Q6AC

Manual V1.0

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ToolkitRC

www.toolkitrc.com

ToolkitRC Technology (Shenzhen) Co., Ltd

Introduction

Thank you for purchasing the Q6AC balance charger, please read this manual carefully before use.

Key Points

Tips   Important   Information

Further information

To ensure you have the best experience with this product please scan the QR code below to stay up to date with news, information and firmware updates for your charger. Or visit www.toolkitrc.com.

Applications

Video teaching

Product purchase

WeChat QR Code

⚠️ Safety

1. Q6AC allows an input voltage of AC 100V-240V or DC 7-30V. To ensure that the power supply voltage is consistent, pay attention to the positive and negative polarity of the power supply before use.

2. Do not use this product in hot or humid environments. Keep away from flammable liquids and gases.

3. Never leave charging batteries unattended.

4. When not in use, please turn off/unplug the device.

5. When using the charging function, please set a current that matches the battery performance envelope. Do not set an excessive current for charging to avoid damage to the battery. Check the guidelines of your battery's manufacturer for correct charging instructions.
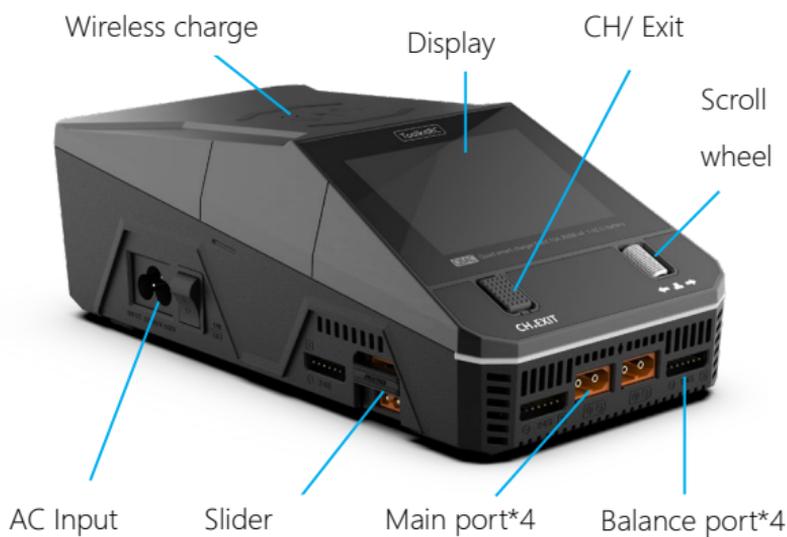
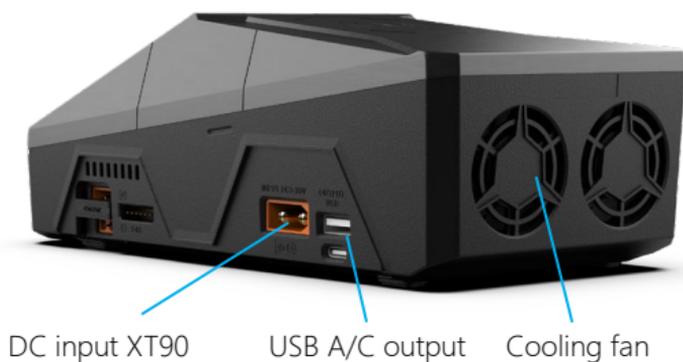# Contents

Product description

The Q6AC is a four-channel balance charger with IPS display and wheel menu navigation, which is easy and convenient to operate.

- Charge, discharge and balance management of LiPo, LiHV, LiFe, Lion LTO 1-65S, NiMh 1-16S, PB 1-10S batteries.
- AC and DC power supply modes: AC 100-240V max 400W; DC 7-30V max 1200W.
- Charging power: MAX 15A @MAX250W*4.
- Discharging power MAX 3A@12W*4 normal mode

    MAX 15A@250W*4 recycle mode

- Charging accuracy <0.005V.
- Balancing current 800mA.
- Built-in 15W wireless charging.
- Built-in 65W C/30W A fast charger.
- Lithium battery cut-off voltage can be set (TVC).
- Automatically allocate input power.
- Multi-language system, can set any language.
- Can record 32 commonly used batteries.
- Can record 3 groups of commonly used power sources, convenient and fast translation.

Q6AC Layout

Wireless charge

Display

CH/ Exit

Scroll

wheel

AC Input

Slider

Main port*4

Balance port*4

Front

DC input XT90

USB A/C output

Cooling fan

Back

Quick start

1，Connect the device to an AC100-240V or DC7-30V power source.

2，The screen shows the boot logo for 2 seconds.

3，An audible tone will accompany the boot sequence.

4，After booting up, the screen enters the main interface as shown below:
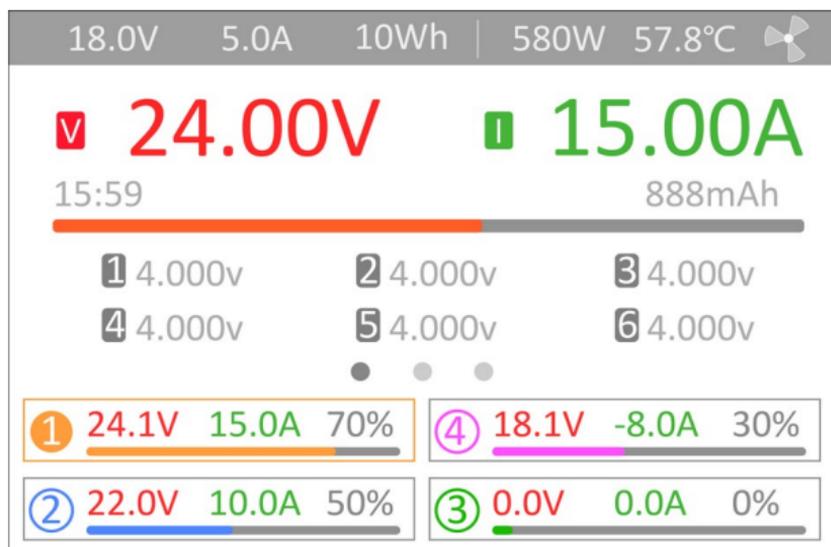
5，short press [CH/Exit], the cursor will switch among the four channels in sequence.

6，Scroll [Scroll Wheel] to switch to display the voltage and internal resistance of the corresponding channel.

7，Short press [Scroll Wheel] to select the charging task when the channel is idle. You can adjust and end the charge when the channel is in progress.

8，Long press [Scroll Wheel] to enter the system setting interface when all four channels are free.

9，Press [CH/Exit] to end the modification or return to

the previous interface.

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1. Short press [Scroll Wheel] once to confirm the function.

2. Long press [Scroll Wheel] for 2 seconds, it is the delete key function.

3. If any key is successfully operated, there will be a didi sound.
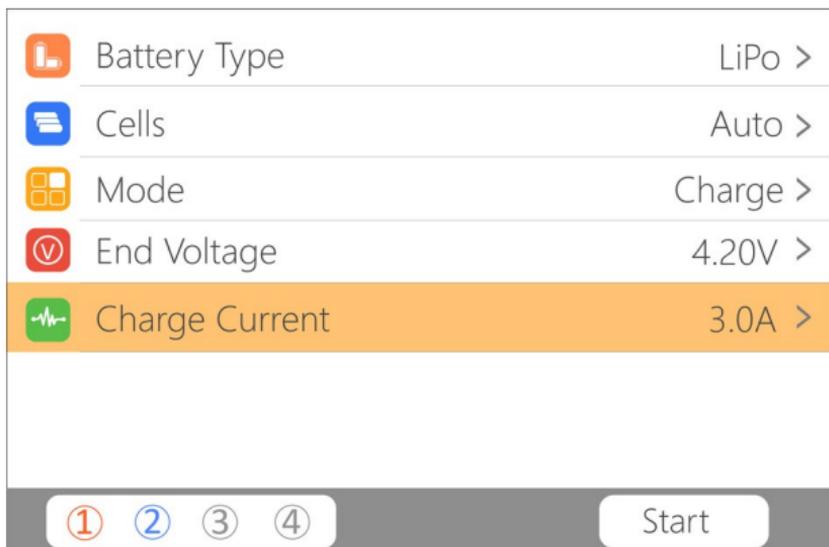
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Charging settings

In the main interface, select and short press [Scroll Wheel] to enter the charging function. If the battery selection is turned on in the main setting interface, 5 battery records can be saved, and the following interface is displayed. Otherwise, it will default to the first battery record, skip this step.

Battery selection			
LiPoAT	2.0A	Charge	>
NiMh6S	1.0A	Charge	>
New			>
New			>
New			>

1, Battery type

Scroll [Scroll Wheel], move the cursor, select the battery that has been set, or create a new battery, short press [Scroll Wheel] to enter the battery setting interface of this group, the display is as follows:

	Battery Type	LiPo >
	Cells	Auto >
	Mode	Charge >
	End Voltage	4.20V >
	Charge Current	3.0A >

① ② ③ ④   Start

Move the cursor to "Battery Type" and short press [Scroll Wheel] to modify the battery type, the display is as follows:

Battery Type

LiPo

LiHv

LiFe

LTO
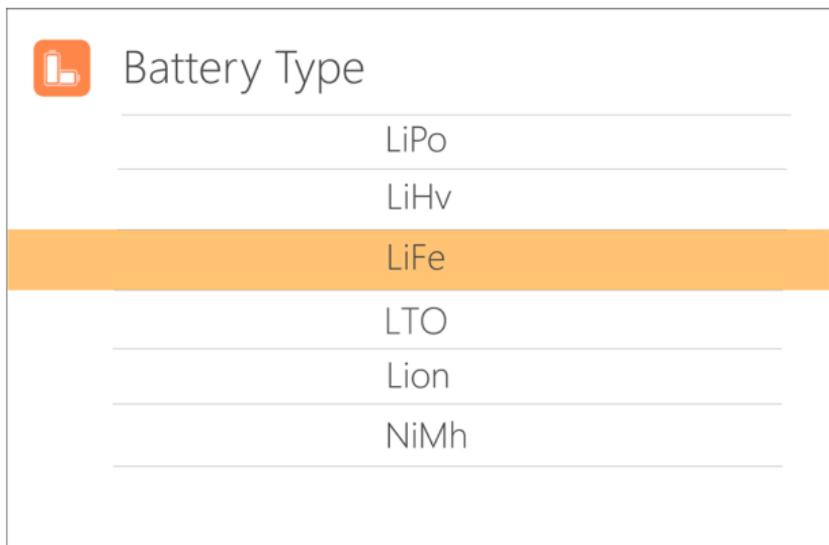
Lion

NiMh

The charger supports Lipo, LiHV, LiFe, Lion, NiMh, PB chemistry batteries. After choosing the correct battery type, Short press [OK] and [CH/Exit] to take effect, and return to the previous interface.

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⚠ Important

　1. Choosing the wrong battery type to charge may damage the battery, the charger, and cause fire and other dangers. Please choose carefully.

2. Please do not use this product to charge the battery that is not marked with the battery type. Always follow the charging guidelines of your battery manufacturer

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Nomenclature

1, **Lipo**: Often called a lithium polymer battery, a battery with a nominal voltage of 3.70V and 4.20V when fully charged.

2, **LiHV**: Often referred to as a high-voltage lithium battery, a battery with a nominal voltage of 3.85V and 4.35V when fully charged.

3, **LiFe**: Often referred to as a lithium iron battery, a battery with a nominal voltage of 3.30V and 3.60V when fully charged.

4, **Lion**: Often referred to as a lithium-ion battery, a battery with a nominal voltage of 3.60V and 4.10V when fully charged.

5, **LTO**: often referred to as a lithium-ion battery with a nominal voltage of 2.40V and a fully charged battery of 2.70V.

6, **NiMh**: often referred to as nickel-hydrogen battery, nominal voltage 1.20V.

7, **PB**： often called lead-acid battery, nominal voltage 2.00V.

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2，Number of cells

Move the cursor to the position of "Cells", short press [Scroll Wheel] to modify the number of battery cells. The display is as follows:

Cells
Auto
1 S
2 S
3 S
4 S
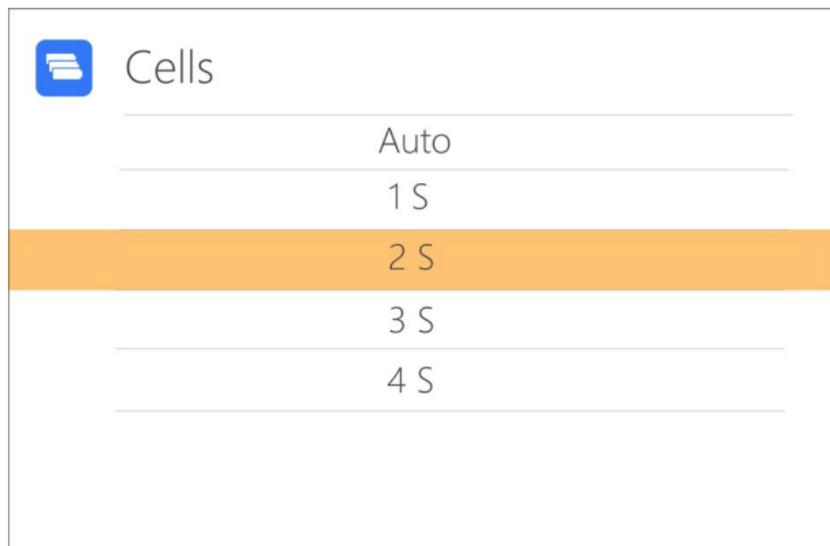
Scroll [Scroll Wheel] to adjust the value. When set to "Auto", the charger will automatically identify the number of cells connected to the battery according to the battery voltage connected to the output port. Short press [Scroll Wheel] and [CH/Exit] to take effect and return to the previous interface.

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Tips: 1, Over discharge or overcharge of the connected battery may cause battery cell identification errors.
2, If the cell number is set incorrectly, it may be insufficient to charge, or overcharge may damage the battery, please set it carefully. 3, After Lixx batteries are connected to the balance port, the number of battery strings can be more accurately identified.

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3，Mode

Move the cursor to "Mode" and short press [Scroll Wheel] to modify the work mode, as shown in the figure below.

Mode
Charge
StoCHG
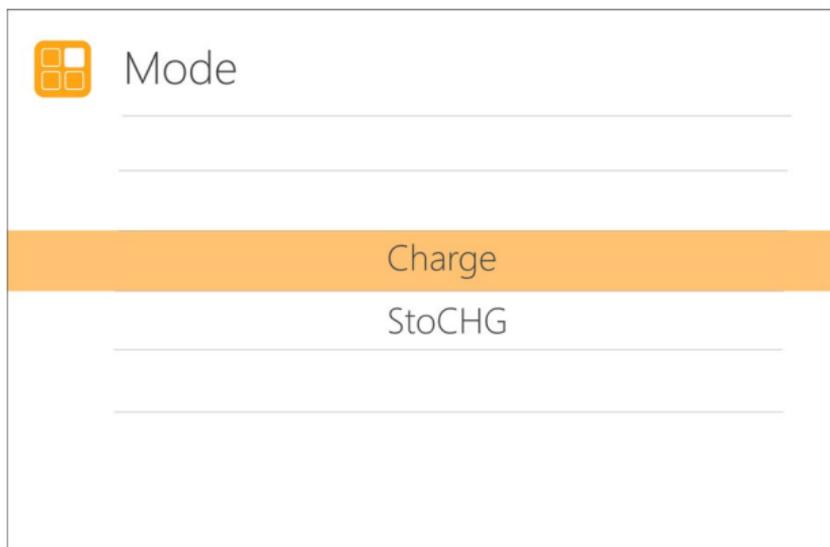
Lipo, LiHV, LiFe, and Lion batteries can be charged and stored. NiMh, battery and PB battery can choose to charge. Short press [Scroll Wheel] and [CH/Exit] to take effect, and return to the previous interface.

4，End voltage (TVC)

Move the cursor to "End Voltage" and short press [Scroll Wheel] to modify the end voltage of the single-cell battery. When the working mode is charging, it is the charging cut-off voltage, and the range is plus or minus 50mV of the full voltage. When the working mode is discharge, it is the discharge cut-off voltage. Scroll [Scroll Wheel] to adjust the value, step 0.01V.

Ⓥ	End Voltage
	3.58V
	3.59V
	3.60V
	3.61V
	3.62V

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1, Only LiPo, LiHV, LiFe batteries can set the cut-off voltage.

2, Do not modify the cut-off voltage when you are not familiar with the battery characteristics.

3, The charging cut-off voltage can be set to a range of plus or minus 50mV of full voltage.

4, **TVC:** English abbreviation for terminal voltage control.

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5，Charging current

Move the cursor to the Charging Current" position and short press [Scroll Wheel] to modify the current. Scroll [Scroll Wheel] to adjust the value, step by 0.1A. Scroll [Scroll Wheel] quickly to increase or decrease quickly. The charger supports up to 15A.

⚡ Charge Current	
1.8 A	
1.9 A	
2.0 A	
2.1 A	
2.2 A	

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💡 Tips:

6.　Please set the charging rate of 1-2C according to the battery capacity. For example, if the battery capacity is 2000mAh, please set the charging current to 2.0-4.0A. Check the guidelines of your battery's manufacturer for correct charging instructions.

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6，NiMh setting (PeakV)

When the battery type is NiMh, the negative pressure value when the battery is fully charged can be set, and the setting range is 3mV-15mV, as shown below:

ⓥ Nixx Peak
5 mV
6 mV
7 mV
8 mV
9 mV

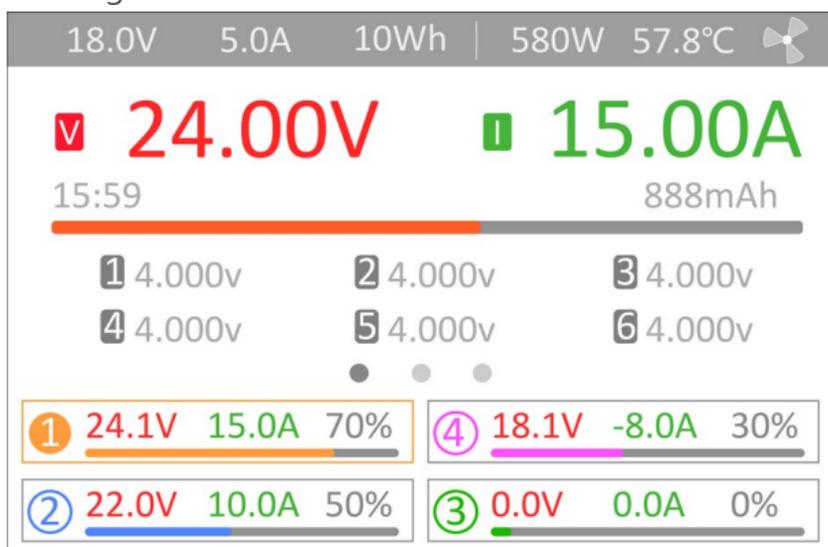================================

Tips

1, Only NiMh battery can set the battery negative pressure value.

2, Vocabulary explanation:

PeakV: When the NiMH battery is fully charged, the peak voltage of each cell drops.

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Charging

When charging starts, the charger enters the working interface as shown below:

Scroll [Scroll Wheel] on this interface to switch the display of the internal resistance voltage value of the corresponding channel. Short press [Scroll Wheel] to dynamically set the working current or stop working. As shown below:

Adjustment	
〜 Current	2.0A >
✋ Stop	
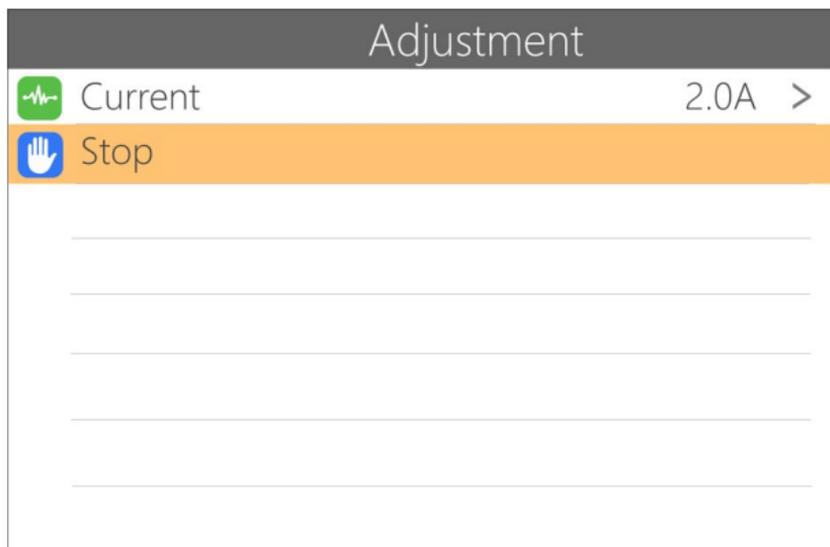
To end the charging and discharging work, short press [Scroll Wheel], move the cursor to [Stop], short press [Scroll Wheel], stop working and return to the main interface.

When charging is complete or charging error occurs. A prompt box will pop up with a prompt sound.

Display content description:

18.0V: Input power supply voltage.

5.0A: Input power current.

10Wh: The accumulated power consumption of the input power.

57.8℃: The internal temperature of the charger.

24.00V: The main port voltage of the first channel.

15.00A: The main port current of the first channel.

15:59: Working time of the first channel.

888mAh: The cumulative capacity of the first channel.
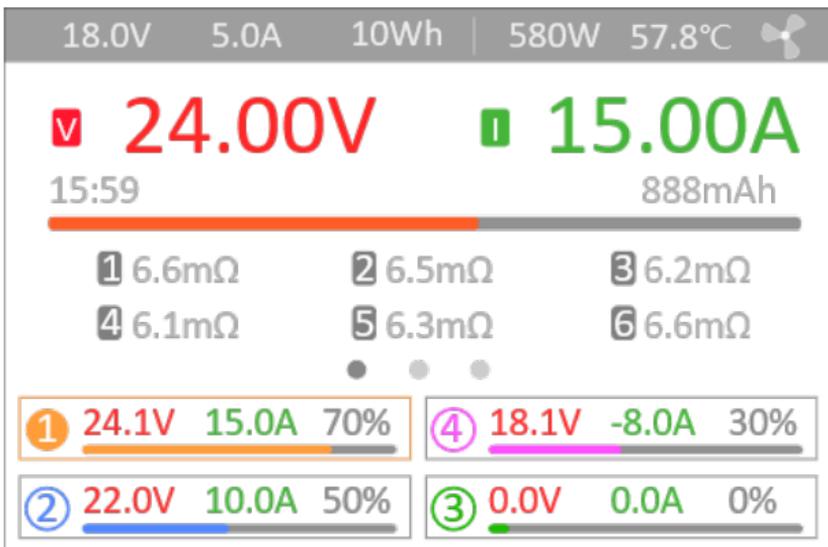
1 **4.000V**: The first battery voltage

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4 **4.000V:** The fourth battery voltage (this battery is under balance management)

-.--V: No battery connected.

Use Scroll [Scroll Wheel] to switch to the second column of the second channel, which is the internal resistance information. As shown below:

1 **1mΩ:** Internal resistance of the first battery

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🔅 Tips:

1. When charging, please ensure someone is supervising the charge throughout the process to deal with abnormalities safely.

2. When charging a lithium battery, only connecting to the main port will not perform balance management. Please pay attention to the balance of the battery. After connecting to the balance port, it will automatically begin balance management.

3. After charging is completed, unplug the battery and insert a new battery, it will automatically continue to charge and discharge according to the set mode. When set to a fixed number of cells, batteries with the same number of cells need to be connected. When setting to automatically detect the battery string number, please pay attention to whether the detected cell number matches the actual number.

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System settings

Long press [Scroll Wheel] on the main interface you will enter the system setting interface only when all channels are not in use, as shown in the figure below:

Settings	
Input settings	>
Security settings	>
Synchronous mode	OFF
Continuous work	OFF
Work completed	END
Balance start voltage	Always
Battery selection	ON
Backlight	10

Input settings: Input power related settings, short press to expand the settings. As shown below.

Settings	
Input settings	∨
Power selection	①
Power type	AC
Max power	300W
Max current	15.0A
Voltage range	7.0 - 24.0V
Security settings	>
Synchronous mode	OFF

Power selection: When the AC power supply is

connected, the power selection will be fixed to PI, power, current, and voltage are also fixed values. P1 and P2 can be selected when the input is DC. Users can set power, current, voltage by themselves.

Max power: the maximum power absorbed from the input port when charging.

Max current: the maximum current drawn from the input port during charging.

Lowest voltage: is the lowest allowable input voltage.

Charging safety settings: Short press to expand the settings. As shown below.

Settings	
🔋 Input settings	>
🛡 Security settings	⌄
Safe inter. temp.	70'C
Safe exter. temp.	50'C
Safe time	200Min
Safe capacity	20Ah
🔀 Synchronous mode	OFF
🔁 Continuous work	OFF

Safe Inter. Temp.: above this temperature value, the device will stop the main port output.

Safe time: the maximum time of continuous charging, it will stop charging if it exceeds this.

Safe capacity: the maximum capacity for continuous charging, and it will stop working if exceeded.

Continuous work: after charging, whether to continue

charging after replacing the battery. Ensure the next connected battery requires the same settings as the previous battery that was being charged

Settings	
📖 Balance start voltage	Always
🔋 Battery selection	ON
☀️ Backlight	10
🔊 Buzzer	6
🌐 Language	English
AA Theme style	Light
🏠 Default	NO
SN ID:XXXXXXXX - V1.00	

Work completed: whether to stop or trickle charge after the charge is over.

Battery selection: whether to skip the battery selection interface when selecting charging.

Backlight: the backlight brightness level of the display can be set from 1 to 10 level.

Buzzer: the tone of the buzzer, which can be set to off.

Language: system display language. You can choose English, Chinese, etc.

Theme style: two styles of Light and Dark can be selected.

Default: restore all settings to factory values.

ID: the unique ID of the device factory settings.

Other functions

1. Firmware upgrade

After connecting the Q6AC to the computer with the USB data cable in the box, the computer will recognize a USB drive named Toolkit. Download the upgrade file app.upga on the official website. To update copy and past the new file and overwrite the files in the USB to upgrade the firmware.

2. Automatically continue charging

When a battery is fully charged, after unplugging the battery, connect to the next battery, the device will automatically continue to charge, you can start and stop this function in the settings menu.

3. Fan stepless speed regulation

When the internal temperature of the device exceeds 43°C or AC power supply, the power is greater than 100W, and the fan will increase the fan speed linearly according to the internal temperature increase or power increase. Make it less noisy when operating at low temperatures or low power.

4, Wireless charging

Q6AC has built-in 15W wireless charging, only need to place the device that supports wireless charging at the top of the product wireless charging position, and will automatically start charging.

5, USB fast charging

Q6AC built-in USB fast charging protocol, up to C port up to 65W charging power, A port can support up to 30W. Supported protocols are PD, QC, AFC, FCP, SCP, PE, SFCP, VOC.

6. Manually calibrate the voltage

In the shutdown state, press and hold the [Scroll Wheel] without releasing, connect the power supply, and the system will enter the manual voltage calibration function. Use a voltmeter to measure the actual voltage of each battery, move the cursor to the corresponding voltage value, modify the voltage value to be consistent with the voltmeter value, and achieve calibration. After the calibration is completed, move the cursor to save, short press once, the buzzer will beep for a long time, and the save is successful. Just exit or shut down.

7, Fully charged

When the lithium battery is fully charged, it will prompt "Fast charging has ended". If the battery is not removed, the constant voltage trickle charge will be performed automatically to keep the battery full.

Specification

Charging	Input	AC100-240V@MAX5.0A DC7-30V@MAX50A
	Battery Type	LiPo LiHV LiFe Lion LTO @1-6S NiMh @1-16S Pb @1-10S
	Bal Cur.	800mA @2-6S
	Accuracy	<0.005V
	Charge Power	0.1-15A@250W*4 DC input
		0.1-15A@250W*2 AC input
		0.1-15A@100W*4 AC input
	Discharge Power	0.1-15.0A@250W*4 Recycle 0.1-3A@12W*4 Normal
	USB	USB-A 30W@ upgrade
		USB-C 20V@65W PD,QC,AFC,FCP,SCP,PE,SFCP,VOC
	Battery Voltage	1.0V-5.0V @1-6S
	Battery Internal Resistance	1-100mR @1-6S
Display	LCD	IPS 3.5 寸 480*320 Pixel
Product	Size	220mm*113mm*82mm
	Weight	1120g
Individual Packing	Size	260mm*220mm*120mm
	Weight	1600g