Q6AC

ToolkitRC
Four-channel AC/DC balance charger



Please read this manual carefully before use. Never leave charging batteries unattended.

User manual · EN

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1. Safety instructions

Thank you for purchasing the ToolkitRC Q6AC balance charger. Please read this entire manual carefully before first use and keep it for future reference. This product is intended for persons aged 14 and over.

1.1 Manufacturer's instructions

① The Q6AC allows an input voltage of **AC 100–240 V** or **DC 7–30 V**. Before use, check the supply voltage and, with a DC supply, the polarity (+/−).

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 or unplug the device.

⑤ Set a charging current that matches the battery performance envelope. Do not set an excessive current, to avoid damage to the battery. Always follow the guidelines of your battery's manufacturer.

1.2 General rules for charging batteries

- Charge on a solid, non-flammable surface, away from flammable objects, ideally in a protective Li-Po battery bag.
- Do not charge a battery that is damaged, swollen, deformed or hot. Let the battery cool down after a flight before charging.
- Always select the correct battery type and number of cells (chapter 4). An incorrect selection may result in overcharging, fire or explosion.
- Always connect lithium batteries via the balance connector as well — without it, the charger does not balance the cells.
- Do not cover the charger's ventilation openings and fans, and ensure sufficient airflow.
- Never connect the outputs of two channels in parallel unless synchronous mode is enabled (chapter 6.2).
- If the battery starts to overheat, swell or give off an odour, stop charging immediately and disconnect it. Do not use water to extinguish a burning Li-Po battery.
- Charge only rechargeable batteries. **Never charge non-rechargeable (primary) batteries.**
- For indoor use only. Protect the charger from rain and moisture.
- **Lead-acid batteries (Pb):** explosive gases may be released during charging. Keep flames and sparks away and ensure adequate ventilation. Disconnect the power supply before connecting or disconnecting the battery.

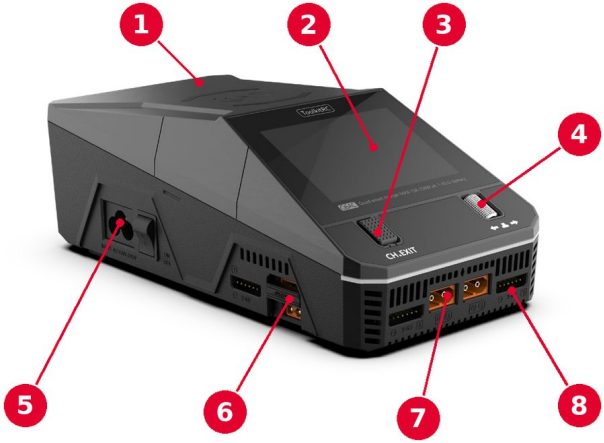
2. Product description

The Q6AC is a four-channel balance charger with a colour IPS display and scroll wheel menu navigation.

2.1 Main features

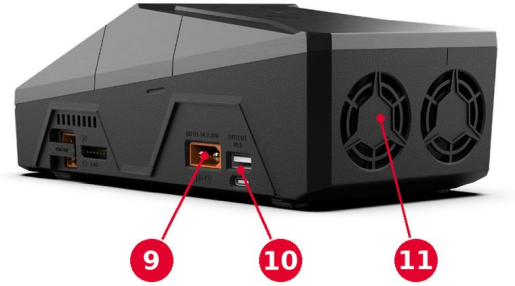
- Charge and balance management of LiPo, LiHV, LiFe, Li-Ion and LTO 1–6S, NiMH 1–16S and Pb 1–10S batteries.
- AC and DC power supply modes: AC 100–240 V (max. 400 W) or DC 7–30 V (max. 1200 W).
- Charging power: max. 15 A / 250 W on each of the 4 channels.
- Discharging power: max. 3 A / 12 W per channel in normal mode, max. 15 A / 250 W per channel in recycle mode.
- Charging accuracy better than 0.005 V, balancing current 800 mA.
- Built-in 15 W wireless charging.
- Built-in USB fast charging outputs: USB-C 65 W and USB-A 30 W.
- Lithium battery cut-off voltage can be set (TVC).
- Automatic allocation of input power between channels.
- Multi-language menu.
- Memory for 32 commonly used batteries and 3 groups of power supply settings.

2.2 Charger layout



Front

1	Wireless charging area
2	Display
3	**[CH/Exit]** button — channel switching / back
4	**[Scroll Wheel]** — rotate and press
5	AC input
6	Slider
7	Main (output) port — 4×
8	Balance port — 4×



Back

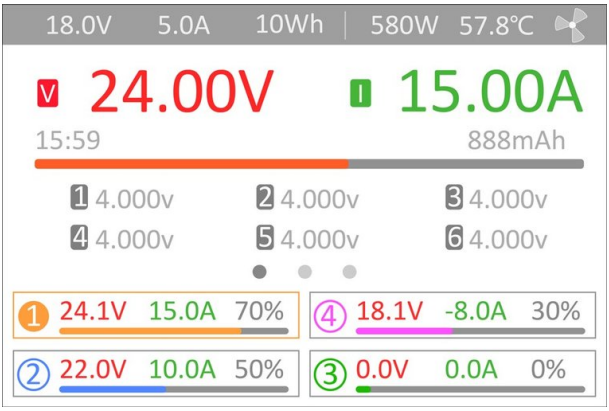
9	DC input (XT90 connector)
10	USB-A and USB-C outputs
11	Cooling fans

3. Getting started and operation

① Connect the device to an AC 100–240 V or DC 7–30 V power source.

② The screen shows the boot logo for 2 seconds; an audible tone accompanies the boot sequence.

③ After booting up, the screen enters the main screen:



Main screen

④ Short press **[CH/Exit]** to switch the cursor among the four channels in sequence.

⑤ Scroll **[Scroll Wheel]** to switch between displaying the cell voltages and internal resistances of the selected channel.

⑥ Short press **[Scroll Wheel]** to select the charging task when the channel is idle. While the channel is working, you can adjust or end the charge.

⑦ Long press **[Scroll Wheel]** to enter the system settings — only when all four channels are free.

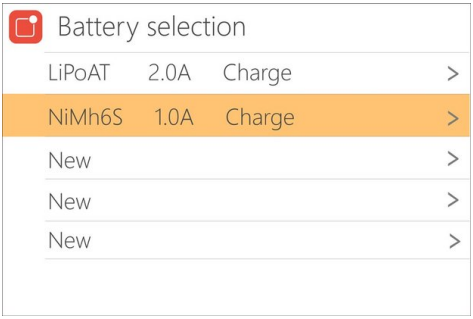
⑧ Press **[CH/Exit]** to end the modification or return to the previous screen.

▶ Operating tips

- Short press **[Scroll Wheel]** to confirm the function.
- Long press **[Scroll Wheel]** (2 s) acts as the delete key.
- Each successful key press is confirmed by a short beep.

4. Charging settings

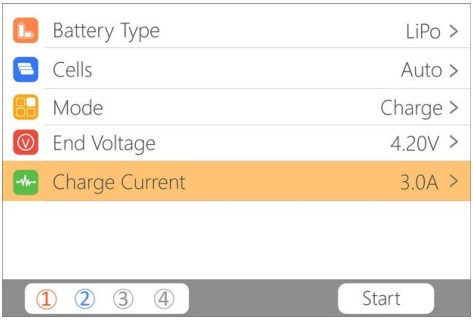
On the main screen, select a channel and short press **[Scroll Wheel]** to enter the charging function. If *Battery selection* is turned on in the system settings, the list of saved batteries is displayed (screen below). Otherwise, the first battery record is used by default and this step is skipped.



Battery selection

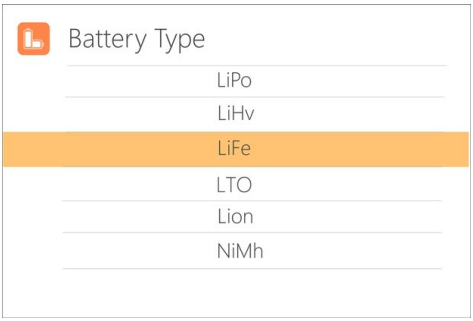
4.1 Battery Type

Scroll **[Scroll Wheel]** to select a battery that has already been set, or create a new one (*New*), and short press to enter its battery setting screen:



Battery settings

Move the cursor to *Battery Type* and short press **[Scroll Wheel]** to modify the battery type:



Battery type selection

The charger supports LiPo, LiHV, LiFe, LTO, Li-Ion, NiMH and Pb chemistry batteries. After choosing the correct battery type, short press **[Scroll Wheel]** to confirm and press **[CH/Exit]** to return to the previous screen.

! Choosing the wrong battery type may damage the battery and the charger, and cause fire and other dangers. Do not charge batteries that are not marked with the battery type. Always follow the charging guidelines of your battery manufacturer.

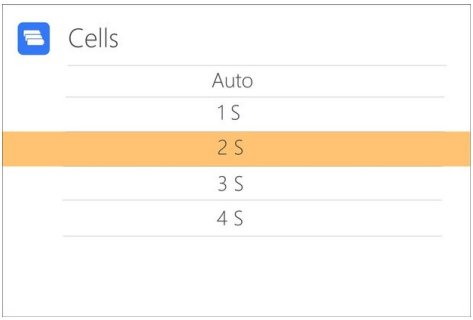
▶ Battery types

Type	Description	Nominal voltage	Fully charged
LiPo	lithium polymer	3.70 V	4.20 V
LiHV	high-voltage lithium	3.85 V	4.35 V
LiFe	lithium iron phosphate	3.30 V	3.60 V
Li-Ion	lithium-ion	3.60 V	4.10 V
LTO	lithium titanate	2.40 V	2.70 V
NiMH	nickel-metal hydride	1.20 V	—
Pb	lead-acid	2.00 V	—

Voltages are given per cell.

4.2 Number of cells (Cells)

Move the cursor to *Cells* and short press **[Scroll Wheel]** to modify the number of battery cells:



Number of cells setting

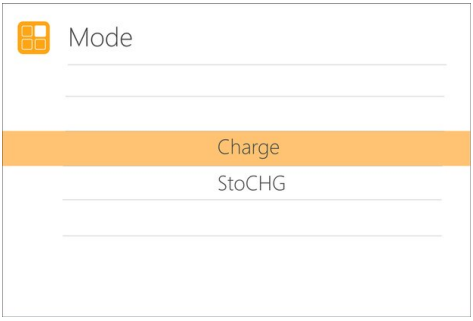
Scroll **[Scroll Wheel]** to adjust the value. When set to *Auto*, the charger automatically identifies the number of cells according to the voltage of the battery connected to the output port. Short press **[Scroll Wheel]** and press **[CH/Exit]** to take effect and return to the previous screen.

▶ **Tips**

- Overdischarge or overcharge of the connected battery may cause cell count identification errors.
- If the number of cells is set incorrectly, the battery may not be fully charged, or it may be overcharged and damaged. Please set it carefully.
- When a lithium battery is also connected to the balance port, the number of cells can be identified more accurately.

4.3 Work mode (Mode)

Move the cursor to *Mode* and short press **[Scroll Wheel]** to modify the work mode:



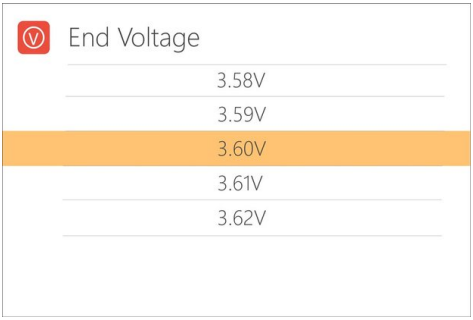
Work mode selection

- **Charge** — charging.
- **StoCHG** — bringing the battery to storage voltage.

LiPo, LiHV, LiFe and Li-Ion batteries can be charged and stored. For NiMH and Pb batteries, only charging can be selected. Short press **[Scroll Wheel]** and press **[CH/Exit]** to take effect and return to the previous screen.

4.4 End voltage (End Voltage, TVC)

Move the cursor to *End Voltage* and short press **[Scroll Wheel]** to modify the end voltage of a single cell. When the work mode is charging, it is the charging cut-off voltage, and it can be set within ±50 mV of the full voltage. When the work mode is discharging, it is the discharge cut-off voltage. Scroll **[Scroll Wheel]** to adjust the value in steps of 0.01 V.



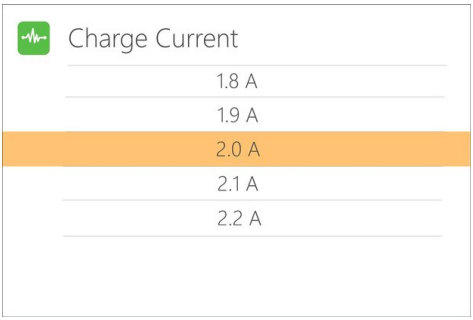
End voltage setting

▶ **Tips**

- Only LiPo, LiHV and LiFe batteries can have the cut-off voltage set.
- Do not modify the cut-off voltage when you are not familiar with the battery characteristics.
- The charging cut-off voltage can be set within ±50 mV of the full voltage.
- **TVC** is the English abbreviation for *Terminal Voltage Control*.

4.5 Charging current (Charge Current)

Move the cursor to *Charge Current* and short press **[Scroll Wheel]** to modify the current. Scroll **[Scroll Wheel]** to adjust the value in steps of 0.1 A; scroll quickly to increase or decrease the value faster. The charger supports up to 15 A.



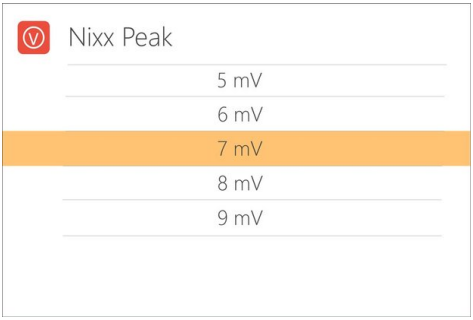
Charging current setting

▶ Tip

Please set a charging rate of 1–2 C according to the battery capacity. For example, if the battery capacity is 2000 mAh, set the charging current to 2.0–4.0 A. Always follow the guidelines of your battery's manufacturer.

4.6 NiMH setting (PeakV)

When the battery type is NiMH, the voltage drop (delta peak) value by which the charger detects a fully charged battery can be set. The setting range is 3–15 mV:



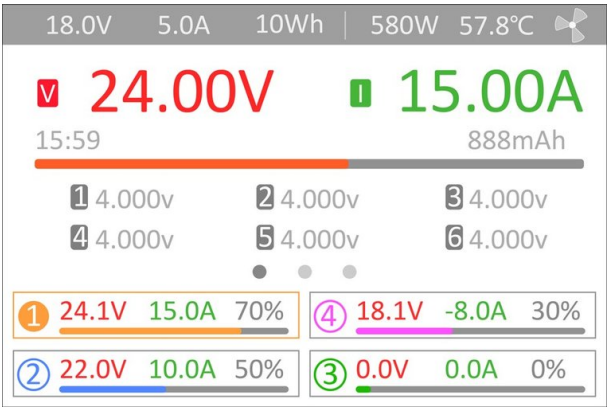
NiMH voltage drop setting

▶ Tips

- Only NiMH batteries can have the voltage drop value set.
- **PeakV** — when a NiMH battery is fully charged, the voltage of each cell drops slightly below the peak reached. The charger evaluates this drop as the end of charging.

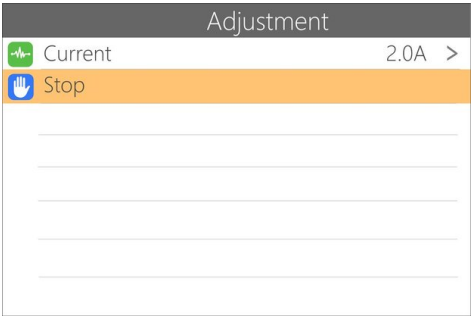
5. Charging process

When charging starts (*Start* option in the battery settings), the charger enters the working screen:



Working screen — cell voltages

Scroll **[Scroll Wheel]** on this screen to switch between displaying the cell voltages and internal resistances of the channel. Short press **[Scroll Wheel]** to dynamically set the working current or stop working:



Adjustment during operation (Adjustment)

To end the charging or discharging work, short press **[Scroll Wheel]**, move the cursor to *Stop* and short press again. The channel stops working and the display returns to the main screen. When charging is complete or a charging error occurs, a prompt box pops up with a prompt sound.

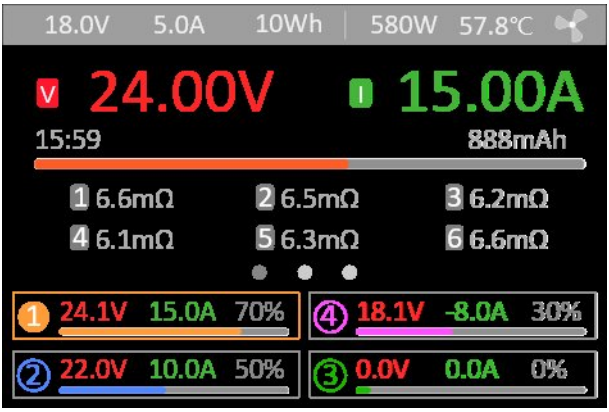
5.1 Display content description

Value	Meaning
18.0 V	input power supply voltage
5.0 A	input power supply current
10 Wh	accumulated energy consumed from the input power supply
57.8 °C	internal temperature of the charger
24.00 V	main port voltage of the selected channel
15.00 A	main port current of the selected channel
15:59	working time of the selected channel
888 mAh	capacity delivered to the battery of the selected channel
1 4.000 V	voltage of cell 1 (similarly for the other cells)
4 4.000 V	cell number on a red background — this cell is under balance management
-.--V	no battery connected

▶ Status flags

Flag	Meaning
V	constant voltage charging
C	constant current charging
I	current limit; the reason is indicated by the next letter:
P	— power limit
I	— input limit (power supply)
C	— maximum current reached
A	activation charging (battery revival)
F	total voltage or single cell voltage is full

Scroll **[Scroll Wheel]** to switch the display to the internal resistance of the individual cells:



Cell internal resistance display (dark theme)

The value **1 6.6 mΩ** indicates the internal resistance of cell 1 (similarly for the other cells).

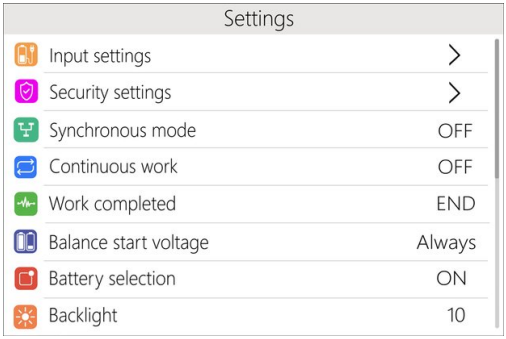
▶ Tips

- When charging, please ensure someone is supervising the charge throughout the process to deal with abnormalities safely.
- When a lithium battery is connected only to the main port, the charger does not perform balance management — please pay attention to the balance of the battery. After connecting the balance port, balance management begins automatically.
- After charging is completed, you can unplug the battery and connect a new one; the charger automatically continues in the same mode. When set to a fixed number of cells, connect only batteries with the same number of cells. When set to automatic detection, always check that the detected number of cells matches the actual number.

6. System settings and other functions

6.1 System settings

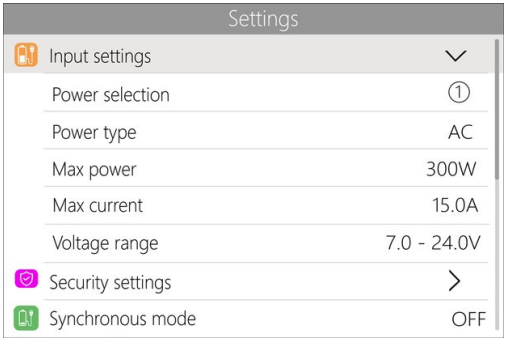
Long press **[Scroll Wheel]** on the main screen to enter the system settings — only when no channel is in use.



System settings (Settings)

▶ Input settings

Input power related settings. Short press to expand the settings:

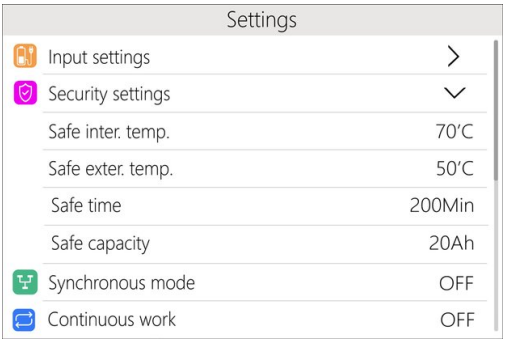


Input settings

- **Power selection** — selection of the power supply settings group. When the AC power supply is connected, the power selection is fixed to P1, and power, current and voltage are also fixed values. P1 or P2 can be selected when the input is DC, and power, current and voltage can be set according to the power supply used.
- **Max power** — the maximum power drawn from the input port when charging.
- **Max current** — the maximum current drawn from the input port during charging.
- **Voltage range** — the lowest allowable input voltage.

▶ Charging safety settings (Security settings)

Short press to expand the settings:

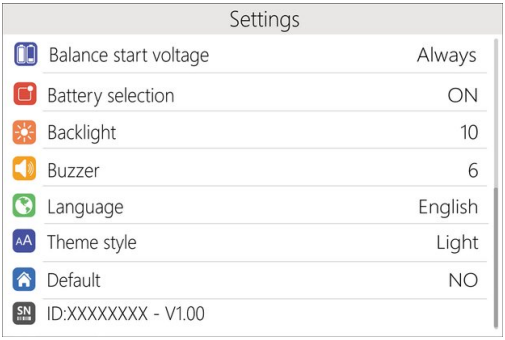


Charging safety settings

- **Safe inter. temp.** — above this internal temperature, the charger stops the main port output.
- **Safe exter. temp.** — external temperature limit.
- **Safe time** — the maximum time of continuous charging; charging stops if it is exceeded.
- **Safe capacity** — the maximum capacity delivered during continuous charging; work stops if it is exceeded.

▶ Other settings

- **Synchronous mode** — when enabled, CH2 and CH3 combine to charge or discharge the same battery (chapter 6.2).
- **Continuous work** — whether to automatically continue charging after the battery is replaced once charging is complete. The next connected battery must require the same settings as the previous one.



Other settings

- **Work completed** — whether to stop (END) or trickle charge after the charge is over.

- **Balance start voltage** — the voltage from which balancing starts (default *Always*).
- **Battery selection** — whether to display or skip the battery selection screen when selecting charging.
- **Backlight** — display backlight brightness, levels 1–10.
- **Buzzer** — the tone of the buzzer; can be set to off.
- **Language** — menu language (e.g. English, Chinese).
- **Theme style** — *Light* or *Dark* theme.
- **Default** — restore all settings to factory values.
- **ID** — the unique factory ID of the device and the firmware version.

6.2 Other functions

▶ Firmware upgrade

Connect the charger to a computer using the USB data cable in the box. The computer will recognise a USB drive named *Toolkit*. Download the upgrade file *app.upga* from the manufacturer's website www.toolkitrc.com, copy it to this drive and overwrite the existing file. This upgrades the firmware.

▶ Automatically continue charging

When a battery is fully charged, unplug it and connect the next battery — the charger automatically continues charging. You can turn this function on or off in the system settings (*Continuous work*).

▶ Stepless fan speed regulation

When the internal temperature of the device exceeds 43 °C, or the power exceeds 100 W with AC power supply, the fan speed increases linearly with rising temperature or power. This makes operation less noisy at low temperatures and low power.

▶ Wireless charging

The Q6AC has built-in 15 W wireless charging. Simply place a device that supports wireless charging on the marked wireless charging position on top of the charger, and charging will start automatically.

▶ USB fast charging

The charger supports USB fast charging protocols: the USB-C port delivers up to 65 W, the USB-A port up to 30 W. Supported protocols: PD, QC, AFC, FCP, SCP, PE, SFCP, VOC.

▶ Manual voltage calibration

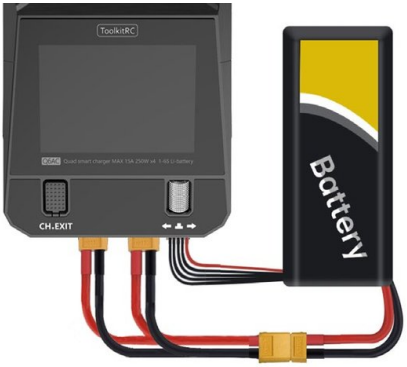
In the shutdown state, press and hold **[Scroll Wheel]** and connect the power supply — the charger enters the manual voltage calibration mode. Use a voltmeter to measure the actual voltage of each cell, move the cursor to the corresponding value and modify it to be consistent with the voltmeter value. After the calibration is completed, move the cursor to save and short press once; a long beep confirms that the save was successful. Then exit or shut down the charger.

▶ Fully charged

When a lithium battery is fully charged, the message “Fast charging has ended” is displayed. If the battery is not removed, the charger automatically performs constant voltage trickle charging to keep the battery full.

▶ Synchronous mode

When synchronous mode is enabled, CH2 and CH3 combine to charge or discharge the same battery — connect as shown below:



Synchronous mode connection

! When synchronous mode is disabled, parallel output is prohibited — otherwise the charger may be damaged.

7. Specifications

Parameter	Value
Input	AC 100–240 V, max. 5.0 A DC 7–30 V, max. 50 A
Battery types	LiPo, LiHV, LiFe, Li-Ion, LTO: 1–6S NiMH: 1–16S Pb: 1–10S
Balancing current	800 mA (2–6S)
Accuracy	< 0.005 V
Charging	0.1–15 A, 4× 250 W (DC input) 0.1–15 A, 2× 250 W (AC input) 0.1–15 A, 4× 100 W (AC input)
Discharging	0.1–15.0 A, 4× 250 W (recycle) 0.1–3 A, 4× 12 W (normal)
USB outputs	USB-A 30 W USB-C 20 V / 65 W protocols PD, QC, AFC, FCP, SCP, PE, SFCP, VOC
Wireless charging	15 W
Cell voltage measurement	1.0–5.0 V (1–6S)
Internal resistance measurement	1–100 mΩ (1–6S)
Display	IPS LCD 3.5″, 480 × 320 px
Dimensions	220 × 113 × 82 mm
Weight	1120 g
Packaging	260 × 220 × 120 mm, 1600 g
Manufacturer	ToolkitRC Technology (Shenzhen) Co., Ltd 3F, B1 Building, Shanghe Industrial Park, Nanchang Road, Hangcheng Street, Bao'an District, Shenzhen, China sales@toolkitrc.com · www.toolkitrc.com

8. Information for the EU and Czech Market

8.1 Importer and responsible person in the EU

The product is placed on the European Union market by the importer stated below, who is at the same time the responsible person within the meaning of Article 16 of Regulation (EU) 2023/988 of the European Parliament and of the Council on general product safety (GPSR).

Importer / responsible person in the EU	Rotorama, s.r.o.
Company ID (IČO)	051 57 692
VAT ID (DIČ)	CZ05157692
Registered office	Okrajová 1351, 674 01 Třebíč, Czech Republic
E-mail	info@rotorama.cz
Phone	+420 252 252 098
Website	www.rotorama.cz

8.2 Product conformity

CE

- The product bears the **CE** marking and complies with the requirements of the applicable European Union harmonisation legislation.
- A copy of the **EU Declaration of Conformity** is available from the importer at the address stated above or at the e-mail address info@rotorama.cz.
- **Product identification:** the type designation (Q6AC) is shown on the front panel of the device; the unique device ID and the firmware version are shown in the system settings, item *ID*.

8.3 Disposal of electrical equipment



- The crossed-out wheeled bin symbol on the product, its packaging or in the documentation means that at the end of its service life the product **must not be disposed of together with mixed municipal waste**.
- Hand it over at a take-back point for electrical equipment – at a collection yard, at a take-back point of a collective system, or at the retailer when purchasing a new equivalent product. Take-back is free of charge for the end user.
- The obligations under Act No. 542/2020 Coll., on end-of-life products, are fulfilled by the importer through a collective take-back system.
- Proper disposal helps prevent negative impacts on the environment and human health and contributes to the reuse of secondary raw materials.

Through its contractual partner **ASEKOL a.s.**, the company ensures the take-back of waste electrical equipment from households and the separate collection of waste electrical equipment, batteries and accumulators in accordance with the applicable legislation. The customer is entitled to hand over old electrical equipment or a battery or accumulator at any collection point of the above contractual partner. The addresses of these take-back points are listed at www.asekol.cz, www.ecobat.cz and also https://visoh2.mzp.cz/RegistrMistZO/RegistrMistZOPublic/MapaMistZpetOdberu.

9. Warranty and rights arising from defective performance

The rights and obligations of the contracting parties are governed by Czech law, in particular by Act No. 89/2012 Coll., the Civil Code, and Act No. 634/1992 Coll., on consumer protection.

- The seller is liable to the buyer for the product being free of defects on receipt. If the buyer is a consumer, a defect may be notified **within two years of receipt** of the product (Section 2165 of the Civil Code).
- If a defect appears within **one year** of receipt, the product is deemed to have been defective already at the time of receipt (Section 2161(5) of the Civil Code).
- When purchasing online, a consumer has the right to **withdraw from the contract within 14 days** of receiving the goods without giving a reason (Section 1829 of the Civil Code).
- Claims should be made with the retailer from whom you purchased the product. The importer's contact details are given in Chapter 8.1.
- The competent body for out-of-court settlement of consumer disputes is the **Czech Trade Inspection Authority**, Štěpánská 796/44, 110 00 Prague 1, www.coi.cz.