

ULTRAPOWER

UP7

Multi Charger
Built-in Power Supply

INSTRUCTION MANUAL



2x200W
2x10A

www.ultrapower.hk

INTRODUCTION

Thank you for your purchasing of Ultra Power's UP7 Dual Channel AC /DC Smart Balance Charger. This product is a rapid charger with a high performance microprocessor and specialized operating software. Please read this entire instruction manual completely and attentively before using this product, as it covers a wide range of information on operation and safety.

For more details, please visit: www.ultrapower.hk



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WARNINGS AND SAFETY NOTES

PLEASE READ ALL INSTRUCTIONS CAREFULLY BEFORE USING THE PRODUCT!

The following warnings and safety notes are for your protection, please refer to all aspects of this instruction manual to ensure proper operation. **FAILURE TO FOLLOW THESE SAFETY PRECAUTIONS MAY CAUSE FIRE, PROPERTY DAMAGE AND/OR PERSONAL INJURY!**

- **WARNING** - to reduce the risk of fire, electrical shock or injury to persons or property:
For indoor use.
Disconnect the supply before making or breaking the connections to the battery.
Provide adequate ventilation during charging.

- **WARNING:** Against recharging of non-rechargeable batteries.
- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.
Children shall not play with the appliance.
Cleaning and user maintenance shall not be made by children without supervision



For indoor use only



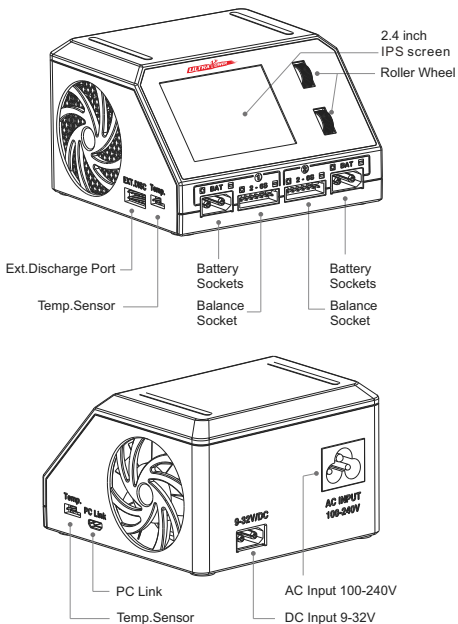
Read operator's manual

-The charger intend to charge the following battery types:
LiPo, LiHV, Lilon, LiFe, NiMh, NiCd, Pb battery only.
Number of batteries: Dual Pack
MAX Battery rated capacity: 50000mAh

WARNINGS AND SAFETY NOTES

- NEVER leave the battery or charger unattended while in use. In case of any malfunction, immediately discontinue use and refer to this manual for troubleshooting ideas.
- ALWAYS keep your charger away from dust, dirt, moisture, rain, and high temperature. Avoid leaving your charger or battery in direct sunlight or exposing them to intense vibration or shock.
- ALWAYS make certain to observe proper input and output polarity. The UP7 operates safely with input voltage between AC 100-240V DC 9-32V.
- ALWAYS place the charger on a heat-resistant, non-flammable surface when in use. Keep flammable materials away from charger when in use.
- NEVER use the charger while placed on automobile seats, carpeting, or other flammable materials.
- ALWAYS make sure that the vent holes on the bottom of the charger are unobstructed and the cooling fan in operation.
- ALWAYS fully read all warnings and instructions on both charger and battery prior to use. Be aware of battery safety warnings. Make sure that all charging parameters are correctly setup prior to charging any battery. **INCORRECT SETTINGS MAY CAUSE FIRE, PROPERTY DAMAGE AND/OR PERSONAL INJURY!**
- ALWAYS press the roller wheel to terminate charge completely when battery is fully charged, and return to the standby screen on the LCD display.

PRODUCT PARAMETERS AND CHARACTERISTICS



- **Channel 1 Roller Wheel**
Short press: Enter Channel 1 task settings/confirm current settings
Long press: Enter System setting/terminate current task
Scroll up and down: Select the corresponding menu
- **Channel 2 Roller Wheel**
Short press: Enter Channel 2 task settings/confirm current settings
Scroll up and down: Select the corresponding menu

PRODUCT PARAMETERS AND CHARACTERISTICS

Specification:

Input Voltage: AC 100-240V, DC 9.0-32.0V

Output Voltage: 0.1-30V

Charge Current: 0.1-10.0A x 2

Discharge Current: CH1: 0.1-2.0A/0.1-15.0A(External discharge mode)

CH2: 0.1-2.0A

Charge Power: DC Input: 2x200W

AC Input: Max.200W (CH1+CH2=200W)

Support power distribution

Discharge Power: CH1: 6W/200W(External discharge mode)

CH2: 6W

Support Battery Types: LiPo/LiHV/LiFe/Lilon(1-6S)

NiMH/NiCd(1-16S)

Lead Acid 2V-24V(1-12S)

Balance Current: Max.1000mA/cell

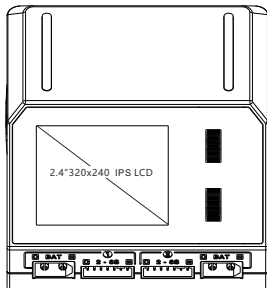
LCD Screen Type: 2.4" 320×240 IPS LCD

Use Temperature: 0-40°C

Storage Temperature: -20-60°C

Weight: 450g

Dimensions: 100x99x64mm



STANDARD BATTERY PARAMETERS

	NiCd/NiMH	Pb	LiFe	Lilon	LiPo	LiHV
Rated Voltage	1.20V	2.00V	3.20V	3.60V	3.70V	3.80V
Full Charge Voltage	1.40V	2.40V	3.60V	4.10V	4.20V	4.35V
Storage Voltage	Not supported	Not supported	3.30V	3.70V	3.80V	3.90V
Discharge Voltage	0.5-1.10V	1.80-2.00V	2.60-2.90V	2.90-3.20V	3.00-3.30V	3.10-3.40V
Pre-charge Voltage	/	2.00V	2.90V	3.10V	3.20V	3.20V
Balance Charge	Not supported	Not supported	supported	supported	supported	supported
Unbalanced Charge	supported	supported	supported	supported	supported	supported
Support Cells	1-16S	1-12S	1-6S	1-6S	1-6S	1-6S
Max Charge Current	10.0A	10.0A	10.0A	10.0A	10.0A	10.0A

Be **EXTREMELY** careful to choose the correct voltage settings based on the cells and chemistry of the battery being charged. Failure to do so may result in battery damage, explosion, or fire!

CONFIRMING CHARGE CURRENT

It is critically important to understand the maximum charging current for the battery pack to be charged. Excessive charge current can significantly reduce the life of a battery, or in severe cases a fire or explosion.

The charge and discharge current of a lithium battery is determined by its “C” rating. Most batteries indicate the C rating of the pack on the main label. Multiply the C rating of the battery pack by the capacity to determine the safe and proper charge current. For example, a 5000mAh battery with a 1C rating means that the maximum charge rate should be 5000 (capacity in mAh) X 1 (C rating) = 5,000mA. Therefore, the maximum charge rate for a 5000mAh 1C lithium battery should be 5A (5,000mA).

If it is not possible to determine the C rating, please assume that the pack is 1C and use that value to calculate a safe charge rate. Keep in mind that batteries vary, and therefore charging times will vary.

TASK SETTINGS

Power on the charger and connect a battery, the charger will enter into the standby page, then short press the roller wheel to activate the program setting menu. The items in the menu are as follows:

Battery	Select battery chemistry
Cells	Select number of battery pack cells
Mode	Work mode: Charge / Discharge / Storage / Ext.DISC
Current	Select desired charge current (0.1-10.0A) , discharge current (0.1-2.0A)/Ext.discharge(0.1-15.0A)
TVC	Terminal voltage control
Start	Begin process
Back	Return to previous screen or function

The default mode of the UP7 is series charging, therefore you must connect the output wires to the battery pack that you wish to charge. For lithium packs, it is highly recommended to ALWAYS connect the balance leads and utilize balance charging. Although the UP7 will charge without the balance function, a warning tone will sound to alert you that the balance connector is not in use.

• Storage

When selecting the storage function, the UP7 will automatically begin charging if the battery pack voltage is below the ideal storage voltage. Likewise, the UP7 will automatically enter the discharge mode if the battery pack voltage is higher than the ideal storage voltage.

- **Restoring an excessively discharged lithium battery pack**

If the UP7 detects internal cell voltages that are too low to safely begin the charging process, it will automatically default to a 0.5A charge rate until the voltage has risen to a level that allows it to safely accept a fast charge rate.

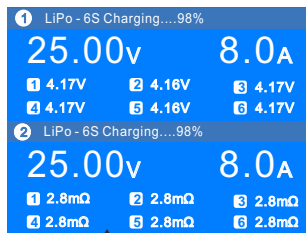
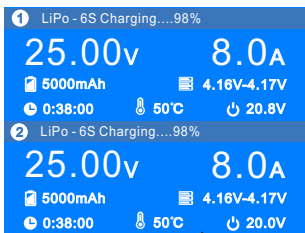
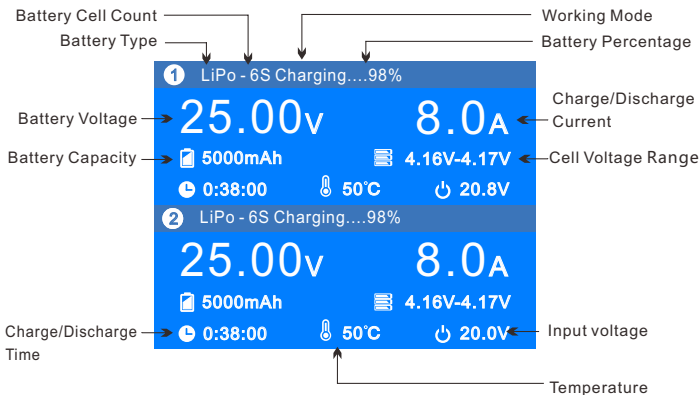
- **Measuring Internal Resistance**

The UP7 features the ability to monitor the internal resistance of each cell in a lithium battery pack. This feature is only operational when in the balance charging mode. Internal resistance can be useful to determine the overall “health” and performance of a lithium battery, the closer the IR values are between the cells in the battery pack, the better that the battery will deliver its energy.

NOTE: The process of charging a lithium battery is dynamic, therefore you will notice fluctuations in both charge current and IR during the charging process.

Due to the difference measurement methods of the battery resistance, it is impossible to achieve the absolute data similar to the professional resistance measurement instruments. Therefore, the internal resistance value is only suitable for reference with horizontal comparison, such as judging the consistency of the performance with the battery or the performance comparison between different batteries. The charging current has some influence on the accuracy of the internal resistance measurement. A large-capacity and low internal resistance battery requires a large charging current to accurately measure the internal resistance.

WORKING PARAMETERS DISPLAY

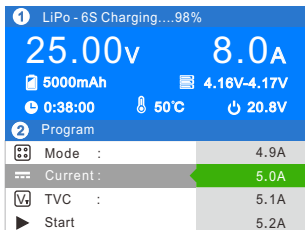


Scroll the roller wheel

Rotating the roller wheel up or down during charging will switch the information displayed on the lower half of the LCD screen between cell voltage, cell IR and working parameters. Cell voltage and IR can only be displayed during the balance charging process.

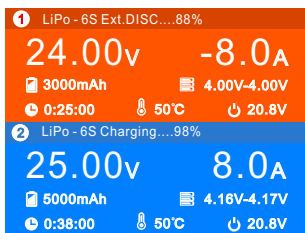
WORKING PARAMETERS DISPLAY

2.4" IPS Display, clearly show two channels working status in real-time.

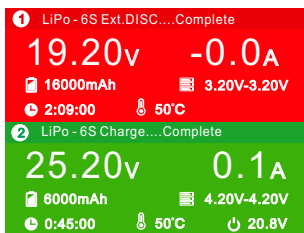


Two independent output channels, independent setting and working, do not affect each other. When you charge on channel 1, you can charge or discharge on channel 2, all the setting can be adjusted by the user requirement, the main charging data of the two channels can be shown on the display at the same time, no need to switch.

External discharging on channel 1
Charging on channel 2



External discharging completion on channel 1
Charging completion on channel 2



SYSTEM SETTINGS MENU

Long press the CH1 roller wheel to activate the system setting menu.

Language	English, French, German, Japanese, Simplified Chinese, Traditional Chinese
MAX Input Power	Adjustable from 50W-450W (if use DC or Battery input source)
MIN Input Voltage	Adjustable from 9V-24V (if use DC or Battery input source)
Distribution	Support power distribution (default 50%-50%)
Capacity Cut	Terminates charge process when reach this value Maximum capacity can be adjusted by user
Time Cut	Terminates charge process when exceeding time set by user
Temperature Cut	Battery temperature protection (external temperature cable is required)
Backlight	Three options-High, Medium, Low
Volume	Four options- High, Medium, Low and Off
About	Software version and information
Factory Reset	Returns all settings to factory default values
Back	Return to last program or menu

Max Input Power: When the input power can not reach the charger's maximum working power requirement(450W), to ensure stable and safe operation of the UP7, this value should be adjusted according to the input power source used for the charger. For example, when using a 20V/10A DC power supply, this value should be set to 200W ($P=U \times I$).The recommended DC power supply is 500W/20V or higher.

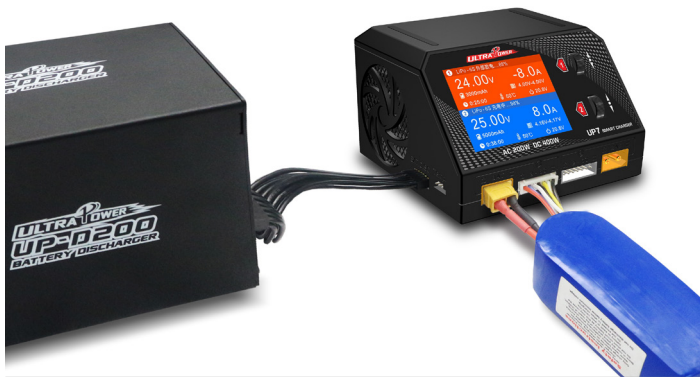
SYSTEM SETTINGS MENU

Min Input Voltage: When the user take a battery as a input power source, this setting can protect the battery not over-discharged. When the charger detect the input voltage lower than the setting value, then the charger will stop the current task and remind the user with showing "DC IN TOO LOW". For example, when using a 6S LiPo as a power source, we can set this value at 21.0V to protect the battery not over-discharged.

Volume: When setting the buzzer volume to OFF, the operation sound will be shielded, but the error sound will not be shielded.

Power Distribution: The total AC input power is 200W, the default power for each channel is 100W. The user can adjust the power for CH1 and CH2, the total power $CH1+CH2=200W$.

EXTERNAL DISCHARGE FUNCTION



UP7 increases the function of external discharge to meet the users' demand for high-power discharge of batteries, UP7 connect a external discharger UP-D200 can achieve 200W discharge power, greatly improving the battery discharge speed and saving time. Meanwhile, compared with the traditional discharger, the UP7 has a balancing discharge function, which can effectively avoid single cell over discharge, which will be more safe and reliable.

THE CHARGING CONNECTION



Dual channel output, single channel current up to 10A

Independent dual channel output, without interference by each other, support to charge 2pcs different type batteries simultaneously, including LiPo, LiHV, Lilon, LiFe, NiMH, NiCd, Lead Acid.

WARNINGS AND ERROR MESSAGES

- **Error Message for Abnormal Battery Connection**

Unplug and re-connect all plugs to ensure proper connection and polarity. Check to make sure that all connectors are free of dirt, grease, or oxidation.

- **Error Message for Unstable Input Voltage**

Make certain that the battery socket is free from dirt or oxidation. Make sure that the Max Input Voltage is set correctly in the System menu

CONFORMITY DECLARATION

The UP10 satisfy all relevant and mandatory CE directives and FCC Part 15 Subpart B: 2017.

For EC directive:

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

Testing standards	Results
EN 60335-1:2012+A11:2014+A13:2017+A1:2019+A14:2019+A2:2019,	YES
EN60335-2-29: 2004+A2: 2010+A11:2018, EN 62233:2008	YES



This symbol must appear on any electrical and electronic equipment placed on the EU market. This symbol indicates that this device should not be disposed of as unsorted municipal waste at the end of its service life.

Owners of WEEE (Waste from Electrical and Electronic Equipment) shall dispose of it separately from unsorted municipal waste. Spent batteries and accumulators, which are not enclosed by the WEEE, as well as lamps that can be removed from the WEEE in a non-destructive manner, must be removed by end users from the WEEE in a non-destructive manner before it is handed over to a collection point.

Distributors of electrical and electronic equipment are legally obliged to provide free take-back of waste. Conrad provides the following return options **free of charge** (more details on our website):

- in our Conrad offices
- at the Conrad collection points
- at the collection points of public waste management authorities or the collection points set up by manufacturers or distributors within the meaning of the ElektroG

End users are responsible for deleting personal data from the WEEE to be disposed of.

It should be noted that different obligations about the return or recycling of WEEE may apply in countries outside of Germany.

Liability exclusion

This charger is designed and approved exclusively for use with the types of battery stated in this Instruction Manual. Ultra Power accepts no liability 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 Ultra Power products which were immediately and directly involved in the event in which the damage occurred.

ULTRA POWER



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