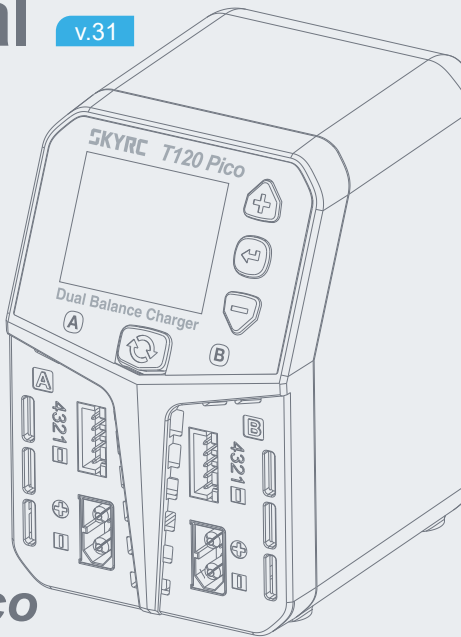


Instruction Manual

v.31

SKYRC



T120 Pico
Dual Balance Charger

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Introduction

Thank you for choosing SkyRC T120 Pico Dual Balance Charger!

SkyRC T120 Pico is a dual-channel charger with two independent circuits which can charge batteries of varying chemistries (LiPo/LiFe/Li-ion/LiHV/NiMH/NiCd/Pb) simultaneously. Its sleek design allows easy front-loading plug-in convenience of balancing and XT60 ports. It is not only compact in size but also powerful in output with maximum 120W charging power and 6A charging current which makes charging more sufficient. With the AGM and cold charge modes, the user is free to charge their Pb batteries in cold days.

The newly upgraded display and buttons make operation more convenient and simple.

Please BE SURE to read these INSTRUCTIONS, WARNING and SAFETY NOTES before you use the charger for the first time.

Warning

T120 Pico 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.

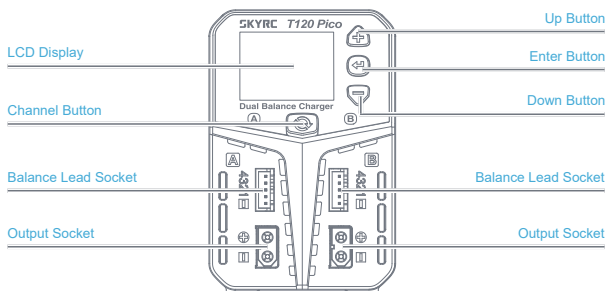
-  Never leave charging batteries unattended during use.
-  Never charge batteries overnight.
-  Never attempt to charge dead, damaged, or wet battery packs.
-  Never attempt to charge a battery pack containing different types of batteries.
-  Never charge batteries in extremely hot or cold places or 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.
-  Warning against recharging non-rechargeable batteries.

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

Notice:

- The appliance is not to be used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction.
- Children being supervised not to play with the appliance.
- During charging, the battery must be placed in a well-ventilated area (for chargers for batteries that release gases into the atmosphere during normal charging).

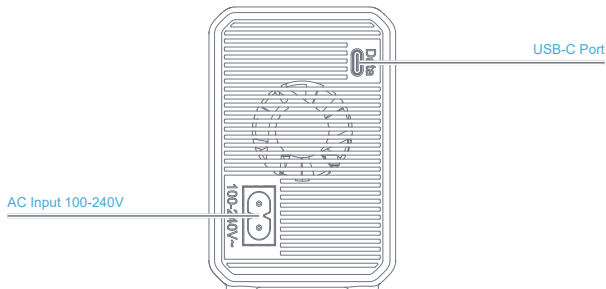
Getting To Know T120 Pico



- + /Up Button:** Increase the value or scroll through the menus/options.
- ↵ /Enter Button:** Confirm or terminate the current program, enter Charge Settings, and perform other actions.
- /Down Button:** Decrease the value or scroll through the menus/options.
- ↻ /Channel Button:** Switch from Channel A to B or vice versa.

Explanation Of Buttons

- +**: Go through the menus and increase the parameter value.
- ↵**: Enter the settings menu or press and hold for 5 seconds to access the system settings, and confirm the choice.
- : Go through the menus and decrease the parameter value.
- ↻**: Channel Button: Switch between Channel A, Channel B, and Home



Specifications

Item	Option	Specification
Model		CH003
Input Voltage	AC	100V~240V (50/60HZ)
Battery Type	NiMH/NiCd	6~8CELL
	Pb	3CELL/6CELL
	LiHV/LiPo/Li-ion/LiFe	2~4CELL
Charge Current	LiHV/LiPo/Li-ion/LiFe	0.1A-1A ($\pm 0.15A$) 1.1A-6A ($\pm 10\%$)
	NiMH/NiCd	
	Pb	0.8A-1A ($\pm 0.15A$) 1.1A-6A ($\pm 10\%$)
Working Mode	LiHV/LiPo/Li-ion/LiFe	Balance Charge/ Charge/ Storage
	NiMH/NiCd	Charge/Re-Peak
	Pb	Normal/AGM Charge/Cold Charge
DC Power	Voltage	6~17V ($\pm 0.2V$)
	Current	0.5A~1A ($\pm 0.15A$) 1.1~6A ($\pm 10\%$)
Balance Current	LiPo/Li-ion/LiFe/LiHV	Max500mA
Charging Power		60W $\times 2$ ($\pm 10\%$)
Storage Discharge Current	LiHV/LiPo/Li-ion/LiFe	Max 500mA (Discharge via balance port only)
Language		English/简体中文/Deutsch/Español/Français/日本語 Default: English
Working Environment	Temperature	0°C~40°C
	Humidity	5%~75%RH, non-condensing
Storage Environment	Temperature	-10°C~70°C
	Humidity	-5%~75%RH, non-condensing
Dimension	L*W*H	90*70*106mm
Weight		355g



Standard Battery Parameters

	LiPo	Li-ion	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
Charge Voltage	4.15V~ 4.25V/cell	4.05V~ 4.25V/cell	3.58V~ 3.70V/cell	4.25V~ 4.50V/cell	N/A	N/A	2.30V~ 2.75V/cell
Storage Voltage	3.75V~ 3.90V/cell	3.70V~ 3.85V/cell	3.25V~ 3.40V/cell	3.85V~ 3.95V/cell	N/A	N/A	N/A
Allowable fast charge current	≤ 1C	≤ 1C	≤ 1C	≤ 1C	≤ 1C	≤ 1C	≤ 0.4C
Discharge Voltage	3.00~ 3.40V/cell	2.60~ 3.70V/cell	2.60~ 3.00V/cell	3.10~ 3.50V/cell	0.60~ 1.00V/cell	0.60~ 1.00V/cell	1.80V~ 2.00V/cell

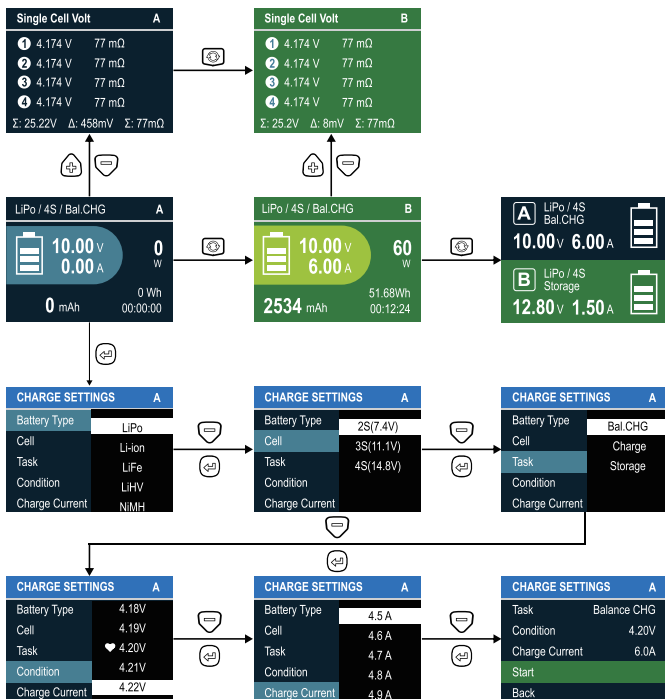
Select the correct operating procedure based on the battery parameters.
Incorrect settings could lead to battery damage, fire, or even explosion.

Battery Operations Matrix

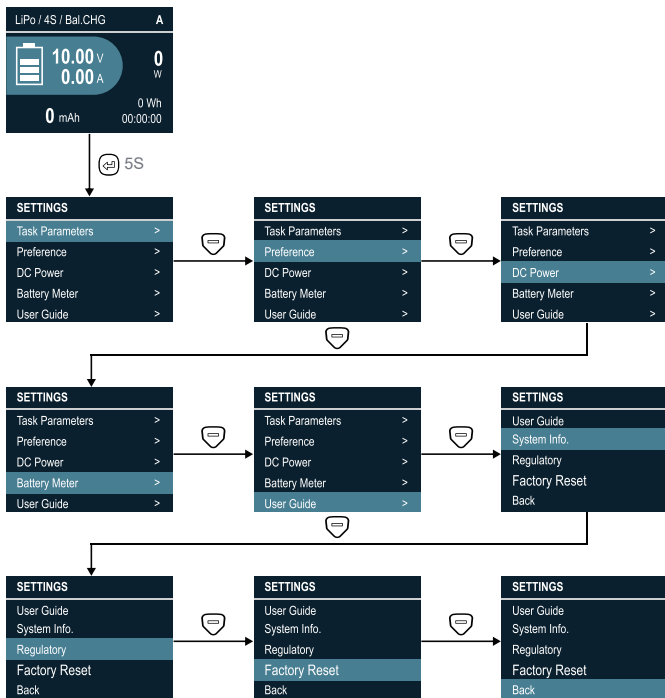
This table lists all the operations that the T120 Pico can perform based on the battery type.

Battery Type	Operation Program	Description
LiHV LiPo Li-ion LiFe	BALANCE	This mode is for balancing the voltage of lithium-polymer battery cells while charging.
	CHARGE	This charging mode is for charging LiPo/LiHV/LiFe/Li-ion battery in normal mode.
	STORAGE	This program is for charging or discharging lithium battery which will not be used for long time.
NiMH NiCd	CHARGE	The charger will charge NiMH and NiCd batteries using the charge current set by the user.
	RE-PEAK	Automatically peaks NiMH/NiCd batteries twice to ensure a full charge.
Pb	NORMAL CHG	This mode is for charging Pb battery.
	AGM CHG	This mode is for charging AGM battery.
	COLD CHG	This mode is for charging Pb battery in cold days when the temperature is 5°C to -20°C.

Program Flow Chart



Program Flow Chart



Note: The flow chart uses one port as an example, as the process for Port A and Port B is identical.

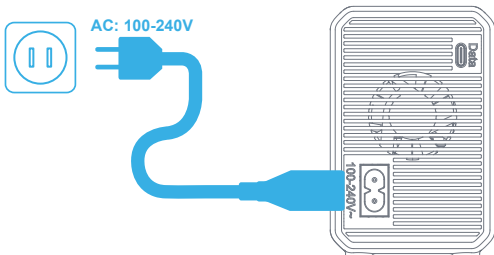
Battery & Power Supply Connertions

Here is the detailed procedure to make the charger work. All the screens and operations will take Li-Po BALANCE CHARGE program for example.

1. Connecting to power source

It is an AC charger only.

Please insert the AC power cord to the wall socket (100-240V) directly to power it on.

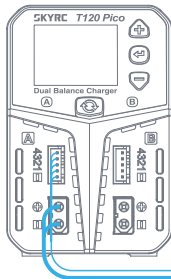


2. Connecting the battery



WARNING!

TO AVOID SHORT CIRCUITS, ALWAYS CONNECT THE CHARGE LEADS TO THE CHARGER FIRST, AND THEN TO THE BATTERY. REVERSE THE SEQUENCE WHEN DISCONNECTING THE PACK.



The balance wire attached to the battery must be connected to the charger, with the black wire aligned with the negative marking. Take care to maintain correct polarity.
(See the wiring diagram above) This diagram shows the correct way to connect your battery to the SkyRC T120 Pico when charging in the balance charge program mode.

Lithium Battery Program

(LiPo/LiFe/Li-ion/LiHV)

Getting started

It is highly recommended to have the flowchart handy while learning to operate this charger.

The following steps describe how to manual setup the T120 Pico:

LiPo / 4S / Bal.CHG		A
	10.00 V 0.00 A	0 W
0 mAh	0 Wh	00:00:00



CHARGE SETTINGS		A
Battery Type		LiPo
Cell		Li-ion
Task		LiFe
Condition		LiHV
Charge Current		NiMH



CHARGE SETTINGS		A
Battery Type		2S(7.4V)
Cell		3S(11.1V)
Task		4S(14.8V)
Condition		
Charge Current		



Enter Charge Setting

Press ENTER to enter Charge Setting.

Battery Type Select

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

Battery Cells Select

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

CHARGE SETTINGS		A
Battery Type		Bal.CHG
Cell		Charge
Task		Storage
Condition		
Charge Current		



CHARGE SETTINGS		A
Battery Type		4.18V
Cell		4.19V
Task		♥ 4.20V
Condition		4.21V
Charge Current		4.22V



CHARGE SETTINGS		A
Battery Type		4.5 A
Cell		4.6 A
Task		4.7 A
Condition		4.8 A
Charge Current		4.9 A



Task Select

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

Condition select

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.

Lithium Battery Program

(LiPo/LiFe/Li-ion/LiHV)

CHARGE SETTINGS		A
Task	Balance CHG	
Condition	4.22V	
Charge Current	4.5 A	
Start		
Back		



CHARGE SETTINGS		A
Task	Balance CHG	
Condition	4.22V	
Charge Current	4.5 A	
Start		
Back		



Start

Confirm to initiate the program.

Back

Confirm to step back to the main interface.

Stop

To terminate the current program, press Enter button once.

NiMH/NiCd Battery Program

This program is only suitable for charging NiMH/NiCd batteries.

The T120 Pico only offer Charge and Re-Peak charge modes for NiMH/NiCd batteries.



WARNING!

BEFORE YOU BEGIN CHARGING YOUR BATTERY, MAKE SURE YOU ARE CHARGING NIMH/NICD BATTERIES. CHARGING LIPO BATTERY UNDER NIMH/ NICD BATTERY PROGRAM WILL CAUSE FIRE.

NiMH/NiCd Charge Mode

BEFORE YOU BEGIN CHARGING YOUR BATTERY, MAKE SURE YOU HAVE READ AND UNDERSTOOD ALL OF THE WARNINGS AND SAFETY INFORMATION CONTAINED ON THE MANUAL.

NiMH / 8S / Charge		A
	10.00 V	0 W
	0.00 A	
0 mAh	0 Wh	00:00:00



CHARGE SETTINGS		A
Battery Type	LiFe	
Cell	LiHV	
Task	NiMH	
Condition	NiCd	
Charge Current	Pb	



CHARGE SETTINGS		A
Battery Type	6S(7.2V)	
Cell	7S(8.4V)	
Task	8S(9.6V)	
Condition		
Charge Current		



Enter Charge Setting

Press ENTER to enter Charge Setting.

Battery Type Select

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

Battery Cells Select

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

CHARGE SETTINGS		A
Battery Type	Charge	
Cell	Re-Peak	
Task		
Condition		
Charge Current		



CHARGE SETTINGS		A
Battery Type	-3▲mV	
Cell	-4▲mV	
Task	-5▲mV	
Condition	♥-6▲mV	
Charge Current	-7▲mV	



CHARGE SETTINGS		A
Battery Type	4.5 A	
Cell	4.6 A	
Task	4.7 A	
Condition	4.8 A	
Charge Current	4.9 A	



Task Select

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

NiMH/NiCd Battery Program

CHARGE SETTINGS		A
Task	Charge	
Condition	4.22V	
Charge Current	4.5 A	
Start		
Back		



Start

Confirm to initiate the program.

CHARGE SETTINGS		A
Task	Charge	
Condition	4.22V	
Charge Current	4.5 A	
Start		
Back		



Back

Confirm to step back to the main interface.



Stop

To terminate the current program, press Enter button once.

Pb Lead-Acid Battery Program

Pb (Lead-Acid):

This program is only suitable for charging 6/12V Pb(lead-acid) batteries which are significantly different from NiMH/NiCd batteries. Pb batteries are suggested to charge with a low current of 0.1C and cannot be used for fast charging. Please follow the instructions provided by the battery manufacturer. The T120 Pico offers the following Pb charge modes: Charge, AGM and COLD.

Pb / 6S / Charge		A
	10.00 V 0.00 A	0 W
0 mAh	0 Wh	00:00:00



CHARGE SETTINGS		A
Battery Type	LiFe	
Cell	LiHV	
Task	NIMH	
Condition	NiCd	
Charge Current	Pb	



CHARGE SETTINGS		A
Battery Type	3S(6.0V)	
Cell	6S(12.0V)	
Task		
Condition		
Charge Current		



Enter Charge Setting

Press ENTER to enter Charge Setting.

Battery Type Select

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

Battery Cells Select

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

CHARGE SETTINGS		A
Battery Type	Normal	
Cell	AGM Charge	
Task	Cold Charge	
Condition		
Charge Current		



CHARGE SETTINGS		A
Battery Type	2.36V	
Cell	2.37V	
Task	2.38V	
Condition	2.39V	
Charge Current	♥ 2.40V	



CHARGE SETTINGS		A
Battery Type	4.5 A	
Cell	4.6 A	
Task	4.7 A	
Condition	4.8 A	
Charge Current	4.9 A	



Task Select

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

Condition select

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.

Pb Lead-Acid Battery Program

CHARGE SETTINGS		A
Task	Charge	
Condition	4.22V	
Charge Current	4.5 A	
Start		
Back		



CHARGE SETTINGS		A
Task	Charge	
Condition	4.22V	
Charge Current	4.5 A	
Start		
Back		



Start

Confirm to initiate the program.

Back

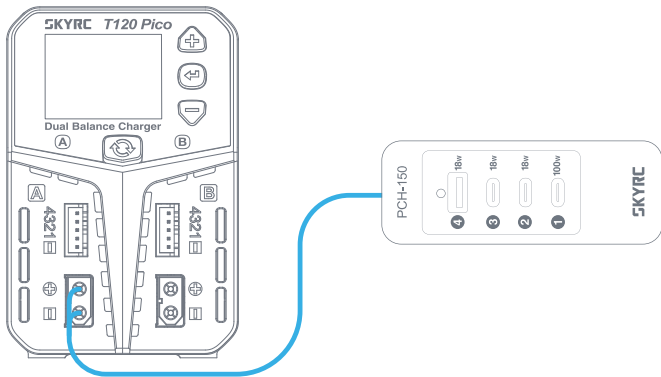
Confirm to step back to the main interface.

Stop

To terminate the current program, press Enter button once.

DC Power

1. On the main interface, hold the ENTER button for seconds to enter the System Setting.
2. Select the option of DC Power, then adjust the output voltage and current.
3. Start to activate the power function after setting up.
4. Connect your desired DC device.



Disclaimer:

The DC power supply function is intended as a supplementary output for RC accessories (e.g., SkyRC Pit Light, Tire Warmer, Tire Sander).

It is not designed to support Capacitive Loads such as RC chargers or power supplies. Improper use may result in product damage or reduced service life.

- Note:**
- On the DC Power interface, press the Port button to switch between Port A and Port B.
 - Do NOT use DC mode to charge the battery.

System Setting

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

Menu	Option	Definition
Model	Safety Timer	Customize a period for program protection.
	Max. Capacity	Customize the maximum capacity.
	Trickle Charge	Enable/disable trickle charge.
	Keep Voltage	Enable/disable holding voltage.
	Float	Start/Stop the float charging of Pb battery.
	Back	Back to the previous interface.
Preference	Language	Select your desired system language.
	LCD Backlight	Adjust the brightness of the screen.
	Screen Timeout	Adjust/Turn off the screen time of the display.
	Keypress Beep	Adjust/Turn off the volume of the keypress beep.
	Notify Beep	Adjust/Turn off the volume of the notify beep.
	Completion Tone	Choose the way you'd like to be reminded when the program completes. If Repeat is chosen, the charger will play the completion signal every half an hour.
	Warning	Enable/disable boot warning.
DC Power	Back	Back to the previous interface.
	Voltage	Set the output voltage. (6-17V)
	Current	Set the output current. (0.5-6A)
	Start	Enable DC power output and return to the main interface.
Battery Meter	Back	Back to the previous interface.
	N/A	Measure the battery voltage and internal resistance. (Switch A/B ports or recheck by pressing the Port button)
	User Guide	Scan the QR code to access the user manual.
	System Info	Check the current system status.
Regulatory	N/A	Check regulatory information.
Factory Reset	N/A	Restore to the factory setting.
Back	N/A	Back to the previous interface.

Battery Meter

The charger can measure total battery voltage, individual cell voltages, and battery internal resistance.

Please connect the battery to the charger's main port, and connect the balance lead to the balance port.

After the balance lead is connected, individual cell voltages can be displayed.

Battery Resistance Meter

Method 1

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

Method 2

1. Connect the charger to the power supply, then press and hold Start button on the main screen to enter System Settings.
2. Use the +/– keys to select Battery Meter, and connect the battery to the charger, ensuring the balance port is connected.
3. Press Start button to measure the internal resistance of the battery.

Firmware Upgrade

1. Launch the Charger Master*, which will automatically detect the device.
2. Connect the T120 Pico to your computer using a USB Type-C cable.
3. If detected, click to check for firmware updates.
4. If a new version is available, the Update button will appear.
5. Click Update and wait for the process to complete.

WARNING!

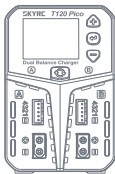
The upgrade process takes approximately 5 minutes. **DO NOT** power off or exit the program!

Errors Explained

In the event of a fault, T120 Pico will display an error message indicating issues such as connection problems or battery mismatches. Refer to the table below for troubleshooting solutions based on the error code.

Error Message	Explanation
Connection Break!	The battery connection is broken!
Fully Charged!	The battery is fully charged already!
Cell Volt Diff!	The voltage difference between each cell is high!
Cell Count Error!	The charger is overloaded!
Battery Type Error!	The battery type is wrong!
Overload Protection!	The charger is overloaded!
Capacity Limit!	Charge/Discharge capacity exceeds the MAX. Capacity limits set in the system setting.
Time Limit!	Charge/Discharge capacity exceeds the Safety Timer limits set in the system setting.
Connect Balance Port	The balance port is not connected.

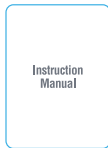
The Set Contains



SkyRC T120 Pico Charger*1



Power Cord*1



User Manual*1

Conformity Declaration

T120 Pico satisfies all relevant and mandatory CE directives and FCC Part 15 Subpart B.

Test Standard	Title	Result
EN 55014-1	Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission	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
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 regard to human exposure	Conform
FCC Part Subpart 15B	Title 47 Telecommunication PART 15 - RADIO FREQUENCY DEVICES Subpart B - Unintentional Radiators	Conform

Regulatory Information



This symbol means that you must dispose of electrical from the General household waste when it reaches the end of its useful life. Take your charger to your local waste collection point or recycling centre. This applies to all countries of the European Union, and to other European countries with a separate waste collection system.



---For indoor used only.

FCC Note:

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications or change to this equipment. Such modifications or change could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To maintain compliance with FCC's RF exposure guidelines, this equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body.

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@skyrcc.com



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



<https://www.skyrc.com>

If you have any questions about this document, please contact
SkyRC by sending a message to **support@skyrc.com**

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