ETRONIX MODEL ELECTRONICS

HIGH PERFORMANCE DUAL AC/DC MULTI FUNCTION TOUCH SCREEN CHARGER/DISCHARGER

powerpal TOUCH DUO

Li-Ion • Li-Fe • Li-Po • Ni-MH • Ni-Cd • Pb

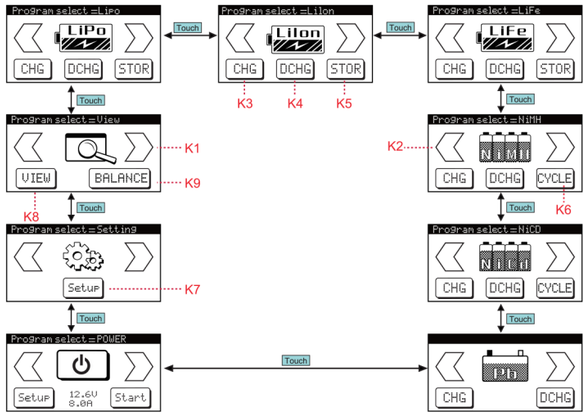
INSTRUCTION MANUAL

Perfomance Parameter

Input Voltage	[DC]	11-18V
	[AC]	110V or 220V
Charge Current	[A]	0.1 - 10.0
Discharge Current	[A]	0.1 - 5.0
Charge Power	[W]	max.90
Discharge Power	[W]	12W
Balance current	[mA]	max.350
Balance tolerance	[V]	±0.01
Charging Capability	NiMH/NiCd	1 - 15 cells
	LiPo/LiFe/LiIon	1 - 6 series
Pb battery voltage	[V]	2-24
Weight	[g]	1250g
Dimensions	[mm]	170×240×56mm

Main Screen

After power on the charger,you can see the main menu,press the arrow key to check the LiPo/LiIon/LiFe/NiMH/NiCd/Pb/Digital Power/Setup/Data View functions.



K1: Select the battery type or program

K2: Select the battery type or program

K3: Enter into the charging setup menu

K4: Enter into the discharging setup menu

K5: Enter into the storage setup menu

K6: Enter into the cycle mode

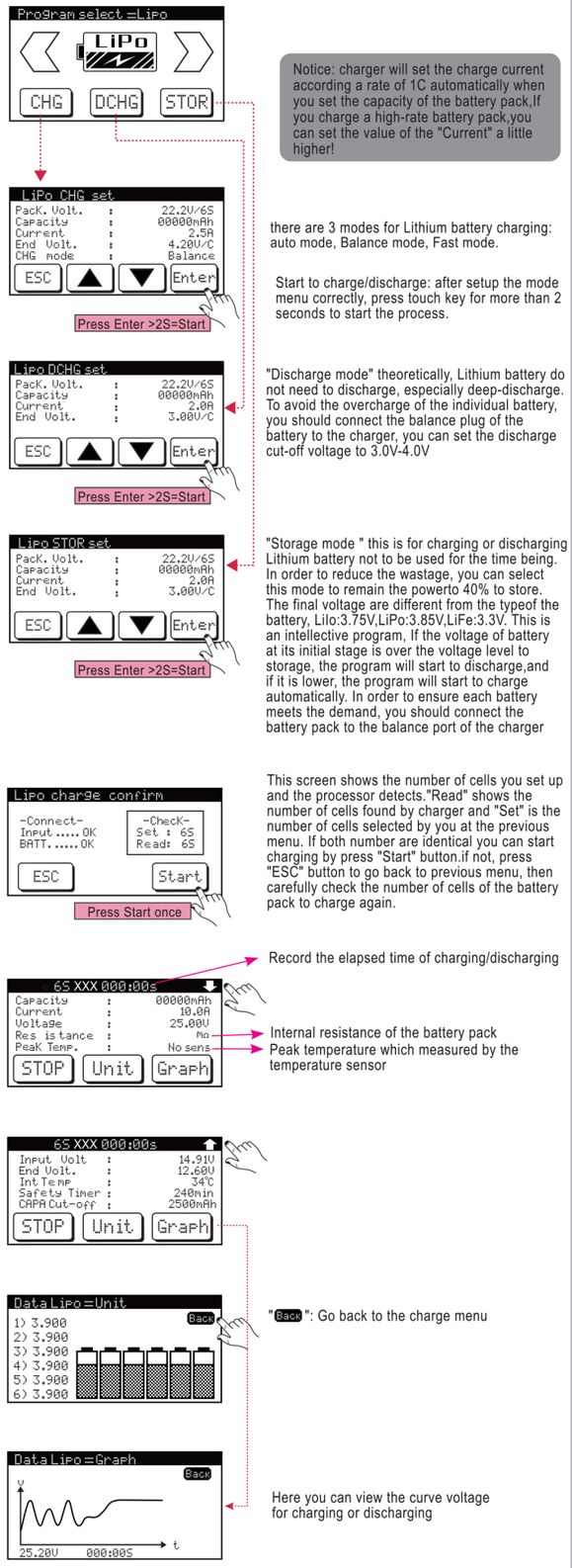
K7: Enter into the advanced setup mode

K8: Enter into the data view mode

K9: Enter into the balancer mode

Lithium batteries program

The charge can accept three types of Lithium batteries:LiPo/LiIo/ LiFe ; you have to check the battery carefully and set it up correctly, or itwill cause a explode!



Notice: charger will set the charge current according a rate of 1C automatically when you set the capacity of the battery pack,If you charge a high-rate battery pack,you can set the value of the "Current" a little higher!

there are 3 modes for Lithium battery charging: auto mode, Balance mode, Fast mode.

Start to charge/discharge: after setup the mode menu correctly, press touch key for more than 2 seconds to start the process.

"Discharge mode" theoretically, Lithium battery do not need to discharge, especially deep-discharge. To avoid the overcharge of the individual battery, you should connect the balance plug of the battery to the charger, you can set the discharge cut-off voltage to 3.0V-4.0V

"Storage mode " this is for charging or discharging Lithium battery not to be used for the time being. In order to reduce the wastage, you can select this mode to remain the powerto 40% to store. The final voltage are different from the typeof the battery, LiIo:3.75V,LiPo:3.85V,LiFe:3.3V. This is an intellective program, If the voltage of battery at its initial stage is over the voltage level to storage, the program will start to discharge,and if it is lower, the program will start to charge automatically. In order to ensure each battery meets the demand, you should connect the battery pack to the balance port of the charger

This screen shows the number of cells you set up and the processor detects."Read" shows the number of cells found by charger and "Set" is the number of cells selected by you at the previous menu. If both number are identical you can start charging by press "Start" button.if not, press "ESC" button to go back to previous menu, then carefully check the number of cells of the battery pack to charge again.

Record the elapsed time of charging/discharging

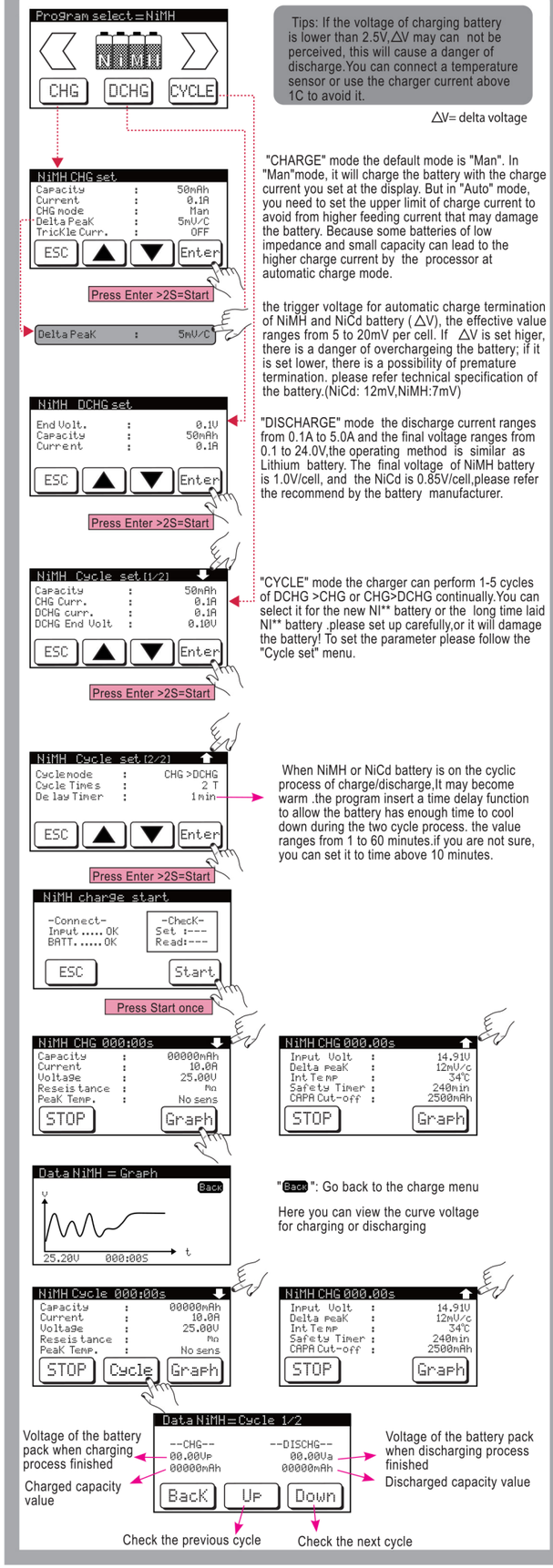
Internal resistance of the battery pack

Peak temperature which measured by the temperature sensor

"Back": Go back to the charge menu

Here you can view the curve voltage for charging or discharging

NiMH/NiCd battery program



Tips: If the voltage of charging battery is lower than 2.5V,△V may can not be perceived, this will cause a danger of discharge.You can connect a temperature sensor or use the charger current above 1C to avoid it.

△V= delta voltage

"CHARGE" mode the default mode is "Man". In "Man"mode, it will charge the battery with the charge current you set at the display. But in "Auto" mode, you need to set the upper limit of charge current to avoid from higher feeding current that may damage the battery. Because some batteries of low impedance and small capacity can lead to the higher charge current by the processor at automatic charge mode.

the trigger voltage for automatic charge termination of NiMH and NiCd battery (△V), the effective value ranges from 5 to 20mV per cell. If △V is set higer, there is a danger of overchargeing the battery; if it is set lower, there is a possibility of premature termination. please refer technical specification of the battery.(NiCd: 12mV,NiMH:7mV)

"DISCHARGE" mode the discharge current ranges from 0.1A to 5.0A and the final voltage ranges from 0.1 to 24.0V,the operating method is similar as Lithium battery. The final voltage of NiMH battery is 1.0V/cell, and the NiCd is 0.85V/cell,please refer the recommend by the battery manufacturer.

"CYCLE" mode the charger can perform 1-5 cycles of DCHG >CHG or CHG>DCHG continually.You can select it for the new NI** battery or the long time laid NI** battery .please set up carefully,or it will damage the battery! To set the parameter please follow the "Cycle set" menu.

When NiMH or NiCd battery is on the cyclic process of charge/discharge,It may become warm .the program insert a time delay function to allow the battery has enough time to cool down during the two cycle process. the value ranges from 1 to 60 minutes.if you are not sure, you can set it to time above 10 minutes.

"Back": Go back to the charge menu

Here you can view the curve voltage for charging or discharging

Voltage of the battery pack when charging process finished

Charged capacity value

Voltage of the battery pack when discharging process finished

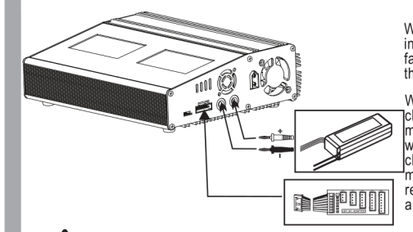
Discharged capacity value

Check the previous cycle

Check the next cycle

Connection

Connection diagram in the balance charging /storage/discharge mode

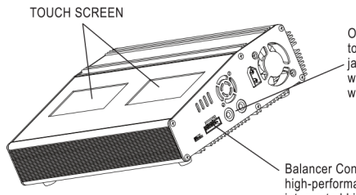


WARNING: Read the ENTIRE instruction manual to become familiar with the features of the product before operating.

WARNING: Never leave charger unattended, exceed maximum charge rate, charge with non-approved batteries or charge batteries in thewrong mode. Failure to comply may result in excessive heat, fire and serious injury.

CAUTION: Always ensure the battery you are charging meets the specifications of this charger and that the charger setting sare correct. Not doing so can result in excessive heat and other related product malfunctions, which can lead to user injury or property damage.

Exterior:



Output Jacket: connect battery to be charged to the 4.0mm jacket, using supplied charge wires. Caution: Be careful with correct polarity!

Balancer Connector: high-performance integra-ted Lixx balancer for 2S to 6S packs using XHS balancing con nector.

CAUTION: Always power on the charger before connecting a battery to the charger, or damage to the charger and the battery can result.

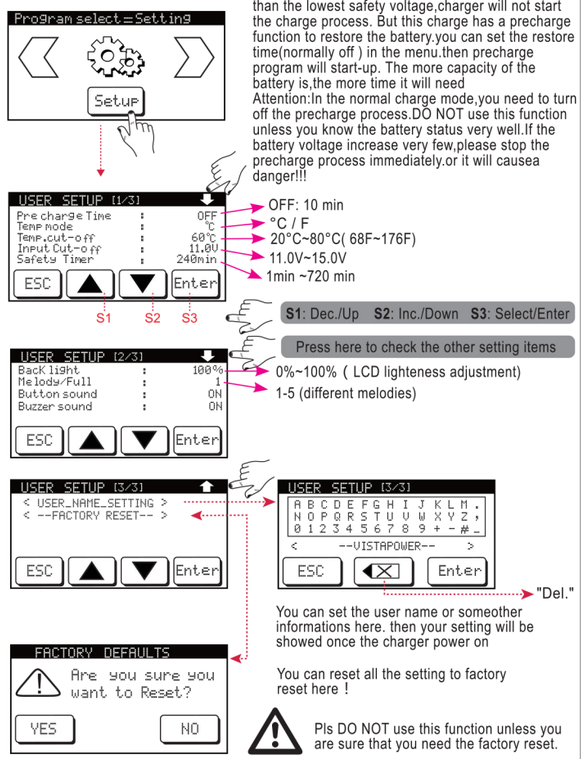
1. Connect charger to power source.
2. Make program selections in the charger for battery charging.
3. Connect balance adapters to charger.
4. Connect battery to charger adapters (connect main charging connectors before connecting cell-balancing connectors, where used).
5. Start battery charging.

Initial parameter set up

Tips: please set up correctly in the "user set" menu before into the job for the first time you use it

This charger can recognise the cell count of Lithium battery automatically. for the battery voltage lower than the lowest safety voltage,charger will not start the charge process. But this charge has a precharge function to restore the battery.you can set the restore time(normally off) in the menu.then precharge program will start-up. The more capacity of the battery is,the more time it will need

Attention:In the normal charge mode,you need to turn off the precharge process.DO NOT use this function unless you know the battery status very well.If the battery voltage increase very few,please stop the precharge process immediately.or it will causea danger!!!



OFF: 10 min

°C / F

20°C~80°C(68F~176F)

11.0V~15.0V

1min ~720 min

S1: Dec./Up **S2**: Inc./Down **S3**: Select/Enter

Press here to check the other setting items

0%~100% (LCD lighteness adjustment)

1-5 (different melodies)

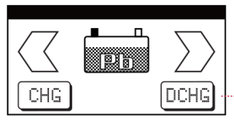
You can set the user name or someother informations here. then your setting will be showed once the charger power on

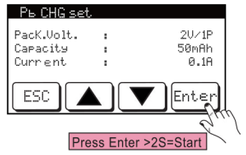
You can reset all the setting to factory reset here !

Pls DO NOT use this function unless you are sure that you need the factory reset.

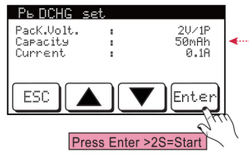
Pb battery program

This is programmed for charging Pb battery with nominal voltage from 2 to 20V, Pb battery can not be charged rapidly.they can only deliver relatively lower current compare to their capacity.the optimal charge current will be 1/10 of the capacity.please always follow the instruction supplied by the manufacturer of battery.

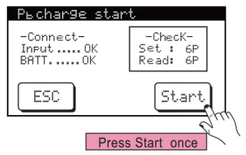




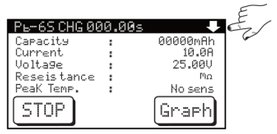
This Mode is for charging Pb battery ,As you can see on the screen,you can set up the charge current on the setting interface, you can set the voltage / capacity / current of the battery here.the charge current ranges from 0.1-8.0A and the voltage should be matched with the battery being charged. start the charge process by pressing "Enter" key for more than 2 seconds.

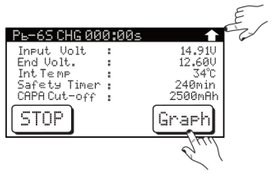


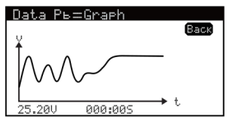
set the cell count,discharge current and battery capacity in this menu. The discharge current ranges from 0.1-5.0A and the voltage should be matched with battery being discharged. start the discharge process by pressing "Enter" key for more than 2 seconds.



The screen shows the state of charging/ discharging process.to stop the process pls press" ESC" key once.

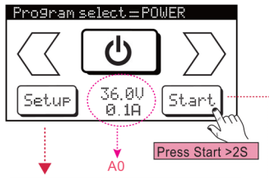




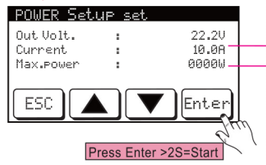


Digital power supply program

In this mode,charger can provide a output power of DC3.0V-24V for the other electronic equipment

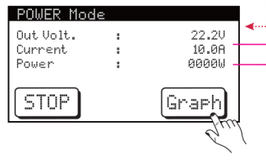


A0: In the digital power menu,charger will shows the parameters which user setted in the last time; if you do not need to modify the settings,pls press the START button directly for more than two seconds.



Set Max.current of output

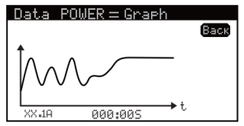
Set Max.power of output



The real-time output current

The real-time output power

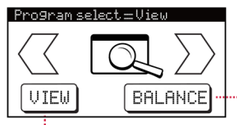
Press "Graph" key to view the current curve



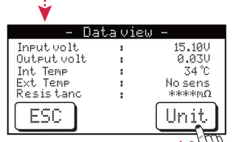
To stop the program, Prees "Back" to go to the previous interface and press "Stop" key

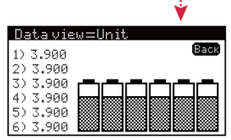
Data view

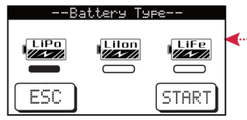
With this program,you can check the total voltage,unit voltage and internal resistance of the battery pack,and check the inner temperature/exterior temperature of the charger also



Tips: When press "view",charger will enter into the resistance measurement process for one time only. pls make sure you've connected the battery to the output jacket port of the charger.







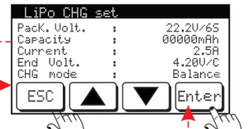
You can use the balance function for the unbalanced battery pack

Press "balance" to choose battery types. Then,press"Start" button to start balancing

Please be sure to carefully check the battery type and setting, otherwise it may damage the battery .

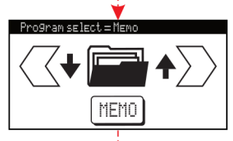
Battery Memory

It can save 20 datas.Each set of data will show battery type,cell account and Current.
You can check the unit voltage of batt.and graph when you charge.

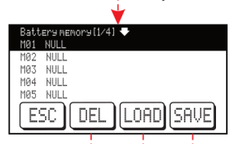


1. Enter into"CHG" OR "DCHG" interface to set parameters.

2.Press"ESC" key to quit after setting.



3.Enter into Batt.Memory.



5.Press"LOAD" key will enter into setting interface after you saved the data. then,press" Enter" key for more than two seconds to start charging.
If you don't want to charge directly,pls go to main menu interface to set other parametersand stored.

Tips: No need to return the main menu to set parameter when you second charge. Just enter into "Batt.Memory" directly to choose the data.
Press"LOAD"key to export data,then,press"Enter" key to start charging.

4.Press"SAVE" key to store the data.Then, set of parameterswill be saved here.

Choose one set of data press"DEL" key for more than two seconds to delete

Remarks: Other battery type pls enter into main menu to select battery program.Also according as above steps to save the data.

Warning and error messages

The AK610AC is protected against faults and operator errors by the Multi-Protection-System. Faults/Errors are displayed on the LCD screen and they interrupt the active process to protect the unit and the battery.

The output is conne cted to a battery with incorrect polarity

Not connected or connection interruption

Output short circuits

Input voltage error,below or over the limit of 11-18V

Charger fault

Total voltage too low

Total voltage too high

Unit cell voltage too low

After-sale service and guarantee

Thank you for purchasing the Etronix PowerPal Touch. We will do our best to provide you with a comprehensive after-sale service and protect your rights andinterests .

We warrant this product for a period of 120 days from the date of purchase, if it has a quality problem itself, all guarantee will be free; In case customers can not provide an effective certificate of purchase, we will refer the date of machine'sinternal. If it is over one year since the purchase date, an appropriate cost will be charged, users need to bear the transportation cost back and forth. User disassembly, alteration, or damage caused by improper use,they should bear the maintenance and transport costs.

COMPLIANCE INFORMATION FOR THE EUROPEAN UNION

Declaration of Conformity

CE

Product(s): Etronix PowerPal Touch.
Item Numer(s): ET0211

The object of declaration described above is in conformity with the requirements of the specifications listed below, following the provisions of the European EMC Directive 2004/108/EC

EN 55014-1:2006
EN55014-2:1997+A1:2001
EN61000-3-2:2006
EN61000-3-3:2008

Instructions for disposal of WEEE by users in the European Union

This product must not be disposed of with other waste. Instead, it is the user's responsibility to dispose of their waste equipment by handing it over to a designated collections point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment.

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