Q4AC

Four-channel balance charger
User manual



Read the entire manual carefully before first use and keep it. Never leave charging batteries unattended.

Manufacturer: ToolkitRC Technology (Shenzhen) Co., Ltd · Importer: Rotorama, s.r.o.

Contents

1. Safety instructions

2. Product description

2.1 Features

2.2 Controls and connectors

3. Quick start

4. Charging settings

4.1 Battery selection

4.2 Battery type

4.3 Number of cells

4.4 Mode

4.5 End voltage (TVC)

4.6 Charging current

4.7 NiMH setting (PeakV)

5. Charging

5.1 Working screen

5.2 Adjusting the current and stopping

5.3 Cell internal resistance

6. System settings

6.1 Input settings

6.2 Security settings

6.3 Other items

7. Other functions and specifications

8. Information for the EU and Czech Market

9. Warranty and rights arising from defective performance

1. Safety instructions

Thank you for purchasing the **ToolkitRC Q4AC** balance charger. Please read this manual carefully before first use and keep it for future reference.

- The Q4AC accepts input voltage **AC 100–240 V** or **DC 10–18 V**. Make sure the power supply voltage is correct and pay attention to the positive and negative polarity (+ / −) when connecting a DC power supply.
- Do not use this product in environments with heat, humidity, flammable liquids or explosive gas.
- **Do not use this charger without supervision. Never leave charging batteries unattended.**
- When not using this product, unplug the input power.
- When charging, set a current that matches the battery. An excessive charging current will damage the battery. Always follow the guidelines of your battery's manufacturer.

General rules for safe charging

- Charge on a non-flammable surface and away from flammable materials. For LiPo batteries we recommend a fireproof charging bag.
- Do not charge damaged, swollen or deformed batteries. Let a battery that is warm from use (e.g. right after a flight) cool down before charging.
- Do not charge non-rechargeable (primary) batteries.
- Charge lead-acid (Pb) batteries only in a well-ventilated area.
- Connect the mains cord only to a properly installed socket. Do not use the charger with a damaged cord, connector or housing.
- Do not cover the fan or the ventilation openings of the charger and ensure free air circulation.
- Protect the charger from water, moisture and falls. Do not open the housing.
- If you notice a smell, smoke, excessive heat or a swelling battery, stop charging immediately, disconnect the power and move the battery to a safe place.
- The product is intended for persons aged 14 and over. Keep it out of the reach of children.

Choosing the wrong battery type may damage the battery and the charger and cause fire or other dangers. Do not charge batteries that are not marked with the battery type.

2. Product description

2.1 Features

The Q4AC is a four-channel balance charger with an IPS display and scroll-wheel menu navigation, which makes it easy and convenient to operate.

- Charge, discharge and balance management of LiPo, LiHV, LiFe, Li-ion and LTO 1–4S, NiMH 1–10S and Pb 1–8S batteries.
- AC and DC power supply modes: AC 100–240 V, max. 100 W; DC 10–18 V, max. 200 W.
- Charging current up to 5 A, max. 50 W per channel (4 channels).
- Discharging power max. 2 A / 5 W per channel.
- Charging accuracy < 0.005 V, balancing current 240 mA.
- Adjustable cut-off voltage for lithium batteries (TVC).
- Automatic allocation of input power between the channels.
- Multi-language menu.
- Firmware update: the charger connects to a PC like a USB drive – simply copy the new firmware file.
- Stores up to 5 commonly used batteries and 3 groups of commonly used power sources.

2.2 Controls and connectors



Front

① Display

② Scroll wheel – turn left / right to move in the menu, press to confirm (**[OK]** function)

③ **[CH/Exit]** button – channel switching / return

④ Main output (charging) port – 4×

⑤ Balance port 2–4S – 4×



Back

⑥ Micro USB port (firmware update)

⑦ DC input 10–18 V

⑧ Cooling fan

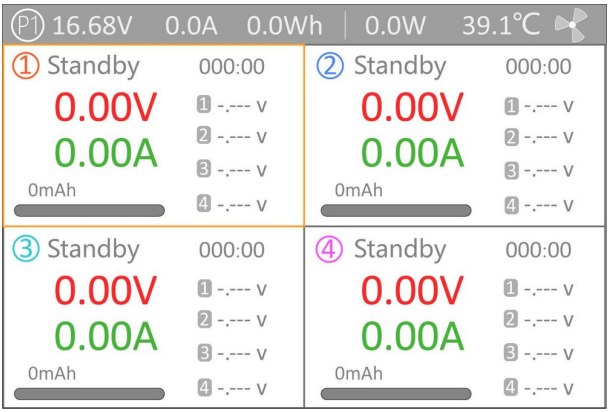
⑨ AC input 100–240 V

3. Quick start

① Connect the AC 100–240 V or DC 10–18 V power supply to the corresponding input port on the back of the charger.

② The screen shows the boot logo for 2 seconds, accompanied by a double beep.

③ After booting up, the main screen is displayed:



Main screen – four channels in standby

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

⑤ Turn the scroll wheel to switch between the cell voltage and internal resistance display of the selected channel.

⑥ When the channel is idle, short press **[OK]** to select the charging task. While the channel is working, you can adjust the current or end the charge in the same way.

⑦ When all four channels are free, long press **[OK]** to enter the system settings.

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

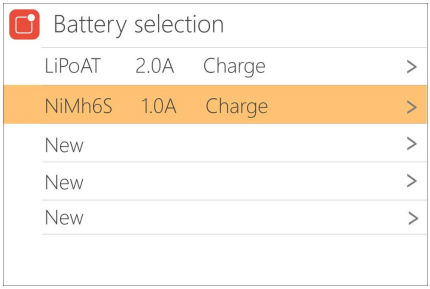
※ Scroll wheel operation

- A short press of the scroll wheel confirms the function.
- A long press of the scroll wheel (2 s) is the delete function.
- Every successful key operation is confirmed by a short beep.

4. Charging settings

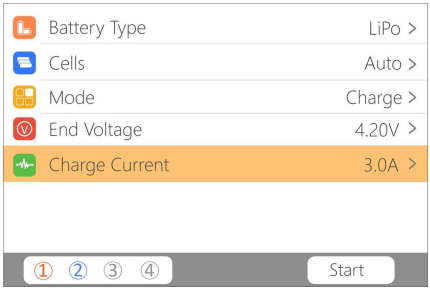
4.1 Battery selection

On the main screen select a channel and short press **[OK]** to enter the charging settings. If *Battery selection* is turned on in the system settings, a list of up to 5 saved batteries is displayed. Otherwise the charger skips this step and uses the first battery record.



List of saved batteries (Battery selection)

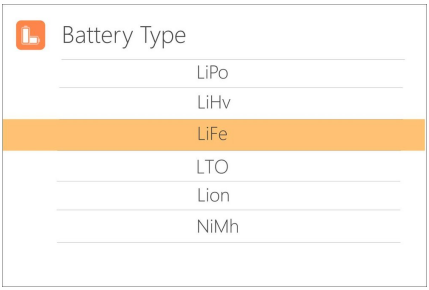
Turn the scroll wheel to select a saved battery or a free *New* record and press **[OK]** to open its settings:



Battery settings; channel selection ①–④ and the Start button at the bottom

4.2 Battery type

Move the cursor to *Battery Type* and press **[OK]**. Choose the type that matches the actual battery, confirm with **[OK]** and press **[CH/Exit]** to return.



Battery type selection (Battery Type)

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

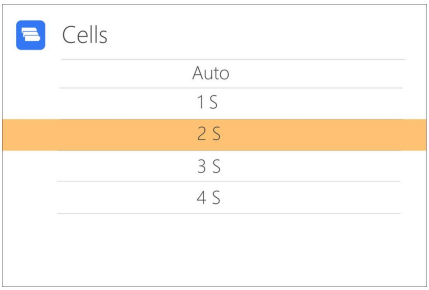
Battery types

Type	Description	Nominal voltage	Fully charged
LiPo	lithium polymer	3.70 V	4.20 V
LiHV	high-voltage lithium polymer	3.85 V	4.35 V
LiFe	lithium iron phosphate	3.30 V	3.60 V
Lion	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.

4.3 Number of cells

Move the cursor to *Cells* and press **[OK]**. Turn the scroll wheel to set the number of cells. When set to *Auto*, the charger identifies the number of cells automatically from the battery voltage at the output port. Confirm with **[OK]** and press **[CH/Exit]** to return.



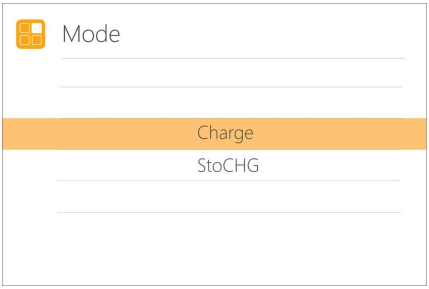
Number of cells (Cells)

❉ Tips

- Over-discharge or overcharge of the connected battery may cause cell identification errors.
- If the cell number is set incorrectly, the battery may be insufficiently charged, or overcharged and damaged. Please set it carefully.
- When a lithium battery is also connected to the balance port, the number of cells is identified more accurately.

4.4 Mode

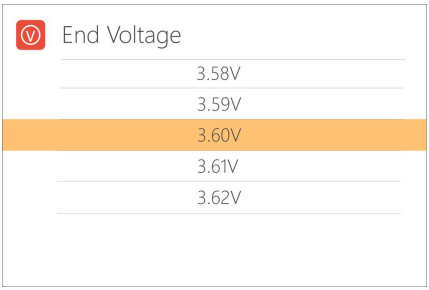
Move the cursor to *Mode* and press **[OK]**. LiPo, LiHV, LiFe and Lion batteries can be charged (*Charge*) or prepared for storage (*StoCHG*). NiMh and PB batteries can only be charged. Confirm with **[OK]** and press **[CH/Exit]** to return.



Work mode (Mode)

4.5 End voltage (TVC)

Move the cursor to *End Voltage* and press **[OK]** to set the end voltage of a single cell. In charge mode this is the charging cut-off voltage, adjustable within ±50 mV of the full voltage. In discharge mode it is the discharge cut-off voltage. Turn the scroll wheel to adjust the value in 0.01 V steps.



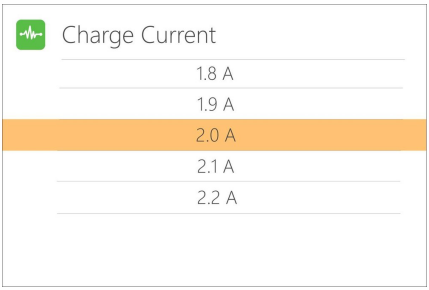
End voltage setting (End Voltage)

❇ Tips

- The cut-off voltage can only be set for LiPo, LiHV and LiFe batteries.
- Do not modify the cut-off voltage if you are not familiar with the battery characteristics.
- TVC stands for *terminal voltage control*.

4.6 Charging current

Move the cursor to *Charge Current* and press **[OK]**. Turn the scroll wheel to adjust the current in 0.1 A steps; turn it quickly to change the value faster. The charger supports up to 5.0 A.

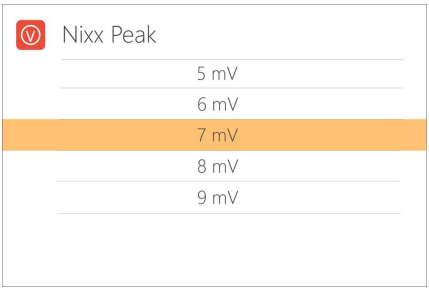


Charging current setting (Charge Current)

Set a charging rate of 1–2 C according to the battery capacity. Example: for a 2000 mAh battery set a charging current of 2.0–4.0 A. Always follow the guidelines of your battery's manufacturer.

4.7 NiMH setting (PeakV)

For NiMh batteries, the voltage drop at which the charger detects a full charge (−ΔV) can be set within 5–15 mV.



Voltage drop setting (Nixx Peak)

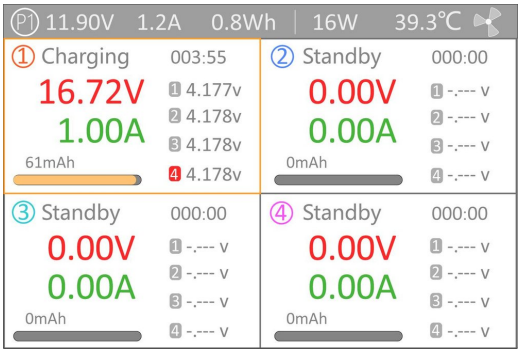
❇ Tips

- The voltage drop can only be set for NiMh batteries.
- **PeakV** – when a NiMH battery is fully charged, the voltage of each cell drops slightly from its peak. The charger evaluates this drop as the end of charging.

5. Charging

5.1 Working screen

When charging starts, the charger displays the working screen:



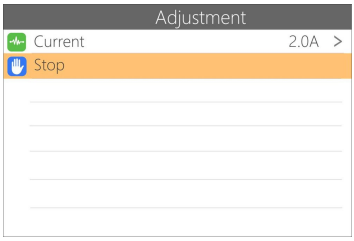
Channel ① charging, channels ②–④ in standby

Display content (example from the picture)

Value	Meaning
11.90 V	input power supply voltage
1.2 A	input power current
0.8 Wh	accumulated energy drawn from the input power
39.3 °C	internal temperature of the charger
16.72 V	main port voltage of channel ①
1.00 A	main port current of channel ①
003:55	working time of channel ①
61 mAh	cumulative capacity of channel ①
1 4.177 V	voltage of cell 1
4 4.178 V	voltage of cell 4 – the red marking means the cell is under balance management
-.--- V	no cell connected

5.2 Adjusting the current and stopping

While charging, short press **[OK]** to open the *Adjustment* menu, where you can change the working current dynamically (*Current*) or stop working (*Stop*).

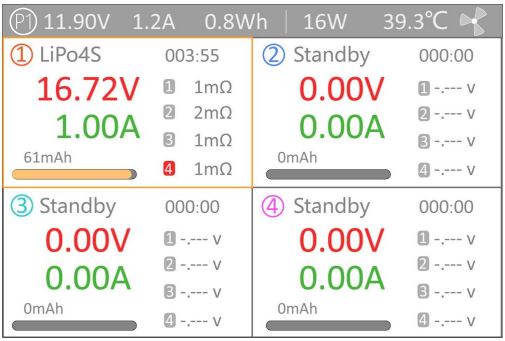


Adjustment menu

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

5.3 Cell internal resistance

Turn the scroll wheel on the working screen to switch the right-hand column of the channel from voltage to the internal resistance of the individual cells:



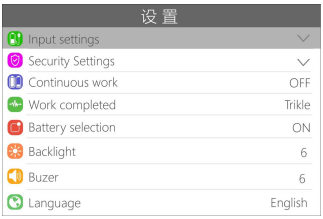
Internal resistance display – "1 1 mΩ" is the internal resistance of cell 1

❖ Tips

- Make sure someone supervises the charge throughout the process to deal with abnormalities safely.
- When a lithium battery is connected only to the main port, no balance management is performed – pay attention to the balance of the battery. After connecting the balance port, balance management begins automatically.
- After charging is completed, you can connect a new battery and the charger continues automatically according to the set mode. With a fixed number of cells, connect batteries with the same number of cells; with automatic detection, check the detected cell number.

6. System settings

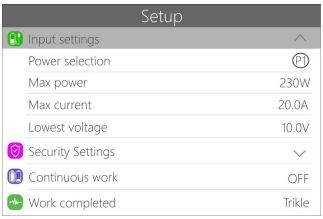
Long press **[OK]** on the main screen to enter the system settings. This is only possible when no channel is in use.



System settings

6.1 Input settings

Short press to expand the input power settings:

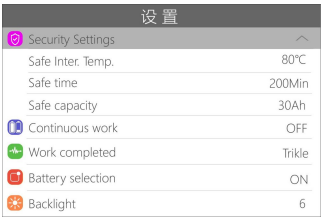


Input settings

Item	Meaning
Power selection	power profile; with AC input it is fixed to P1 with fixed values, with DC input P1 or P2 can be selected and power, current and voltage set by the user
Max power	maximum power drawn from the input port when charging
Max current	maximum current drawn from the input port when charging
Lowest voltage	lowest allowable input voltage

6.2 Security settings

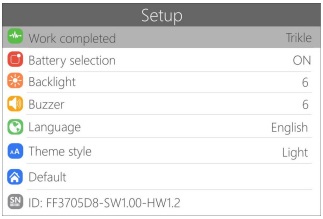
Short press to expand the charging safety settings:



Security settings

Item	Meaning
Safe Inter. Temp.	above this internal temperature the charger stops the main port output
Safe time	maximum time of continuous charging; charging stops when it is exceeded
Safe capacity	maximum capacity of continuous charging; work stops when it is exceeded

6.3 Other items



Further system settings

Item	Meaning
Continuous work	continue charging after the battery is replaced (the next battery must require the same settings)
Work completed	after charging, stop (Stop) or continue with trickle charging (Trickle)
Battery selection	show the list of saved batteries when charging is selected, or skip it
Backlight	display backlight brightness, levels 1–10
Buzzer	buzzer tone, can be switched off
Language	menu language (English, Chinese, etc.)
Theme style	menu style – Light or Dark
Default	restore all settings to factory values
ID	unique factory ID of the device

7. Other functions and specifications

7.1 Firmware update

Connect the charger to a computer with the USB data cable from the box. The computer recognizes a USB drive named *Toolkit*. Download the update file *app.upga* from the manufacturer's website www.toolkitrc.com, copy it to the charger's drive and overwrite the existing file. The firmware is then updated.

7.2 Automatic continuation of charging

When a battery is fully charged, unplug it and after 2 seconds connect the next battery – the charger continues charging automatically. You can turn this function on or off in the system settings (*Continuous work*).

7.3 Fan

When the internal temperature of the charger exceeds 42 °C, the fan runs at half speed to reduce noise. When it exceeds 50 °C, the fan runs at full speed to enhance heat dissipation.

7.4 Manual voltage calibration

With the charger switched off, press and hold the scroll wheel and connect the power supply – the manual voltage calibration starts. Measure the actual voltage of each cell with a voltmeter, move the cursor to the corresponding value and adjust it to match the voltmeter reading. Then move the cursor to save and short press the wheel once. A long beep confirms that the calibration was saved. Exit or switch off the charger.

7.5 Fully charged

When a lithium battery is fully charged, the charger displays the message *Fast charging has ended*. If the battery is not removed, the charger automatically keeps it full with constant-voltage trickle charging.

7.6 Specifications

Parameter	Value
AC input	100–240 V, max. 1.5 A; max. 100 W
DC input	10–18 V, max. 20 A; max. 200 W
Battery types	LiPo, LiHV, LiFe, Li-ion, LTO 1–4S NiMH 1–10S Pb 1–8S
Channels	4
Charging current / power	0.1–5 A; 50 W × 4 with DC input 0.1–5 A; 50 W × 2 or 25 W × 4 with AC input
Discharging current / power	0.1–2 A; 5 W × 4
Balancing current	240 mA (2–4S)
Accuracy	< 0.005 V
Cell voltage measuring range	1.0–5.0 V (1–4S)
Internal resistance measuring range	1–100 mΩ (1–4S)
Firmware update	via USB (micro USB)
Display	IPS LCD 3.5", 480 × 320 px
Dimensions	150 × 112 × 36.5 mm
Weight	450 g
Package dimensions	160 × 160 × 46 mm
Weight incl. package	600 g

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 (Q4AC) is given on the product. The unique device ID and the firmware and hardware version can be found in the system settings in the *ID* line.

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.