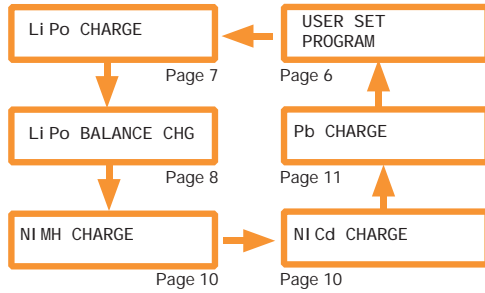
Please bear in mind the following points before commencing charging:

- Did you select the appropriate program suitable for the type of battery you will be charging?
- Did you set up adequate current for charging or discharging?
- Have you checked the type of battery you are charging, i.e. Li-Po, NiMh, NiCd, Gel?
- 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 safe? Make sure there are no intermittent contacts at any point in the circuit.

Selecting a program

By pressing the "Batt Type/Stop" button repeatedly the main menu will scroll through the different charge program options and the user settings option.

To select an option from the main menu press the "Start/Enter" button.

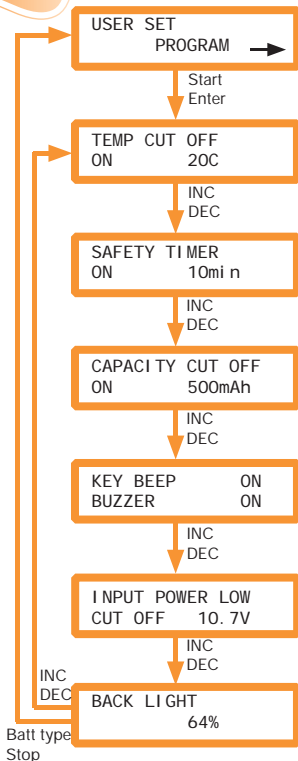


User set program option - main menu

As default this charger will be set to typical user settings when it is connected to a 12V battery for the first time. This settings menu can be accessed by selecting User Set Program from the main menu by pressing the "Start/Enter" button.

Scroll through the different options in the User Set Program menu by pressing the "INC" or "DEC" buttons. If you need to alter the settings for an option press the "Start/Enter" button to make it blink then change the value with "DEC" or "INC" button. The value will be stored by pressing "Start/Enter" button.

To exit from the User Set Program menu press the "Batt type/Stop" button.



Select USER SET PROGRAM from the main menu by pressing the "Start/Enter" button

Here you can set the maximum allowable temperature during the charge proces (temp probe sold separate).

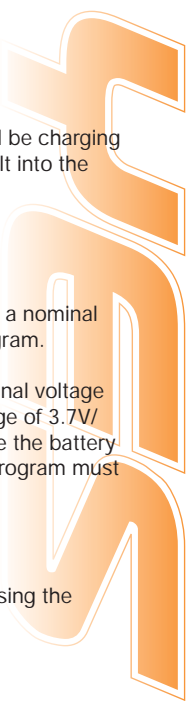
The safety timer automatically begins running when the charge process starts. This function is to prevent over charge of the battery if it proves to be faulty, or if the termination circuit does not detect a peak. The timer limit should not be set lower than the time needed to allow a full charge of the battery.

This function sets the maximum charge capacity that will be supplied to the battery during charge. If the delta peak voltage is not detected or the safety timer has not cut off the charge process this function automatically stops the charge process at the selected capacity value.

If the KEY BEEP function is switched on a beep will sound every time a button is pressed to confirm your action. If the BUZZER function is switched on a beep or melody will sound to alert you of changes in the charge process, including errors. These functions can be switched On or Off independently.

This function monitors the voltage of the input battery used to power this charger. If the voltage of the input drops below the value you have set the charge process will be terminated to protect the input battery.

Adjusts the brightness of the LCD screen on the charger.



Charge Programs

Please ensure you choose the correct charge process for the type of battery you will be charging as each type of battery uses a different charge technique. These techniques are built into the different programs set up on this charger.

Lithium polymer charge program

- The following program is only suitable for charging Lithium-polymer batteries with a nominal voltage of 3.7V/cell. Do not try to charge any other type of battery using this program.

The charge current varies according to the battery capacity, and is usually 1C. The final voltage of charge process is also very important; it should be 4.2V/cell for the nominal voltage of 3.7V/cell. If the final voltage exceeds 4.2V/cell by more than 1% during charge at any time the battery will explode. The charge current, nominal voltage and cell count set on the charge program must always be correct for the battery to be charged.

How to charge:

1. Select this charge process by choosing LiPo Charge from the main menu by pressing the "Start/Enter" button. The display should look similar to this:

```
Li Po CHARGE
2. 0A      11. 1V(3S)
```

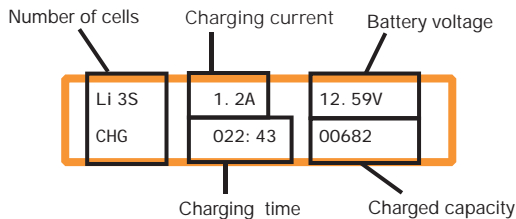
The value on the left of the second line denotes the charge current and the value on the right of the second line denotes the voltage and cell count of the battery pack to be charged.

2. If you need to alter the settings for the charge press the "Start/Enter" button to make it blink then change the value with "DEC" or "INC" button. The value will be stored by pressing "Start/Enter" button.
3. Once the settings are correct press hold the "Start/Enter" button to begin the charge process. The display will now show similar to the following:

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

Top Line: S = Number of cells selected by you in the previous screen.
 R = Number of cells detected by the charger.

4. If these values are different press the "Batt type/Stop" button to return to the previous screen to adjust the settings. If both of these values are the same begin charging by pressing the "Start/Enter" button.
5. Once you have started the charge process the following information will display:



- The charger will emit a sound to inform you when the charge process is complete. To stop the charge process early press the "Batt type/Stop" button.

Lithium polymer BALANCE charge program

- The following program is only suitable for charging and balancing Lithium-polymer batteries with a nominal voltage of 3.7V/cell. Do not try to charge any other type of battery using this program.

This program is for balancing the voltage of Lithium-polymer battery cells while charging. To charge a lithium-polymer battery using this program the battery needs to have a balance lead. This charge program is different to that of the Li-Po charge program. In this charge process the voltage of each individual cell is monitored and the charging current fed into each cell is controlled to balance the voltages.

How to charge:

- Select this charge process by choosing LiPo BALANCE CHG from the main menu by pressing the "Start/Enter" button. The display should look similar to this:

Li Po BALANCE CHG
2.0A 11.1V(3S)

The value on the left of the second line denotes the charge current and the value on the right of the second line denotes the voltage and cell count of the battery pack to be charged.

- If you need to alter the settings for the charge press the "Start/Enter" button to make it blink then change the value with "DEC" or "INC" button. The value will be stored by pressing "Start/Enter" button.

Important

Failure to connect correctly will damage this charger.

This balance charging function is designed for JST-XH balance leads only. Do not try and fit any other type of balance lead directly into this charger's balance ports. (If you are not sure what type of lead you have then check with your local model shop before connecting to the balance ports on this charger)



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



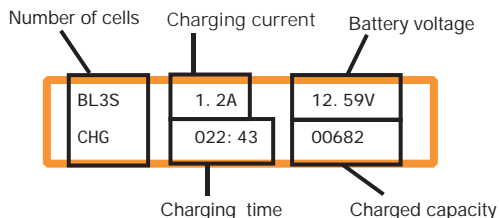
WARNING: If using crocodile clips, make sure they are unable to touch together!

- Once the settings are correct press hold the "Start/Enter" button to begin the charge process.
The display will now show similar to the following:



Top Line: S = Number of cells selected by you in the previous screen.
R = Number of cells detected by the charger.

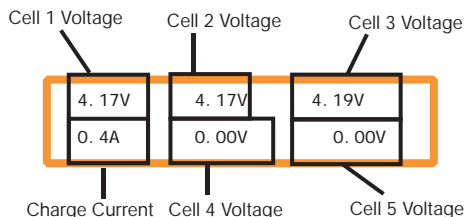
- If these values are different press the "Batt type/Stop" button to return to the previous screen to adjust the settings. If both of these values are the same begin charging by pressing the "Start/Enter" button.
- Once you have started the charge process the following information will display:



- The charger will emit a sound to inform you when the charge process is complete. To stop the charge process early press the "Batt type/Stop" button.

VIEWING THE VOLTAGE OF INDIVIDUAL CELLS

This charge process allows you to monitor the voltage of individual cells whilst charging. To use this function press the "INC" or "DEC" buttons during the charge process. The display will look similar to this:



Nimh charge program

- The following program is only suitable for charging NiMh (Nickel-Metal-Hydride) batteries associated with R/C model applications. Do not try to charge any other type of battery using this program.

This program simply charges the battery using the current you set, the charge current ranges from 0.1 to 5A.

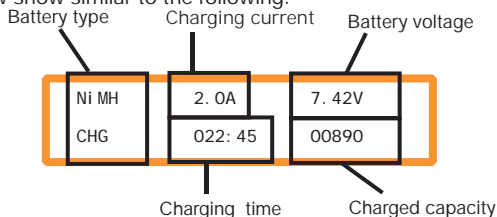
How to charge:

1. Select this charge process by choosing NiMh CHARGE from the main menu by pressing the "Start/Enter" button. The display should look similar to this:



Ni MH CHARGE
CURRENT 2.0V

2. If you need to alter the charge current press the "Start/Enter" button to make it blink then change the value with "DEC" or "INC" button. The value will be stored by pressing the "Start/Enter" button.
3. Once the settings are correct press hold the "Start/Enter" button to begin the charge process. The display will now show similar to the following:



4. The charger will emit a sound to inform you when the charge process is complete. To stop the charge process early press the "Batt type/Stop" button.

NiCd charge program

- The following program is only suitable for charging NiCd (Nickel-Cadmium) batteries associated with R/C model applications. Do not try to charge any other type of battery using this program.

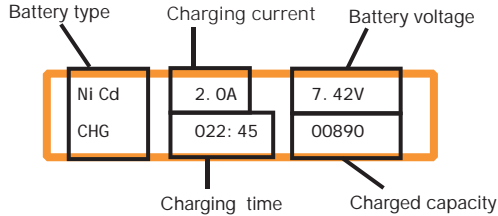
This program simply charges the battery using the current you set, the charge current ranges from 0.1 to 5A.

How to charge:

1. Select this charge process by choosing NiCd CHARGE from the main menu by pressing the "Start/Enter" button. The display should look similar to this:

Ni Cd CHARGE
CURRENT 2.0A

- If you need to alter the charge current press the "Start/Enter" button to make it blink then change the value with "DEC" or "INC" button. The value will be stored by pressing the "Start/Enter" button.
- Once the settings are correct press hold the "Start/Enter" button to begin the charge process. The display will now show similar to the following:



- The charger will emit a sound to inform you when the charge process is complete. To stop the charge process early press the "Batt type/Stop" button.

Gel cell (pb, Lead acid) charge program

- The following program is only suitable for charging Gel cell (Pb, Lead-Acid) batteries with nominal voltage from 2V-12V. Do not try to charge any other type of battery using this program.

Gel cell batteries are completely different to NiMh and NiCd batteries, they can only deliver relatively low current compared to their capacity and similar restrictions apply to the charge process. For this reason the charge current for gel cell batteries should be 1/10 of the capacity. Gel cell batteries must not be charged rapidly, always follow the instructions supplied by the manufacturer of the battery.

How to charge:

- Select this charge process by choosing Pb CHARGE from the main menu by pressing the "Start/Enter" button. The display should look similar to this:

Pb6s CHARGE
4.0A 12.0V

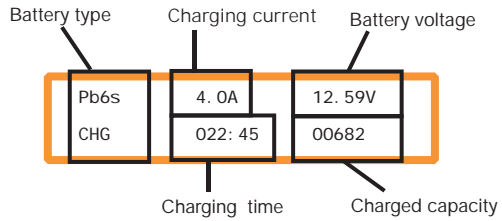
The charge current is displayed in the lower left.

The nominal voltage is displayed in the lower right.

The charge current ranges from 0.1 to 5A. The voltage should match the voltage of the battery to be charged.

- If you need to alter the charge current or the voltage press the "Start/Enter" button to make it blink then change the value with "DEC" or "INC" button. The value will be stored by pressing the "Start/Enter" button.

3. Once the settings are correct press hold the "Start/Enter" button to begin the charge process. The display will now show similar to the following:



4. The charger will emit a sound to inform you when the charge process is complete. To stop the charge process early press the "Batt type/Stop" button.



Warnings and error messages

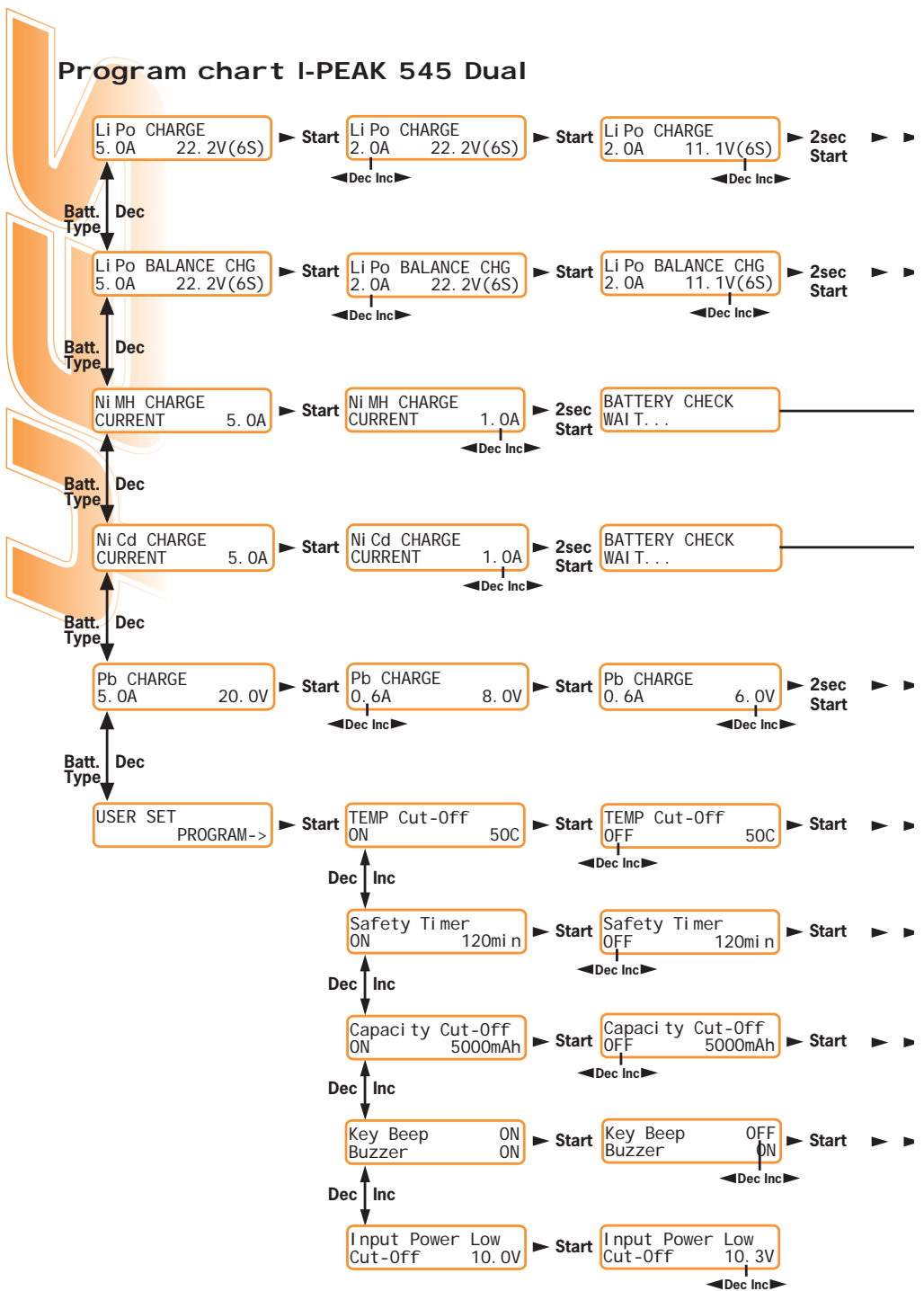
This charger incorporates a variety of functions for protection, these monitor the system to verify processes and the state of the electronics.

In case of an error the screen will display the cause of error and emit an audible sound.

Error messages

REVERSED POLARITY	The output is connected to a battery with incorrect polarity.
CONNECTION BREAK	This will be displayed if the unit detects a break in the circuit between the battery and output or if the battery is voluntarily disconnected during the charge process.
SHORT ERR	There was a short circuit at OUTPUT.
IN VOLTAGE ERR	The voltage of the input power supply is below the minimum of 12V
VOL SELECT ERR	The voltage of the lithium battery pack to be charged has been selected incorrectly.
BREAKDOWN	The charger has malfunctioned for some reason. Seek professional advice.
BATTERY CHECK LOW VOLTAGE	The processor detects that the battery has dropped below the minimum voltage during the charge process.
BATTERY CHECK OVER VOLTAGE	The processor detects that the battery has risen above the maximum voltage during the charge process.
BATTERY VOL ERR	The voltage of one of the cells in a Li-poly battery pack has risen above the maximum voltage.

Program chart I-PEAK 545 Dual



▶ BATTERY CHECK WAIT... S: 3SER R: 3SER CONFIRM(ENTER) ▶ Start LI 3S 2.2A 12.09V CHG 000:31 00016

▶ BATTERY CHECK WAIT... S: 3SER R: 3SER CONFIRM(ENTER) ▶ Start BL3S 2.2A 12.09V CHG 000:31 00016 ▶ 4.09 4.10V 4.10V 0.00 0.00V 0.00V

— Ni MH 0.2A 9.03V CHG 000:31 00016

— Ni Cd 4.5A 11.39V CHG 000:31 00016

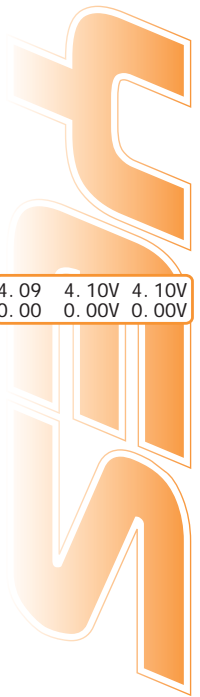
▶ BATTERY CHECK WAIT... Pb-4 1.3A 9.80V DSC 000:31 00004

▶ TEMP Cut-Off ON 25C
 ◀Dec Inc▶

▶ Safety Timer ON 110min
 ◀Dec Inc▶

▶ Capacity Cut-Off ON 5000mAh
 ◀Dec Inc▶

▶ Key Beep OFF Buzzer OFF
 ◀Dec Inc▶





YES[®] - UNIVERSAL POWER ENTERPRISES LTD

2-6 Granville Road
Albion Plaza, 11/F, room 1105
Tsimshatsui, Kowloon
HONG KONG

Tel: (852) 2721 0127
Fax: (852) 2721 3711
sales@upe-hk.com
WWW.YES-RC.COM