ToolkitRC Q8AC

User manual
Four-channel AC balance charger for LiPo / LiHV 1–8S in a case



Read the entire manual before use. The charger is powered from the 100–240 V mains – protect it from moisture. Never leave charging batteries unattended.

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1. Safety instructions

Thank you for purchasing and using the **ToolkitRC Q8AC** four-channel balance charger (hereinafter Q8AC). Please read this manual carefully before use and keep it for future reference. Always pass the manual on together with the product.

1.1 Before you start

- The Q8AC is intended exclusively for charging, discharging and balancing **LiPo and LiHV batteries with 1–8 cells (1–8S)**. Any other use is not permitted.
- The product may only be used by persons **aged 14 and over**. Keep it out of the reach of children.
- Do not modify the product in any way and do not use it if the housing, the mains cable or a connector is damaged.

1.2 Mains voltage and operating environment

Dangerous mains voltage is present inside the charger. Never open the housing of the unit – the charger contains no parts that can be repaired by the user.

- The Q8AC accepts an input voltage of **100–240 V AC**. Ensure that the power supply voltage meets this range and connect the charger only to a properly installed socket, using the mains cable supplied with the product.
- Do not kink the mains cable, do not trap it with the lid of the case and do not route it over sharp edges or hot surfaces. When not using this product, and always before cleaning, **unplug the input power**.
- Do not use this product in **hot, humid, flammable or explosive environments** and protect it from water. Place the case on a firm, level and non-flammable surface, away from direct sunlight and heat sources. Do not cover the cooling air outlet ⑧.

1.3 Charging batteries

- Please use this product **under supervision** to prevent accidents – never leave charging or discharging unattended.
- Before starting, always check the **battery type** and the **number of cells** (Chapter 4). A wrong setting may damage the battery and the charger and could pose a fire hazard.
- Set the current to match the battery; **never set the current too high**, as this may damage the battery.
- Charge only LiPo and LiHV batteries, never batteries that are not rechargeable. Do not charge a swollen, punctured or otherwise damaged battery. Charge batteries away from flammable materials.

2. Product description

The Q8AC is a 4-channel balance charger in a suitcase-style design. It features a built-in battery storage compartment and can charge and discharge 4 batteries simultaneously. Its IPS high-brightness displays provide a more intuitive readout.

- Supports charging, discharging and balancing management for LiPo and LiHV batteries (**1–8S**).
- **AC 100–240 V**, maximum input power of 2200 W.
- Charging current: up to **20 A** @ up to **500 W** per channel (4 channels).
- Discharge: up to 3.0 A @ up to 30 W per channel.
- Charging accuracy: ±10 mV; balance current: maximum 2000 mA.
- Built-in 65 W USB-A and USB-C fast charging.
- Adjustable cut-off voltages, multilingual system and firmware upgrade capability.

2.1 Get to know the Q8AC



Q8AC with the lid open

① Top cover of the enclosure	⑥ USB-A / USB-C ×2
② Storage space ×2	⑦ Display ×2
③ Power switch ×2	⑧ Cooling air outlet
④ Battery connector ×4	⑨ Control buttons
⑤ Indicator light ×4	⑩ AC input

Batteries are connected to the **XT90** outputs and to the balance connectors on the top panel of the unit.

2.2 Control buttons

Each control panel ⑨ has two sets of △, ○ and ▽ buttons. Button functions:

Button	Function
△ ▽ briefly	move the cursor, edit a value; after starting the operation: switch the information pages
○ briefly	confirm the selection; press twice on **[Start]** to start the operation, press once on **[Stop]** to stop it
○ press and hold	on the battery type: end-of-charge voltage; on the operating mode: number of cells
△ press and hold	switch to the information page
▽ press and hold	system settings menu (when the charger is idle)

2.3 Packing list

Item	Qty
Q8AC charger	1×
USB-A to C cable	1×
Quick Start Guide	1×
AC input cable	1×

※ Batteries and charging and balance leads are not included.

2.4 Manufacturer

Manufacturer	ToolkitRC Technology (Shenzhen) Co., Ltd
Address	3F, B1 Building, Shanghe Industrial Park, Nanchang Road, Hangcheng Street, Bao'an District, Shenzhen, China
E-mail	sales@toolkitrc.com
Web	www.toolkitrc.com

To make sure you get the best experience using this product, please stay updated on news, information and firmware updates about the Q8AC by visiting www.toolkitrc.com/q8ac.

3. Quick start

① Connect a power source with a voltage of **100–240 V AC** to the AC input ⑩ in the upper-right corner of the Q8AC.

② The display shows the startup logo and remains on for 2 seconds.

③ After startup is complete, the display shows the main interface as follows:



Main interface

④ Press △▽ briefly to move the cursor to select a setting.

⑤ Press ○ briefly to confirm the selection.

⑥ Press △▽ briefly to edit the settings.

⑦ When the cursor is on the **[Start]** menu, press the ○ button twice briefly to start the operation.

⑧ Press and hold the △ button to switch to the information page.

⑨ Press and hold the ▽ button to access the system settings menu (when the charger is idle).

3.1 Description of displayed content

Each display shows two channels. Meaning of the readings (the values in the figures are examples):

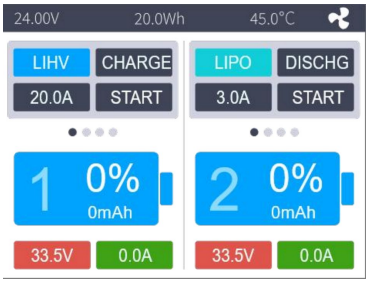
Reading	Meaning
24.0 V / 20 Wh / 45 °C	input voltage / input power consumption / internal temperature of the charger
LIPO / LIHV	battery type of the channel
CHARGE / DISCHG	operating mode of the channel
20.0 A	set current
START / STOP	start / stop the operation
0 mAh	current input/output capacity of the channel battery
33.5 V (red)	current main terminal voltage of the channel
0.0 A (green)	current channel operating current

4. Operation settings

Before starting, set the battery type, operating mode, number of cells and current for each channel.

4.1 Battery type settings

After turning on the device, briefly press △▽ to move the cursor to the battery type menu. Briefly press ○ once; the cursor will turn dark blue. Briefly press △▽ to change the type (**[LiPo]** or **[LiHV]**) and briefly press ○ once to confirm the selection.



Battery type selection

Warning: Charging the wrong type of battery may damage the battery and the charger and could pose a fire hazard. Please be sure to choose the correct type. Do not use this product to charge batteries whose type is not specified.

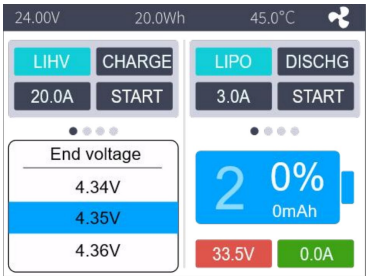
▶ **Glossary**

① **LiPo** – commonly referred to as lithium-polymer batteries; nominal voltage of 3.70 V, 4.20 V per cell when fully charged.

② **LiHV** – commonly referred to as high-voltage lithium-ion batteries; nominal voltage of 3.80 V, 4.35 V per cell when fully charged.

4.2 Voltage settings

When the cursor is on the battery type option, press and hold the ○ button to display the end-of-charge voltage setting option:



End-of-charge voltage setting

LiPo	Voltage range	Default value
Charging	4.00–4.25 V	4.20 V
Discharge	2.90–3.70 V	3.30 V
Storage	3.75–3.95 V	3.85 V

LiHV	Voltage range	Default value
Charging	4.10–4.50 V	4.35 V
Discharge	3.00–3.80 V	3.40 V
Storage	3.85–4.05 V	3.95 V

The voltages are per cell.

If you are unfamiliar with the battery's characteristics, do not adjust the cut-off voltage. Setting the voltage too high may damage the battery or pose a fire hazard.

4.3 Operating mode selection

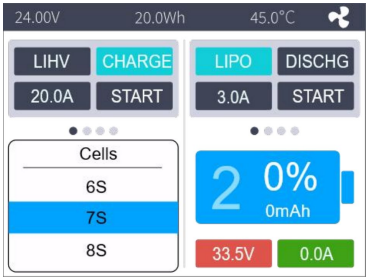
Briefly press △▽ to move the cursor to the operating mode menu. Press ○ once; the cursor will turn dark blue. Select an operating mode (*Charging*, *Storage*, *Discharging*), then press the ○ button once to confirm and apply the setting.



Operating mode selection

4.4 Number of battery strings setting

Press the △▽ button briefly to move the cursor to the operating mode menu; press and hold the ○ button to display the battery string selection menu, then adjust the number of battery strings.



Number of cells selection

❇ Tip

- If the battery has balance wire connectors, connect them and the device will detect the number of series automatically. Without them, you must set the number of series manually before the device will start operating.

4.5 Charging current settings

Briefly press the △▽ button to move the cursor to the *Current* field. Briefly press the ○ button once; the cursor will turn dark blue, and you can then adjust the operating current.

- charging and storage (when the battery is charged up): maximum current **20 A**,
- discharging and storage (when the battery is discharged): maximum current **3 A**.



Current setting

❇ Tip

- Set the charging rate to 1–2C based on the battery capacity. For example: for a battery with a capacity of 2000 mAh, a charging current of 2.0–4.0 A is appropriate.

5. Charging operations

5.1 Starting the operation

Press the △▽ button briefly to move the cursor to the **[Start]** position. Press the ○ button twice briefly, and the corresponding channel on the charger will begin operating, as shown in the left channel of the figure below:



The left channel is operating

❖ Tips

- During charging, please ensure that someone is present at all times to address any abnormalities promptly.
- Once charging is complete, remove the battery and connect a new one; the device will then continue to operate according to the configured parameters (Chapter 6.4). Please verify that the number of cells detected matches the actual number.

5.2 Information pages

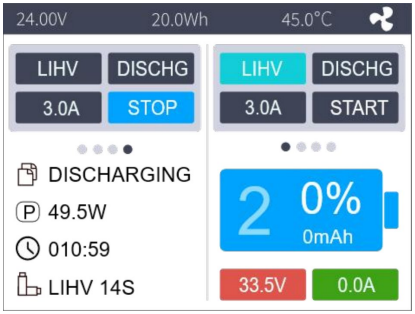
After starting the operation, briefly press the △▽ button to switch to the information pages, where you can view the voltage, internal resistance and operating status of the corresponding channel.



Voltage of the individual cells



Internal resistance of the individual cells



Operating status of the channel

Reading	Meaning
① ② ... 4.200 V	voltage of the individual cells; the cell highlighted in red is currently being balanced
-.-- V	no battery connected
① ② ... 1.2 mΩ	internal resistance of the individual cells
DISCHARGING	current channel operating mode
49.5 W	current channel operating power
010:59	current channel operating time
LIHV 8S	current channel battery type and number of cells

※ The screenshots are for illustration only; the values shown may differ.

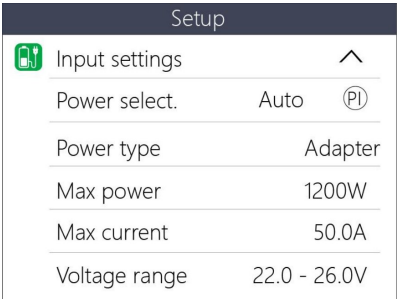
5.3 Stopping the operation

To end the charging or discharging process, select **[Stop]** and briefly press the ○ button once to stop the operation. When charging is complete or an error occurs during charging, a pop-up message will appear and an alert sound will play.

6. System settings and other features

When the charger is idle, press and hold the ▽ button to access the system settings menu (*Setup*). *Back*: exit the settings page and return to the main screen.

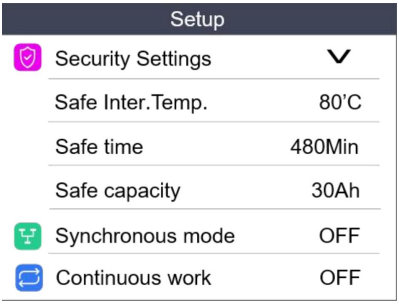
6.1 Input power (Input settings)



Input power settings

- *Power select.* – default: internal power supply **[PI]**.
- *Power type* – the current power source is an internal adapter (*Adapter*).
- *Max power* – the maximum power the adapter can provide during charging.
- *Max current* – the maximum current the adapter can supply during charging.
- *Voltage range* – effective voltage range of the internal adapter.

6.2 Security settings (Security Settings)



Security settings

- *Safe Inter.Temp.* – if the temperature exceeds this value, the equipment will stop operating (50–80 °C).
- *Safe time* – maximum continuous charging time; the device will stop working if this time is exceeded (60–999 min / OFF).
- *Safe capacity* – maximum capacity for continuous charging; operation will stop if this limit is exceeded (1–100 Ah / OFF).

6.3 Synchronous mode

When this feature is enabled, the two channels can be combined to charge the same battery through the main port, with a maximum current of up to **40 A**. As shown in the figure below:



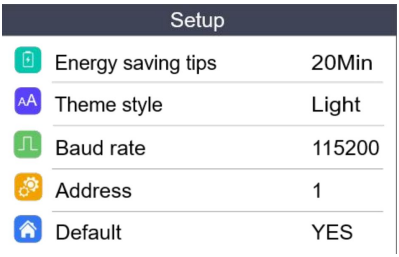
Battery connection in synchronous mode

6.4 Other settings

Setup	
Continuous work	OFF
Work completed	END
Balance start Vol	Always
Backlight	10
Buzzer	6
Language	English

System settings – other items

- *Continuous work* – once this feature is enabled, if you remove a fully charged battery and insert the next one, charging will automatically begin according to the settings for the previous set of batteries.
- *Work completed* – end when charging is complete (*END*) or switch to trickle charging.
- *Balance start Vol* – set the voltage at which the battery begins equalization relative to the full-charge voltage; the default is the full range.
- *Backlight* – the display's backlight brightness can be adjusted from level 1 to 10.
- *Buzzer* – buzzer sound settings; you can choose from 7 different tones.
- *Language* – system display language; you can choose from multiple languages, including English and Chinese.



System settings – other items

- *Energy saving tips* – when the machine is idle, a reminder will appear indicating when to turn it off to save energy.
- *Theme style* – you can choose between two styles: dark and light.
- *Baud rate* – communication rate between the master and the slave.
- *Address* – the address code for this unit (Chapter 6.5).
- *Default* – reset all settings to their factory defaults.
- *ID* – the equipment's unique serial number as assigned at the factory.

6.5 Cascade synchronization mode

The Q8AC supports cascaded operation between the left and right channels. In the system settings, set either the left or right communication address (*Address*) to **0**; this channel will act as the master, while the other channel, set to any value between **1 and 15**, will act as the slave. When the master's battery parameters are adjusted, the slave will synchronize with the master accordingly.

6.6 Firmware update

① Connect the Q8AC to your computer using the USB cable included in the box (update via USB-C only).

② Your computer will recognize a USB drive named **Toolkit**.

③ Download the upgrade file **app.upga** from the official website and overwrite the file on the USB drive to update the firmware.

6.7 USB fast charging

The USB outputs ⑥ provide built-in fast charging of other devices with a maximum charging power of **65 W** (PD via USB-C only).

6.8 Manual voltage calibration

① Press and hold the ▽ button to the left of the channel you want to calibrate and turn on the device to enter the manual voltage calibration mode.

② Use a voltmeter to measure the actual voltage of each battery cell.

③ Move the cursor to the corresponding voltage value and adjust it to match the voltmeter reading.

④ Once calibration is complete, move the cursor to **Save**. After the value is successfully saved, you can exit or turn off the device.

6.9 Maintenance, transport and storage

- Before cleaning, disconnect the charger from the mains and from the batteries. Clean the unit with a dry cloth; do not use water, solvents or cleaning sprays.
- Regularly check that the cooling air outlet is not clogged with dust.
- Check the mains cable and the connectors. Do not continue to use a damaged cable.
- Before transport, disconnect the charger from the mains and from the batteries. Store it in a dry place and protect it from falls and impacts.
- Do not open the housing of the unit. Have repairs carried out by the seller (Chapter 9).

7. Specification

Parameter	Value
Input voltage	AC 100.0–240.0 V, max. 2200 W
Battery type	LiPo, LiHV 1–8S
Resistance test	1–100 mΩ (1–8S)
Balance current	2000 mA (2–8S)
Balancing accuracy	±10 mV
Charging – asynchronous mode	1.0–20 A, 500 W × 2
Charging – synchronization mode	1.0–40 A, 1000 W
Discharging – internal	1.0–3.0 A, 30 W × 2
Discharging – synchronous mode	1.0–6.0 A, 60 W × 2
USB output	5.0–20.0 V, max. 65 W; PD (USB-C only), QC, PPS, AFC, FCP, SCP, PE, SFCP; firmware update via USB-C only
Display	IPS 2.8″, 320 × 240 px
Operations	buttons
Product dimensions	610 × 400 × 255 mm
Product weight	13 kg
Package dimensions	645 × 430 × 280 mm
Package weight	15 kg

※ The “× 2” values are taken from the manufacturer's specification table. According to the product description, each of the four channels charges at up to 500 W and discharges at up to 30 W.

8. Information for the EU and Czech Market

❖ The information in Chapters 8 and 9 describes the situation under the law of the Czech Republic, where the product is sold. The law of the country in which the product is operated always prevails – if you use it in another country, follow the regulations of that country.

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.com

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 (Q8AC) is shown on the label on the centre panel of the unit between the storage compartments; the unique serial number of the unit (ID) can be found in the system settings (Chapter 6.4).

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.