Skyrc B6neo Smart Charger DC/USB PD Dual Input Instruction Manual

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SKYRC B6NEO INSTRUCTION MANUAL
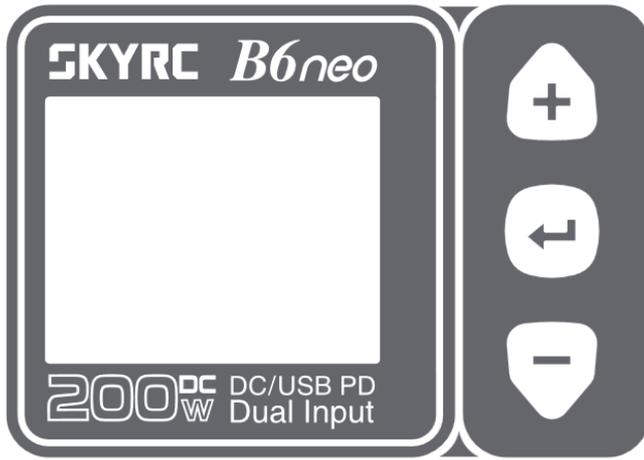
B6neo Smart Charger
Instruction Manual

Contents

Introduction

Congratulations on your choice of SkyRC B6neo smart charger.

B6neo features a stylish and ultra-compact design. It may be simple to use, but the operation requires some knowledge. And the purpose of these operating instructions is to help you quickly become familiar with its functions. Therefore, it is extremely important that you read the Operating Instructions, Warnings and Safety Notes thoroughly before using B6neo. It is our hope that B6neo will give you many years of pleasure and success.

B6neo is a DC smart charger with a maximum output of 200W. It is capable of charging batteries of varying chemistries (LiPo/LiFe/LiIon/LiHV/NiMH/NiCd/Pb) and operating as a power supply, making it useful for hobbyists who need to power their DC equipment. With its unprecedented function of voltage measurement without power on, it becomes easy to measure battery voltage without hurdles.

Please BE SURE to read these INSTRUCTIONS, WARNINGS, and SAFETY NOTES prior to using for the first

time.

It can be dangerous to mishandle batteries and battery chargers, as batteries always risk catching fire and exploding.

Mishandling batteries and battery chargers are hazardous and may cause fire and explosion.

Chart
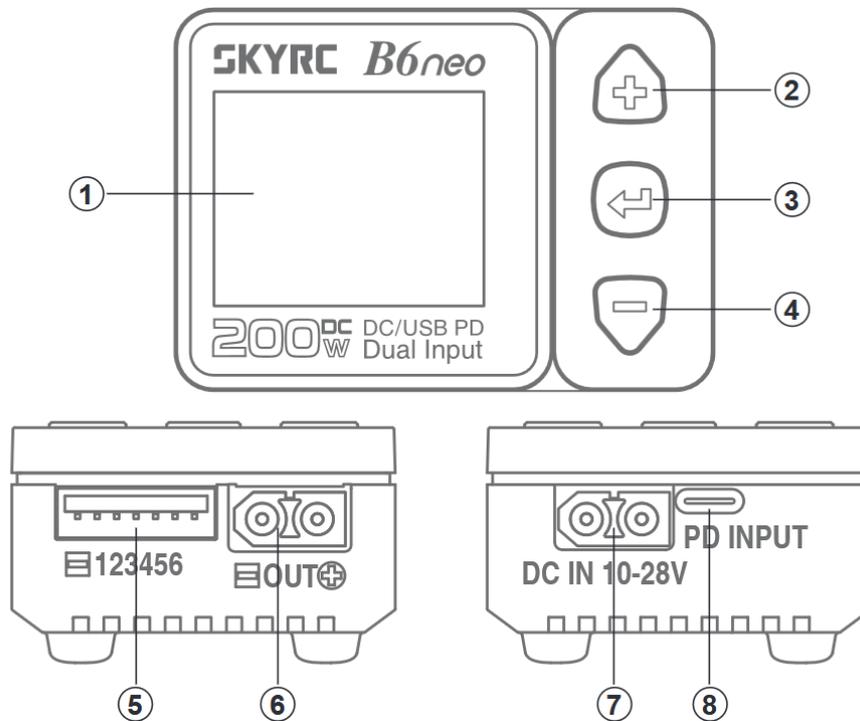
1. LCD Display
2. scroll up, increase the current, etc.
3. confirm the choice, terminate the current program, enter into the setting, etc.
4. scroll down, decrease the current, etc.
5. Balance port
6. main port, DC output port, etc.
7. DC Input, 10.0-28.0V/12A
8. PD Input, must comply with PD3.0 specification

Package

1*SkyRC B6neo Charger
1*Quick Start Guide

Specifications

Item	Option	Specs
Input voltage	DC	10.0-28.0V
	PD3.0/QC	12.0-20.0V
Input current	DC	12A
	PD	5A
Max. output power	DC	200W
	PD	80W
Working mode	LiPo/LiFe/LiIon/LiHV	Balance CHG, Charge, Storage, Discharge
	NiMH/NiCd	Charge, Re-Peak, CYCLE_C_D, CYCLE_D_C, Discharge
	Pb	Normal, AGM Charge, Cold Charge, Discharge
	DC power supply	5.0-27.0V, 1.0-10.0A
Battery type/cells	LiPo/LiFe/LiIon/LiHV	1S-6S
	NiMH/NiCd	1S-15S
	Pb	3S/6S
Charge current	LiPo/LiFe/LiIon/LiHV	0.2A-10.0A
	NiMH/NiCd	0.2A-10.0A
	Pb	0.2A-10.0A
Discharge current	Current	0.1A-2A
	Power	Max. 24W (±10%) based on 6S(4.2V/cell)
Balance current	LiPo/LiFe/LiIon/LiHV	Max.500mA
Size	70x50x32mm	
Weight	82g	

⚠ Warning

B6neo is not intended for use by persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning the use of the charger by a person responsible for their safety.

Failure to exercise caution while using this product and comply with the following warnings could result in a product malfunction, electrical issues, excessive heat, FIRE, and ultimately injury and property damage.

⚠ 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.
⚠ 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.

Standard Battery Parameters

	LiPo	LiIon	LiFe	LiHV	MiMH	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	3.6V/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	1C-2C	≤0.4C
Min. discharge voltage	3.0-3.3V/cell	2.9-3.2V/cell	2.6-2.9V/cell	3.1-3.4V/cell	0.1-1.1V/cell	0.1-1.1V/cell	1.8V~2.0V/cell

Select the correct operating procedure in accordance with the battery parameters. Incorrect settings may cause the battery to burn or even explode.

⊕ Go through the menus and increase the parameter value.

⊖ Enter the setting, confirm the choice, terminate the progress, or go back to the previous screen.

⏎ Go through the menus and decrease the parameter value.

1. **Connecting to a power source**

   There are two options of inputs for SkyRC B6neo, DC 10.0-28.0V and PD3.0 12.0-20.0V

DC 10.0-28.0V power source connection.

PD INPUT
DC IN 10-28V

PD3.0 12.0-20.0V power supply connection.
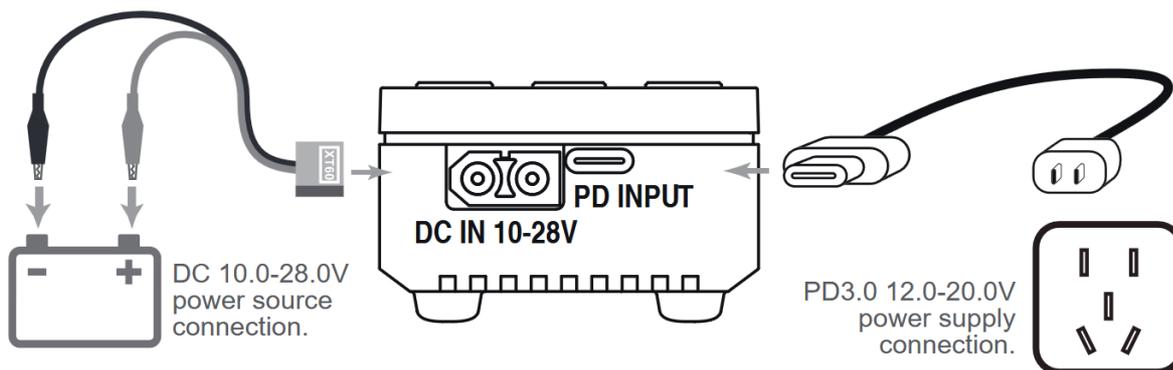
2. **Connecting the battery**

1. Lithium Battery Connection with Balance Adapter

For safety reasons, it is highly recommended to charge Lithium batteries (LiPo, Lilon, LiFe and LiHV) using Balance CHG mode, unless the battery comes without a balance wire.

The balance wire attached to the battery must be connected to the charger with the black wire aligned with the negative marking. Ensure correct polarity!
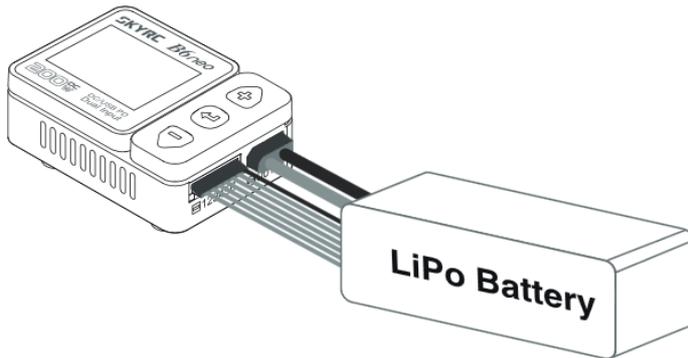

2. NiMH/NiCd or Pb Battery Connection
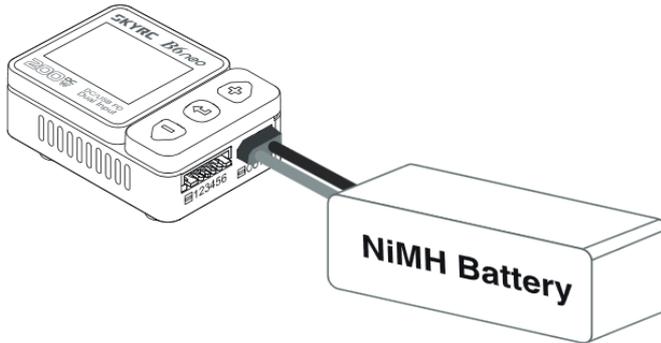
Specifications

Battery Type	Working Mode	Description
LiPo Lilon LiFe LiHV	Balance CHG	To charge the lithium battery in balance mode so that the voltages of each cell can be well balanced. The balance lead must be connected.
	Charge	To charge the lithium battery without a balance lead connected.
	Storage	By charging or discharging the battery, a specific storage value can be achieved. LiPo: 3.8V, LiFe: 3.3V, Lilon: 3.70V, LiHV: 3.85V
	Discharge	To discharge the lithium battery to a specific value, which can be set before discharging.

	Charge	To charge the NiMH/NiCd battery according to user preferences.
NiMH NiCd	Re-Peak	To charge the battery twice in a row automatically, which is useful for ensuring the battery is fully charged.
	Cycle_C_D	A 1 to 5 cycle charge-discharge process is effective in refreshing NiMH/NiCd batteries and restoring their performance.
	Cycle_D_C	A 1 to 5 cycle discharge-charge process is effective in refreshing NiMH/NiCd batteries and restoring their performance.
	Discharge	To discharge NiMH/NiCd battery to a specific value, which can be set before discharging.
Pb	Normal	To charge the Pb battery according to user preferences.
	AGM Charge	To charge the AGM battery according to user preferences.
	Cold Charge	To charge the Pb battery at a low temperature according to user preferences.
	Discharge	To discharge the Pb battery to a specific value, which can be set before discharging.

In this chart, you can see which operations B6neo is capable of performing based on the type of battery.

Lithium Battery Program(LiPo/LiFe/LiIon/LiHV)

Here is a flowchart to guide you to set up the program.
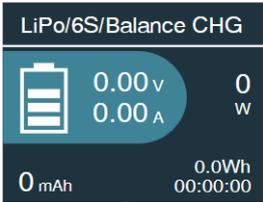
Enter charge setting

Press ENTER to enter Charge Setting;
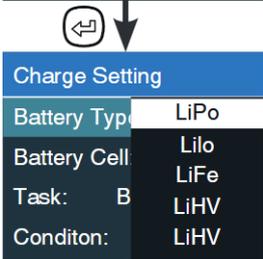
Battery type select

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

Battery cell select

Charge Setting
- Battery Type
- Battery Cell
- Task: B
- Conditon:

Menu: 1S / 2S / 3S / 4S / 5S

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

Task select

Charge Setting
- Battery T
- Battery C
- Task:
- Conditon

Menu: Banlance CHG / Charge / Storage / Discharge

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

Condition select

Charge Setting
- Conditon:
- Charge Cur
- ⊙ Start
- ↺ Back

Menu: 4.18V / 4.19V / ♥ 4.20V / 4.21V / 4.22V

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

Charge/Discharge current select

Charge Setting
- Conditon:
- Charge Cur
- ⊙ Start
- ↺ Back

Menu: 9.6A / 9.7A / 9.8A / 9.9A / 10.0A

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

Start

Charge Setting
- Conditon: 4.20V
- Charge Current: 10.0A
- ⊙ Start
- ↺ Back

Confirm to initiate the program.

Back

Charge Setting
- Conditon: 4.20V
- Charge Current: 10.0A
- ⊙ Start
- ↺ Back

Confirm to initiate the program.

Stop

LiPo/6S/Balance CHG

22.96 v   200 w
8.73 A
2235 mAh   50Wh   00:15:08

To terminate the current program, press ENTER ⏎ button once.

Do not connect the battery before turning on the charger!

NiMH/NiCd Battery Program
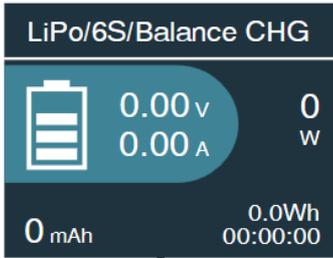
Here is a flowchart to guide you to set up the program.

LiPo/6S/Balance CHG

| 0.00 v | 0 |
| 0.00 A | W |

0.0Wh
00:00:00
0 mAh

Enter charge setting

Press ENTER ⏎ to enter Charge Setting;

Charge Setting

Battery Typ	LiFe
Battery Cell	LiHV
	MiMH
Task: B	NiCd
Conditon:	PB

Battery type select

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

Charge Setting

Battery Typ	1S
Battery Cell	2S
	3S
Task: B	4S
Conditon:	5S

Battery cell select

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

Charge Setting

Battery	Charge
Battery (	Re-Peak
	CYCLE_C_D
Task:	CYCLE_D_C
Conditor	Discharge
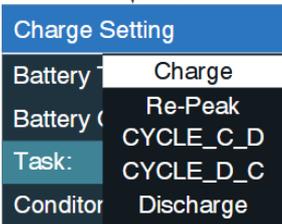
Task select

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

Charge Setting

Conditon:	-4△mV
	-5△mV
Charge Cur	♥-6△mV
Start	-7△mV
Back	-8△mV
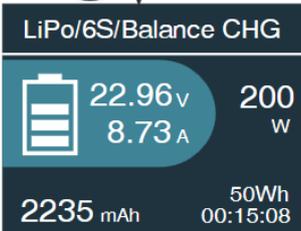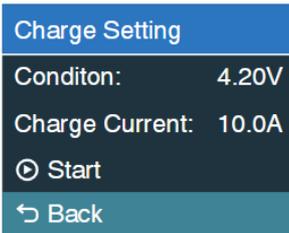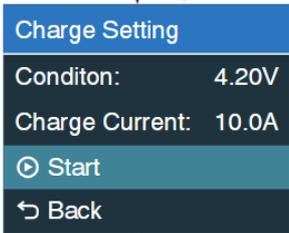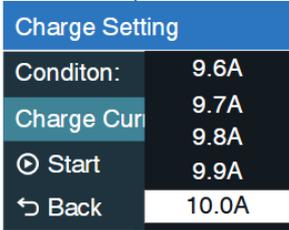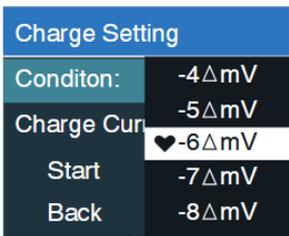
Condition select

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

Charge Setting

Conditon:	9.6A
	9.7A
Charge Cur	9.8A
⊙ Start	9.9A
↺ Back	10.0A

Charge/Discharge current select

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

For Re-Peak, Cycle_C_D, and Cycle_D_C, you must set the cycles and rest times appropriately.

Charge Setting

Conditon:	4.20V
Charge Current:	10.0A
⊙ Start	
↺ Back	

Start

Confirm to initiate the program.

Charge Setting

Conditon:	4.20V
Charge Current:	10.0A
⊙ Start	
↺ Back	

Back

Confirm to initiate the program.

LiPo/6S/Balance CHG

22.96 v   200 w
8.73 A

2235 mAh   50Wh   00:15:08

Stop

To terminate the current program, press ENTER button once.

**Do not connect the battery before turning on the charger!**

Pb Lead-Acid Battery Program
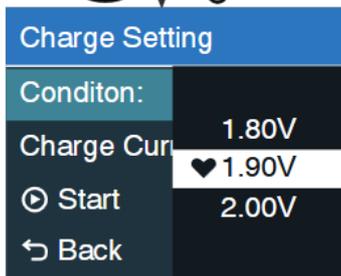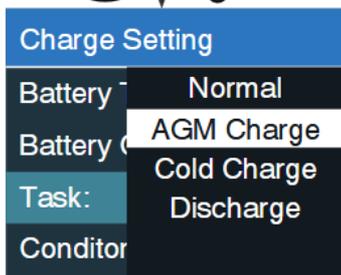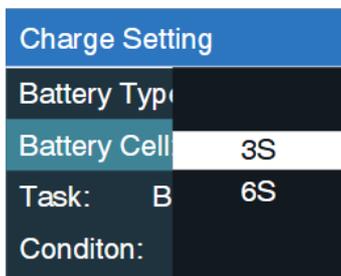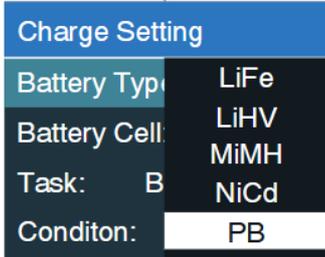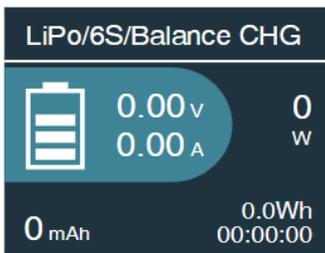
Here is a flowchart to guide you to set up the program.

LiPo/6S/Balance CHG

0.00 v 0 w
0.00 A

0 mAh
0.0Wh
00:00:00

Enter charge setting

Press ENTER ⏎ to enter Charge Setting;

Charge Setting

Battery Typ   LiFe
              LiHV
Battery Cell: MiMH
Task: B   NiCd
Conditon: PB

Battery type select

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

Charge Setting

Battery Typ
Battery Cell   3S
Task: B   6S
Conditon:

Battery cell select

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

Charge Setting

Battery T   Normal
            AGM Charge
Battery C   Cold Charge
Task: Discharge
Conditor

Task select

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

Charge Setting

Conditon:
            1.80V
Charge Cur
♥ 1.90V
⊙ Start
            2.00V
↩ Back

Condition select

Discharge mode is the only mode that can allow you to edit in the Condition.

There is no option to change it for other working modes.
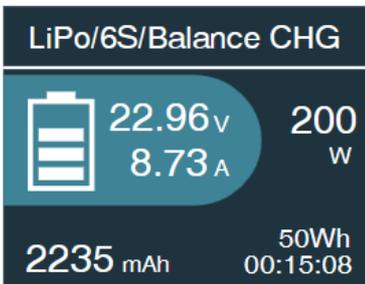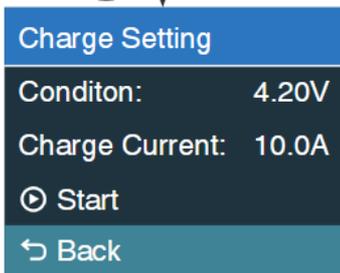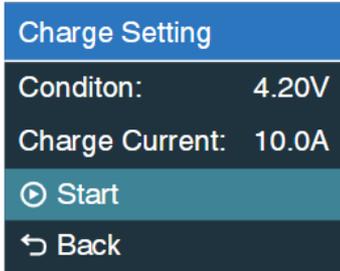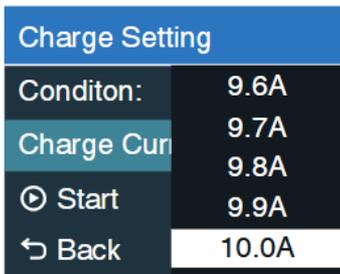
Charge Setting

Conditon:	9.6A
Charge Cur	9.7A
	9.8A
⊙ Start	9.9A
↩ Back	10.0A

Charge/Discharge current select

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

Charge Setting

| Conditon: | 4.20V |
Charge Current:	10.0A
⊙ Start	
↩ Back	

Start

Confirm to initiate the program.

Charge Setting

Conditon:	4.20V
Charge Current:	10.0A
⊙ Start	
↩ Back	

Back

Confirm to initiate the program.

LiPo/6S/Balance CHG

22.96 v   200 w
8.73 A

2235 mAh   50Wh   00:15:08

Stop

To terminate the current program, press ENTER button once.

Do not connect the battery before turning on the charger!

DC Power

LiPo/6S/Balance CHG

0.00 v   0 w
0.00 A

0 mAh   0.0Wh   00:00:00
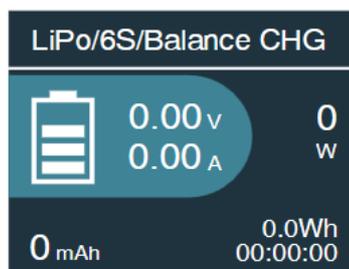
Long Press

On the main interface, hold the ENTER button for seconds to enter the system setting.

Charge Setting	
Task Parameters	>
System Setting	>
DC Power	>
Battery Meter	>

*Connect your desired DC equipment.

>DC Power	
Voltage:	12.0V
Current:	4.2V
⊙ Start	
⤺ Back	
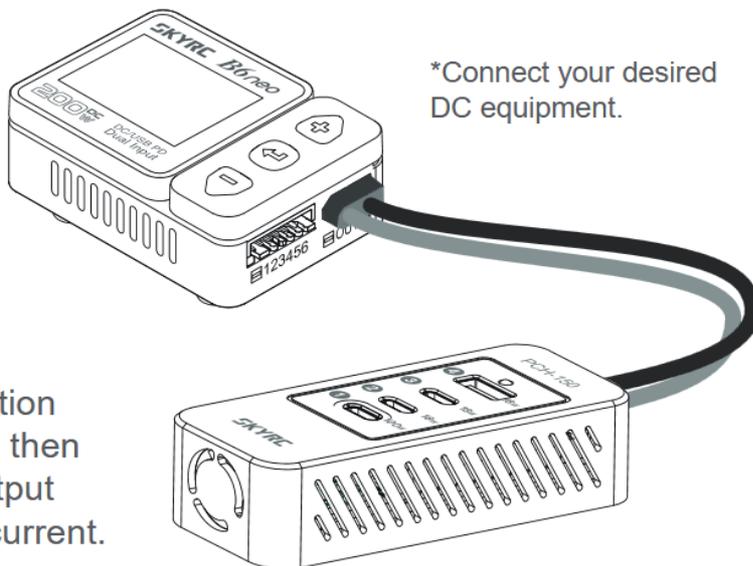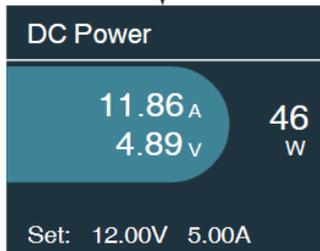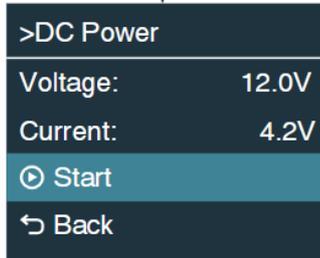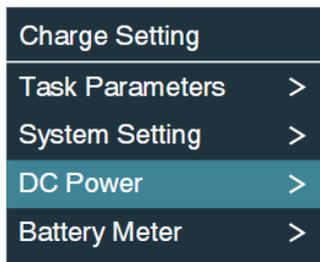
Select the option of DC Power, then adjust the output voltage and current.

DC Power
11.86 A 4.89 v   46 W
Set: 12.00V 5.00A

Start to activate the power function after setting up.

Voltage Calibration

1. On the main interface, press + twice to enter the interface of battery resistance.
2. Connect the 6S battery to B6neo.
3. Hold the ENTER and + buttons together to enter the calibration interface.
4. Press + button to go through the voltage of each cell.
5. Press ENTER button to choose the voltage, the value of which will turn blue.
6. Press + or – to adjust the values.

Batt IR	mΩ
① 000	④ 000
② 000	⑤ 000
③ 000	⑥ 000
Σ :00mΩ	

Long Press →

>Calibration	V
Set Vref	
① 3.152	④ 3.328
② 3.325	⑤ 3.330
③ 3.317	⑥ 3.388
⤺	< Stop > ⊙
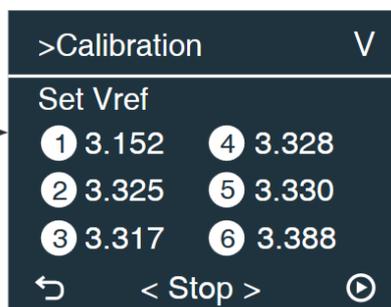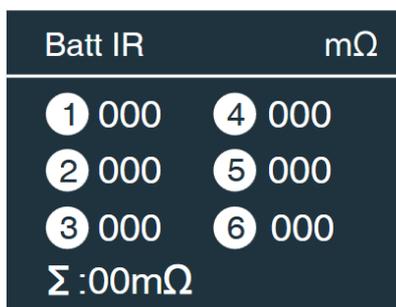
Errors and Warnings

In the event of a fault, B6neo will display an error message.

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 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 is timed out!
Int.Temp.Too High!	The internal temperature is high!
Over Load!	The charger is overloaded!
Reversed Polarity	The battery connection is reversed.
Fully Charged	The battery is fully charged already!
Outlet Volt. Too Low!	The DC output voltage is too low.
Outlet Overload!	The DC output is overloaded.
Balance Connection Error!	The balance connection is interrupted.
Cell Volt Diff.	The voltage difference between each cell is high.
Set Power Errow	There is an error in setting the DC power.

System Setting

On the main interface, hold the Start button for seconds to enter the system setting.

Menu	Option	Definition
Task Parameters	Safety Timer	Customize a period for program protection.
	Max.Capacity	Customize the protection of capacity.
	Trickle Charge	Enable/disable trickle charge.
	Holding Voltage	
	Back	Back to the previous interface.
System Settings	Language	Select your desired system language.
	Min.Input Voltage	Set the minimum voltage for input protection.
	LCD BackLight	Adjust the brightness of the screen.
	Volume	Adjust the volume of the key and beep.
	Completion Signal	Choose the way you'd like to be reminded when the program completes.
	Back	Back to the previous interface.

DC Power	Voltage	Set the output voltage. (5.0-27.0V)
	Current	Set the output current. (1.0-15.0A)
	Start	Enable DC power output and return to the main interface.
	Back	Back to the previous interface.
Battery Meter	N/A	Measure the battery voltage and internal resistance. Press - to return to the system setting.
Factory Settings	N/A	Restore to the factory settings.
System Info	N/A	Check the current system information Press ENTER to return to the system setting.
System Upgrade	N/A	Upgrade the charger.
Back	N/A	Back to the previous interface.

Conformity Declaration

SkyRC B6neo satisfies 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**

B6neo

Smart Charger   DC/USB PD Dual Input

Manufactured by SKYRC TECHNOLOGY CO., LTD.

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

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Documents / Resources

Skyrc B6neo Smart Charger DC/USB PD Dual Input [pdf] Instruction Manual
B6neo, B6neo Smart Charger DC USB PD Dual Input, B6neo, Smart Charger DC USB PD Dual Input, Charger DC USB PD Dual Input, PD Dual Input, Dual Input, Input

References

- **User Manual**