Special Purpose for RC

N61e Quick Charger

Software Version V 1.0 and Higher
Microprocessor Controlled
Quick Charger, Discharger, Balancer
For Li-Po Li-Ion, Li-FePO4(A123),
NiCd, NiMH, Lead-Acid
Up to 10 Amp Charge, 3 Amp Discharge
Convenient 'Function' Option
FAST/ STD / SLOW / STG / CYC / MANU

DUALSKY
ADVANCED POWER SYSTEMS

Instruction Manual

CONTENTS

INTRODUCTION

Thank you for choice of the DUALSKY automatic charger, N61e, which has outstanding performance and reliable technology for many different battery types.

Cooling Fan — Heat Sink

Air Inlet Louver

Input Lead

Fuse

Temperature Sensor Port

Status LED

LCD — Output Port

Rotating Dial

Exit Button

Multi-function display w/blue backlight

Balancer Port

Figure 1

SERVICE

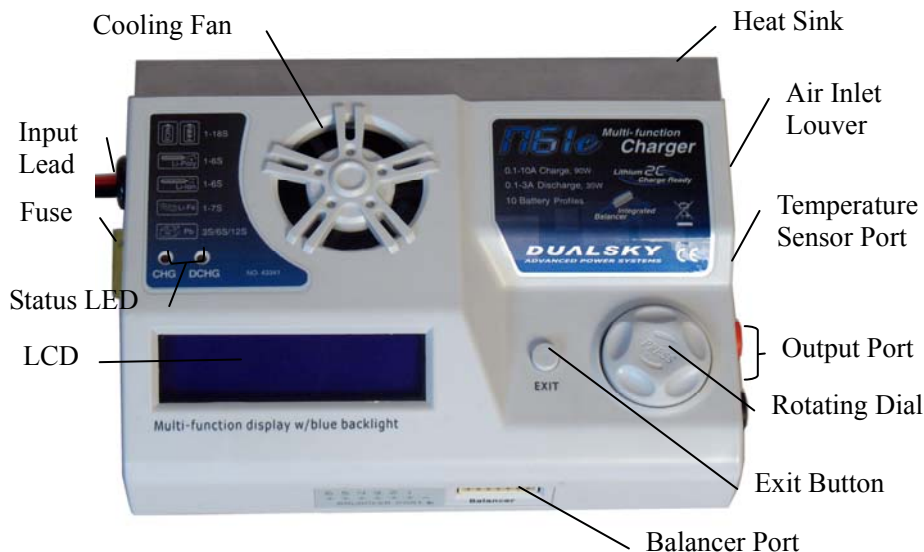If you have any questions, please consult the instructions first.
For further assistance you may refer to your dealer, or contact DUALSKY:

Web: www.dualsky.com
E-Mail: info@dualsky.com
Tel: (086) 021-50322162, 50322161
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P.C.:201206

FEATURES

HARDWARE
- A strong molded custom plastic case.
- Strong heat-sinking capacity comes from a large aluminum radiator extrusion and its dorsal extension, as well as the fine surface ripple which increases the heat loss area, improving the reliability of the charger.
- A built-in highly efficient fan improves cooling internally. The Star covering continues the DUALSKY unique style.
- Self-working integrated balancer is available for lithium packs. Cell's voltages and balancing state can be checked on the LCD.
- An input fuse protects your charger and battery.
- Two status LEDs tell you directly whether the charger's working at charge or discharge even from some distance.
- A rotary dial with enter function provides very convenient access to the menu.
- Up to 10 Amp charge is essential for faster charging speed.

SOFTWARE
- Customisable options. Ten separate battery profiles are reserved for your packs.
- Applications for multiple battery types: Li-Po, Li-Ion, Li-FePO4 (A123), NiCd, NiMH, Lead-Acid.
- The N61e charger provides more convenient and professional preset charge functions: FAST/ STD/ SLOW/ STG/ CYC/ MANU, options are available, instead of tedious manual setting.
- Time limits & capacity limits prevent the batteries from being heavily overcharged.
- For NiCd and NiMH batteries, precise static $-\triangle V$(Negative Delta V) detection guarantees a full charge.
- Ten units of recent historical data are recorded on nonvolatile memory.

PRECAUTIONS

N61e is simple to use, but the safe operation requires some knowledge of batteries and chargers. Mishandling batteries or chargers can be dangerous, as it involves a risk of the batteries exploding and catching fire or charger's permanent damage. Be sure to read these entire Instructions carefully before you use N61e for the first time.

- **Don't** leave the charger unattended while in use.
- **Don't** place the charger or battery on a flammable surface or near a flammable object while in use.
- **Don't** attempt to charge or discharge batteries in incompatible types or current.
- **Don't** overcharge or over discharge batteries as permanent damage could result.
- **Don't** attempt to charge or discharge a battery if it is hot.
- **Don't** attempt to balance a battery while the charge output is connected to another battery.
- **Don't** touch the rear aluminium radiator extrusion as the high power operation can cause it to overheat.
- **Don't** allow water, moisture or foreign objects into the charger.
- **Don't** block the air intake holes or fan which could cause the charger to overheat and cause permanent damage.
- **Don't** attempt to short-circuit the output as permanent damage could result.
- **Don't** leave the charger connected to a power source or batteries when not in use.
- Keep out of the reach of children.
- It is **STRONGLY RECOMMENDED** to use the themal detection sensor when charging.

SPECIFICATIONS	
Operating Voltage	11.0～16.0VDC(12VDC power supply or automotive battery)
Cell Count	1～6 Li-Po or Li-Ion cells in series 1-7 Li-FePO4 cells in series 1～18 NiCd/MH cells in series 3/6/9/12 Lead-Acid cells in series
Current	0.1A～10.0A(0.1A step, 90W max for charge) -3.0A～-0.1A(0.1A step, 30W max for discharge)
Discharge Cutoff Voltage	NiCd/MH: 0.8-1.2V per cell, adjustable Li-Po/ Li-Ion: fixed at 3.0V per cell Li-FePO4: fixed at 2.0V per cell Lead-Acid: fixed at 1.8V per cell
Capacity	0.01 ～ 9.90Ah
Functions	FAST/ STD / SLOW / STG / CYC / MANU (Detail Refer to **Table. N61e Operating Function Option**)
-$\triangle$V Sensitivity	0 ～ 12mV
-$\triangle$V Delay	0 ～ 60 minutes
Trickle	Optional for NiCd/MH
Cycle Count	1 ～ 5 cycles (NiCd/MH only)
Rest Times	0 ～ 60 minutes(NiCd/MH only)
Battery Profiles	A, B⋯J, 10 profiles
Display Type	2×16 Byte LCD with blue back-light
Balance Cells	2-6 cells Li-Po or Li-Ion, Li-FePO4
Balance Resolution	≤5mV
Balance Current	Max:100 mA
Cooling System	built-in fan
Operating Temperature	0 ～ +45℃(the Optimum is 10 ～ 30℃)
Case Size	155×115×45mm^3 (6.10×4.53×1.77in^3)
Weight	635g (22.40oz.)

The N61e provides convenient and professional charging functions, which are based on different batteries capacity and charging capabilities: **FAST/ STD/ SLOW/ STORAGE**. Instead of tedious manual setting, the operating current is fixed at a variant charge rate (C). In the **MANU** function, you can adjust the current from -3A to +10 A. The Discharge function is available in the **MANU, CYC** or **STORAGE** functions. During operation, the current can be adjusted except when using Constant Voltage. The detail below refers to **Table.N61e Operating Function Option**.

Table. N61e Operating Function Option

Charge Rating / Battery \ Function	FAST	STD	SLOW	STORAGE	CYC	MANU
Li-Po / Li-Ion / Li-FePO4	2C	1C	0.5C	0.5C CHG or 1C DCHG to 3.8V/S (Li-FePO4:3.3V/S)	N/A	-3.0 ～ 10.0A Adjust-able
NiCd / NiMH	1C	0.5 C	0.2C	As FAST	Y	
Lead-acid	N/A	0.3C	0.1C	N/A	N/A	

For lithium batteries, at **STG**, the batteries will be charged or discharged to 3.8V (but 3.3V/S for Li-FePO4). At this point, the pack is approximately half-full, which state of charge is ideal for long storage periods.

Still for lithium batteries, the **FAST** function is only recommended to new chemistry packs which can be to charge up to 2C according to the manufacturer.

Whatever you set, the actual operating current will be limited to Max power, which is associated with input voltage and no more than 90Watts (@15VDC Input). 72Watts@12VDC Input. Max discharge power is limited to 30Watts.

KEY FUNCTION

The ROTATING DIAL and the EXIT BUTTON are multi-purpose controls.

ROTATING DIAL

--Press instantly

● Enter into the selected profile on the profiles' list.

● Start or stop editing parameters within a profile.

● Start or stop adjusting operating current as charging or discharging.

--Holding on, Press briefly (longer than 3 Sec)

● Charge Start, Charge Stop.

● Reset Battery Profiles.

● Clear the Error Message.

--Turn clockwise or anti-clockwise

● Scroll through the profiles' list.

● Page up and down in submenu.

● Adjust parameter value in turn.

EXIT BUTTON:

--Press EXIT BUTTON instantly

● Return to upper menu.

● Disable to edit parameter.

QUICK REFERENCE GUIDE

● Connect N61e to a 12VDC power source. Observing proper polarity.

● Connect the battery to N61e. Observing proper polarity. Integrated balancer is available for lithium battery only.

● Find out a suitable Battery Profiles. Or create and edit a new one.

● Press ROTATING DIAL (3 sec) to start charge or discharge.

WELCOME SCREEN

**DUALSKY N61e
V1.0 Build 025**

As soon as N61e powers on properly, the welcome screen will appear on the LCD briefly. It shows the manufacturer logo '**DUALSKY**' and the device name '**N61e**', as well as the software version '**V** ×**.**× **Build** ×××'.

At this time the cooling fan will run for a short time and both status LEDs will flash on and go off. In this case you can check out whether they are operating properly.

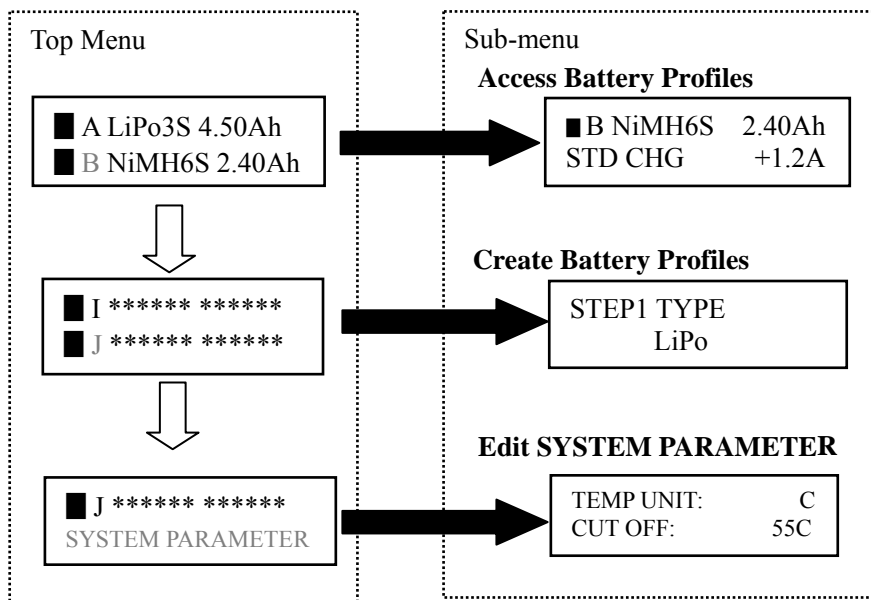The system will then go to the most recently-used profile.

MENU STRUCTURE

The menu is constructed of two stages/layers, Top Menu and Sub-menu.

N61e V1.0 or Higher

The Top Menu lists eleven profiles, ten for **Battery Profiles** (Batt.A, B, ⋯J) and one for **SYSTEM PARAMETER**. Except for empty profiles which are indicated by an asterisk, Every Battery Profiles show its major information in-line on the LCD, including the number, battery type and quantity of cells in series, capacity.

The Sub-menu includes three branches, to access Battery Profiles, create Battery Profiles and edit SYSTEM PRARAMETER.

At Top Menu, just press the dial and enter into Sub-menu. Press **EXIT BUTTON** for return.

Top Menu

■ A LiPo3S 4.50Ah
■ B NiMH6S 2.40Ah

■ I ****** ******
■ J ****** ******

■ J ****** ******
SYSTEM PARAMETER

Sub-menu

Access Battery Profiles

■ B NiMH6S   2.40Ah
STD CHG   +1.2A

Create Battery Profiles

STEP1 TYPE
LiPo

Edit SYSTEM PARAMETER

TEMP UNIT: C
CUT OFF: 55C

MORE ABOUT BATTERY AND CHARGING

You can use **KEY FUNCTION** to access Battery Profiles, edit and save its parameters. After the successful setting, you may **Press the Dial briefly (3 sec)** to start that function.

HANDLING INSTRUCTION FOR LITHIUM BATTERY

LiPo & Li-Ion Battery Summary

Nominal Voltage: LiPo 3.7V/cell.   Li-ion 3.6V/cell.

Max Charge Voltage: LiPo 4.2 V ±50mV. Li-ion 4.1V ±50mV.

Min Discharge Voltage: 3.0V.

Recommended Charge Current: 1C. (UP to 2C for partial batteries)

Recommended Protective Temperature: 55°C.

Long Time Storage: 3.8V/cell with about half of full charge.

*Note: The parameters shown above are fit for most LiPo or Li-ion Batteries. But it's very strongly recommended to reference the battery handbook which is published by the manufacturer. There are some major differences between them.

Li-FePO4 Battery /A123 Summary

Nominal Voltage: 3.3V/cell.

A123 is produced by A123 Company. It's an excellent Li-FePO4-type. The following descriptions only represent A123:

Nominal Capacity: 2.3Ah

Recommended Constant Current: 3A

Maximum Continuous Charge Current: 10A

Max Charge Voltage: 3.6V@3A, 4.2V@10A

Recommended Charge Time: 45 minutes@3A, 15 minutes@10A.

Min discharge cut‑off voltage: 2.0V/cell

Recommended Protective temperature: 60°C

Edit Battery Profiles to suit your Lithium Batteries.

In any Battery Profiles, rotate the dial to page up and down and you can skim the battery parameters. Press the dial to start editing parameters. The editing parameter will flash. Then rotate the dial to find your desired value. Re-press to confirm it. Except for the last term, the next parameter will be allowed to be edited at once. After editing the last item in one page the system will auto

stop the editing function.

Just press the dial briefly (3 sec) to start charging or discharging with the profile you have just created.

Pressing the EXIT button will stop the editing function. Re-pressing EXIT will allow you to exit from the Battery Profile.

Whenever you find a suit Battery Profile or have just created a new one please confirm Par1 ⋯ Par7 again before you start to charge/discharge lithium battery. The remaining, Par8⋯Par11, offer some information about the battery or the charger to you. The following description will help you to realize the full implications of them.

Par1. Battery Type

While similar in many ways, lithium - polymer and lithium-ion battery types perform a little differently. The LiFePO4 is quite different with them. **It's necessary to select the proper type for safe operation.**

■ A LiPo3S 4.50Ah
STD CHG   +4.5A

Page.1 (Par1/2/3/4**)**

Par2. Number of Cells in Series

Wrong setting for this parameter will cause permanent damage to your packs or charger and surroundings. It allows adjustment from 1 to 6 or 7cells. The unit is 'S' which means cells in series.

Table. Number of Lithium Cells in Series

Num Type	1S	2S	3S	4S	5S	6S	7S
LiPo	3.7V	7.4V	11.1V	14.8V	18.5V	22.2V	-
Li-ion	3.6V	7.2V	10.8V	14.4V	18.0V	21.6V	-
Li-FePO4	3.3V	6.6V	9.9V	13.2V	16.5V	19.8V	23.1V

Par3. Capacity

Capacity is a very important parameter for N61e. This parameter will work on the operating control. It's mostly obvious that it determines the charge current at FAST/ STD/ SLOW/STG function. The charge rate is fixed. But the actual value is determined by the capacity you set.

Par4.   Optional Function & Operating Current

For lithium type, FAST/STD/SLOW/STG/MANU functions are available. The detail refers to **Table.N61e Operating Function Option**.

Par5. SAFE TIME

This safe time protects a pack from heavy overcharge. The preset range is INH, 1 ⋯ 990 Min. 'INH' means N61e will ignore this stop condition. If the timer reaches SAFE TIME, N61e will auto stop charging even if the pack is not full. So please refer to the following formula to set a suitable SAFE time.

SAFE TIME: 80Min
CAP. MAX: 120%

Page.2 (Par5/6)

SAFE TIME = (Charge Capacity / Operating Current * 1.5).

If a battery's actual capacity is empty, you can refer to the quick data:

FAST: 45Min   STD: 90Min

SLOW: 180Min.   STG: 180Min

Par6. CAP. MAX

You can define the max charging capacity to avoiding overcharging. This percentage value relates to the set capacity. The range is INH, 1 ⋯ 120% for lithium. 'INH' means N61e will ignore this stop condition.

Par7. RESET BATT.

For avoiding the mis-operation when you press the dial to reset the profile, N61e needs you to confirm that are you SURE to reset this Battery Profile? Pressing the dial briefly will execute it. But if you change your mind,

RESET BATT.

Page.3(Par7)

pressing the EXIT or the dial will stop the reset function. Reset does not means delete, but merely that the Battery Profile will lose the old information but the position will still exist.

Par8. INPUT

It displays current Input voltage.

Par9. BATT.

It displays batteries' voltage if you connect

them properly with the output of N61e.

INPUT: 14.000V
BATT.:   12.000V

Page.4(Par8/9)

Par10. Cells Voltage

It displays the voltage per cell if you connect

the balancer adapter with your pack. It shows

zero with no connection. The icon 'b'

indicates which cells are being balanced.

4000**b** 3995   3990
   0   0   0

Page.5(Par10)

BALANCER

After powering on the N61e, no matter whether a battery has been connected

to the output, the balancer will auto run at once as soon as it had been connected as Figure2.
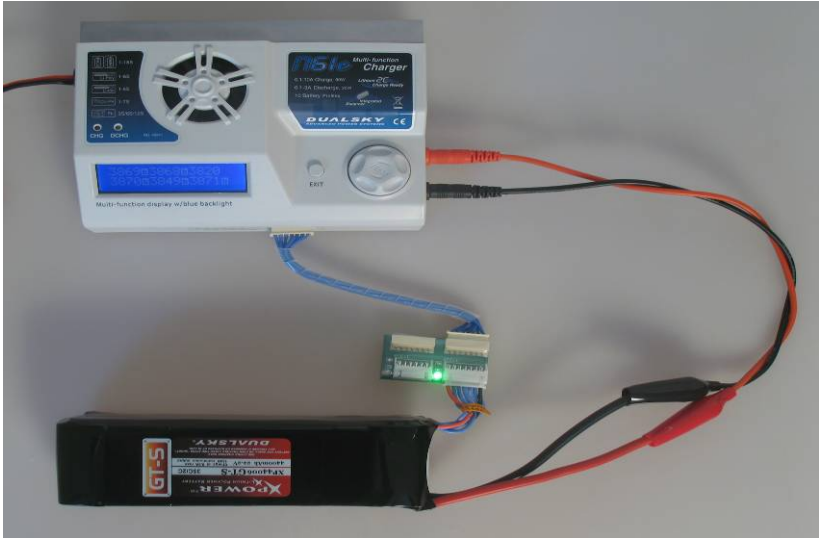

Figure.2

The voltage of each cell can be shown on any Li-Battery Profiles. The unit is mV. And b, a tiny logo, indicates the cell in balancing. The balancer only works on the cell which has a voltage higher than 3.3V. The max balancing current is 100mA. Voltage resolution will be less than 10mV per cell.

It's strongly recommended to charge a pack at a low current while balancing if the cell's voltage difference is larger than 100mV.

HANDLING INSTRUCTION FOR NiCd &NiMH BATTERY

NiCd & NiMH Battery Summary

Nominal Voltage: 1.2V/cell.

Min Discharge Cut Off Voltage:0.9V/cell.(3～6S:1.0V,12～18S:1.2V)

Recommended Charge Current:0.02～2C.

Recommended Charging Temperature: NiCd 15～45°C, Ni-MH 0～40 °C.

N61e tries to detect the precise static -$\triangle$V for the best possible full charge. But the -$\triangle$V is impacted by many factors, likely the charging rate, surrounding temperature, as well as the batteries service time. It's better to terminate the charge by a series of conditions. Please refer **Table. NiCd & NiMH Battery Charge Specification** to set up related parameters.

Table. NiCd & NiMH Battery Charge Specification

Charge Rate	Termination Comments
0.02-0.1C	Timer Limited at 160%C
0.1C	Timer 16 hours
0.1-0.2C	TCO: 55°C Timer Limited:160%C@0.1CR、 140%C@0.2CR.
0.25-1C	ΔV: **NiCd 5-12 mV/cell, Ni-MH3-5 mV/cell** TCO:55°C Timer Limited: 125%C @0.5CR.

*TCO: Cut Off Temperature Value.

Edit Battery Profiles suit for your NiCd or NiMH Batteries

Par1.   Battery Type

While similar in many ways, Ni-MH and NiCd battery types perform a little differently. It's necessary to select the proper type for safe operating.

```
■ B NiMH6S 2.40Ah
STD CHG      +1.2A
```

Page.1 (Par1/2/3/4)

Par2.   Number of Cells in Series

Wrong setting for this parameter will cause permanent damage to your packs or charger and surroundings. It allows adjustment from 1 ⋯ 18, or to be auto detected. Auto

```
■ B NiMHA 2.40Ah
CYC2 -2.4A  +2.4A
```

Page.1 (Par1/2/3/4)

detection select icon 'A' . The unit S means cells in series.

Par3.   Capacity

Capacity is a very important parameter. It will work on the operating control in many ways. It's mostly obvious that it determines the charge current as working at FAST /SLOW /STD /STG function. The charge rate is fixed. But the actual value is different as determined by the capacity you choose.

Par4.   Optional Function & Operating Current

For NiMH & NiCd type, FAST/STD/SLOW/STG/CYC/MANU functions are available. The detail refers to **Table.N61e Operating Function Option**. At CYC function, you can program the cycle counts, the first operating current and the next on Page 1.

Par5. SAFE TIME

This safe time protects a pack from heavy overcharge. The preset range is INH, 1 ⋯ 990 Min. 'INH' means N61e will ignore this stop condition. If the timer reaches SAFE TIME, N61e will auto stop charging even if the pack is not full. So refer to the following formula to set a suitable time.

> SAFE TIME: 80Min
> CAP. MAX: 120%
>
> Page.2 (Par5/6)

SAFE TIME = (Charge Capacity / Operating Current * 1.5).

If a battery's actual capacity is empty, you can refer to the quick data:

FAST: 90Min   STD: 180Min

SLOW: 450Min.   STG: 90Min

Par6. CAP. MAX

You can define the max charging capacity to avoiding overcharging. This percentage value relates to the set battery capacity. The range is INH, 1 ⋯ 150% for lithium. 'INH' means N61e will ignore this stop condition.

Par7. -△V SENSE

Set the -△V value. It is necessary for Ni-MH & Ni-Cd to set a proper -△V value which relates to the charging current. Refer to **Table. NiCd & NiMH Battery Charge Specification** to find a proper value.

> -△V SENSE: 5mV/S
> -△V DELAY: 5Min
>
> Page.3 (Par7/8)

Par8. -△V DELAY

Delay to check up the -△V. At the start charging a battery's voltage can be unstable. A delay of -△V detection can help to avoid this misjudgment to stop charging. It ranges from 0 to 60 minutes. But 3 to 5 minutes is enough.

Par9. REST TIME

This time for a rest after charge/discharge in CYC function to avoid battery over-heat. It ranges from 0 to 60 minutes. But commonly 10 minutes is enough.

```
REST TIME:   2Min
DCH OFF:    0.9V/S
```
Page.4 (Par9/10)

Precaution: Stop charging or discharging immediately as the batteries overheat.

Par10. DCH OFF

Stop discharging at this voltage per cell. For NiMH and NiCd, it's recommended power-type (high discharge rate) batteries discharge down to 0.9V per cell but RC batteries (receiver type) down to 1.1 V per cell. You need to increase this value for many batteries with high internal resistance.

Par11. RESET BATT

For avoiding the mis-operation when you press the dial to reset the profile, N61e needs you to confirm that are you SURE to reset this Battery Profile? Pressing the dial briefly will execute it. But if you change your mind,

```
RESET BATT.
```
Page.5(Par11)

pressing the EXIT or the dial will stop the reset function. Reset does not means delete, but merely that the Battery Profile will lose the old information but the position will still exist.

Par11. INPUT

It displays current Input voltage.

Par12. BATT.

It displays batteries' voltage if you connect them properly with the output of N61e.

```
INPUT:    14.000V
BATT.:     7.500V
```
Page.6(Par12/13)

HANDLING INSTRUCTION FOR LEAD-ACID BATTERY

Lead Acid Battery Summary

Nominal Voltage: 2V.

Recommended Constant Current: 0.1～0.3C.

Max Charge Voltage: 2.42V.

Min Discharge Cut‑Off Voltage: 1.8V.

Maximum Continuous Discharge Current: 0.2C.

Recommend Protective Temperature: 55°C.

Edit Battery Profiles for your Lead Acid Batteries

Par1.   Battery Type

The characteristics of Lead-Acid is quite different to Ni×× and lithium batteries. It's necessary to select the proper type for safe operation.

Par2.   Number of Cells in Series

Wrong setting for this parameter will cause permanent damage to your packs or charger and surroundings. It allows you to select from 3/6/9/12 cells. The unit is 'S' which means cells in series.

```
■B Pb   3S 4.50Ah
STD CHG    +1.5A
```

Page.1 (Par1/2/3/4)

Par3.   Capacity

Capacity is a very important parameter. This parameter will work on the operating control. It's mostly obvious that it determines the charge current as working at STD/SLOW function. The charge rate is fixed. But the actual value is different as determined by the capacity you choose.

Par4.   STD / SLOW & MANU (function & operating current)

The STD function has a fixed operating current at 0.3C, and SLOW function fixed at 0.1C. But in the MANU function, you can adjust the current from -3A to 10 A. The actual operating current has been limited to Max power, which is associated with input voltage.

```
SAFE TIME: 216Min
CAP. MAX:    120%
```

Page.2 (Par5/6)

Par5.   SAFE TIME

This safe time protects a pack from heavy overcharge. The preset range is INH, 1 ⋯ 990 Min. 'INH' means N61e will ignore this stop condition. If the timer reaches SAFE TIME, N61e will auto stop charging even if the pack is not full. So refer the following formula to set a suitable time.

SAFE TIME = (Charge Capacity / Operating Current * 1.2).

If a battery's actual capacity is empty, you can refer to the quick data:
STD: 216Min SLOW: 720Min

Par6. CAP. MAX

You can define the max charging capacity to avoiding overcharging. This percentage value relates to the set battery capacity. The range is INH, 1 ⋯ 120% for lithium. 'INH' means N61e will ignore this stop condition.

Par7. RESET BATT

For avoiding the mis-operation when you press the dial to reset the profile, N61e needs you to confirm that are you SURE to reset this Battery Profile? Pressing the dial briefly will execute it. But if you change your mind,

RESET BATT.

Page.3(Par7)

pressing the EXIT or the dial will stop the reset function. Reset does not means delete, but merely that the Battery Profile will lose the old information but the position will still exist.

Par8. INPUT

It displays current Input voltage.

Par9. BATT.

It displays batteries' voltage if you connect them properly with the output of N61e.

INPUT: 14.000V
BATT.:   6.000V

Page.4(Par8/9)

DISPLAYS DURING CHARGE OR DISCHARGE

There are 3 pieces of page showing the state of charge/discharge on LCD.

LiPo3S +4500mAh**A**
12.60V   2.5A 1h03

Page.1

On Page 1, you can acquire the major information on the packs or charger. The contents include Battery Type, the number

of cells in series, having charged or discharged capacity, the voltage of pack, the operating current, as well as the timer count.

For lithium or Lead-Acid type, the charge mode is CCCV. During working at CV, there are 3 icons indicating the state of charge of the pack. The first state shows 'A', just CV processed recently. The second shows 'b', as operating currents decrease further, and the batteries have been charged more than 90% of capacity. When it shows 'C', the pack will be charged more than 95% of its capacity. In that case, to save time, you can interrupt the charging operation and take the pack away for use.

For NiCd or NiMH type, the charge mode is CC (+Trickle). You can start up or stop the Trickle function at SYSTEM PARAMETER. During trickling, the screen shows 'Trk'.

No matter what type the pack is, you can re-set the operating current during charging/discharging on constant current. On this page, enter to edit function, and select the desired value, then re-press the dial to confirm. The operating current will be renewed soon.

INPUT: 14.000V
TEMP: 25C

Page.2

On page 2, the screen shows the input voltage and the temperature of themal sensor. If you disconnect the sensor, it displays 'NO TEMP'.

It's highly recommended to use the themal sensor for detection during charge/discharge. You can program the cut off temperature value and its unit at SYSTEM PARAMETER.

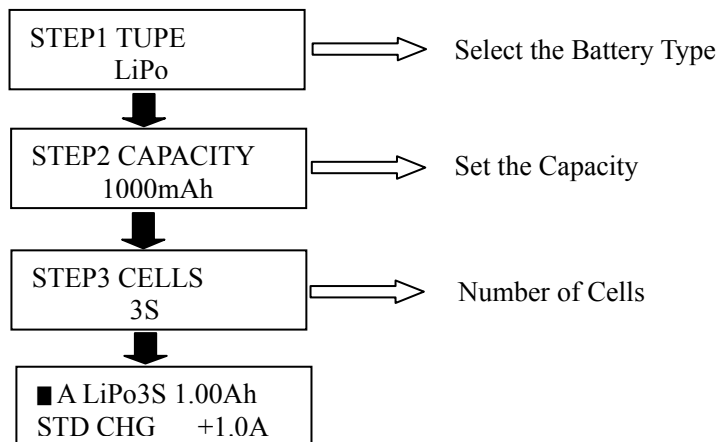On page 3, for lithium type, the screen will

PEAK V: 7.200V
-$\triangle$V: 48mV

Page.3

display the balance information.

For NiCd or Ni-MH type, the screen will display the PEAK voltage and the preset '-$\triangle$V'.

CREATE A NEW BATTERY PROFILE

Three steps are needed to create a new Battery Profile. Only need to dial and press the Rotating Dial to choose the expected value. First, program the battery type. Second is the capacity. And third, the cells number (S). Then the charger will complete the batteries parameter and make up a new battery profile.

You can **EXIT** from the configuration at any step but it will fail to create a new **Battery Profile.**

```
STEP1 TUPE          ⟹   Select the Battery Type
    LiPo

    ⬇

STEP2 CAPACITY      ⟹   Set the Capacity
    1000mAh

    ⬇

STEP3 CELLS         ⟹   Number of Cells
    3S

    ⬇

■A LiPo3S 1.00Ah
STD CHG    +1.0A
```
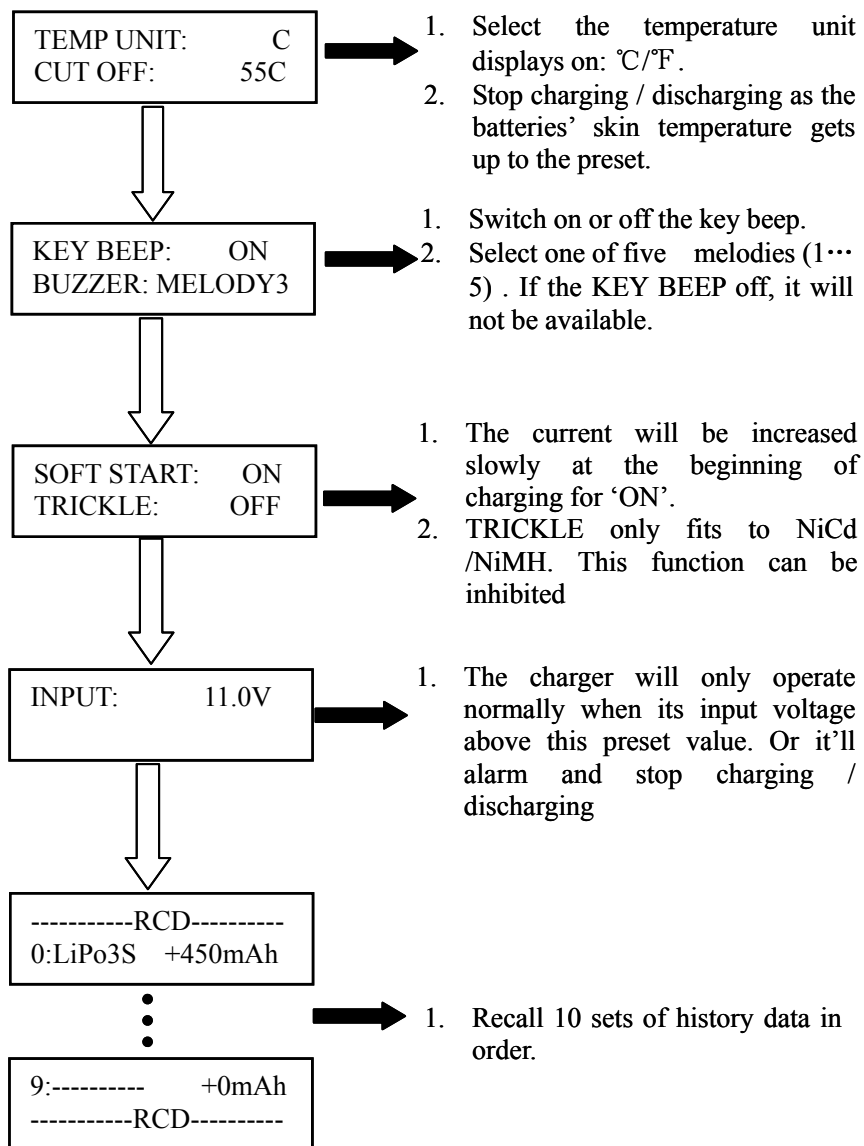
SETTING SYSTEM PARAMETER

Several parameters of the system can be programmed in SYSTEM PARAMETER. You can refer Table.SYSTEM PARAMETER to make some adjustments.

Table. SYSTEM PARAMETER

TEMP UNIT	C/F (℃/℉)
CUT OFF	55～66℃ or 50～150℉
KEY BEEP	ON/OFF
BUZZER	MELODY1～5
SOFT START	ON/OFF
TRICKLE	ON/OFF
INPUT	11.0VDC～13.5VDC
RCD	Recall 10 sets of history data

```
TEMP UNIT:        C
CUT OFF:        55C
```

1. Select the temperature unit displays on: ℃/℉ .
2. Stop charging / discharging as the batteries' skin temperature gets up to the preset.

```
KEY BEEP:      ON
BUZZER: MELODY3
```

1. Switch on or off the key beep.
2. Select one of five melodies (1···5) . If the KEY BEEP off, it will not be available.

```
SOFT START:     ON
TRICKLE:        OFF
```

1. The current will be increased slowly at the beginning of charging for 'ON'.
2. TRICKLE only fits to NiCd /NiMH. This function can be inhibited

```
INPUT:      11.0V
```

1. The charger will only operate normally when its input voltage above this preset value. Or it'll alarm and stop charging / discharging

```
-----------RCD----------
0:LiPo3S   +450mAh
```

```
9:----------    +0mAh
-----------RCD----------
```

1. Recall 10 sets of history data in order.

TROUBLE SHOOTING

You can't erase the Error Messages which appear on the LCD, unless you

hold on Press the dial briefly or reset the charger after the faults clearance.

No display:
Display does not work or turns black when connected to power. Check power supply for proper power. Check input connections for proper contact, making sure it's not connected backwards.

Reversed Polarity!

Confirm whether a battery is connected to the output in reverse.

Battery Disconnected!

Confirm whether a battery has connected with the output properly.

Hardware Error!
It happened on leakage or surge current. N61e Power on again. And try to run the battery profile again. If it always alarm contact DUALSKY Services for further details.

Cells Number Error!

Confirm the batteries cells setting.

Battery Overvoltage!

Confirm the batteries cells setting or the batteries voltage.

Battery Undervoltage!

Confirm the batteries cells setting or the batteries voltage.

Input Undervoltage!

Confirm the input to ensure it is not lower than the value set on the SYSTEM

PARAMETER.

Input Overvoltage!

Re-check the input to ensure which is not higher than16VDC.

Cells Overvoltage!

Lithium single voltage higher than 4.3V. **Stop charging**.

Any Cells Undervoltage!
Li-Po or Li-Ion single voltage lower than 2.7V. And Li-FePO4 single voltage lower than 1.8V. **Stop discharging**.

N61e V1.0 or Higher

FITTINGS CONTENTS

Standard Contents - N61e Kit

	1. Input Connectors. The charger leads to a set of removable alligator clips which built-in 4.0mm female banana jacks.
	2. Universal Output Connector A set of 4mm banana plugs leads to alligator clips.
	3. Balancing Adapter Lead. Balancer Adapter lead is used in connecting the balancer port to the adapter. 7Pin. Most for 6 cells in series.
	4. N6.BA234. A Balancing Adapter for: Li-Po/Li-Ion: 7.4V/2S, 11.1V/3S, 14.8V/4S. Li-FePO4: 6.6V/2S, 9.9V/3S, 13.2V/4S.
	5. N6.BA56. A Balancing Adapter for: Li-Po/Li-Ion: 18.5V/5S,22.2V/6S. Li-FePO4: 16.5V/5S, 19.8V/6S.
	6. Instruction Manual

Optional Contents

	1.No.43384(Recommended) /Themal Sensor Precision temperature sensor.

	2.No.40109/Multi Charge Connector
	  This connector can be instead of the Universal
	  Output Connector to compatible with various
	  batteries' port.

	3.No.30481(Recommended)/DLS300
	  Dualsky Li-Po Sack. Recommend to charge
	  battery in this sack to reduce the destructive
	  just in case of the battery's crash

	4.No.43383(Replacement)/2S-6S Balancing Adapter Kit

DUALSKY
ADVANCED POWER SYSTEMS

N61e