RADIOLINK CP620
PROFESSIONAL HYBRID BALANCE CHARGER

INSTRUCTION MANUAL

RADIOLINK ELETRONIC LIMITED

Technical updates and additional programming examples available at:

www.radiolink.com

INTRODUCTION

Thank you for purchasing Radiolink hybrid balance charger CP620.

Suggestion: In order to fully enjoy the benefits of this charger, please read the manual carefully and set up the device as described below.

Please refer to the manual or call our after-sales (+86-0755-88361717) or log in BBS (such as www.rcgroups.com, https://www.facebook.com/Radiolink-1455452961436694/) to check the issues related answer to questions if you have any questions.

Due to unforeseen changes in production procedures, the information contained in this manual is subject to change without notice.

More information please check our website as below:

http://www.radiolink.com

Support and Service: It is recommended to have your Radiolink equipment serviced annually during your hobby' s "off season" to ensure safe operation.

Please be sure to regularly visit the Service and Support web site at www.radiolink.com. This page includes extensive programming, use, set up and safety information.

Any technical updates and manual corrections will be available on this web pages.If you do not find the answers to your questions there, please see the end of our contact area for information on contacting us via email for the most rapid and convenient response.

FOR AFTER-SALES SERVICE:

Please start here for getting more service.

www.radiolink.com

Phone:+86-755-88361717

Email:after_service@radiolink.com.cn/after_service1@radiolink.com.cn

FOR TECHNIQUE SUPPORT:

Please start here for answers to technique questions:

www.radiolink.com

Phone:86-755-88361717

Email: alice@radiolink.com.cn

CONTENTS

Part One Use Notices

1.1 Safety Notes

Please read the this Manual completely before using, to make sure you can use CP620 better and more safely.

1. CP620 is a dual port charger, does not mean it can charge/discharge for any configuration of two sets of batteries! WARM PROMPT: the two battery packs have not any external electrical connection, otherwise it will burn the charger or batteries. For example: charging 12S battery pack, must split into two separate 6S, and absolutely prohibit to charge with two 6S battery packs in series via connecting with port1, port2 respectively.
2. CP620 input power supply cannot have great fluctuations, which may cause output over current, and even will burn the charger or the batteries or input power supply in extreme cases. For example: setting the input protection current and voltage is necessary according to the specifications of the input power supply, in order to avoid power overload. Some power overload protection will produce substantial fluctuations for the voltage.
3. Keep the charger always away from children and pets.
4. Keep the charger supervised when charging or discharging. If you have to leave, please disconnect the battery to prevent any unexpected dangers or damage.
5. Ensure the charger settings match the battery pack, otherwise the battery will be damaged and even a dangerous situation may arise, especially for Lithium batteries, which may cause a fire.
6. Do not mix batteries of different types, different capacities or from different manufacturers.
7. Do not disassemble the charger.
8. Do not put the charger or any battery on a flammable surface or near a combustible material while in use. Do not charge or discharge on a carpet, cluttered workbench, paper, plastic, vinyl, leather or wood. Do not charging or discharging inside an R/C model or inside a full-sized automobile.
9. Never block the air intake holes and never use in a refrigerated or high temperature environment. If used in such an environment, the internal temperature protection may start that charging/discharging abnormal.
10. Do not allow water, moisture, metal wires or other conductive material into the charger.
11. Never charge or discharge any battery having evidence of leaking, expansion/swelling, damaged outer cover or case, color-change or distortion.
12. Do not try to charge “non-rechargeable” dry cells.
13. Do not exceed the suggested maximum charge rates of battery manufacturer.
14. Carefully follow the recommendations and safety advice of battery manufacturer.

1.2 CP620 Features

1. The CP620 uses advanced Synchronous buck-boost DC/DC converter technology, high power, and high current and high-performance power conversion circuit. The maximum charge power capacity up to 750W, the maximum charge current of channel up to 30A.
2. Supports 1~6S LiPo, 1~16Ni-MH battery, Ni-Cd battery, 1~15 Lead-acid battery, and the Lithium-ion battery, with maximum 6A balance current, adopts unique balance calculation of internal resistance correction.
3. CP620 starts max 30A series charging through power wire and then automatically change to independent balance mode that charging through balance wire once any cell is full, six independent power supply integrated ensure max 6 cells charging for each port, the max charging current for each cell will be up to 6A. Small capacity battery can charging through balance wire directly.
4. Intelligent fan control. Sensing internal temperature via the internal temperature sensor, to thereby control the fan speed.
5. Internal temperature protection. When the internal temperature exceeds the setting temperature, the output power is automatically reduced; and the charger will shut down when temperature exceeds the cut-temperature.
6. USB Flash Disc Upgrade. Connect to computer through USB cable -- Format -- Copy -- Upgrade done. Easily upgrade.
7. Measures the battery cell capacity and resistance, records the original voltage and adjust to the best charging voltage etc.
8. Patent technology charge port, patent NO.201320212324.2, compatible with 1S-6S battery packs, forbidding ventures of batteries connect in parallel. Automatic detection all the charging ports and then automatic charge all the batteries one by one which are not fully charged.
9. Efficiency up to 90% charging through power wire and efficiency up to 95% charging through balance wire . 135mA working current ensure the temperature of CP620 motherboard always less than 70 degree and the surface temperature of CP620 always less than 50 degree even charging with 30A.

1.3 Appearance Parameters:

Weight: 1kg
Dimension: 212×117.5×67.5 ±0.005mm

1.4 Specifications

1. Input voltage: 11V~30V
2. Power output: 750W
3. Charge current: max 30A for 6S LiPo battery
4. Balance current: max 6A
5. Discharge current: 0.1~5.0A@3S, 0.1~3.0A@6S
6. Compatible battery type: 1~6cell LiHV, LiPo, Lilo, LiFe Lithium-ion battery, 1~16cell Ni-MH battery, Ni-Cd battery, and 1-15cell Pb battery.
7. Lithium charging mode: mixed charging, large current series charging, independent balance
8. Voltage accuracy: 0.001V
9. Charge port: 2 ports, automatically charging in cycle mode
10. Working mode: cycle/storage mode

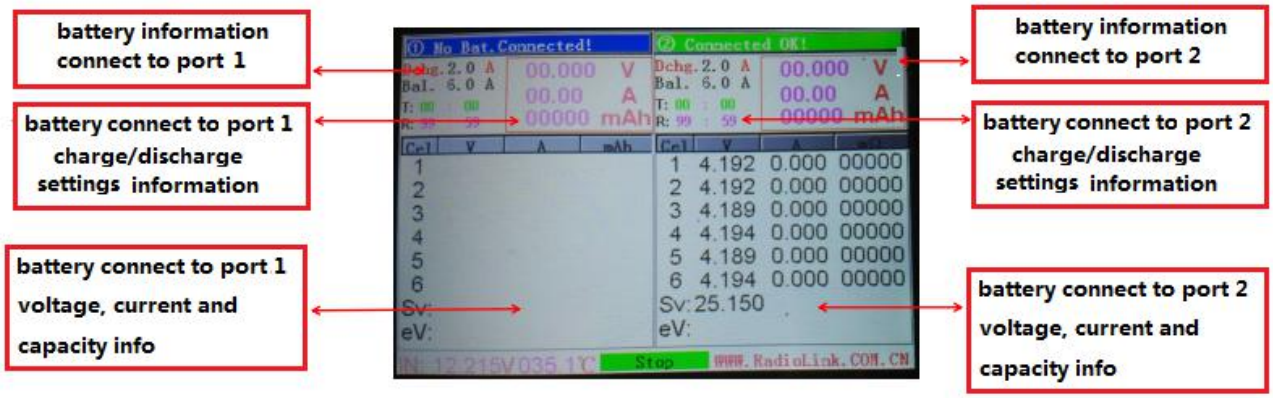
Part Two Interface Introduction

2.1 Buttons Function & Icons Description

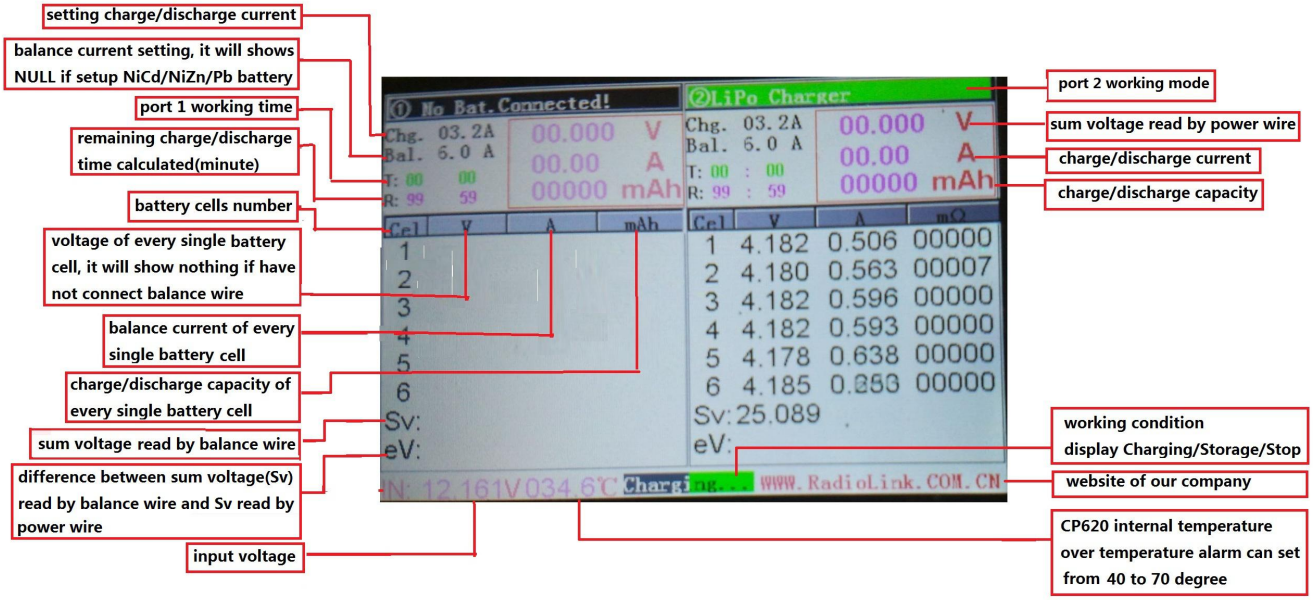
Part buttons allow to quick access to certain features when using CP620, familiar with the icons on the interface can understand better the working status of the charger, as shown in following chart:

START/STOP 	Start or stop charging. Push-to-start or push to charging/discharging at any status.
UP 	Move cursor or change the settings by press UP button in SET MENU. Press UP button also can into the menu to show the capacity and resistance of every single battery cell which connect to port one(on the left side).
DOWN 	Move cursor or change the settings by press DOWN button in SET MENU. Press DOWN button also can into the menu to show the capacity and resistance of every single battery cell which connect to port two(on the right side).
SET 	Press SET button into SET MENU at main interface; press SET button to activate or cancel the setting(blue select NiMH box shows this setting have activate, you can change the setting by press UP/DOWN button). Press SET button and quit back to the main interface from SET MENU if press Cancel or OK(pay attention: settings will keep effective once, it will not effective when power on next time if press Cancel, while settings will always keep effective if press OK, it means you have not need reset up next time if you charge/discharge the same battery with the same setting.

After selecting the input power supply, confirm and enter the initial interface.



2.2 CP620 Main Interface

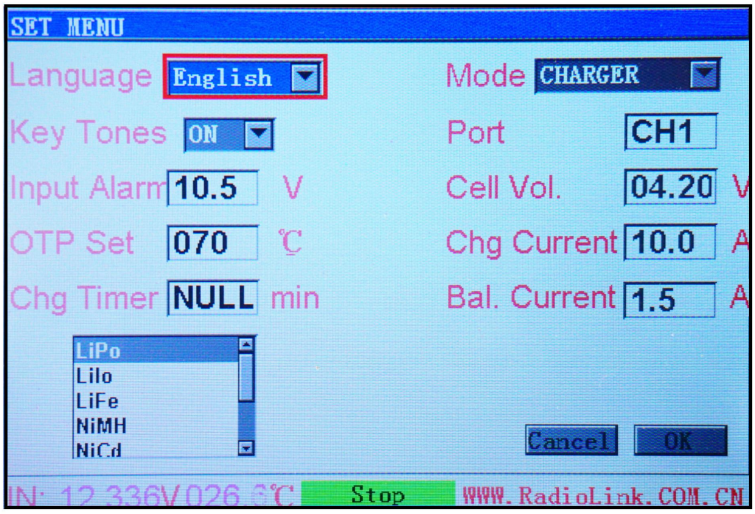


2.3 Initial Interface Setting(SET MENU)

CP620 can setup Language, Key Tones, Input Alarm, OTP Set, Chg Timer, Working Mode, Charging Voltage, Charging Current and Balance Current. Press UP/DOWN button to choose witch function ready to setup, then press SET to running this function and then press UP/DOWN to setting the parameters, press SET to save the settings.

Language Setting

CP620 support English and Chinese now. Setting in SET MENU.

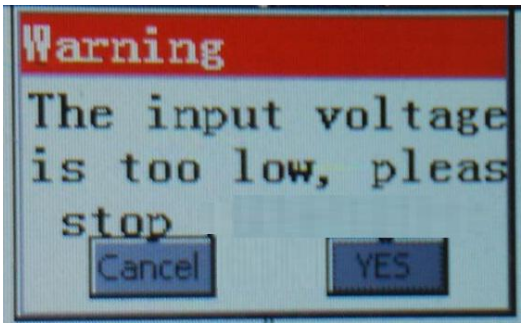


Beep Tone Setup

Select SET MENU→Key Tones to enter the setup interface.
Tones ON means have sounds and tones OFF means without any sounds when press any buttons. It cannot turn off the abnormal warning beep or working status prompt.

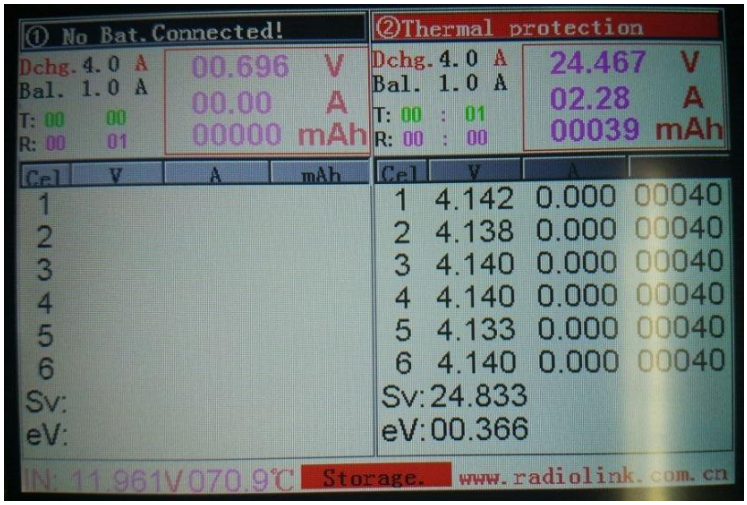
Low Input Voltage Setup

Low input voltage alarming setting.
CP620 will pop-up the warnings and nag screens and stop charging/discharging when the input voltage goes down than the prior setting voltage. The voltage you can setup from 11 to 30V, just depends on the power supply, for example, you can setup 22.8V if use a 6S LiPo to supply for CP620.
You can press START/STOP button to close the warning window and back to the main interface, the alarm beep will slow down.



High Internal Temperature Alarm Setup

CP620 will alarm and confine the output power if the internal temperature over than the setting, the temperature can setup from 40℃ to 70℃.



Charging Time Setup

The charge time is defaulted NULL(0), that the charger will stop charge/discharge automatically if the battery is fully charged. Also, you can setup the charge/discharge time from 0 to 9999 minutes.

Part Three Functions Setup

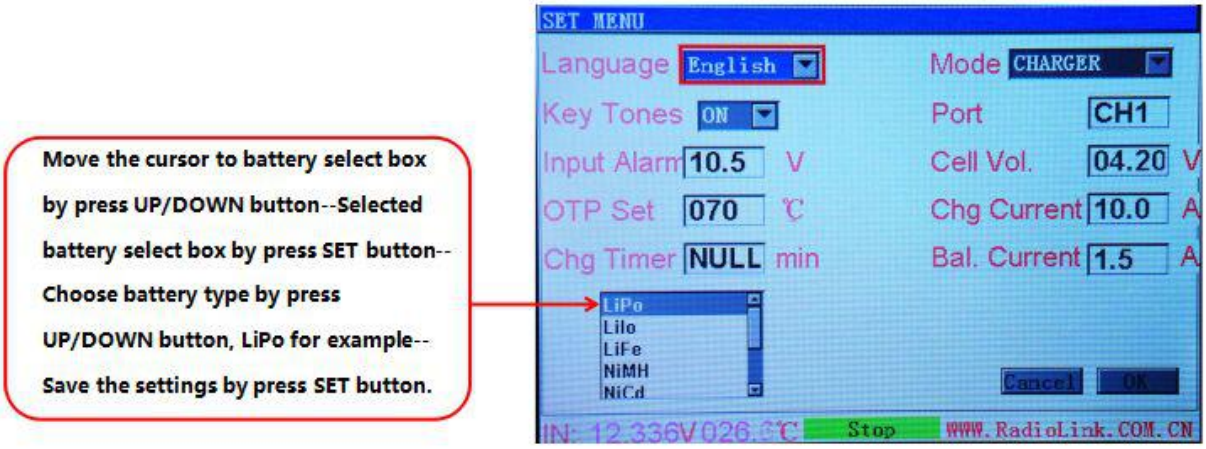
CP620 Compatible with 1~6cell LiHV, LiPo, Lilo, LiFe Lithium-ion battery, 1~16cell Ni-MH battery, Ni-Cd battery, and 1-15cell Pb battery

3.1 LiPo/LiIo/LiFe Battery Charge/Discharge Setup

3.1.1 Charge Setup

Press SET button into SET MENU, which you can setup the battery type and charge mode, single battery cell voltage, charge current and balance current.

3.1.1.1 Battery Type Setup



3.1.1.2 Working Mode Setup

Move the cursor to Mode by press UP/DOWN button--select Mode by press SET button-- Choose charge or storage(discharge) by press UP/DOWN button--save the settings by press SET button.
You can skip setup working mode by press UP/DOWN button if the original setting is the mode you need.

3.1.1.3 Working Port Setup

Move the cursor to Port by press UP/DOWN button--select Port by press SET button-- Choose CH1 or CH2 by press UP/DOWN button--save the settings by press SET button.
You can skip setup working port by press UP/DOWN button if do not need assign which port charge/discharge first. It will charge/discharge from left to right automatically if have not setup working port.

3.1.14 Single Battery Cell Balance Voltage Setup

Single LiPo/LiIo cell balance voltage is defaulted 4.2V, single LiFe cell banlance voltage is defaulted 3.6V and support single LiHV cell 4.35V charge.
Note: Do not setting the voltage of single battery cell over than the defaulted voltage, or it will overcharge.
When the value of charge cells voltage exceeds the recommended value (LiPo 4.2V, LiIo 4.1V, LiFe 3.6V),

there will alarm and beep tones. As long as the users change the value, the main charging interface, "battery types" and "cells voltage" setting value will displayed alternately.

3.1.1.5 Charge Current Setup

Move cursor by press UP button-- Select charge current by press SET button--Setup the charge current by press UP/DOWN button(Attention: Do not over than the max current that battery manufacturer stated.) Touch-hold can let data change quickly, the max charge current can up to 30A, press SET to save the setting.

3.1.1.6 Balance Current Setup

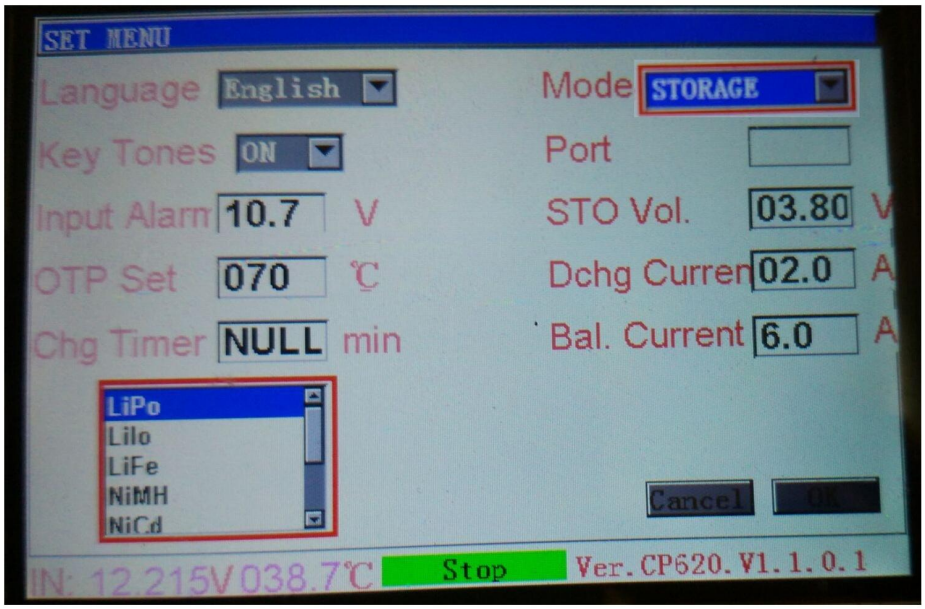
Move cursor by press UP button-- Select balance current by press SET button--Setup the balance current by press UP/DOWN button(Attention: Do not over than the max balance current that battery manufacturer stated.) Touch-hold can let data change quickly, the max balance current can up to 6A, press SET to save the setting or press START/STOP back to the main interface if need not save the settings.
So far, the setting for LiPo is finished, press START/STOP back to the main interface.

3.1.1.7 Save and Exit

Parameter can save after setup, and do not need reset next time.
Move cursor to OK by press UP/DOWN button--Save the settings by press SET button.
Press both Cancel and OK can back to the main interface.

3.1.2 Storage(Discharge) Setup

Into SET MENU, select LiPo first:
Press START/STOP button--Press SET button into SET MENU--Move cursor by press UP/DOWN.



3.1.2.1 Single Battery Cell Discharge Voltage Setup

The defaulted storage voltage of single LiPo/LiIo cell is 3.85V and LiFe is 3.2V.

3.1.2.2 Discharge Current Setup

Move cursor to Mode by press UP/DOWN button--Select Mode by press SET button--Move cursor to Dchg Current by press UP/DOWN button-- Select Dchg Current by press SET button--Setup the discharge current by press UP/DOWN button(Attention: Do not over than the max current that battery manufacturer stated.) Touch-hold UP/DOWN button can let data change quickly, the max charge current can up to 5A, press SET to save the setting.

3.1.2.3 Balance Current Setup

The charger will charge battery through balance wire if the voltage lower than the setting storage (discharge) voltage.

Move cursor to Bal. Current by press UP/DOWN button-- Select Bal. Current by press SET button--Setup the balance current by press UP/DOWN button(Attention: Do not over than the max current that battery manufacturer stated.) Touch-hold UP/DOWN button can let data change quickly, the max balance current can up to 6A, press SET to save the setting.

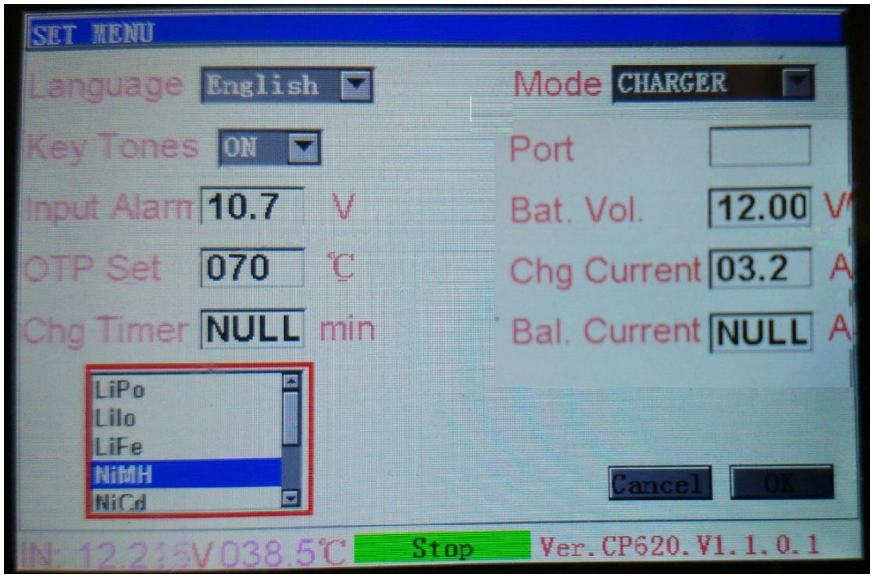
3.1.2.4 Save and Exit

Parameter can save after setup, and do not need reset next time.
Move cursor to OK by press UP/DOWN button--Save the settings by press SET button.
Press both Cancel and OK can back to the main interface.

3.2 Battery NiMH/NiCd/NiZn Charge/Discharge Setup

3.2.1 Charge Setup

Press SET button into SET MENU. Since the NiMH/NiCd/NiZn battery have not balance wire, you only need connect the power wire and setup working mode, charge/discharge current, do not need setup the balance voltage and balance current when you charge these batteries.



3.2.1.1 Working Mode Setup

Move the cursor to Mode by press UP/DOWN button--select Mode by press SET button-- Choose charge or storage by press UP/DOWN button--save the settings by press SET button.
You can skip setup working mode by press UP/DOWN button if the original setting is the mode you need.

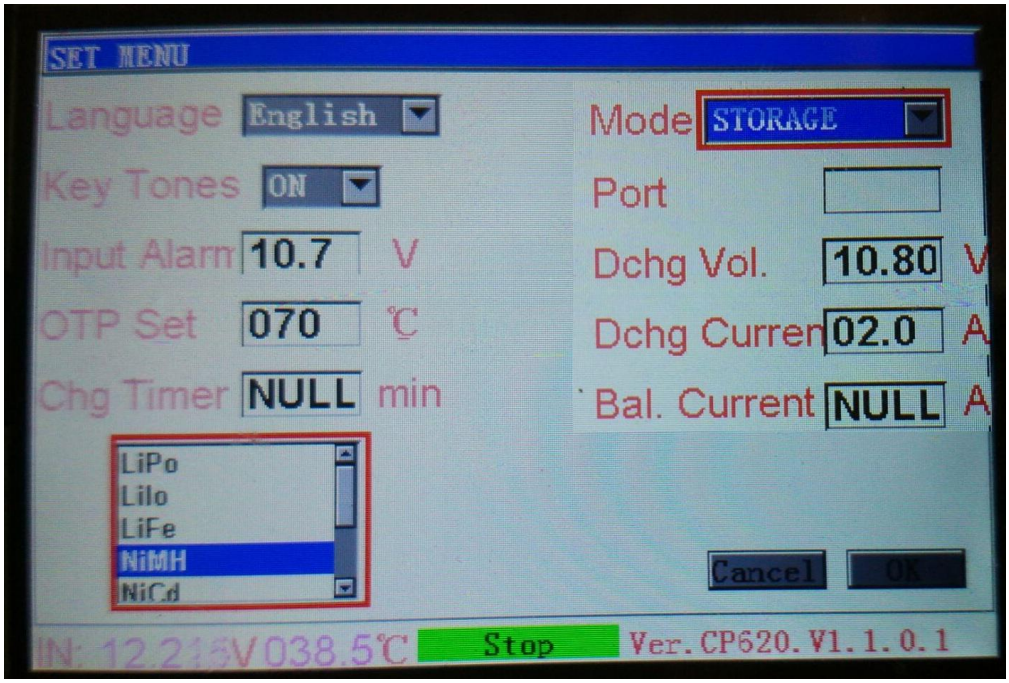
3.2.1.2 Working Port Setup

Move the cursor to Port by press UP/DOWN button--select Port by press SET button-- Choose CH1 or CH2 by press UP/DOWN button--save the settings by press SET button.
You can skip setup working port by press UP/DOWN button if do not need assign which port charge/discharge first. It will charge/discharge from left to right automatically if have not setup working port.

3.2.1.3 Charge Current Setup

Move cursor to Chg Current by press UP/DOWN button-- Select Chg Current by press SET button--Setup the charge current by press UP/DOWN button(Attention: Do not over than the max current that battery manufacturer stated.) Touch-hold UP/DOWN button can let data change quickly, the max charge current can up to 30A, press SET to save the setting.

3.2.2 Discharge(Storage) Setup



3.2.2.1 Discharge(Storage) Voltage Setup

Move cursor to Mode by press UP/DOWN button--Select Mode by press SET button--Move cursor to Dchg Current by press UP/DOWN button-- Select Dchg Current by press SET button--Setup the discharge current by press UP/DOWN button(Attention: Do not over than the max current that battery manufacturer stated.) Touch-hold UP/DOWN button can let data change quickly, the max charge current can up to 5A, press SET to save the setting.

3.2.2.2 Discharge Current Setup

Move cursor to Mode by press UP/DOWN button--Select Mode by press SET button--Move cursor to Dchg Current by press UP/DOWN button-- Select Dchg Current by press SET button--Setup the discharge current by press UP/DOWN button(Attention: Do not over than the max current that battery manufacturer stated.) Touch-hold UP/DOWN button can let data change quickly, the max charge current can up to 5A, press SET to save the setting.

3.2.2.3 Save and Exit

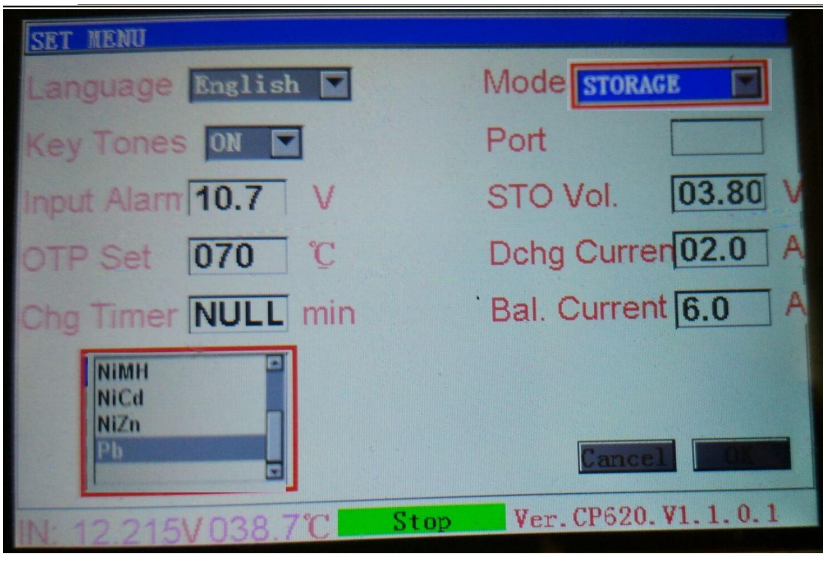
Parameter can save after setup, and do not need reset next time.
Move cursor to OK by press UP/DOWN button--Save the settings by press SET button.
Press both Cancel and OK can back to the main interface.

3.3 Pb Battery Charge/Discharge Setup

CP620 supports 1~15 cell Pb battery.
Since the the full charged voltage is different depend on different battery cells and Pb battery have not balance wire, you have to connect Pb battery by the power wire and setup charge current and battery rated voltage.

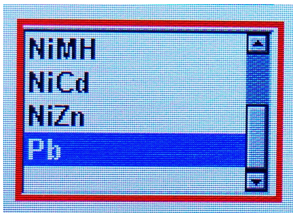
3.3.1 Charge Setup

Press SET button into SET MENU.



3.3.1.1 Battery Type Setup

Move the cursor to Battery Type setup box by press UP/DOWN button--select Pb by press SET button--save the settings by press SET button.
You can skip setup working mode by press UP/DOWN button if the original setting is the battery type you need.



3.3.1.2 Working Mode Setup

Move the cursor to Mode by press UP/DOWN button--select Mode by press SET button-- Choose charge by press UP/DOWN button--save the settings by press SET button.
You can skip setup working mode by press UP/DOWN button if the original setting is the mode you need.

3.3.1.3 Working Port Setup

Move the cursor to Port by press UP/DOWN button--select Port by press SET button-- Choose CH1 or CH2 by press UP/DOWN button--save the settings by press SET button.
You can skip setup working port by press UP/DOWN button if do not need assign which port charge first. It will charge from left to right automatically if have not setup working port.

3.3.1.4 Charge Voltage Setup

Move cursor to Cell Vol. by press UP/DOWN button--Select Cell Vol. by press SET button--Increase or decrease the charge voltage by press UP/DOWN button-- Save the setting by press SET button(Attention: Do not over than the max current that battery manufacturer stated. You have to setup the charge voltage based on the type of battery because CP620 cannot recognize the number of battery cells though support 1-15 Pd battery.) Touch-hold UP/DOWN button can let data change quickly, the charge voltage can setup from 2V to 30V, press SET to save the setting.

3.3.1.5 Charge Current Setup

Move cursor to Chg Current by press UP/DOWN button-- Select Chg Current by press SET button--Setup the charge current by press UP/DOWN button(Attention: Do not over than the max current that battery manufacturer stated.) Touch-hold UP/DOWN button can let data change quickly, the max charge current can up to 30A, press SET to save the setting.

3.3.1.6 Save and Exit

Parameter can save after setup, and do not need reset next time.
Move cursor to OK by press UP/DOWN button--Save the settings by press SET button.
Press both Cancel and OK can back to the main interface.

3.3.2 Discharge(Storage) Setup

3.3.2.1 Discharge(Storage) Voltage Setup

Move cursor to Mode by press UP/DOWN button--Select Mode by press SET button--Move cursor to Dchg

Voltage by press UP/DOWN button--Select Dchg Voltage by press SET button--Setup the discharge voltage by press UP/DOWN button(Attention: The discharge voltage of one cell of Pb battery is 1.8V. Do not below than the minimum voltage that battery manufacturer stated in case over-discharged.) Touch-hold UP/DOWN button can let data change quickly.

3.3.2.2 Discharge(Storage) Current Setup

Move cursor to Mode by press UP/DOWN button--Select Mode by press SET button--Move cursor to Dchg Current by press UP/DOWN button-- Select Dchg Current by press SET button--Setup the discharge current by press UP/DOWN button. Touch-hold UP/DOWN button can let data change quickly, the max charge current can up to 5A, press SET to save the setting. CP620 will lower the discharge current automatically if the temperature over than the setting.

Part Four Firmware Upgrade

Landing to the website : www.radiolink.com to download the upgrade firmware.
Connect to computer through USB cable -- Format -- Copy -- Upgrade done. Easily upgrade.