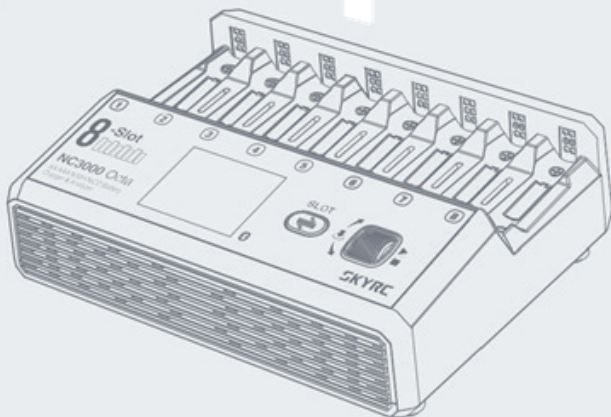


SKYRC

EN Instruction Manual



NC3000 Octa Charger

AA/AAA NiMH/NiCD Battery Charger & Analyzer

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Introduction

Thank you for choosing SkyRC NC3000 Octa Charger & Analyzer!

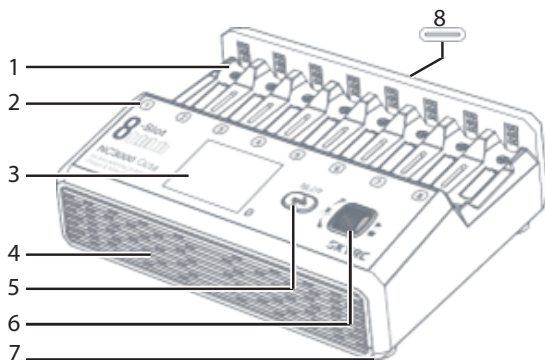
The NC3000 Octa is a multifunctional 8-slot charger specially designed for AA/AAA NiMH and NiCd batteries, integrating charging, discharging, and analyzing functions in one device.

It supports PD3.0 fast charging input, and with its eight independent slots, NC3000 Octa can charge up to eight batteries simultaneously.

Users can adjust the charging and discharging current as needed — with a maximum charging current of 3.0 A and a maximum discharging current of 2.5 A. The color screen provides real-time data on current, voltage, and capacity at a glance.

Additionally, NC3000 Octa features built-in Bluetooth, enabling users to manage batteries and analyze data easily via the SkyCharger app.

Getting to know NC3000 Octa



- | | |
|-------------------------|-----------------------|
| 1 Battery slots | 5 Slot switch button |
| 2 Status LED indicator | 6 Scroll wheel button |
| 3 LCD display | 7 Anti-skid pads |
| 4 Smart ventilation fan | 8 USB-C® input |

Warning



- Never charge batteries other than NiMH or NiCD. Please read the battery's manual to ensure it can accept the programmed charge/discharge rates.
- Never expose the unit to rain or moisture to avoid fire.
- Never use the charger if it appears damaged.
- Do place the battery with a positive terminal facing the top. Wrong polarity may cause fire or explosion.
- Do not allow the unit to expose to direct sunlight. Operate in a well-ventilated area. Do not place the charger on the carpet.
- Never allow the battery terminals to become shorted.
- The batteries may become hot during charging/discharging (especially at a high current)! Please take care when removing the batteries!
- Remove all batteries and unplug the charger from the power source when not in use.
- Never leave the charger unattended when charging.
- Never charge or discharge any battery having evidence of leakage, expansion/ swelling, damaged outer wrapper or case, color-change or distortion.
- Never block the cooling fan or the air ventilation holes.

Features

- Supports mainstream fast charging protocols including PD3.0, accommodating various input types.
- Eight independent charging slots allow for customized charging for up to eight batteries simultaneously, delivering efficient and convenient charging.
- Seven charging modes: Charge, Discharge, Break-in, Cycle, MaxBoost, Turbo, and 3-Stage Charging to cater to different battery needs.
- Each slot supports up to 3.00 A high current charging for rapid battery recovery.
- One-click synchronization of settings across all slots simplifies operation.
- Mobile app control allows you to monitor the charging status and view detailed battery data.
- MaxBoost and 3-Stage Charging mode activates the peak performance of your batteries.
- Supports multiple languages, including English, German, Chinese, French, Spanish and Japanese.
- Intuitive Scroll and Button design for easy operation.
- Color screen provides real-time display of charging data at a glance.

Specifications

Input Power	PD 65 W
Quick Charge Protocol	PD3.0
Battery Type	NiMH/NiCD
Battery Size	AA/AAA
Charge Power	Max. 48 W
Discharge Power	Max. 30 W
Charge Rate	0.20 - 3.00 A w/increments of 0.10 A
Discharge Rate	0.20 - 2.50 A w/increments of 0.10 A

Trickle Charge Rate	10 - 300 mA & OFF
Target Volt.	1.25 - 1.80 V
Discharge Cut-Off Volt	0.50 - 1.40 V
Supported Capacity	100 - 5000 mAh
-ΔV	1 - 20 mV
Working Environment	0 to +40°C, 5 - 75 % RH
Storage Environment	-10 to +70°C, 5 - 75 % RH
Weight (approx.)	330 g
Dimensions	149 x 112 x 44 mm

Battery Knowledge

What is the Meaning of “mAh” on Rechargeable Batteries?

mAh stands for milliamp hour, a unit that measures electric power over time. It is commonly used to indicate a battery's energy capacity. Generally, a higher mAh value means greater battery capacity and longer battery life.

Battery Capacity **mAh** (milliampere/hour) = discharge (milliampere) x discharging time (hour)

For example, if you insert 2400 mAh battery into an appliance which consumes 50 milliampere current continuously, the operating time of the appliance will be around 48 hours.

What is “C” Charge/Discharge Rate

The battery “**C**” Rating is the measurement of current at which a battery is charged or discharged. “**C**” stands for the battery capacity, and the number preceding it is the fraction of the battery capacity. For example, 0.3C means 0.3 times the capacity for the battery. For a 2400 mAh battery, 0.3C would be $0.3 \times 2400 \text{ mAh} = 720 \text{ mA}$.

Choose the Right Charge & Discharge Rate

It is not recommended to charge at a rate lower than 0.3C and higher than 1.0C. Charging too slow may affect the charger termination properly. Charging too fast may cause the battery to overheat, and shorten its lifespan.

Generally speaking, a smaller charging rate can prolong the battery lifespan while charging time will be longer. A larger charging rate makes charging fast but with the battery heat-up, which will shorten its lifespan.

It is not recommended to use a discharge rate above 1.0C.

Charge/Discharge Rate Reference

AAA Batteries

Battery Capacity (mAh)	Charge Rate (mA)	Discharge Rate (mA)
700	300	100
800	400	200
900	400	200
1000	500	200
1100	500	200
1200	600	300

AA Batteries

Battery Capacity (mAh)	Charge Rate (mA)	Discharge Rate (mA)
1800	1800	400
2200	2000	500
2400	2000	600
2600	2000	600
2700	2000	600
1200	600	300

Battery matching

Most electronic devices require two or more batteries to operate together. In such cases, the overall power performance is limited by the weakest battery.

In other words, a poorly performing battery will reduce the device's operating time. Battery matching involves grouping batteries with similar capacities to ensure balanced performance.

Grouping batteries by capacity maximizes efficiency. With **Cycle mode**, you can easily match batteries with similar capacities!

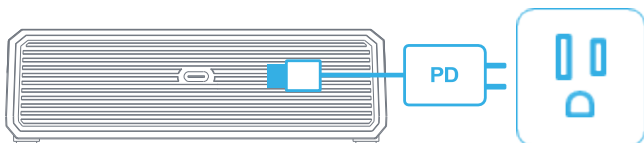
Battery formatting

New batteries and those stored for more than three months become chemically deactivated. The battery formatting refers to activating the battery with a small charge and discharge rate. This can be achieved through the Break-in mode. In some circumstances, this process may need to be repeated two to three times.

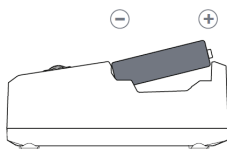
Power and Battery Connection

1. Connect to a PD/QC 65 W or higher power adapter, ensuring the input power complies with PD3.0 input standards.

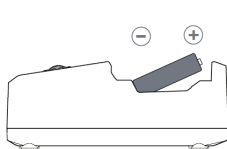
After the charger is powered on, the mode selection screen will be displayed. To change the mode later, go to the System Settings menu.



2. Insert AA or AAA batteries. *Note: Always insert the Negative(-) terminal FIRST as shown in the diagram.*



Insert AA batteries



Insert AAA batteries

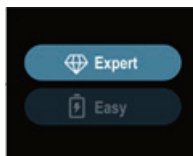
Mode

When starting up for the first time, please select the desired mode. If you wish to switch modes later, you can do so in the System Settings.

**The working mode cannot be changed during operation.*

Easy mode

In Easy Mode, simply insert the batteries into the slots — the charger will automatically start charging without any manual parameter setup. The system uses default charging parameters, making it easy to operate and ideal for everyday use. To stop charging, just simply remove the batteries.



Expert mode

In Expert Mode, users can manually set the charging parameters according to their needs for more flexible control over the charging and discharging process.

Charging Operation



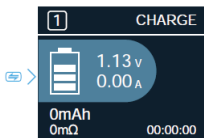
Scan or Click to Watch

The following charging operations are performed in Expert Mode.



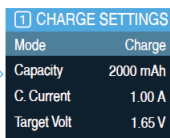
Select charge slot

Press the SLOT button to select the charge slot.

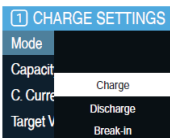


Enter Charge Settings

Press Scroll Button to enter CHARGE SETTINGS.

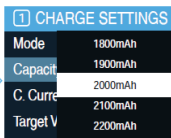


Enter Charge Settings



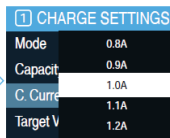
Select Mode

Press and scroll to select your desired working mode.



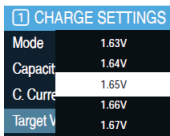
Select Capacity

Press and scroll to select the capacity.



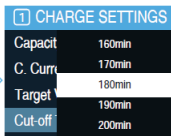
Select Charge Current

Press and scroll to select the preferred charge current.



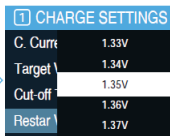
Select Target Voltage

Press and scroll to select the cut-off voltage.



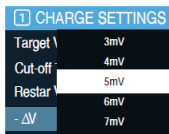
Select Cut-off Timer

Press and scroll to select the safety timer.



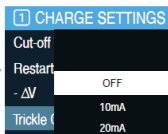
Select Restart Voltage

Press and scroll to select the restart voltage.



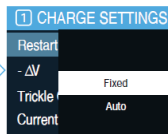
Select -ΔV

Press and scroll to select the -ΔV accordingly based on the battery.



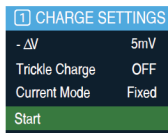
Select Trickle Charge Current

Press and scroll to select the trickle charge current.



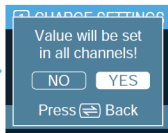
Select Current Mode

Press and scroll to select the preferred current mode.



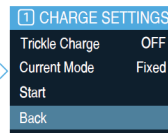
Start

Press the Scroll Button to initiate the program.



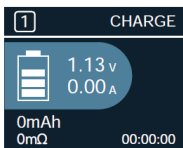
Value will be set up in all channels

Confirm if apply the charge settings to all channels.



Back

Press Scroll Button to return to the main interface.



Working Mode

This NC3000 Octa charger provides up to seven charging modes of **Charge**, **Discharge**, **Break-in**, **Cycle**, **MaxBoost**, **Turbo**, and **3-Stage Charging** fully meeting the requirements of different scenarios.

Charge

Applicable for charging the batteries in a good performance and continuous use. The charging process terminates when the battery is full or some other termination criteria have been met.

Discharge

Applicable for discharging the batteries in a good performance and continuous use. The discharging process terminates when the discharge or some other termination criteria have been met.

Cycle

This mode is used to determine the battery's performance based on the actual capacity it can hold. It's applicable for batteries stored for more than two weeks and less than three months, or for batteries that are not performing well. The capacity of each cycle can be viewed once the cycle process is finished.

Break-in

Applicable for new batteries, those stored for more than three months, and batteries that cannot be rescued through Cycle mode. The Break-in mode is to activate the battery with a small charge and discharge rate in a C->D->C and D->C->D sequence. For example, C->D->C mode will charge the batteries at 0.1C (0.1*battery capacity) for 16 hours and rest for some time (the time can be selected). Then, fully discharge the batteries at 0.2C and rest for some time again. Finally, charge the batteries at 0.1C for 16 hours again. In some circumstances, this process may need to be repeated two to three times.

MaxBoost

This mode is specifically designed for racing that requires peak performance for the batteries. It will fully charge the battery, then discharge it to a specified capacity based on your settings. Before racing, use the Charge mode to fully charge the battery, ensuring optimal performance.

Turbo

This mode enables to charge four batteries at charge rate up to 3.00A simultaneously, making the charging more effective.

Note: This mode assumes batteries must perform very well. The charger will measure the battery resistance and adjust the charge current automatically if the Current Mode > IR Auto is selected under Turbo working mode. If the battery resistance is more than 40mΩ, the charger will stop working with an error to protect the battery.

3-Stage Charge

This mode is specifically designed for racing that requires peak performance for the batteries. Its purpose is to prepare the battery for the lowest internal resistance and the strongest power output before a race begins.

The mode consists of three stages:

1. 1st Discharge Stage

The battery is first discharged to ensure the charger can perform segmented charging based on accurate capacity data.

2. 2nd Charge Stage

The battery is charged to about 80% with a low current, safely and efficiently storing most of the energy. This moderate charging rate helps maintain a stable battery temperature/voltage and lays a solid foundation for the final performance boost.

3. 3rd Charge Stage

A high or appropriate current is then used to fully charge the battery to the desired race temperature while reducing internal resistance. Charging at a high current near full capacity generates heat, which temporarily lowers internal resistance — thereby maximizing the battery's instant performance during competition.

Safety Notice

This is a high-intensity, performance-oriented charging mode and is not recommended for daily use, as it may significantly shorten the battery's lifespan.

During charging, closely monitor the battery condition. If the battery has any abnormal condition, stop charging immediately to prevent damage or potential safety hazards.

Parameters Configuration

Capacity

The capacity must be set according to the battery's rated capacity.

In Break-in or 3-Stage Charging Mode, please make sure to accurately select the rated capacity of the battery to ensure proper operation.

In other modes, this capacity serves as a capacity protection setting — the charger will automatically add 20% additional capacity as protection to prevent overcharging or over-discharging.

C. Current

Applicable for Charge mode and other working modes which include at least 1 charging routine. In Break-in mode, this is fixed at 0.1C and cannot be set.

D. Current

Applicable for Discharge mode and other working modes which include at least 1 discharging routine. In Break-in mode, this is fixed at 0.2C and cannot be set.

Target Volt.

The charge program terminates when the battery voltage reaches the preset target voltage.

D. Cut-off Volt.

The discharge program terminates when the battery voltage reaches the preset discharge cut-off voltage.

D. Cut-off Curr.

When reaching discharge cut-off voltage, this option will hold that voltage constant while automatically reducing the current down to the set value before it terminates the discharging routine. Setting this option will extend the discharging period, but it can effectively reduce the extent of voltage recovery once discharging is complete.

Cut-off Timer

The charger will terminate the program with error when the working time of the program reaches the cut-off timer settings. This is to protect the battery from overcharging or overdischarging.

Restart Volt.

Applicable for Charge mode, when charging has finished, the voltage of bad-health batteries is prone to decline rather fast due to selfdischarging. Setting this value lower than target voltage will guarantee a minimum battery voltage when removing the battery. Naturally, one cannot set it higher than the target voltage parameter.

-ΔV

A technical parameter to control charge termination of NiMH/NiCd batteries. When charging a battery at constant current, the voltage will be decreased slightly around full charge completion. By monitoring this voltage drop, the charger can accurately detect if the batteries are fully charged or not. Users can set a reasonable negative delta voltage based on the battery condition to prevent from overcharging and extend the battery life span.

Trickle Charge

A small current typically applied after a charge program has finished to counter the effects of self-discharge, it helps to keep the batteries topped off.

Current Mode

This mode gives users the flexibility to choose their desired operating mode of the charge current. It only applies to the Turbo, Cycle, MaxBoost, 3-Stage Charge and Turbo mode. When Fixed is selected, the charger will output according to the set charge current. When IR Auto is selected, the charge current will be automatically decreased based on the batteries' internal resistance. Users can refer "Current Mode" for details.

Resting After C.

Defines the duration of the resting phase subsequent to the cycle charge routine. It can be set between 0 and 240 minutes. The battery can cool down and rest during this period.

Resting After D.

Defines the duration of the resting phase subsequent to the cycle discharge routine. It can be set between 0 and 240 minutes. The battery can cool down and rest during this period.

Cycle Count

It refers to the number of cycles under Cycle mode. Users can select the suitable cycle count according to the battery condition, the count can be set from once to three times.

Cycle/Break-in

A so-called Cycle and Break-in can be defined as sequence of at least one charging and one discharging routine, or vice versa. "D->C->D", for example, will start with an initial discharge before performing a complete charge followed by a complete discharge.

D. Capacity

This option only applies to MaxBoost mode. It will fully charge the battery, then discharge it to a specified capacity based on your settings. Before racing, use the Charge mode to fully charge the battery, ensuring optimal performance.

Stage 2 Cap.

Applicable only to the second stage of the 3-Stage Charging Mode. The capacity percentage can be set within the range of 10%–90%.

Current Mode

The internal resistance of the battery usually increases as it is used. When the battery is used for a long time, its internal resistance will increase. The internal resistance consumes part of the electric energy when charging and causes the battery to heat up at the same time.

The charger supports battery internal resistance detection. When IR Auto is selected under Current Mode and a high internal resistance is detected, the charge current will be automatically decreased to reduce the overall heating and protect the battery. When Fixed is selected, the charger will output according to the set charge current. However, if select Fixed under the Turbo mode, the charge current only can work as set when the battery internal resistance is less than 40 mΩ.

Note:

Please use the Cycle mode when determining the battery capacity.

Battery Internal Resistance	Charge Rate
Great than 20 mΩ while less than or equal to 40 mΩ	Limit to 1.5 A
Great than 40 mΩ	Turbo charge stops
Great than 40 mΩ while less than or equal to 60 mΩ	Limit to 800 mA
Great than 60 mΩ	Limit to 400 mA

Status LED Explained

LED Status	Explanation
Off	No battery inserted
Solid yellow	Standby or rest with battery inserted
Blinking green	Charging
Blinking red	Discharging
Solid green	Charging complete
Solid red	Discharging complete
Blinking red & green alternately	Error

Rescue Batteries

If the batteries are still not performing well after trying all the modes as in the manual, refer to the battery rescue steps below:

1. Use the Cycle mode once to three times.
2. Change to Break-in mode if the capacity is still low.
3. If the second steps can improve the battery capacity by more than 10%, please try Break-in mode once to three times again. If there are no significant improvements and the actual battery capacity is less than 60% of its rated capacity. The battery would probably be at the end of its life and needs to be replaced.

Working with the SkyCharger App

With the built-in Bluetooth 5.0, users can control the charger, view the charging graph and upgrade the firmware via the SkyCharger app.



[Scan or Click to Watch](#)

Operation

1. Connect the charger to a PD 65 W or higher power adaptor.
2. Insert AA or AAA batteries.
3. Press + to add a device, and verify the Bluetooth ID before connecting the device.
4. Enter the passcode, click the slot No. or battery icon to select the slot, and configure the parameters.
5. Select a Program No to set the parameters, click Save to store the settings before Start for direct recall next time.
6. Select whether to apply the charge settings to all slots.
7. Click **Start** to initiate charging.
8. Click **Details** to view the charging graph and operation details, click the battery icon to switch the view between slots.
9. Click the slot number button to stop the program operation of in that slot.

Please be reminded:



1. Ensure your phone's Bluetooth is enabled, then launch the SkyCharger app to search for and connect to the charger.
2. DO NOT connect the charger through your phone's Settings > Bluetooth!

Firmware Upgrade Notice

To recover from a firmware upgrade failure, please follow these steps:

1. Hold the Port or Scroll button while powering on the charger to enter the firmware upgrade interface automatically.
2. Upgrade the firmware via the SkyCharger App.

Errors Explained

In case of a fault, NC3000 Octa will display an error message as shown in the table below, which users can refer to for troubleshooting guidance

Error Message	Explanation
DC In Too Low!	The input voltage is lower than 4.7 V!
DC In Too High!	The input voltage is higher than 22 V!
Int. Temp. Too High!	The charger internal temperature is too high!
Connection Break!	The battery connection may be broken!
Capacity Limit!	The capacity reaches the preset capacity limit!
Time Limit!	The program has timed out!

High Internal Resistance!	The charging stops if the battery IR is more than 40 mΩ under Turbo mode.
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In The Box

- 1x SkyRC NC3000 Octa Charger
- 1x Instruction Manual

System Settings

Option	Definition
Mode	Select the preferred mode
Language	Select your preferred language
LCD Backlight	Adjust the screen brightness.
Screen Timeout	Select the screen protection time.
Key Press Beep	Adjust the key volume
Notif. Beep	Adjust the error and completion beep volume
Completion Beep	Choose how you'd like to be notified when the program is complete. If Repeat is selected, a completion beep will sound again after 30 minutes.
User Guide	Scan the QR code to view the manual. Press the Scroll Button to exit.
System Info.	Check the current system information. Press the Scroll Button to exit.
Regulatory	Check the regulatory information. Press the Scroll Button to exit.
Factory Reset	Restore to the factory settings.
Back	Back to the previous interface.

Conformity Declaration

NC3000 Octa complies all the relevant and mandatory CE directives and FCC Part 15 Subpart B.

Test Standard	Definition	Result
EN 60335-1	Household and similar electrical appliances - Safety - Part 1: General requirements	Conform
EN 60335-2-29	Household and similar electrical appliances – Safety – Part 2-29: Particular requirements for battery chargers.	Conform
EN 62233	Measurement methods for electromagnetic fields of household appliances and similar apparatus with regarding to human exposure.	Conform
EN 55014-2	Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus – Part 2: Immunity Product Family Standard	Conform
EN 61000-3-2	Electromagnetic compatibility (EMC) – Part 3-2: – Limits for harmonic current emissions (equipment input current up to and including 16 A per phase)	Conform
EN 61000-3-3	Electromagnetic compatibility (EMC) - Part 3-3: Limitation of voltage supply systems for equipment with rated current ≤ 16 A.	Conform

Test Standard	Definition	Result
FCC Part Subpart 15B	Title 47 Telecommunication PART 15 - RADIO FREQUENCY DEVICES Subpart B - Unintentional Radiators	Conform
EN 300328	Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz band; Harmonised Standard for access to radio spectrum	Conform
EN 301489-1 EN 301489-17	Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements. Part 17: Specific conditions for Broadband Data Transmission Systems.	Conform
EN 50663	Generic standard for assessment of low power electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (10 MHz - 300 GHz)	Conform
EN 62479	Assessment of the compliance of low power electronic and electrical equipment with the basic restrictions related to human exposure to electromagnetic fields (10 MHz to 300 GHz)	Conform

SKYRC

V2

