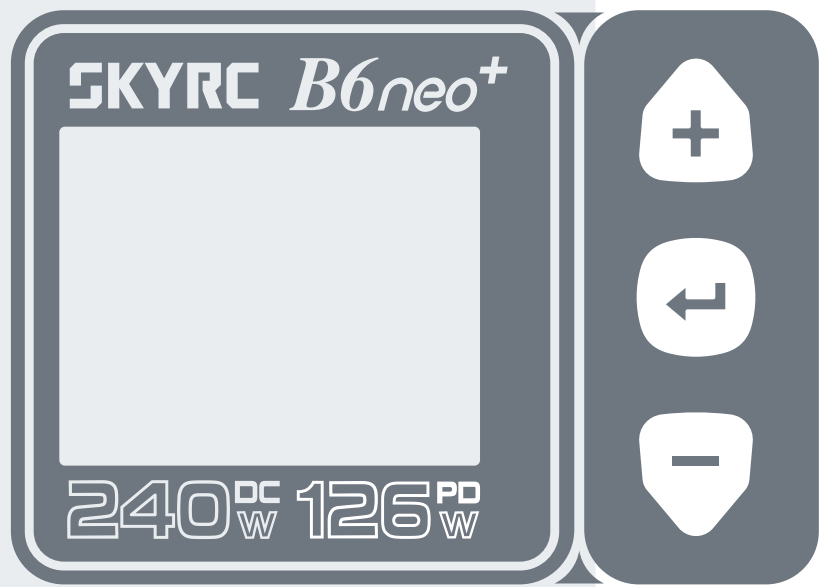
SKYRC

v. 111

Instruction Manual



B6neo+

Smart Charger

Contents

Introduction

Congratulations on choosing the SkyRC B6neo+ Smart Charger!

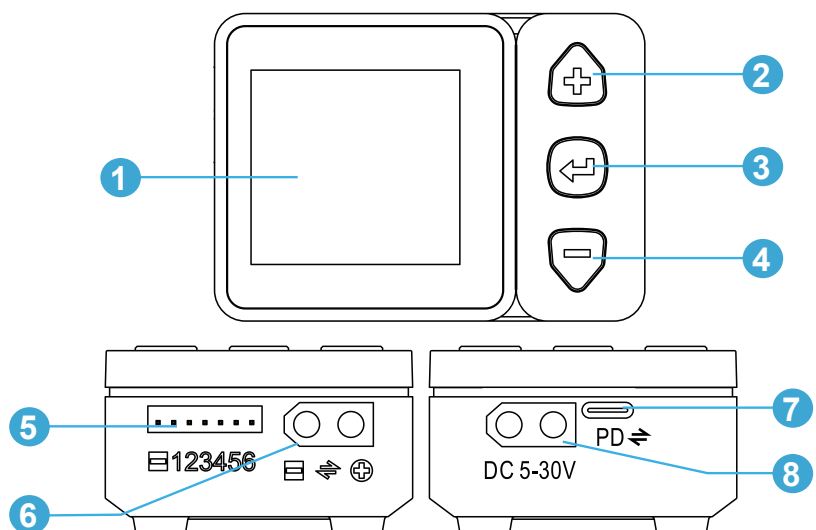
Building on the B6neo's success, the B6neo+ delivers exceptional performance with up to 240W on DC and 126W via Type-C PD. It supports multiple battery types (LiPo, LiFe, LiIon, LiHV, NiMH, NiCd, Pb) and doubles as a digital power supply. With PD 3.1 input, RC charging has never been more convenient, offering flexibility and efficiency with high-power PD chargers.

B6neo+'s reverse charging can provide high-power discharge up to 100W for batteries that need to be discharged. Through energy transfer, it charges devices like computers and phones via the Type-C port. The benefits are: 1. High discharge power up to 100W; 2. No energy is wasted, contributing to sustainable energy.

Please read the Operating Instructions and Safety Notes carefully before use.

Getting to know B6neo+

1. **LCD Display**
2. **+/Up Button**
   Increase the value or scroll through the menus/options.
3. **Enter Button**
   Confirm or terminate the current program, enter Charge Settings, and perform other actions.
4. **-/Down Button**
   Decrease the value or scroll through the menus/options.
5. **Balance Port**
6. **Main Port (XT60 Charge/Discharge Port)**
7. **USB-C Port**
8. **XT60 DC Input**



Specifications

Input Voltage	DC	5-30V
	PD3.0/3.1	5-28V
Input Current	DC	12A (±1A)
	PD	5A (±1A)
Charge Power	DC input	Max. 240W (±10%)
	PD input	Max. 126W (±10%)
Working Mode	LiPo/LiFe/LiIon/LiHV	Balance Charge, Charge, Discharge, Reverse Charge, Storage
	NiMH/NiCd	Charge, Re-Peak, Reverse Charge
	Pb	Normal, AGM Charge, Cold Charge, Reverse Charge
Battery Type/Cells	LiPo/LiFe/LiIon/LiHV	1S-6S
	NiMH/NiCd	2S-15S
	Pb	3S/6S/12S
Charge Current	LiPo/LiFe/LiIon/LiHV	0.3A~2A(±0.2A) 2.1A~10A (±10%)
	NiMH/NiCd	
	Pb	

Specifications

Discharge *(Both the main port and balance port must be connected for discharging)*	Battery Types Supporting Balance Port Discharge	LiPo/LiIo/LiFe/LiHV
	Discharge current	0.5A (±0.2A)
	Discharge voltage	LiPo: 3.0V-3.4V/cell (default: 3.3V)
		LiIon: 2.9V-3.3V/cell (default 3.2V)
		LiFe 2.6V-3.0V/cell (default 2.9V)
		LiHV 3.1V-3.5V/cell (default 3.4V)
Reverse Charge *(Supports PD 3.0 reverse charging)*	Reverse Charging Power	Max. 100W (±10%)
	NIXX battery reverse charging power	Cutoff Voltage < 7.5V, Reverse Charging Power: Max. 18W Cutoff Voltage < 9V, Reverse Charging Power: Max. 27W Cutoff Voltage < 10.5V, Reverse Charging Power: Max. 36W Cutoff Voltage < 12V, Reverse Charging Power: Max. 45W Cutoff Voltage < 13.5V, Reverse Charging Power: Max. 60W Cutoff Voltage ≥ 13.5V, Reverse Charging Power: Max. 100W
	LIXX/Pb battery reverse charging power	Below a cutoff voltage of 8.7V, reverse charging power: Max. 60W
		Cut-off voltage greater than or equal to 8.7V, reverse charging power: Max. 100W

Specifications

Balance Current	LiPo/LiFe/LiIon/LiHV	Max. 600mA
Working Environment	Temperature	0°C/32°F ~ 40°C/104°F
	Humidity	5%~75%
Storage Environment	Temperature	-10°C/14°F ~ 70°C/158°F
	Humidity	-5%~75%
Size		70*50*31mm
Weight		82g

⚠ Warning

B6neo+ is not intended for use by individuals with reduced physical, sensory, or cognitive abilities, or by those lacking experience and knowledge with batteries, unless under the supervision or guidance of a responsible person.

Failure to use this product properly and follow the warnings below may result in malfunction, electrical issues, overheating, fire, and could lead to injury or property damage.

Important:

When connected to a computer or other devices via USB-C, do not connect the XT60 with DC input at the same time. Doing so may cause serious damage to your computer or connected devices!

- ⚠ Never leave charging batteries unattended during use.
- ⚠ Never charge batteries overnight.
- ⚠ Never attempt to charge dead, damaged, or wet battery packs.
- ⚠ Never attempt to charge a battery pack containing different types of batteries.
- ⚠ Never charge batteries in extremely hot or cold places or place in direct sunlight.
- ⚠ Never charge a battery if the cable has been pinched or shorted.
- ⚠ Never connect the charger if the power cord has been pinched or shorted.
- ⚠ Never attempt to dismantle the charger or use a damaged charger.
- ⚠ Never attach your charger to both a PD and a DC power source at the same time.
- ⚠ Always use the charger with the correct charging and discharging program.
- ⚠ Always use only rechargeable batteries designed for use with this type of charger.
- ⚠ Never use the charger on car seats, carpets, or similar surfaces.
- ⚠ Always operate the charger away from flammable and explosive materials.

SkyRC Technology Co., Ltd. accepts no liability in such cases.

Standard Battery Parameters

	LiPo	LiIon	LiFe	LiHV	NiMH	NiCd	Pb
Nominal Voltage	3.7V/cell	3.6V/cell	3.3V/cell	3.8V/cell	1.2V/cell	1.2V/cell	2.0V/cell
Max. Charge Voltage	4.2V/cell	4.1V/cell	3.65V/cell	4.35V/cell	1.5V/cell	1.5V/cell	2.4V/cell
Storage Voltage	3.8V/cell	3.7V/cell	3.3V/cell	3.85V/cell	N/A	N/A	N/A
Allowable Fast Charge Current	≤1C	≤1C	≤4C	≤1C	1C-2C	1-2C	≤0.4C
Min. Discharge Voltage	3.0-3.4V/ cell	2.9-3.3V/ cell	2.6-3.0V/ cell	3.1-3.5V/ cell	0.1-1.0V/ cell	0.1-1.0V/ cell	1.8V~2.0V/ cell

Select the correct operating procedure based on the battery's specifications.

Incorrect settings could cause the battery to overheat, catch fire, or even explode.

Important:

- **For optimal performance and your safety, please use a PD-rated cable of 140W or higher. Lower-rated cables may limit charging speed and could lead to overheating or damage.**
- **This charger requires a third-party PD power source. Recommended to use reputable brands! Replace the PD power source if compatibility issues arise!**

USB-C PD Cable Specifications

by Power Delivery Version, Power Rating

PD Version	Max Power Rating	USB Type	Use Case
PD 2.0	60W (20V/3A)	USB-C 2.0	Basic charging for phones, tablets
PD 3.0	100W (20V/5A)	USB-C 3.1 Gen 1 & 2	Laptops, tablets, faster data needs
PD 3.1	140W (28V/5A, EPR)	USB-C 4	High-power laptops, monitors
PD 3.1 (EPR)	240W (48V/5A, EPR)	USB-C 4, EPR-rated	Heavy-duty devices, high-performance laptops

Key Differences:

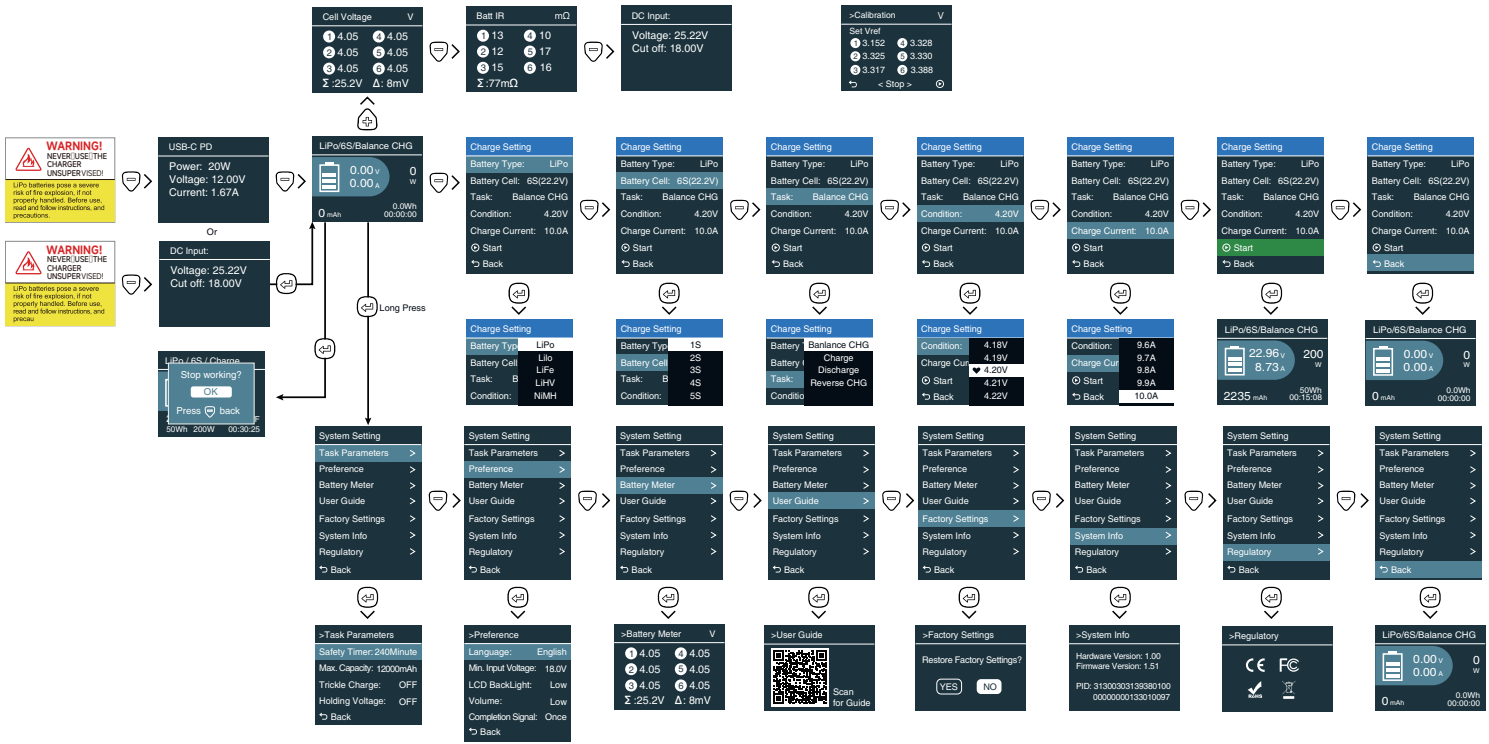
PD 2.0: Introduced the basic power profiles, supporting up to 60W with USB-C 2.0 cables.

PD 3.0: Increased power to 100W and added faster charging protocols, typically requiring USB-C 3.1 cables for optimal performance.

PD 3.1 (Standard Power Range, SPR): Boosts power to 140W and supports USB-C 4, making it suitable for newer laptops with higher power needs.

PD 3.1 (Extended Power Range, EPR): Expands power capabilities to 240W, requiring specialized cables and primarily used for high-power-demand devices.

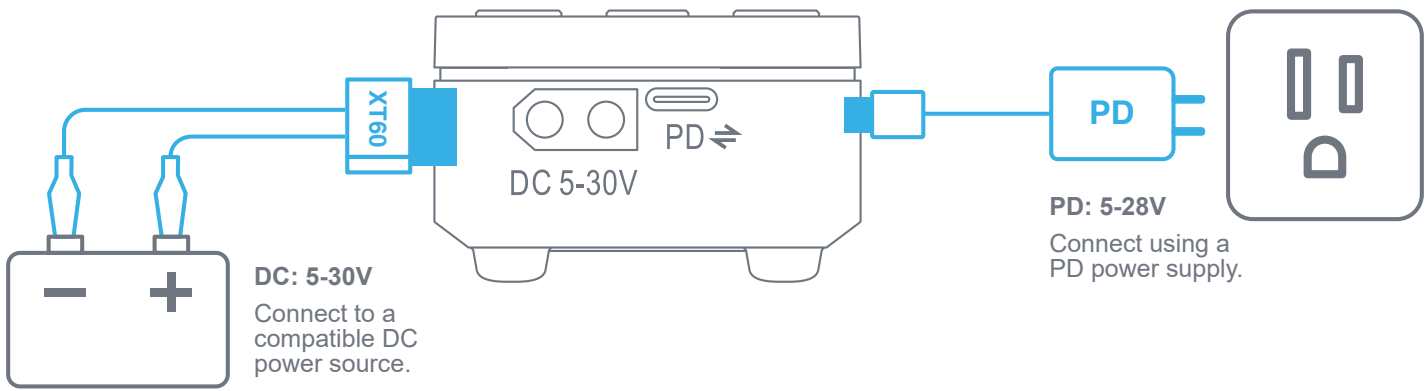
Program Flow Chart



Power and Battery Connection

1. Connecting to a Power Source

The SkyRC B6neo+ supports two DC input methods with the following input voltages:



2. Connecting the Battery

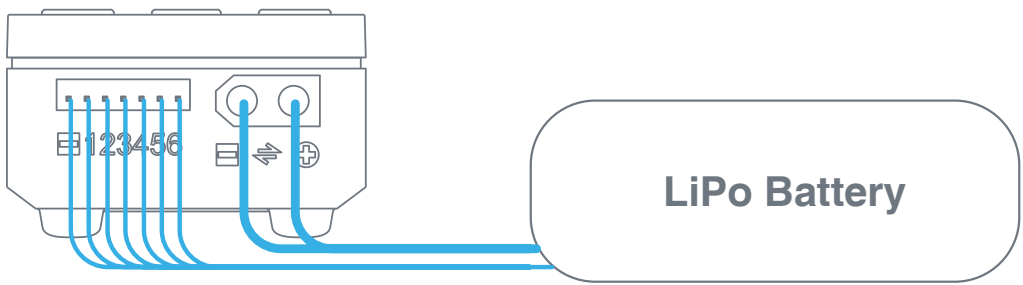
WARNING!

To avoid short circuits, always power the charger first via the DC or PD port on the left, then connect the battery to the Charge Port on the right. When disconnecting, reverse the sequence.

Power and Battery Connection

Lithium Battery Connection with Balance Adapter

- For safety reasons, it is highly recommended to charge Lithium batteries (LiPo, Li-ion, LiFe, and LiHV) using **Balance CHG mode**, unless the battery lacks a balance wire.
- Ensure that the balance wire is connected to the charger, with the black wire aligned with the negative marking. **Check the polarity to ensure correct connection!**



Lithium Battery Connection with Balance Adapter

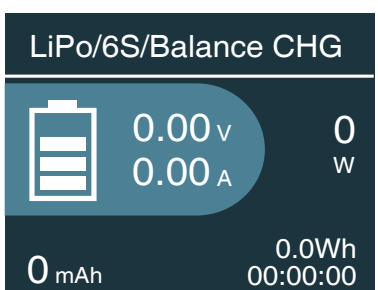
Battery Operations Matrix

Type	Working Mode	Description
LiPo Lilon LiFe LiHV	Balance CHG	To charge the lithium battery in balance mode to ensure each cell's voltage is balanced. The balance lead must be connected.
	Charge	To charge the lithium battery without requiring a balance lead connection.
	Reverse CHG	To transfer the battery's energy through the Type-C interface to charge your other devices.
	Discharge	To discharge the lithium battery to a specific value, which can be set before discharging.
NiMH NiCd	Charge	To charge the NiMH/NiCd battery based on the selected charging rate.
	Re-Peak	To charge the battery twice in a row automatically, which is useful for ensuring the battery is fully charged.
	Reverse CHG	To transfer the battery's energy through the Type-C interface to charge your other devices.
Pb	Normal	To charge the Pb battery based on the charging rate selected.
	AGM Charge	To charge the AGM battery based on the charging rate selected.
	Cold Charge	To charge the Pb battery under a low temperature based on the charging rate selected.
	Reverse CHG	To transfer the battery's energy through the Type-C interface to charge your other devices.

Lithium Battery Program

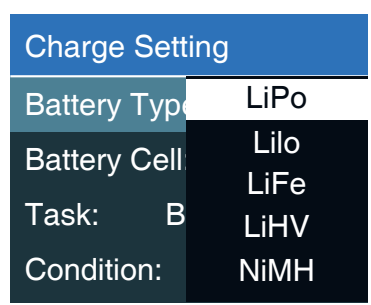
(LiPo/LiFe/LiIon/LiHV)

Scan or Click to Watch



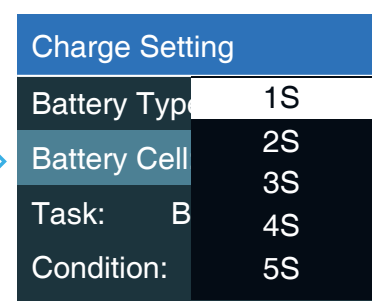
Enter Charge Setting

Press ⏎ to enter Charge Setting;



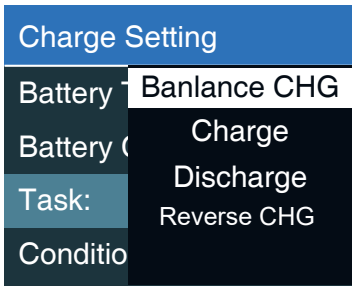
Select Battery Type

Press ⏎ to call out the Battery Type menu, and select your preferred lithium battery type.



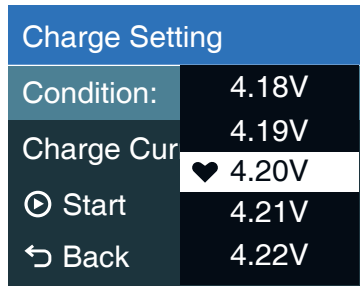
Set Battery Cells

Call out the Battery Cell menu, and select the battery cells correspondingly.



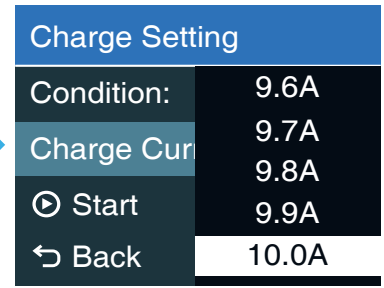
Select Task

Call out the Task menu, and select your desired working mode.



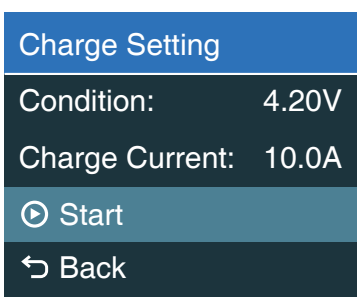
Select Condition

Call out the Condition menu, and adapt the cut-off voltage to the demand.



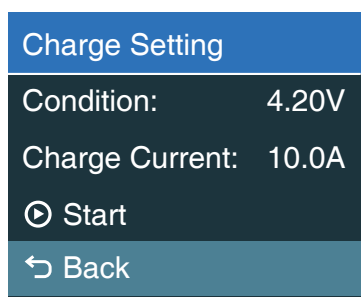
Select Charge current

Call out the Charge Current menu, and adapt the charge current to the demand.



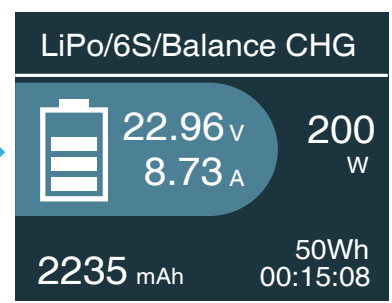
Start

Confirm to initiate the program.



Back

Confirm to step back to the main interface.



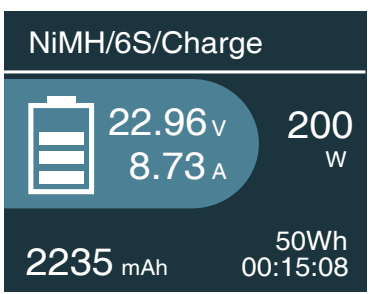
Stop

To terminate the current program, press ⏎ once.

Do not connect the battery before turning on the charger!

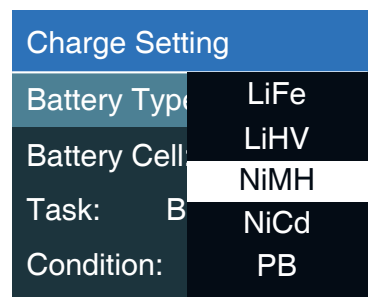
NiMH/NiCd Battery Program

Scan or Click to Watch



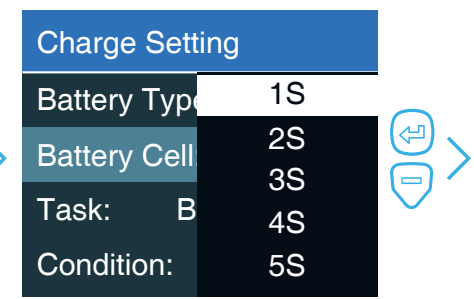
Enter Charge Setting

Press ⏎ to enter Charge Setting;



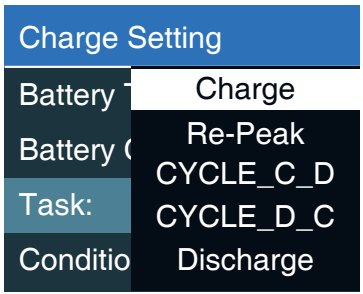
Select Battery Type

Press ⏎ to call out the Battery Type menu, and select NiMH or NiCd.



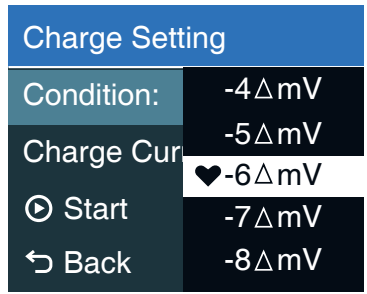
Set Battery Cells

Call out the Battery Cell menu, and select the battery cells correspondingly.



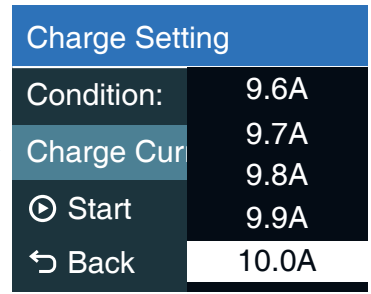
Select Task

Call out the Task menu, and select your desired working mode.



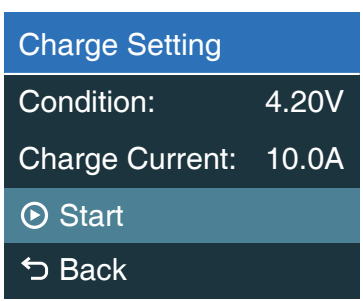
Select Condition

Call out the Condition menu, and adapt the cut-off voltage to the demand.



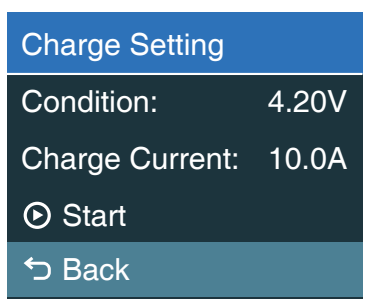
Select Charge current

Call out the Charge Current menu, and adapt the working current to the demand.



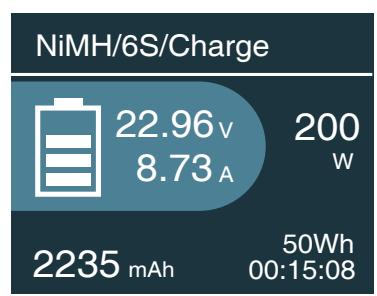
Start

Confirm to initiate the program.



Back

Confirm to step back to the main interface.



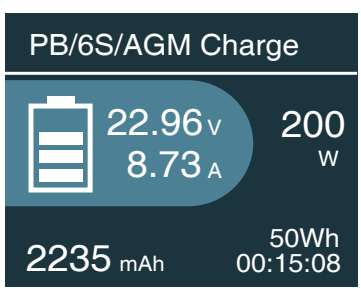
Stop

To terminate the current program, press ⏎ once.

For Re-Peak, you must set the rest times appropriately.

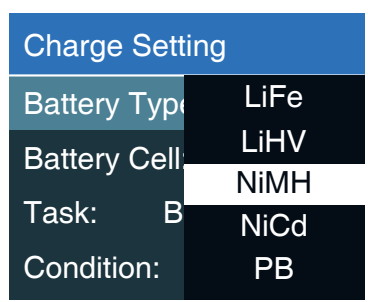
Pb Lead-Acid Battery Program

Scan or Click to Watch



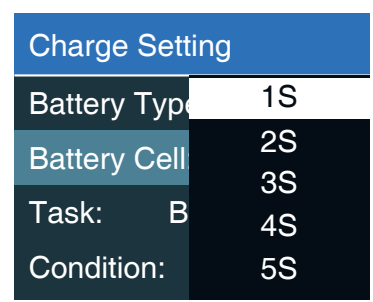
Enter Charge Setting

Press ⏎ to enter Charge Setting;



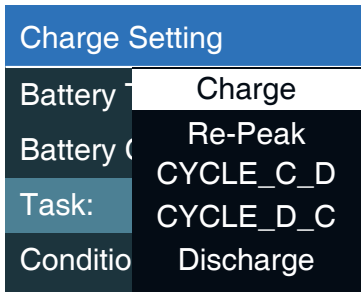
Select Battery Type

Press ⏎ to call out the Battery Type menu, and select Pb.



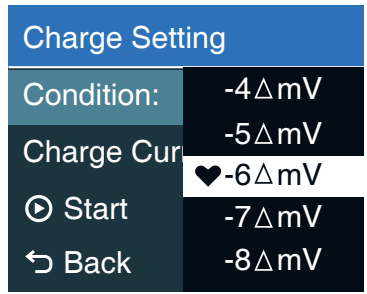
Set Battery Cells

Call out the Battery Cell menu, and select the battery cells correspondingly.



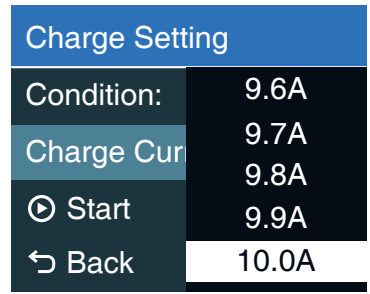
Select Task

Scroll to Task, call out the menu and scroll to select the working mode.



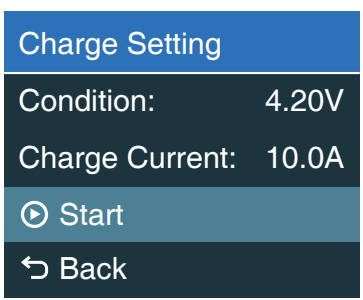
Select Condition

There is no option to change it.



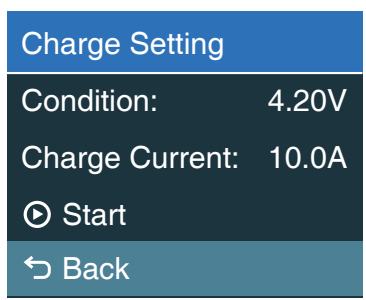
Select Charge current *

Call out the Charge Current menu, and adapt the working current to the demand.



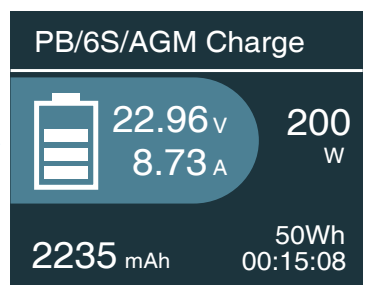
Start

Confirm to initiate the program.



Back

Confirm to step back to the main interface.



Stop

o terminate the current program, press ⏎ once.

***There is no option to change it for Reverse Charge.**

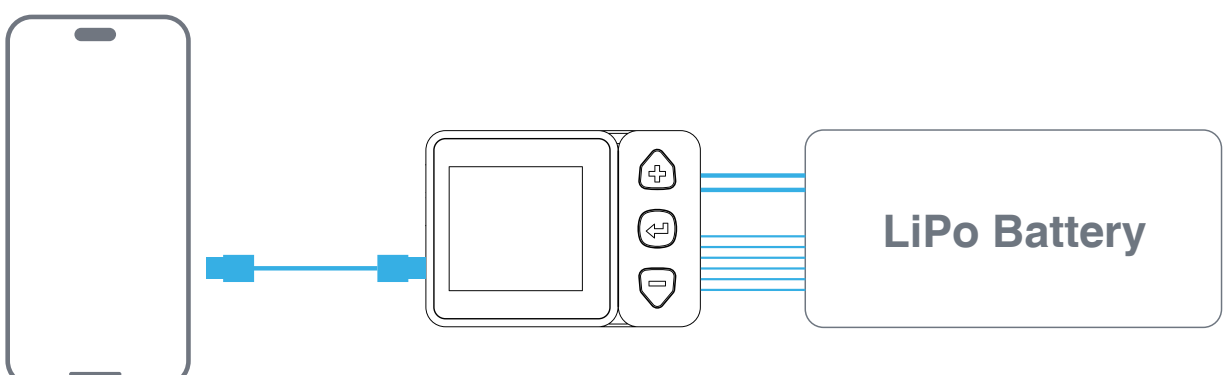
Reverse Charge

1. Connect electronic devices (such as power banks, mobile phones, tablets, etc.) via the TYPE-C port.
2. Connect the output terminal to the battery and set the appropriate battery type and number of cells before starting reverse charging.

Scan or Click to Watch

Note:

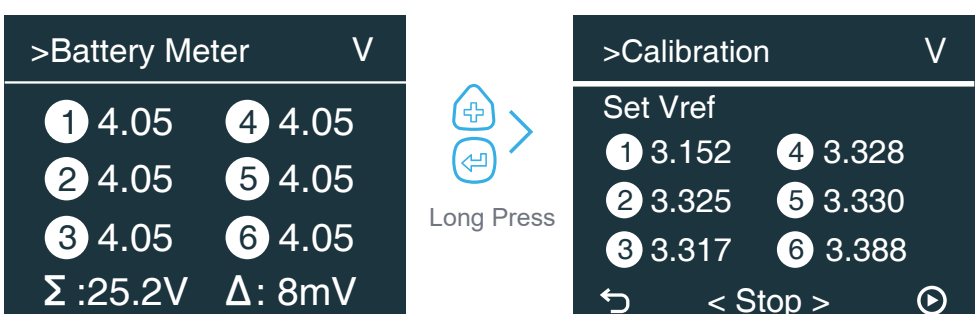
1. The reverse charging current is controlled by the connected electronic device, while the charger only supplies the necessary power.
2. The system will not operate if the battery voltage is below 6V or the total cutoff voltage is less than 6V.
3. An error will occur when initiating reverse charging if a DC power source or non-protocol adapter is connected to the input port.
4. In reverse charging mode, Start cannot be activated if both XT60 input and XT60 output ports are connected.



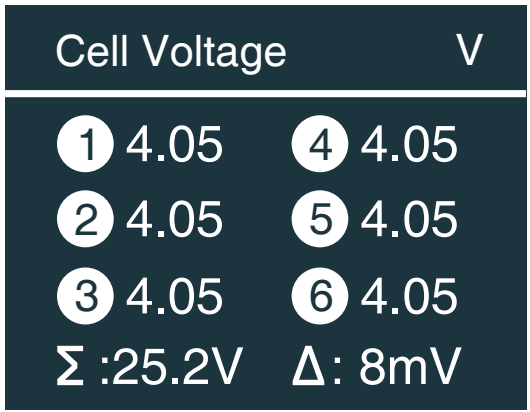
Voltage Calibration

1. Connect the 6S battery to the B6neo+, ensuring that you connect to the balance port.
2. On the main page (battery voltage detection page), briefly press the to enter the cell voltage page.
3. Simultaneously press and hold the and to enter the calibration page.
4. Press the to check the voltage of each cell one by one.
5. Press to select the desired voltage, and this value will turn blue.
6. Adjust the value using the or .
7. After calibration, press the to enter the confirmation option.
8. Press and hold to save the updated values.

Scan or Click to Watch



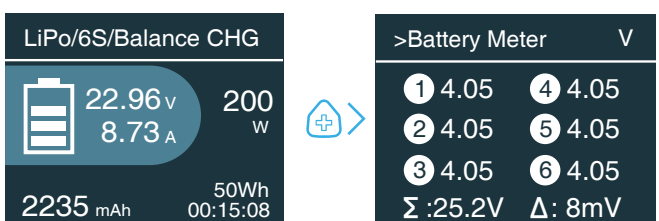
Battery Voltage Meter



Scan or Click to Watch

Method 1

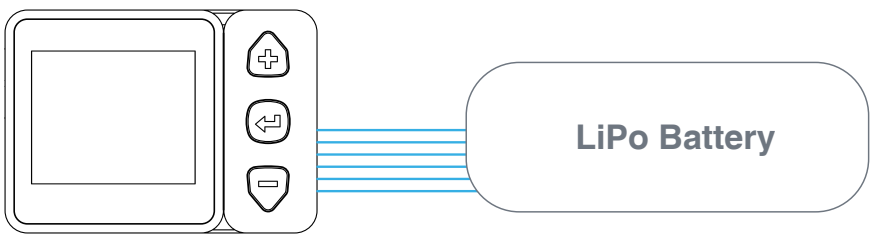
During the charging process, you can press the on the main screen to switch back and forth to view the battery voltage values.



Battery Voltage Meter

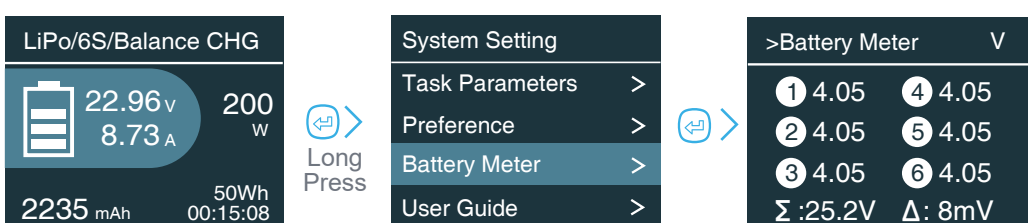
Method 2

The charger can intuitively detect battery voltage. Simply connect lithium battery's balance connector directly to the charger's balance port, and the charger will automatically power on and display the battery voltage without needing to be manually switched on.

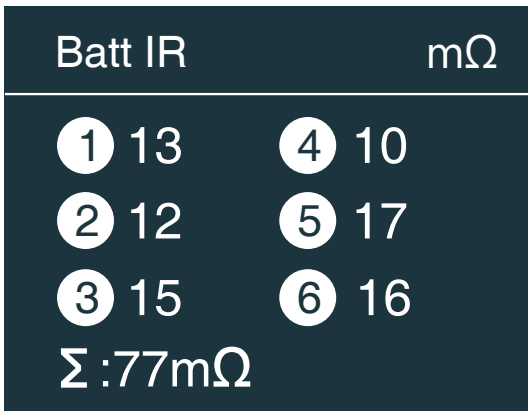


Method 3

1. After connecting the charger to the power supply, press and hold on the main screen to enter System Settings.
2. Use the to select Battery Meter, then connect the battery to the charger's balance port.
3. Press to detect the battery voltage. You can press the to switch between to view the voltage values of each cell.



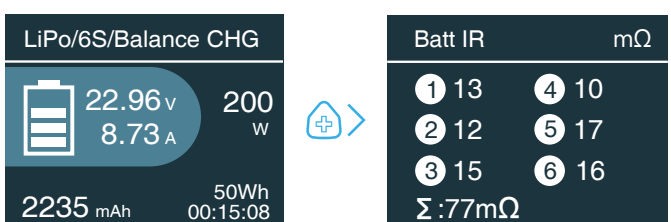
Battery Resistance Meter



Scan or Click to Watch

Method 1

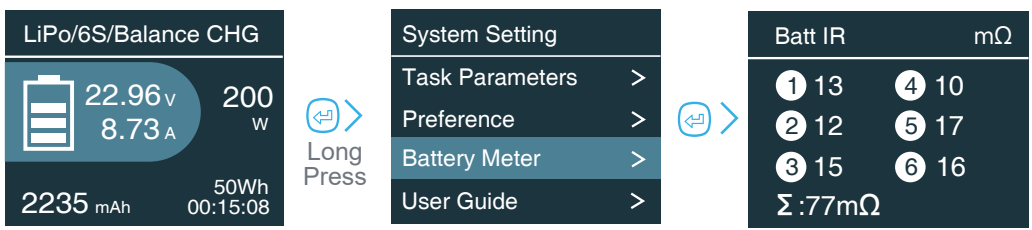
During the charging process, you can press the on the main screen to switch back and forth to view internal resistance values of each cell.



Battery Resistance Meter

Method 2

1. Connect the charger to the power supply, then press and hold on the main screen to enter System Settings;
2. Use the to select Battery Meter, and connect the battery to the charger, ensuring the balance port is connected.
3. Press to measure the internal resistance of the battery.
4. Press the to switch between and view the internal resistance values of each cell.



Firmware Upgrade

1. Launch **Charger Master***, which will automatically detect the device.
2. Connect one end of the Type-C cable to the computer, then press and hold both the and buttons simultaneously while connecting the other end of the Type-C cable to the charger.
3. Once detected, click to check for a new firmware version.
4. If a new version is available, the Update button will appear.
5. Click Update and wait for the process to complete.

Scan or Click to Watch

Scan or Click to Download

WARNING!

DO NOT power off or exit the program!
The upgrade process takes approximately 5 minutes.

Errors Explained

In case of a fault, the B6neo+ will display an error message indicating issues like connection problems or battery mismatches. Refer to the table below for troubleshooting based on the error code.

Error Message	Explanation
DC In Too Low!	DC input voltage is lower than preset!
DC In Too High!	DC input voltage is higher than preset!
Connection Break!	The battery connection may be broken!
Cell Error!	The cells do not match!
Battery Type!	The battery type is wrong!
Overcharge Capacity Limit!	The charged capacity reaches the preset capacity limit!
Over Time Limit!	The program has timed out!
Int. Temp.Too High!	The internal temperature is high!
Over Load!	The charger is overloaded!
Reversed Polarity!	The battery's polarity is reversed!
Fully Charged!	The battery is already fully charged!
Balance Connection Error!	An error occurred with the balance connection!
Cell Volt Diff.!	The voltage difference between each cell is high!

System Settings

On the main interface, hold for seconds to enter System Settings.

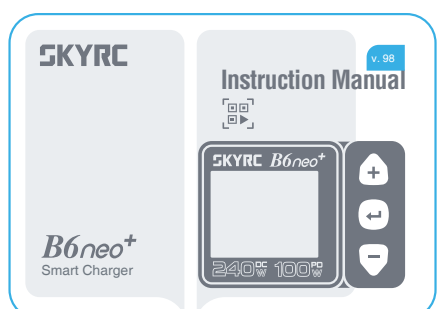
Menu	Option	Definition
Task Parameters	Safety Timer	Customize a time period for program protection.
	Max. Capacity	Customize the capacity protection
	Trickle Charge	Enable or disable trickle charge.
	Holding Voltage	Enable or disable holding voltage. When enabled, if the battery voltage drops to a specified value, the charger will automatically charge with a small current.
	Back	The battery type is wrong!
Preference	Language	Select your preferred language.
	Min.Input Voltage	Set the minimum voltage for input protection.
	LCD BackLight	Adjust the screen brightness.
	Volume	Adjust the key and beep volume.
	Completion Signal	Choose the way you'd like to be reminded when the program completes.
	Back	Back to the previous interface.
Battery Meter	N/A	Measure the battery voltage and internal resistance. Press to exit.
User Guide	N/A	Check the instruction manual.

System Settings

Menu	Option	Definition
Factory Settings	N/A	Restore to the factory settings.
System Info.	N/A	Check the current system information. Press ⏎ to exit.
Regulatory	N/A	Check the certification information.
Back	N/A	Back to the previous interface.

In The Box

1*SkyRC B6neo+ Smart Charger



1*Instruction Manual

Conformity Declaration

SkyRC B6neo+ complies with all relevant and mandatory CE directives and FCC Part 15 Subpart B.

Warranty and Service

Liability Exclusion

This charger is designed and approved exclusively for use with the types of battery stated in this Instruction Manual. SkyRC 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 that 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 SkyRC products which were immediately and directly involved in the event in which the damage occurred.

Warranty and Service

We guarantee this product to be free of manufacturing and assembly defects for a period of one year from the time of purchase. The warranty only applies to material or operational defects, which are present at the time of purchase. During that period, we will repair or replace free of service charge for products deemed defective due to those causes.

This warranty is not valid for any damage or subsequent damage arising as a result of misuse, modification, or as a result of failure to observe the procedures outlined in this manual.

Note:

1. The warranty service is valid in China only.
2. If you need warranty service overseas, please contact your dealer in the first instance, who is responsible for processing guarantee claims overseas. Due to high shipping costs, and complicated custom clearance procedures to send back to China, please understand that SkyRC can't provide warranty service to overseas end users directly.
3. If you have any questions which are not mentioned in the manual, please feel free to send an email to info@skyrc.com

SKYRC

The manual is subject to change without notice;
please refer to our website for the latest version!

Manufactured by
SKYRC TECHNOLOGY CO., LTD.

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