SUNKKO 斯安科

# CH12V20

## Lithium Battery Pack Intelligent Charger

## User Manual


Manufacturer:Foshan GLITTER Electro-Mechanical Equipment Co.,Ltd.
Tel:18988514806
E-mail:mldsunkko@hotmail.com
Website: http://sunkkowelder.1688.com
Address:One Of Room 101, 1/F, Building 1, No. 4 Guda Road,Zhangcha Street, Chancheng District, Foshan City, Guangdong Province, China

Thanks for choosing SUNKKO series produces.It will bring you convenience and efficiency for spot welding work.For optimal user experience,please read the manual carefully before using and store it properly for future reference.

SUNKKO has the right to upgrade the machine and modify the manual without prior notice. Thanks for understanding!

## Summarizes

CH12V20 lithium battery pack intelligent CNC charger is a safe charging solution designed for Li-ion /LifePO4 battery modules. It is a professional lithium battery charging device that integrates intelligent matching, safety protection and efficient charging. Through intelligent voltage digital control adjustment technology and multiple safety protection systems, the potential safety hazards of overcharging and short circuit caused by incorrect parameter settings in traditional chargers are completely resolved, providing dual protection for battery life and user safety. Protecting safety with technological innovation, so that every battery can be charged and used with peace of mind.

## Features

❶ Intelligent voltage matching system, the first "one-key adaptation" mode: automatically identify and accurately set the charging voltage according to the battery type and number of battery strings.

❷ Support custom mode: professional users can manually adjust parameters to meet the needs of special scenarios.

❸ Triple temperature control protection, real-time monitoring of battery and device temperature, automatic current reduction or power off when abnormal temperature rises.

❹ The internal components are reasonably arranged and combined with the heat dissipation cooling system, the impact of high temperature environment on electronic components can be effectively avoided.

❺ Anti-reverse connection/anti-wrong connection protection to avoid short circuit risk.

❻ Overcharge/overcurrent/overvoltage protection triple current protection, AI algorithm dynamically adjusts the charging curve to ensure that the entire charging process is within the safety threshold.

❼ The maximum output current is 20A, suitable for multiple scenarios such as medium and large energy storage systems, power tools, and new energy vehicle battery modules.

❽ Intelligent charging strategy reduces battery loss and increases cycle life by more than 20%.

## Smart charger product parameters

| | | | |
|---|---|---|---|
| Product Name | Lithium battery pack intelligent CNC charger | Model | CH12V20 |
| Supply voltage | AC110V/220V (Model selection) | Rated power | 2.5KW |
| Applicable battery type | Li-ion/LifePO$_4$ | Charging method | Constant current + constant voltage |
| Charging voltage | 3.6~125V (Intelligent Adjustment) | Charging current | 1~20A（Adjustable） |
| Weight | 4.6(kg) | Size | 305*196*166(mm) |



❸ It is strictly forbidden to dismantle or modify the internal structure of the charger or replace non-original accessories without permission, otherwise it may cause damage to the equipment or loss of safety certification.

❹ Only applicable to lithium battery modules with matching nominal voltage and specifications. Confirm the battery parameters (such as lithium battery type, charging cut-off voltage, and lithium battery charging rate) before use.

❺ The charger is made up of precision electronic components. Water or water mist is strictly prohibited to enter the instrument, otherwise it will cause damage to the instrument.

❻ The capacity displayed on the charger is the charging capacity. If you need to measure the battery capacity, you must first discharge the battery capacity to 0 and then perform charging measurement.

❼ Do not use the output port on the front of the charger and the dedicated port for the balancer on the back of the charger at the same time.

❽ The charger temperature detection function is only responsible for detecting the temperature and does not provide high/low temperature protection during the charging process.

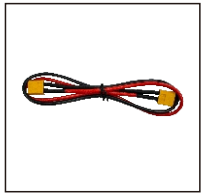
❾ Read the user manual of the instrument in detail. If you have any questions, please contact the manufacturer's customer service hotline immediately.

## Packing List

Main machine

Large clip for connecting cable

Power cord



XT-60 Connection line

Temperature sensing line


Instruction manual

**Please note:**
**Do not use the front and rear ports of he charger at the same time. When using any port, the other port must be protected against short circuits.**

## Charging voltage setting:

Default state

**Displayed charging voltage** = single battery full-charge voltage x number of strings
**Example:Displayed charging voltage** = Li-ion battery (4.2V) x 24 battery pack = 100.8V battery pack full charge voltage

**Displayed charging voltage** = LifePO4 battery (3.6V) x 24 battery packs = 86.4V battery pack full charge voltage

Advanced mode The green voltage value above can be stepped down

**Displayed charging voltage**=single cell voltage( Li-ion 3.6V-4.2V / LifePO4 3V-3.6V )×number of strings
Example: Displayed charging voltage = Li-ion battery (4.1V) x 24 battery pack = 98.4V
Displayed charging voltage = Li-ion battery (4.0V) x 24 battery pack = 96V

In advanced mode, the voltage is lowered by 0.1V each time.The displayed charging voltage is the voltage calculated by the machine intelligently.

## Notes In The Use

### A.Importance Tips:

❶ This device must be operated by trained personnel. Unauthorized use by non-professionals may cause the risk of electric shock, short circuit or fire.

❷ Keep away from high temperature, open flame, flammable and explosive items and humid environment. Working temperature range: 0℃~40℃, relative humidity <80%.



## Application

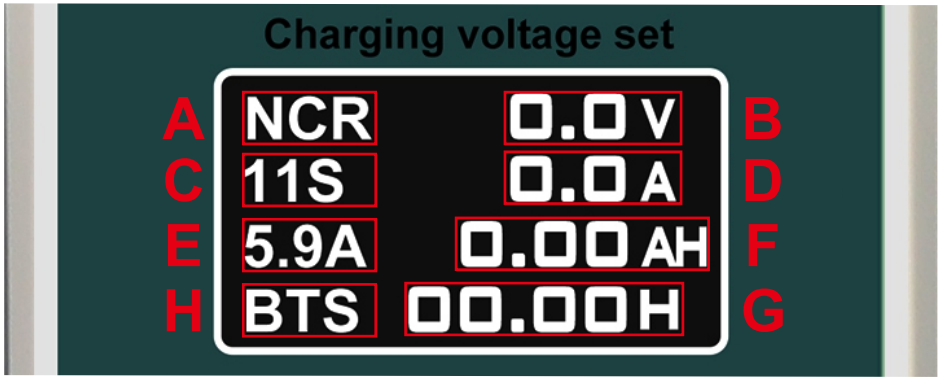
It is suitable for major scientific research institutions, lithium battery dealers, battery pack manufacturers and battery protection system manufacturers to charge and power replenishment activation batteries, etc.Maintenance business of power battery packs such as new energy vehicles and energy storage systems.

## Product Diagram

### Front


### Back

## Set panel parameter analysis




**A** Battery Type:NCR (Li-ion) LFP ($LiFePO_4$) (Wrong settings may cause abnormal charging)

**B** **Charging display voltage:** automatically matches the charging voltage according to the battery type and number of battery strings

**C** **Number of battery strings:** Set the number of connected battery strings (wrong setting may cause abnormal charging)

**D** **Real-time current:** Displays real-time current during charging

**E** **Charging capacity:** Displays the charging capacity

**F** **Set current:** Set the charging current (0.5-20A)

**G** **Charging temperature:** Charging working time/real-time temperature are displayed alternately

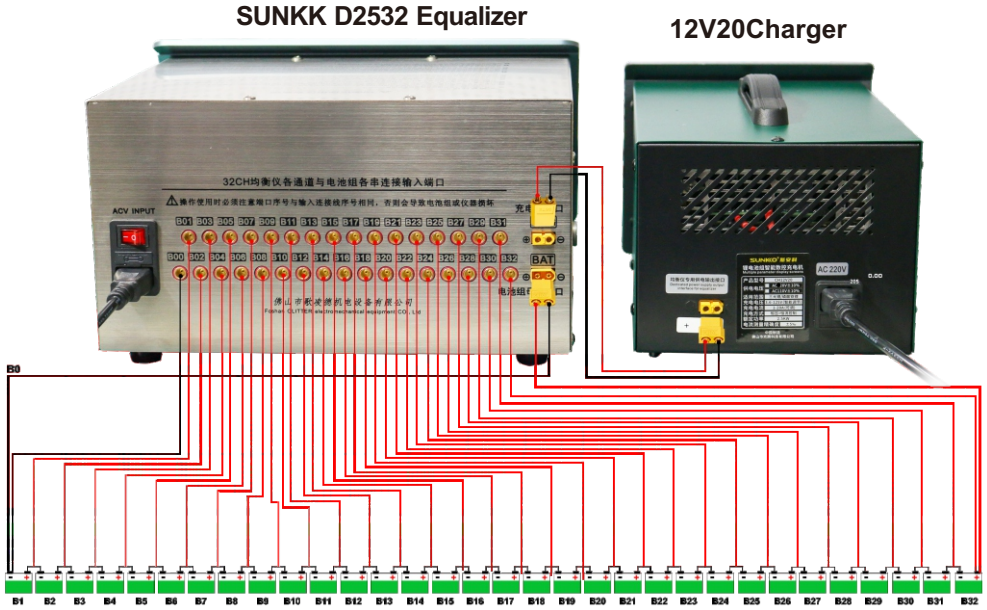
**H**

| Error Code | Explanation |
|---|---|
| | harging cable is connected reversely or not connected battery |
| | harging voltage exceeds the set voltage |
| | harging current exceeds the set current |

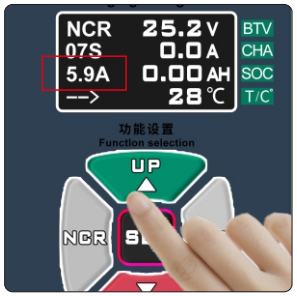



3.Advanced setting mode can adjust the charging voltage. (To ensure the battery pack is fully charged, please first understand the voltage calculation setting principle before setting it)

## Wiring diagram for equalizer



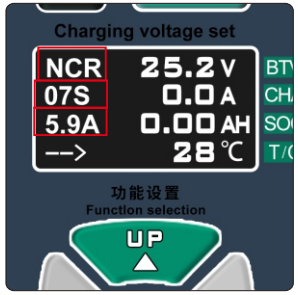

SUNKKO equalizer XT60 interface
(Adaptable to other brands of equalizers on the market)




5.After entering the setting mode screen and selecting the current parameter, press the UP/DOWN button to set the required charging current. If there is no operation for 2 seconds, the setting is confirmed.


6.Press the "START" button and the machine starts charging.

## Advanced parameter settings:




1.Correctly set the battery type, number of battery strings, and charging current.


2.Click the "SET" button and the screen will display the box-selected voltage parameters.

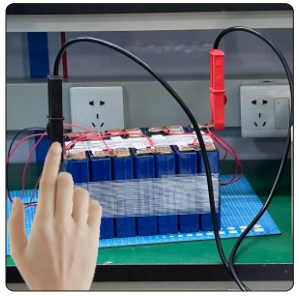


| Error Code | Explanation |
|---|---|
| E04 | The charging current is lower than 1/6 of the setting current |
| E05 | The charging time has reached the maximum time |
| E06 | No voltage output |
| E07 | No current output |
| E08 | Set the voltage lower than the battery voltage |
| E09 | Cannot adjust to set voltage |
| E010 | Switching power supply failure |
| E011 | Over-temperature protection， when the probe temperature exceeds 60 degrees, this error is reported. |

## Wiring precautions


1.According to the “positive” and “negative” poles on the wiring harness corresponding to the “positive” and “negative” poles of the charger output port, ensure the wiring is correct.

2.Make sure the polarity of the connected battery is correct and measure the positive and negative of the battery pack before connection.

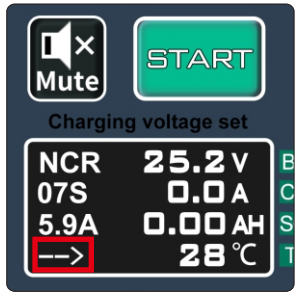


3.After connecting the battery, pull the clip to ensure a secure connection.

## Start-up and basic operation instructions


1.Turn on the machine - connect the power cord to the back of the machine and press the power switch button“ ”。

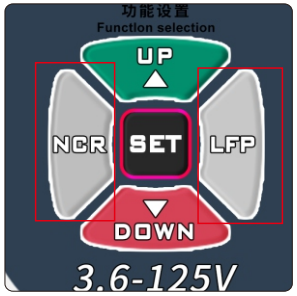
2.Connect the battery with the clip end according to the correct polarity.
Note: You must first identify the positive and negative poles of the battery before connecting.




3. After connecting the battery, observe whether the machine issues a connection error alarm.

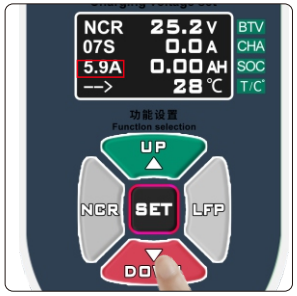


## Basic parameter settings

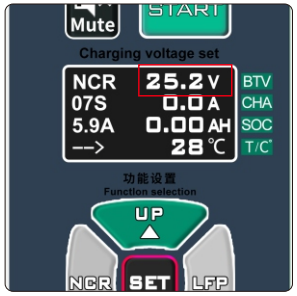



1.Select the battery type:Li-ion(NCR) ,LiFePO4(LFP)
Note: The user is responsible for any damage to the battery pack caused by incorrect type selection


2. Short press the SET button to enter the parameter setting mode.




3. Enter the setting mode screen, select the string number parameter, and press the UP/DOWN button.
Set the number of connected battery strings. If there is no operation for 2 seconds, the setting is confirmed.




4.After setting the number of strings, the charging voltage will intelligently calculate the full-charge voltage of the battery pack based on the battery type and number of strings for charging.