

# INSTRUCTION MANUAL


## AC/DC INPUT

Professional Balance  
Charger/Discharger



# TABLE OF CONTENTS

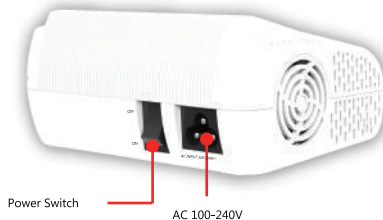
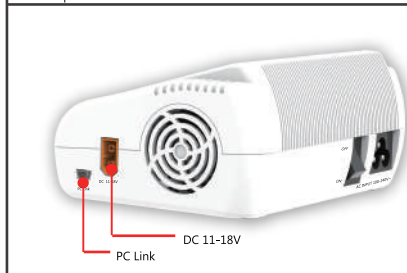
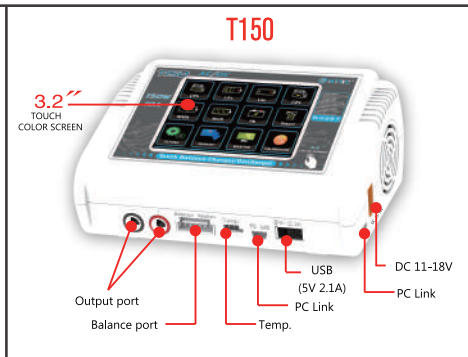
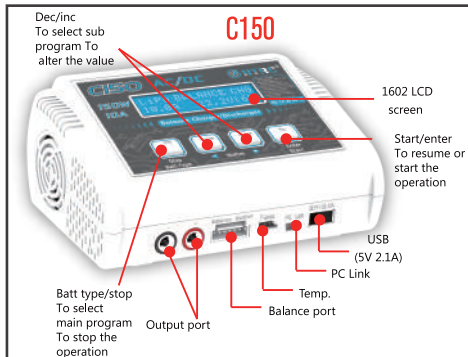
INTRODUCTION	01-03
ACCESSORIES	04
CAUTION and NOTES	05
BATTERIES INFO and MAX CHARGE CURRENT	06
PROGRAM OF Lipo/Lilo/LiFe/LiHV(C150/C240 DUO)	07
WORKING INTERFACE (C150/C240 DUO)	08
PROGRAM OF NiMH/NiCd(C150/C240 DUO)	09
WORKING INTERFACE (C150/C240 DUO)	10
PROGRAM OF PB(Lead-Acid)(C150/C240 DUO)	11
WORKING INTERFACE (C150/C240 DUO)	12
PROGRAM OF USER SETTINGS(C150/C240 DUO)	13-14
PROGRAM OF EXTRA FUNCTION(C150/C240 DUO)	15
PROGRAM OF LOAD MEMORY(C150/C240 DUO)	16
ERROR INFORMATION(C150/C240 DUO)	17
MAIN MENU INFO(T150,T240 DUO)	18
PROGRAM OF LiPo/Lilo/LiFe/LiHV(T150/T240 DUO)	19
WORKING INTERFACE(T150/T240 DUO)	20-21
PROGRAM OF NiMH/NiCd(T150/T240 DUO)	22
WORKING INTERFACE(T150/T240 DUO)	23
PROGRAM OF PB(lead-Acid)(T150/T240 DUO)	24
WORKING INTERFACE(T150/T240 DUO)	25
PROGRAM OF SMART(T150/T240 DUO)	26
PROGRAM OF SETTINGS(T150/T240 DUO)	27
PROGRAM OF MONITOR/CALIBRATION (T150/T240 DUO)	28
PROGRAM OF MEMORY (T150/T240 DUO)	29
ERROR INFORMATION(T150/T240 DUO)	30
SUPPORT AND SERVICES	31

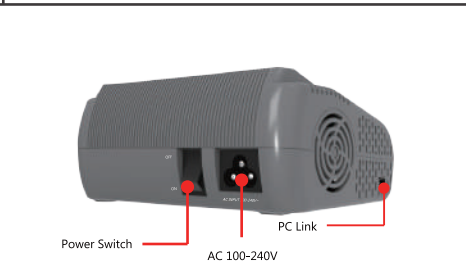
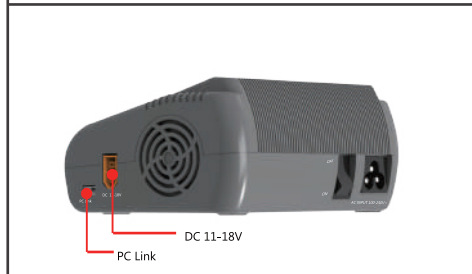
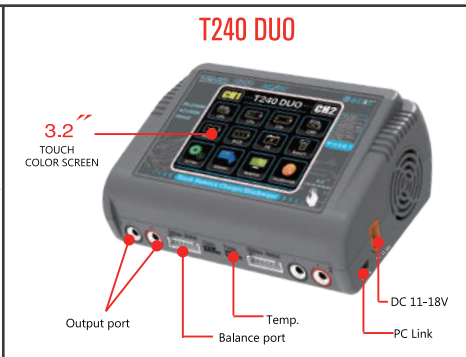
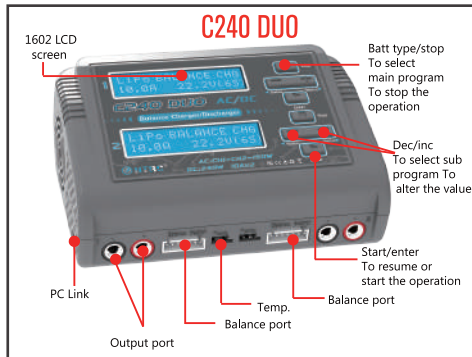
Thank You for purchasing the  HTRC® charger. Designed for both rookies and pro-fessionals, this system is extremely versatile. For the safety and the best use of your system, please read this manual carefully.

## SPECIFICATIONS:

Product Model:	C150	C240 DUO Power Distribution	T150	T240 DUO Power Distribution
AC Input Voltage	100-240V	100-240V	100-240V	100-240V
DC Input Voltage	11-18V	11-18V	11-18V	11-18V
Charge power	AC INPUT 150W DC INPUT 150W	AC INPUT (CH1+CH2=150W) DC INPUT (120W*2)	AC INPUT 150W DC INPUT 150W	AC INPUT (CH1+CH2=150W) DC INPUT (120W*2)
Charge current	0.1-10A	0.1-10A*2	0.1-10A	0.1-10A*2
Discharge current	0.1-2A	0.1-2A*2	0.1-2A	0.1-2A*2
Lipo/Lilo/LiFe/LiHV	1-6cells	1-6cells*2	1-6cells	1-6cells*2
NiCd/NiMH	1-15cells	1-15cells*2	1-15cells	1-15cells*2
PB	2-20V	2-20V*2	2-20V	2-20V*2
Smart Battery	I/II/III	I/II/III*2	I/II/III	I/II/III*2
Net weight	0.70Kg	0.75Kg	0.70Kg	0.75Kg
Dimension	145x105x64mm	145x105x64mm	145x105x64mm	145x105x64mm

# INTRODUCTION





# ACCESSORIES

C150	C240 DUO	T150	T240 DUO
 <p>Adapter Board1SET</p>	 <p>Adapter Board 2 SET</p>	 <p>Adapter Board1SET</p>	 <p>Adapter Board 2 SET</p>
 <p>Extra Cable x1pcs</p>	 <p>Extra Cable x2pcs</p>	 <p>Extra Cable x1pcs</p>	 <p>Extra Cable x2pcs</p>
 <p>Extra Cable x1pcs</p>	 <p>Extra Cable x1pcs</p>	 <p>Extra Cable x1pcs</p>	 <p>Extra Cable x1pcs</p>
 <p>AC Cord x1pcs</p>	 <p>AC Cord x1pcs</p>	 <p>AC Cord x1pcs</p>	 <p>AC Cord x1pcs</p>

- ⚠ - This charger is ONLY suitable for charge rechargeable LiPo, Lilo, LiFe, LiHv, NiCd, NiMH, Smart and Pb batteries Do not attempt to charge dry cells. Charge other types of batteries may cause fire or explosion.
- ⚠ - Set up the InputPower Limit/Low Input VOLT Cutoff correctly in the USER SETTING fo the DC power supply.
- ⚠ - Pay attention to the charger during use. Do not leave the charger unattended.
- ⚠ - Never charge the dead or damaged batteries.
- ⚠ - Do not attempt to charge a battery pack containing different types of batteries.
- ⚠ - Do not use a too long or damaged cables.
- ⚠ - Do not use the charger close by a flammable object. Use only in well-ventilated areas.
- ⚠ - Only charge the rechargeable batteries that meet the product specifications of this charger.
- ⚠ - Do not allow water, moisture or foreign objects into the charger.
- ⚠ - Do not use in humid locations. Do not operate with wet hands.
- ⚠ - Do not attempt to disassemble the charger.
- ⚠ - Do not use the charger on fleecy materials, such as carpets, blankets, beds and cushions.
- ⚠ - Do not block the cooling fan and the air inlet.
- ⚠ - Strongly recommend balancing Lithium packs. An unbalanced pack may damage during discharging.
- ⚠ - General default charging current is 1C. Read the manual of the battery and setup the suitable current to charge the battery Higher charge/discharge current will damage the battery, even cause a fire.

# BATTERIES INFO and MAX CHARGE CURRENT

Battery Type	No.o f Cells	Rated Voltzge(V)	Charger Current(A)
LiHV	1	3.8	0.1-10.0A
	2	7.6	0.1-10.0A
	3	11.4	0.1-10.0A
	4	15.2	0.1-10.0A
	5	19.0	0.1-10.0A
	6	22.8	0.1-10.0A
Lipo	1	3.7	0.1-10.0A
	2	7.4	0.1-10.0A
	3	11.1	0.1-10.0A
	4	14.8	0.1-10.0A
	5	18.5	0.1-10.0A
	6	22.2	0.1-10.0A
LiIo	1	3.6	0.1-10.0A
	2	7.2	0.1-10.0A
	3	10.8	0.1-10.0A
	4	14.4	0.1-10.0A
	5	18	0.1-10.0A
	6	21.6	0.1-10.0A
LiFe	1	3.3	0.1-10.0A
	2	6.6	0.1-10.0A
	3	9.9	0.1-10.0A
	4	13.2	0.1-10.0A
	5	16.5	0.1-10.0A
	6	19.8	0.1-10.0A
NiMH /NiCd	1	1.2	0.1-10.0A
	2	2.4	0.1-10.0A
	3	3.6	0.1-10.0A
	4	4.8	0.1-10.0A
	5	6	0.1-10.0A
	6	7.2	0.1-10.0A
	7	8.4	0.1-10.0A
	8	9.6	0.1-10.0A

Battery Type	No.o f Cells	Rated Voltzge(V)	Charger Current(A)
NiMH /NiCd	9	10.8	0.1-10.0A
	10	12	0.1-10.0A
	11	13.2	0.1-10.0A
	12	14.4	0.1-10.0A
	13	15.6	0.1-10.0A
	14	16.8	0.1-10.0A
	15	18	0.1-10.0A
Pb	1	2	0.1-10.0A
	2	4	0.1-10.0A
	3	6	0.1-10.0A
	4	8	0.1-10.0A
	5	10	0.1-10.0A
	6	12	0.1-10.0A
	7	14	0.1-10.0A
	8	16	0.1-10.0A
	9	18	0.1-10.0A
	10	20	0.1-10.0A
	11	22.0	0.1-10.0A
	12	24.0	0.1-10.0A

Lipo	Voltage Level: 3.7V/cell Max Charge Voltage: 4.2V/Cell Discharge Voltage Cut off Level: 3.0V/cell or Higher
LiIo	Voltage Level: 3.6V/cell Max Charge Voltage: 4.1V/Cell Discharge Voltage Cut off Level: 3.0V/cell or Higher
LiFe	Voltage Level: 3.3V/cell Max Charge Voltage: 3.8V/Cell Discharge Voltage Cut off Level: 2.0V/cell or Higher
LiHV	Voltage Level: 3.8V/cell Max Charge Voltage: 4.35V/Cell Discharge Voltage Cut off Level: 3.2V/cell or Higher
NiMH /NiCd	Voltage Level: 1.2V/cell Max Charge Voltage: 1.6V/Cell Discharge Voltage Cut off Level: 0.80V/cell or Higher
Pb	Voltage Level: 2.0V/cell Max Charge Voltage: 2.45V/Cell Discharge Voltage Cut off Level: 1.50V/cell or Higher



# PROGRAM OF Lipo/Lilo/LiFe/LiHV(C150/C240 DUO)

Press +/- to shift the work modes between the battery and the charger. Press ENTER to select  
Press STOP to quit

```
LiPo BALANCE CHG
10.0A          AUTO
```

BALANCE CHARGE: With this mode, the charger will charge the battery to the termination voltage and balance each cell of the battery pack.  
Balance port of the battery must be connected.

```
LiPo CHARGE
10.0A  22.2V(6S)
```

CHARGE: With this mode, the charger will charge the battery to the termination voltage by CC-CV mode, and stop at 1/10 of setting current.

```
LiPo FAST CHARGE
10.0A  22.2V(6S)
```

FAST CHARGE: With this mode, the charger will charge the battery to the termination voltage by CC-CV mode, and stop at 1/5 of setting current.

```
LiPo STORAGE
2.0A   2.2V(6S)
```

STORAGE: With this mode, the charger will charge or discharge the battery to the storage voltage.  
(LiPo: 3.85V/S Lilo: 3.75V/S LiFe: 3.45V/S LiHV:4.35V/S)

```
LiPo DISCHARGE
2.0A   22.2V(6S)
```

DISCHARGE: With this mode, the charger will discharge the battery to the termination voltage.

Select Battery Type/Current/Cell Count after work mode selection.

Press +/- button to shift or increase/decrease

Press ENTER to select

Press STOP to quit

Battery Type: LiPo/Lilo/LiFe

Work Mode(selected)

Current

```
LiPo CHARGE
10.0A  22.2V(6S)
```

Cell Count

The character will blinking during being select

Press ENTER for 2 seconds, the charger will check the battery then enter confirm interface. Press STOP to cancel, press ENTER to start working.

Charger detected Cell Count

```
R: 6SER   S: 6SER
CONFIRM(ENTER)
```

User set Cell Count

CANCEL (STOP)

# WORKING INTERFACE (C150/C240 DUO)

## General

Battery type and cell count

Alternate Show

Work Mode(short form)

BAL Balance Charge

CHG Charge

FAS Fast Charge

STO Storage

DSC Discharge

Current Battery Voltage

```
LiPo 5.0A 22.20V
CHG 038:38 2998
```

Timer Capacity

Press ENTER to return

```
LiPo 5.0A 22.20V
CHG 038:38 2998
```

Press

## Status

Press STATUS

Data

```
Capacity Cut-off
ON 8000mAh

Safety Timer
ON 240Min

Ext.Temp Cut-off
80°C

Ext.Temp
30°C

Input Voltage
12.10V

End Voltage
25.20V(6S)
```

STATUS

Cell1	Cell2	Cell3
3700	3700	3700 mV
3700	3700	3700 mV
Cell4	Cell5	Cell6

## Work Finished

Show alternated between battery type/cell count with FULL(END)

```
FULL
Li6S 0.5A 25.20V
CHG 088:38 4968
```

Press STATUS

```
4200 4198 4202 mV
4198 4202 4200 mV
```

# PROGRAM OF NiMH/NiCd(C150/C240 DUO)

Press +/- to shift the work modes between the battery and the charger.

Press ENTER to select

Press STOP to quit

```
NiMH CHARGE
10.0A
```

CHARGE: With this mode, the charger will automatically detect the cell count of the battery and charge the battery to the termination voltage.

```
NiMH DISCHARGE
2.0A 10.0V(10S)
```

DISCHARGE: With this mode, the charger will discharge the battery to the termination voltage.

```
NiMH CYCLE
C-D Times:3
```

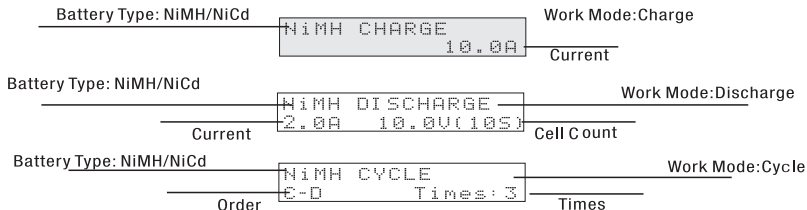
cycle: With this mode, the charger will charge and discharge the battery by the user's setting. (Current, Cell Count separately set in Charge and Discharge mode)

Select Battery Type/Current/Cell Count after work mode selection.

Press +/- button to shift or increase/decrease

Press ENTER to select

Press STOP to quit



The character will be blinking during being selected

Press ENTER for 2 seconds, the charger will start working.

# WORKING INTERFACE (C150/C240 DUO)

## General I

Battery type and cell count

Alternate Show

Work Mode(short form)

CHG Charge

DSC Discharge

C-D/D-C Cycle

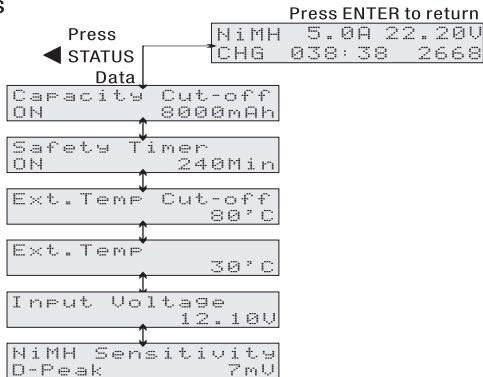
Work Finished

Show alternated between battery type/cell count with FULL(END).

FULL

```
NiMH 0.4A 16.00V
CHG 058:38 4968
```

Status



Current

Battery Voltage

```
NiMH 10.0A 10.20V
CHG 038:38 2668
```

Timer

Capacity

# PROGRAM OF PB(Lead-Acid)(C150/C240 DU0)

Press +/- to shift the work modes between the battery and the charger.

Press ENTER to select

Press STOP to quit

```
Pb CHARGE
10.0A 12.0V(6S)
```

CHARGE: With this mode, the charger will charge the battery to the termination voltage.

```
Pb DISCHARGE
2.0A 12.0V(6S)
```

DISCHARGE: With this mode, the charger will discharge the battery to the termination voltage.

Select Current/Cell Count after work mode selection.

Press +/- button to shift or increase/decrease

Press ENTER to select

Press STOP to quit



The character will be blinking during being selected

Press ENTER for 2 seconds, the charger will start working.

# WORKING INTERFACE (C150/C240 DUO)

## General

Battery type and cell count

Alternate Show

Work Mode(short form)

CHG Charge

DSC Discharge

	Current	Battery Voltage
6S		
Pb	10.0A	12.00V
CHG	038:38	2868
	Timer	Capacity

## Status

Press ENTER to return

Press  
◀ STATUS

Data

Capacity	Cut-off
ON	8000mAh

Safety Timer
ON 240Min

Ext.Temp	Cut-off
	80°C

Ext.Temp
30°C

Input Voltage
12.10V

End Voltage
14.70V(6S)

## Work Finished

Show alternated between battery type/cell count with FULL(END).

FULL	Pb	0.5A	14.70V
	CHG	058:38	4988

# PROGRAM OF USER SETTINGS(C150/C240 DUO)

PROGRAM SELECT User Settings	Key Beep On	LiPo Charge
	Buzzer On	TUC 4200mU/s
	Completion Ring	LiPo Discharge
	Beep 1Min	TUC 3200mU/s
	Cycle Waste Time	LiHV Charge
	5Min	TUC 4350mU/s
	Low Input VOLT	LiHV Discharge
	Cut-Off 10.0V	TUC 3300mU/s
	Ext-TEMP Cut-off	LiFe Charge
		TUC 3600mU/s
	Capacity Cut-off	LiIo Discharge
	On 5000mAh	TUC 2500mU/s
	Safety Timer	LiFe Charge
	On 240Min	TUC 3600mU/s
Charge Power	LiFe Discharge	
Limit 240W	TUC 2500mU/s	
LiXx Balance	NiMH Sensitivity	
Control Standard	D.Peak 4mV	
Termination	NiMH Discharge	
Voltage Control	TUC 800mV	
Reset Factory	NiCd Sensitivity	
Default Setting	D.Peak 7mV	
	NiCd Discharge	
	TUC 1000mV	
	Pb Charge	
	TUC 2400mU/s	
	Pb Discharge	
	TUC 1500mU/s	

Key Beep On  
Buzzer VOL LOW

Completion Ring  
Beep 1Min

Cycle Waste Time  
5Min

Low Input VOLT  
Cut-Off 10.0V

Ext-TEMP Cut-off  
ON 80°C

Capacity Cut-off  
ON 5000mAh

In this menu, you can turn on/off of the key sound and set the volume of the buzzer. Keep Beep default: On . Buzzer default: Low

In this menu, you can set the completion ring, 1-5 minutes/off/always optional, Default: 1Min

In this menu, you can set the waste time between charge and discharge in NiMH/NiCd cycle mode Range from 1-60Min, Default: 5Min

In this menu, you can set the cutoff input voltage of the power supply of the charger to protect your power supply. The charger will cutoff working when input voltage lower than the setting value. Range from 10.0-18.0V, Default: 10.0V

In this menu, you can set the cutoff external temperature to protect your battery. The charger will cutoff working when the external temperature is higher than the setting value (a external temperature sensor is needed). On/Off optional, range from 30-90°C, Default: 80°C

In this menu, you can set the cutoff capacity to protect your battery. The charger will cutoff working when the capacity is more than the setting value. On/Off optional range from 100-60000mAh Default: 8000mAh

# PROGRAM OF USER SETTINGS(C150/C240 DUO)

Safety Timer  
On 240Min

In this menu, you can set a safety time to protect your charger and battery. The charger will cutoff working when the safety time is up to the setting value. On/Off optional, range from 10-720 minutes, Default: 240 minutes

Charge Power  
Limit 240W

In this menu, you can set the charge power limit to meet your power supply. The charge will work under the setting value. Range from 10-250 watt, Default: 250 watt

LiXx Balance  
Control Standard

Balance control of LiPo/LiIo/LiFe, you can set the balance control to meet your demand. Standard/Fast/Accurate optional. Default: Standard

\*Fast: Balance speed fastest, less accurate.

\*Accurate: Balance speed lowest, more accurate.

\*Standard: balance speed and accurateness between Fast and Accurate\*

Reset Factory  
Default Setting

Reset factory default setting.

Termination  
Voltage Control

Termination voltage control per cell of all the batteries this charger support. You can set the value according to your request.

LiPo Charge  
TUC 4200mV/s

Range from 4150-4250 mV/s  
Default: 4200mV/s

LiPo Discharge  
TUC 3200mV/s

Range from 3000-3850mV/s  
Default: 3200mV/s

LiIu Charge  
TUC 4350mV/s

Range from 4300-4400 mV/s  
Default: 4350mV/s

LiIu Discharge  
TUC 3300mV/s

Range from 3100-3950mV/s  
Default: 3300 mV/s

LiIo Charge  
TUC 4100mV/s

Range from 3750-4200mV/s  
Default: 4100mV/s

LiIo Discharge  
TUC 2500mV/s

Range from 3000-3750mV/s  
Default: 3100mV/s

LiFe Charge  
TUC 3600mV/s

Range from 3300-3800mV/s  
Default: 3600mV/s

LiFe Discharge  
TUC 2500 mV

Range from 2500-3300mV/s  
Default: 2500mV/s

NiMH Sensitivity  
Default

Range from 4-20mV

NiMH Discharge  
TUC 800mV

Range from 500 1000mV/s  
Default: 800mV/s

NiCd Sensitivity  
D.Peak 7mV

Range from 4-20mV  
Default: 7mV

NiCd Discharge  
TUC 1000mV

Range from 500-1000mV/s  
Default: 1000mV/s

Pb Charge  
TUC 2.4W/s

Range from 1500-2500mV/s  
Default: 2400mV/s

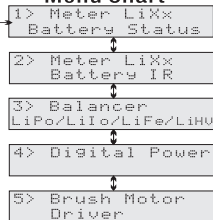
Pb Discharge  
TUC 1.5W/s

Range from 1000-1500mV/s  
Default: 1500mV/s

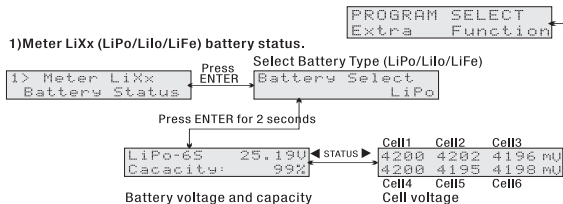


# PROGRAM OF EXTRA FUNCTION(C150/C240 DUO)

## Menu Chart



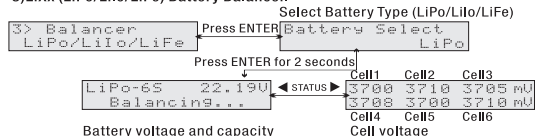
### 1) Meter LiXx (LiPo/LiIo/LiFe) battery status.



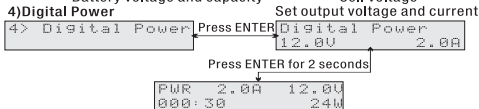
### 2) Meter LiXx (LiPo/LiIo/LiFe) battery internal resistance.



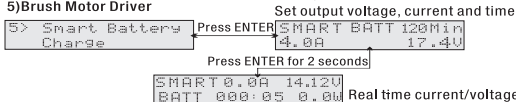
### 3) LiXx (LiPo/LiIo/LiFe) Battery Balancer.



### 4) Digital Power

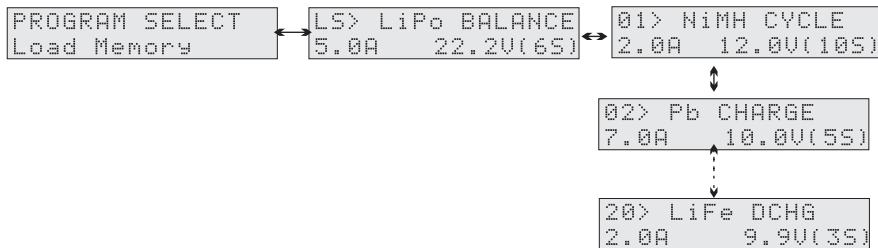


### 5) Brush Motor Driver



# PROGRAM OF LOAD MEMORY(C150/C240 DUO)

## Menu Chart

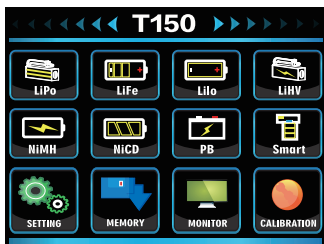


There are 20 memories record the work of the charger. LS=latest record. Press +/- to shift the memories, press ENTER to revise, then press ENTER for 2 seconds to start working.

# ERROR INFORMATION(C150/C240 DUO)

INPUT VOLTAGE TOO HIGH	Input voltage is higher than 18V, check the power supply, then restart the charger.
INPUT VOLTAGE TOO LOW	Input voltage is lower than the value of LOW INPUT VOLTAGE CUT-OFF, check the power supply, then restart the charger.
REVERSE POLARITY CHECK	Reverse polarity, check the connection between the charger and the battery, correct the connection, then restart the work.
BATTERY CHECK DISCONNECT	Battery disconnect, check the connection between the charger and the battery, then restart the work.
BATTERY CHECK OVER VOLTAGE	Total voltage of the battery is over the termination voltage control(TVC), check the battery and the TVC setting, then restart.
BATTERY CHECK LOWER VOLTAGE	Total voltage of the battery is lower than the termination voltage control(TVC), check the battery and the TVC setting, then restart.
BATTERY CHECK CELL COUNT ERROR	Cell count detected by the charge is different from the setting, check the battery cell count and reset the cell count of the work.
BATTERY CHECK OVER CELL VOLT	Cell voltage of the battery pack is over the termination voltage control(TVC), check the battery and the TVC setting, then restart.
BATTERY CHECK LOWER CELL VOLT	Cell voltage of the battery pack is lower the termination voltage control(TVC), check the battery and the TVC setting, then restart.
BATTERY CHECK FULL BATTERY	Full battery, no need to charge.
OVER Ext. TEMP CUTOFF	External temperature is higher than the setting value, cutoff.
OVER CAPACITY CUTOFF	Capacity is over than the setting value, cutoff.
SAFETY TIME OUT CUTOFF	Time is up to the setting value of Safety Timer, cutoff.

# MAIN MENU INFO(T150,T240 DUO)



Main Menu



3.2 Inch Touch screen



security settings



Battery Management, Checking Battery Capacity, Voltage, Balancer

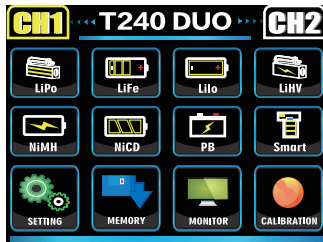


Memory: Save Six operation data



Calibrate Charger

**NOTE:** Please read carefully before doing anything !!



Main Menu

**CH1 CH2** means CH-2 or CH-1 Swift image

Note: 1. If CH-2 has been not used, **CH2** press image, return back to main menu, and use CH-2 operation

2. If CH-2 has been used, **CH1** press image, enter into CH-2 operation directly

3. Two Channel are independent, and you can use different mode to operate

# PROGRAM OF LiPo/LiIo/LiFe/LiHV(T150/T240 DUO)

Example 1: Choose a set of LiPo battery charging, please follow the below steps:

Step 1. Enter to Menu, Select Battery Type (Image 1).

Such as: LiPo, Enter into "SELECT WORK MODE" (Image 2).

Step 2. Select "BAL CHARGE" MODE, And set the related parameters (Image 2)

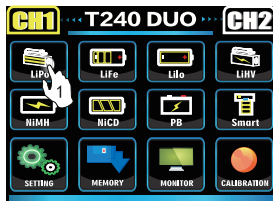


Image 1

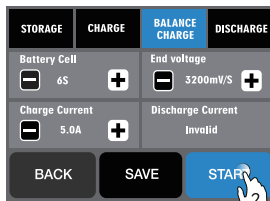


Image 2

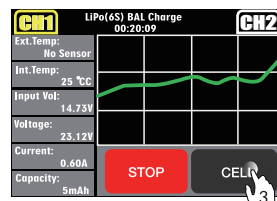


Image 3

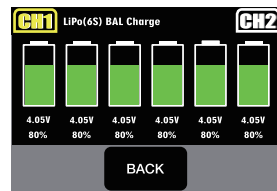


Image 4

MODE1: STORAGE  
MODE2: CHARGE  
MODE3: BAL CHARGE  
MODE4: DISCHARGE

Next step will be example at "MODE 3" (T240 DUO)

# WORKING INTERFACE(T150/T240 DUO)

Step 3: If you often use the same battery, please touch Save icon (Image 2) to enter into Save interface. Touch Unused icon to save the data and it will be easy for you to charge next time.

*Note:8 groups data can be saved*

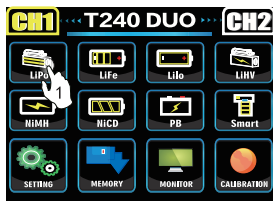


Image 1

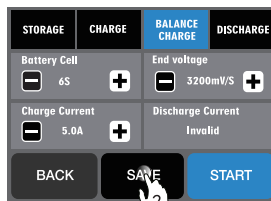


Image 2

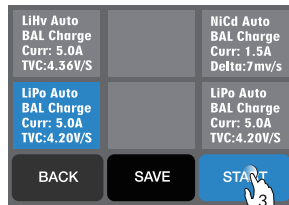
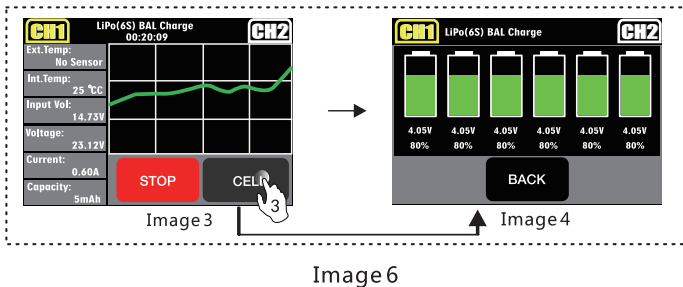


Image 5

Step 4. Select previous date to START (Image 5) to balance charging (Image 3), or touch BACK icon into previous step (Image 2), and touch START to balance charge. (Image 6)

# WORKING INTERFACE(T150/T240 DUO)



- NOTE: 1. Image 3 show the graphic photo for lipo charger current and voltage.  
2. Image 4 show each cell voltage and percent during lipo charging.  
3. Image 3 show all setting data for lipo charging.

**CH1** **CH2** means CH-2 or CH-1 Swift image

Note: 1. If CH-2 has been not used, **CH2** press image, return back to main menu, and use CH-2 operation

2. If CH-2 has been used, **CH1** press image, enter into CH-2 operation directly

3. Two Channel are independent, and you can use different mode to operate

# PROGRAM OF NiMH/NiCd(T150/T240 DUO)

Example 2: Choose a set of NiMH battery charging, please follow the below steps:

Step 1. Enter to Menu, Select Battery Type (Image 8).

Such as: NiMH, Enter into "SET PARAMETER FOR NiMH BATTERY" (Image 9).

Step 2. Select "CHARGE" MODE, And set the related parameters (Image 9)

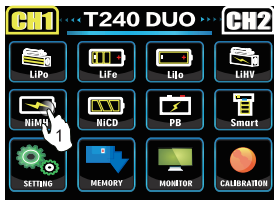


Image 8

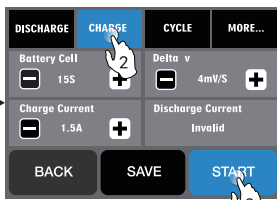


Image 9

MODE1: CYCLE  
MODE2: CHARGE  
MODE3: DISCHARGE

Next step will be example at "MODE 2"  
(T240 DUO)

*Note: 8 groups data can be saved*

Step 3: If you often use the same battery, please touch Save icon (Image 9) to enter into Save interface. Touch Unused icon to save the data and it will be easy for you to charge next time. (Image 10-11)

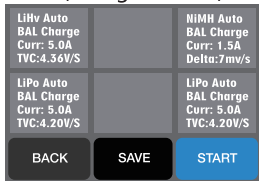


Image 10

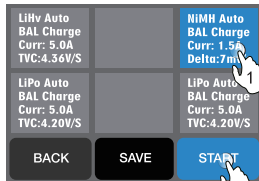


Image 11



# WORKING INTERFACE(T150/T240 DUO)

Step 4. Select previous data to START(Image11)to Discharge (Image12),  
Or touch BACK icon into previous step (Image9),and touch START to  
charge(Image12)

## WORKING INTERFACE

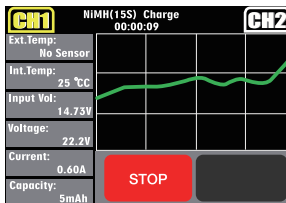


Image 12

NOTE: 1. Image12 show the graphic photo for NiMH charge current and voltage  
2. Image12 show all setting data for NiMH charging

**CH1 CH2** means CH-2 or CH-1 Swift image

Note: 1. If CH-2 has been not used, **CH2** press image, return back to main menu,  
and use CH-2 operation

2. If CH-2 has been used, **CH1** press image, enter into CH-2 operation directly

3. Two Channel are independent, and you can use different mode to operate

# PROGRAM of PB(lead-Acid)(T150/T240 DUO)

Example 4: Choose a set of PB battery charging, please follow the below steps:

Step 1. Enter to Menu, Select Battery Type (Image 13).

Such as: PB, Enter into "SET PARAMETER FOR PB BATTERY" (Image 14).

Step 2. Select "CHARGE" MODE, And set the related parameters (Image 14)

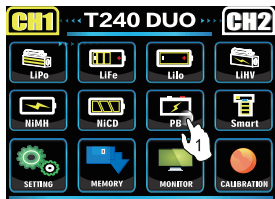


Image 13

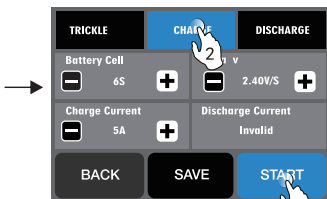


Image 14

MODE1: TRICKLE  
MODE2: CHARGE  
MODE3: DISCHARGE

Next step will be example at "MODE 2"

(T240 DUO)

Step 3: If you often use the same battery, please touch Save icon (Image 14) to enter into Save interface. Touch Unused icon to save the data and it will be easy for you to -charge next time. (Image 15-16)

*Note: 8 groups data can be saved*

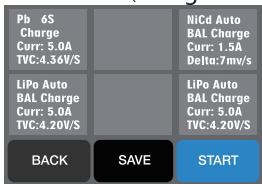


Image 15

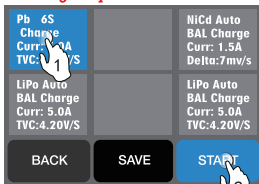


Image 16

# WORKING INTERFACE(T150/T240 DUO)

- Step 4. Select previous data to START(Image16)to balance charging(Image17),  
Or touch BACK icon into previous step (Image16),and touch START to  
balance charge(Image17)

## WORKING INTERFACE

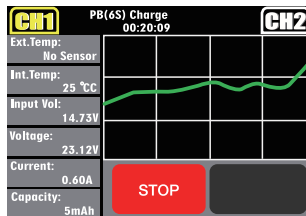


Image17

- NOTE: 1. Image17 show the graphic photo for Pb charge current and voltage  
2. Image17 show all setting data for Pb charging

**CH1** **CH2** means CH-2 or CH-1 Swift image

Note: 1.If CH-2 has been not used, **CH2** press image, return back to main menu,  
and use CH-2 operation

2.If CH-2 has been used, **CH1** press image, enter into CH-2 operation directly

3.Two Channel are independent, and you can use different mode to operate

# PROGRAM OF SMART(T150/T240 DUO)

Example 3: Choose a set of SMART battery charging, please follow the below steps:

Step 1. Enter to Menu, Select Battery Type (Image 18)。

Such as: SMART, Enter into "SMART BATTERY POWER SUPPLY" (Image 19)。

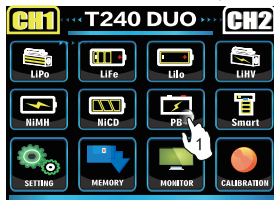


Image 18

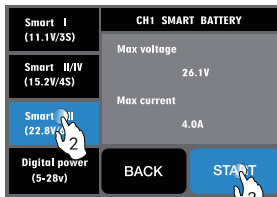


Image 19

MODE1: SMART I  
MODE2: SMART II  
MODE3: SMART III  
MODE4: User set

Next step will be example at "MODE 4"

Step 2. Select START (Image 19) to charging (Image 20).

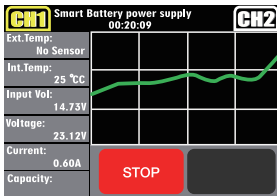


Image 20

NOTE: Image 20 show the graphic photo for the current and voltage for the smart charge.

CH1 CH2 means CH-2 or CH-1 Swift image

Note: 1. If CH-2 has been not used, CH2 press image, return back to main menu, and use CH-2 operation

2. If CH-2 has been used, CH1 press image, enter into CH-2 operation directly

3. Two Channel are independent, and you can use different mode to operate

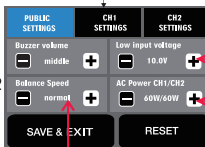
# PROGRAM OF SETTINGS(T150/T240 DUO)

Step1.Enter to Menu, Select Setting (Image21),into set interface (Image22-24).

Image 21



Image 22



Set the volume of the buzzer. Keep Beep default: **Middle.Low/Middle/High/Off optional**

In this menu, you can set the cutoff input voltage of the power supply of the charger to protect your power supply. The charger will cutoff working when input voltage lower than the setting value. Range from 11.0-18.0V, Default: 10.0V

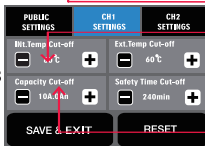
In this menu, you can set the charge power limit to meet your power supply. The charge will work under the setting value.

Balance control of LiPo/LiFe/LiHV, you can set the balance control to meet your demand. Normal/Fast/slow optional. Default: Normal

Fast: Balance speed fastest, less accurate. \* slow: Balance speed lowest, more accurate.

\*Normal: balance speed and accurateness between Fast and slow

Image 23



In this menu, you can set the cutoff Internal temperature to protect your battery. The charger will cutoff working when the Internal temperature is higher than the setting value range from 30-85°C, Default: 80°C

In this menu, you can set the cutoff capacity to protect your battery. The charger will cutoff working when the capacity is more than the setting value. range from off-65.0Ah, Default: 10.0 Ah

Image 24



In this menu, you can set the cutoff external temperature to protect your battery. The charger will cutoff working when the external temperature is higher than the setting value (anexternal temperature sensor is needed). range from 30-85°C, Default: 60°C

In this menu, you can set a safety time to protect your charger and battery. The charger will cutoff working when the safety time is up to the setting value. On/Off optional, range from 1 - 600 minutes. Default: 240 minutes

# PROGRAM OF MONITOR/CALIBRATION (T150/T240 DUO)

ONE: Enter into Menu, select Monitor (Image25) and into BATTERY MONITOR (Image26).



Image 25

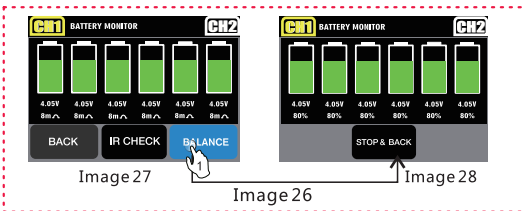


Image 27

Image 26

Image 28

- 1) Meter LiXx(LiPo/LiLo/LiFe/LiHV)battery status.(Image27)
- 2) Meter LiXx(LiPo/LiLo/LiFe/LiHV)battery internal resistance.(Image27)
- 3) LiXx(LiPo/LiLo/LiFe/LiHV)battery balancer.(Image28)

**CH1** **CH2** means CH-2 or CH-1 Swift image

Note: 1. If CH-2 has been not used, **CH2** press image, return back to main menu, and use CH-2 operation

2. If CH-2 has been used, **CH1** press image, enter into CH-2 operation directly

3. Two Channel are independent, and you can use different mode to operate

TWO: Step1. Enter to Menu, select Calibration (Image29), into "CHARGER CALIBRATION"(Image30)  
Step2. select "RESET" (Image30) recover original setting (Image30)



Image 29

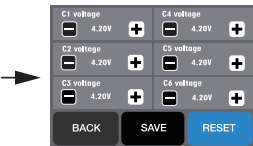


Image 30

# PROGRAM OF MEMORY (T150/T240 DUO)

Step1.Enter into Menu, select Memory (Image31)。

Step2:Select correct icon as exact battery typeimage32,and select “Modify” icon,(Image33).

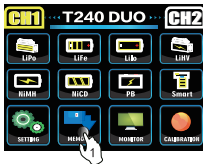


Image 31

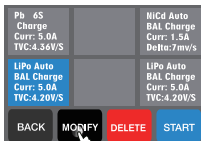


Image 32

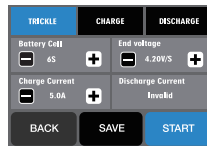


Image 33

Step1.Enter into Menu, select Memory (Image31)。

Step 2:Select “start” icon (Image 32),and select “ cell ” icon (Image 34)(Image 35)

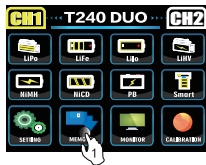


Image 31

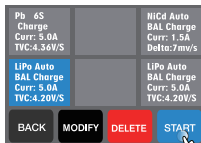


Image 32

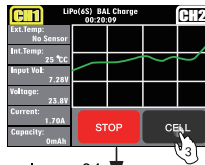
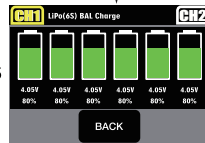


Image 34

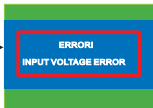


Image 35



# ERROR INFORMATION(T150/T240 DUO)

ERROR INFORMATION



<NOTE>

The charger will send out an alert and pop-up window if the battery packs' setting is incorrect (Image 38).

Image 34

ERROR! INPUT VOLTAGE ERROR
ERROR! INPUT VOLTAGE TOO LOW
ERROR! REVERSE POLARITY CHECK
ERROR! BATTERY CHECK DISCONNECT
ERROR! BATTERY CHECK OVER VOLTAGE
ERROR! BATTERY CHECK LOWER VOLTAGE
ERROR! BATTERY CHECK CELL COUNT ERROR
ERROR! BATTERY CHECK OVER CELL VOLT
ERROR! BATTERY CHECK LOWER CELL VOLT
ERROR! BATTERY CHECK FULL BATTERY
ERROR! OVER Ext. TEMP CUTOFF
ERROR! OVER CAPACITY CUTOFF
ERROR! SAFETY TIME OUT CUTOFF

Input voltage is higher than 30V, check the power supply, then restart the charger

Input voltage is lower than the value of LOW INPUT VOLTAGE CUT-OFF, check the power supply, then restart the charger.

Reverse polarity, check the connection between the charger and the battery, correct the connection, then restart the work.

Battery disconnect, check the connection between the charger and the battery, then restart the work.

Total voltage of the battery is over the termination voltage control(TVC), check the battery and the TVC setting, then restart.

Total voltage of the battery is lower than the termination voltage control(TVC), check the battery and the TVC setting, then restart.

Cell count detected by the charge is different from the setting, check the battery cell count and reset the cell count of the work.

Cell voltage of the battery pack is over the termination voltage control(TVC), check the battery and the TVC setting, then restart.

Cell voltage of the battery pack is lower than the termination voltage control(TVC), check the battery and the TVC setting, then restart.

Full battery, no need to charge.

External temperature is higher than the setting value, cutoff.

Capacity is over than the setting value, cutoff.

Time is up to the setting value of Safety Timer, cutoff.



## WARRANTY

**SHENZHEN HUITUO** provide a period of one year product warranty from the date 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 use guideline in this manual.

### LIABILITY EXCLUSION

This charger is designed and approved exclusively for charge the types of battery stated in this manual. **SHENZHEN HUITUO** do not accept any liability if the charger is used for any purpose other than that stated. We are unable to ensure you follow the instructions come with the charger, and we have no control over the methods you employ for using, operating and maintaining this device.

For this reason we are obliged to deny the liability for loss, damage or costs which are incurred due to the incompetent or incorrect use and operation of this product, 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 products which were immediately and directly involved in the event in which the damage occurred

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