

V6 AC-DC

Intelligent Balance Charger

AC 100W / DC 200W / 14A

- 200W Power in DC Mode
- 100W Power in AC Mode
- Max charge current 14A



Thank you for purchasing G.T. Power V6 AC-DC intelligent charger/discharger. This is a rapid charger/discharger with built-in microprocessor and brand new program. It can support charging different types of batteries, design fashion, easy to operate. Please read the entire operating manual completely and attentively before using.

G.T. POWER[®]

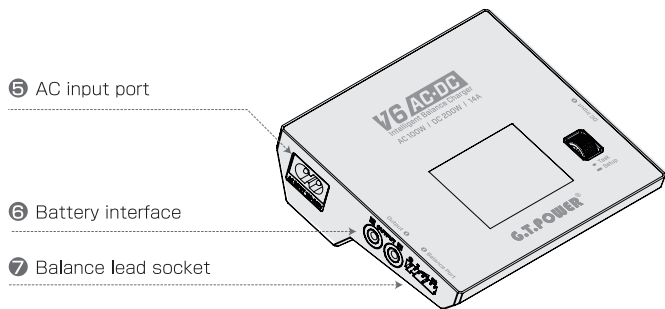
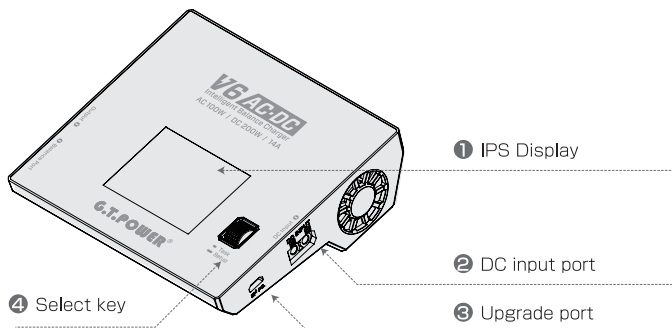
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1. Specification

Input	AC.100-240V/ 2A
	DC.10-24V/15A
Charge Current	0.1-14.0A
Discharge Current	0.1-3.0A
Charge Power	AC: Max.100W
	DC: Max.200W
Discharge Power	Max. 5.0W
Balance Current	Max.1A
Balance Tolerance	±0.01V
Charging Capabililty	NIMH/NiCd: 1-16cells
	LiPo/LiFe/Lilon/LiHv: 1-6series
Pb Battery Voltage	2-24V
Size	127*116*43mm
Weight	385g

2. Exterior of the unit



Select key

Long press: Enter into system setting/ terminate the current task

Short press: Enter into system setting/ confirm the current setting

Scroll up and down: Select menu

3. Warnings and safety notes

- Never leave the charger unsupervised when it is connected to a power source, or during charging. If any error or malfunction is observed at any point immediately terminate the process and refer to this instruction manual.
- Keep the charger away from dust, damp, rain, heat, direct sunlight and vibration. Do not drop it.
- The power is designed to be powered by a 100-240V AC supply or 10-24V DC supply only.
- The charger and the battery to be charged should be set up on a heat resistant, non-flammable and non-conductive surface. Never put it on a car seat, carpet and other similar material surface. Keep all explosive items away from the operating area
- Please make sure that the fan and vents of the charger are not blocked by the surface that it is placed on.
- Make sure you understand the correct settings to use for the battery to be charged or discharged. Use of incorrect settings may cause severe damage to the battery, including possible fire or explosion.
- To avoid short circuit between the charge lead, always ensure the leads are connected to the charger first and only then plugged into the battery. Always make sure that no batteries are connected to leads before disconnecting them from the charger.
- You have to check the capacity and voltage of the lithium battery pack, it can be mixed composition of series and parallel connection. When in parallel connection, the battery pack capacity is multiplied by the number of the cells while the voltage remains the same. When charging in this situation, this voltage uneven may cause possible fire or explosion, so we suggest you'd better connect the battery in series.

NiCd/ NiMH	Voltage level:	1.2V/cell
	Allowable fast charge current:	1C~2C depends on the performance of cell
	Discharge voltage cut off level:	0.85V/cell(NiCd), 1.0V/cell(NiMH)
LiIo	Voltage level:	3.6V/cell
	Max.charge voltage:	4.1V/cell
	Allowable fast charge current:	1C or less
	Min.discharge voltage cut off level:	2.5V/cell or higher
LiPo	Voltage level:	3.7V/cell
	Max.charge voltage:	4.2V/cell
	Allowable fast charge current:	1C or less
	Discharge voltage cut off level:	3.0V/cell or higher
LiFe	Voltage level:	3.3V/cell
	Max.charge voltage:	3.6V/cell
	Allowable fast charge current:	4C or less(e.g. A123M1)
	Discharge voltage cut off level:	2.0V/cell or higher
LiHV	Voltage level:	3.8V/cell
	Max.charge voltage:	4.35V/cell
	Allowable fast charge current:	1C or less
	Min.discharge voltage cut off level:	3.0V/cell or higher
Pb (Lead- acid)	Voltage level:	2.0V/cell
	Max.charge voltage:	2.46V/cell
	Allowable fast charge current:	0.4C or less
	Discharge voltage cut off level:	1.50V/cell or higher

Discharge

- You need to check the residual capacity of the battery or lower the battery voltage to set the discharge parameter. When you discharge the battery, you have to pay attention to the discharging process as same as the charging process. To avoid over discharging, you need to set the

correct final discharge voltage. The final discharge voltage should not lower than lithium battery's minimum voltage, this will cause battery capacity lower or permanent damage the battery. Generally, you do not need to discharge lithium battery voluntarily.

- Some rechargeable battery has 'memory effect', if the capacity are partly being used and recharged before the whole capacity use up, they will 'remember' it and use that 'remembered' part capacity next time, while not use up the whole capacity. Nicd and NiMH battery has this 'memory effect', they prefer fully charge and use up capacity before recharge. Nicd battery 'memory effect' is more obvious than Nimh battery.
- The Lithium battery prefers a partial discharge rather than fully discharge. Frequent fully discharge should be avoided or keep a normal voltage.

Those warnings and safety notes are particularly important. Please follow the instructions for the maximum safety.

4. How to Confirm Charging Current

It is necessary to know the max. Charging current before charge due to excessive current could shorten the life span of the battery, even do permanent damage to the battery. Excessive charging current may possible cause fire or explosion during charging.

The charging and discharging capacity of the battery is usually marked by C Value, C value multiply the battery capacity is the maximum battery charging current. For example, battery capacity is 1000mAh, C value is 5C, then the max. Charging current is $1000 \times 5 = 5000\text{mA}$, it means the battery can support max. 5A charging current.

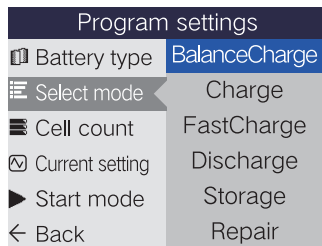
For Lithium battery, is can not confirm its charging C value, For your safety, please set the max. Charging current lower than 1C.

The relations below C value and the charging time: charging time ≥ 60 minutes / C value (For example, using 1C charging, charging complete time takes 60-70 minutes)

Program settings	
Battery type	13.5 A
Select mode	13.6 A
Cell count	13.7 A
Current setting	13.8 A
Start mode	13.9 A
Back	14.0 A

5. Charging Mode Selection

The working mode of the charger is series charging, it must connect to the battery output cable when connect to the battery. For the Lithium battery, you should connect the balance port to enter the balance charging mode. Through this can monitor the voltage of each cell and balance the ones which voltage is inconsistency. The charger will alarm before charging if do not connect to the balance port.



	Balance Charge Mode	Charge Mode	Fast Charge Mode	Discharge Mode	Storage Mode	Repair Mode
LiPo/LiFe/Lilon/LiHv	✓	✓	✓	✓	✓	✓
NiMH/NiCd	×	✓	×	✓	×	✓
Pb	×	✓	×	✓	×	✓

Li-xx battery balance charge mode

The charge mode can make each cell to full voltage when finish

charging. The inner system will monitor each cell's voltage and control the current of each cell, then to balance the individual cell voltage. You need connect the battery to the output cord as well as the balance port when charging.

Battery fast charge mode

The charge current will get smaller and smaller till charge finished. The fast charge program will finish charge in advance and decrease the CV and balance process. Actually, when the fast charge process finished, the charge current will go to 1/5 of its initial value. The real charging capacity may a little bit smaller than normal charging capacity, but will decrease the charge time.

Li-xx battery storage charge mode

This function can make each types of Li-xx battery to adjust to its corresponding voltage (LiPo:3.85V, LiHV:3.85V, LiIo:3.75V, LiFe:3.3V), so lithium batteries can keep for a long time. When select storage mode, automatic charging task can be initiated if the battery voltage is lower than the preset storage voltage. If the battery voltage is higher than the preset storage voltage, then it will automatic discharging. To save time, the cell voltage may not be accurately balanced during the storage and discharge process. So, it is a normal phenomenon that there maybe some discrepancy between cell voltage and preset value when the task finished.

Li-xx battery discharge mode

The purpose of discharging is to confirm the battery residual capacity or check the health condition of the battery. To avoid over-discharging, you have to set the correct rated discharge voltage before discharging. The







voltage of the battery should not lower than its lowest voltage due to it will cause capacity rapid loss. Normally, there is no necessary to discharge lithium battery. For safety reason, discharge current displayed on screen should not exceed the rated max. discharge current, and the rated voltage can not lower than the voltage level recommended by cell manufacturer to avoid over discharging.

Repair mode

When the battery is over-discharging, you can use this mode with small current constantly charging to activate the battery. If repair failed, system will report error, it means the battery is permanently damaged.

6. Program Setting

Connect the charger to the power supply and wait for the charger to finish self testing. Connect the battery to the charger under standby interface, and shortly press the select key to show the program setting menu as below;

Program settings	
 Battery type	LiHv
 Select mode	BalanceCharge
 Cell count	2S
 Current setting	0.1A
 Start mode	
 Back	

Battery type	LiPo, LiFe, LiIon, LiHv, NiMH, NiCd, Pb
Select Mode	Balance Charge, Charge, Fast Charge, Discharge, Storage, Repair
Cell Count	Li-XX battery 1-6cells, NiMH/NICD 1-16cells, PB 1-12cells
Current Setting	Charge current 0.1-14A Discharge current 0.1-3A
Start Mode	Start
Back	Back to last menu

ΔV Delta-peak sensitivity: This is a turn-off charge current automatically program. The working principle is that the charge current will turn off and finish charge when the battery voltage increased to the highest and start to decrease. If the trigger voltage is setting too high, it will lead to dangerous of over-charge. If it is setting too low, then the system may result in finish charging in advance.

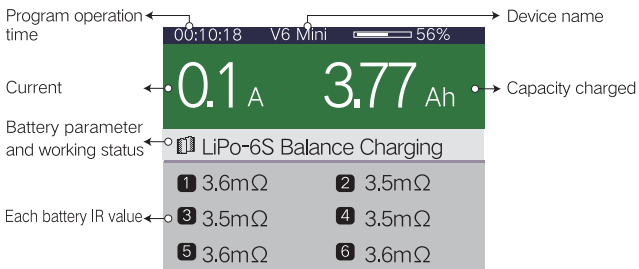
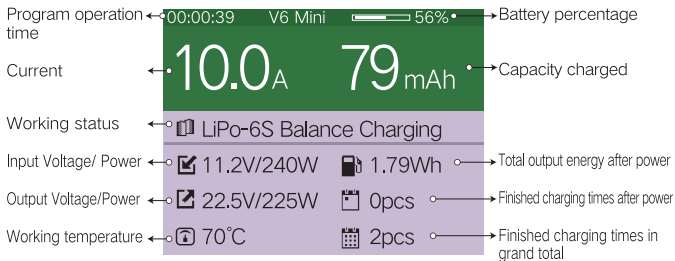


Alarm: The LiHv mode is only support 4.35V li-xx battery. It is forbidden to use this function to charge other battery types. Never charge the li-xx battery which the end voltage is under 4.20V in this mode, otherwise it may possible lead to burn or explosion.

7. Showing Screen

Scroll select key up and down to switch screen information, in order of each cell's voltage and working parameters.

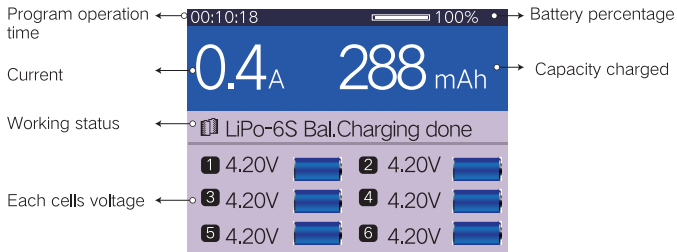
Fast balance charge status:



Li-XX battery IR Test:

The charger have the IR tesing function and it will just work when balance charging. It will test and calculate the IR value after charging 2 minutes later. It cannot be realized to measure the absolute value as professional internal resistance tester does. Therefore, the internal resistance value can only be referred to when conducting horizontal comparisons, such as judging the consistency of the cells' performance or making comparisons of the performance of dierent cells. The charging current is an in uential factor for measuring internal resistance; batteries with large capacity and small internal resistance would relatively need large charging currents to accurately measure the internal resistance.

Accurate Balance Status:



Charging finished adjustment

During the charging process, the screen displays to Green, which turns into Blue as the charging is finished. When the charging finished, the cells' voltage difference should be smaller than 10mV, while the screen

turns into Blue. The charger should continue to carry out accurate balancing of the battery after the light turns Blue.

After the charging finished, it is normal for voltage decline to occur due to different performances. As the number of the charge cycle grows, the performance decreases, and the voltage decline phenomenon becomes obvious. To charge the battery with a larger current would also cause a more obvious voltage decline after the charging finished.

8. System Setting

Long press select key under system stand by status to set the menu.

Max. Input Power	50-240W
Min. Input Voltage	10-20V
Back lightness	High, medium, low and auto
Volume	High, medium, low and turn off
Alarm sounds after finished	2 kinds: once and repeatedly
Language	7 languages, including English, Chinese etc.
System Information	Checking the system information
System self-checking	System self-checking without connecting to battery
Back	Back to last Menu

Max. Input power limitations

When the input power failed to reach the max. working power(240W). it need to set this parameter based on the actual output power. For example, if connected power supply is 12V/15A, then the max. Input power should be 180W.







Min. Input voltage limitations

This item can protect the battery to excessive discharge since it's used as input power. If the charger tests that the input voltage is lower than the default value, all tasked in operation would be terminated and there would be a warning of low voltage. For example, if a 6S Lipo battery is

used as the input power source, the value of the item should be 21V to protect the battery from excessive discharge

Buzzer volume

When it setting to OFF, the operation sound would be OFF, but the sound of error warning will keep to ON

System settings		
	Max. input Power	240W
	Min. input Voltage	10.0V
	Backlight	Middle
	Volume	High
	Completion tone	Single
	Language	English

9. Alarm and Error Information

It combines with various protective functions and monitor systems to verify its electronic functions and status. The screen will display the error instructions with a warning sound if anything works wrong.

1.{" Battery type select error! "}

Battery type select error. Charger will select the battery type as the same as the real battery type again

2.{" Battery not connected ! "}

Battery do not connected to charger. please check the connection cables.

3.{" Short Circuit Error "}

Please check the charging cable

4.{" Input Voltage Error! "}

Input voltage is lower or higher than the limited voltage

5.{" BATTERY LOW VOLTAGE "}

The voltage is lower than the setting voltage, please check the number of cells in battery pack

6.{" BATTERY HIGH VOLTAGE "}

The voltage is higher than the setting voltage, please check the number of cells in battery pack

7.{" CELL LOW VOLTAGE "}

The cell voltage is lower. One of the battery voltage of Lithium battery

pack is lower, please check the battery voltage one by one.

8.{" Battery Cell Voltage High! "}

The cell voltage is higher, the voltage of one cell of Lithium battery is higher, please check the battery voltage one by one.

9.{" Balance port connect break ! "}

Battery balance cable and charger disconnected, please check the balance cable

10.{" Charge Over heating! "}

Charging with overheating, the battery should be cooling since the internal temperature is higher.

11.{"Output polarity reversed !!"}

The polarity reversed, please check the + - polarity of battery connection

12.{"Current add to fast !!"}

Current is increasing too fast. Back to current charge mode. This is the self-protection of charger.

13.{"Repair failed !!"}

repair failed:

10. Warranty and Service

We warrant this product for a period of one year (12 months) from the date of purchase. The guarantee applies only to material or operational malfunctions. During that period, we will replace or repair the unit without any service fee. Invoice or receipt is required. This warranty does not cover the damage due to wear, overloading, improper handling or using of incorrect accessories.

CONFORMITY DECLARATION

G.T.POWER V6 AC-DC satisfies all relevant and mandatory CE directives and FCC Part 15 Subpart B. The product has been tested to meet the following technical standards:

	Test Standards	Title	Result
CE-LVD	EN60335-2-29	Household and similar electrical appliances – Safety – Part 2-29: Particular requirements for battery chargers.	Conform
	EN 60335-1	Household and similar electrical appliances - Safety - Part 1: General requirements	Conform
CE-EMC	EN55014-1	Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus – Part 1: Emission	Conform
	EN55014-2	Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus – Part 2: Immunity Product Family Standard	Conform
	EN61000-3-2	Electromagnetic compatibility (EMC) – Part 3-2: – Limits for harmonic current emissions (equipment input current up to and including 16 A per phase)	Conform
	EN61000-3-3	Electromagnetic compatibility (EMC) - Part 3-3: Limitation of voltage supply systems for equipment with rated current ≤ 16 A.	Conform
FCC-VOC	FCC Part 15B	Title 47 Telecommunication PART 15 - RADIO FREQUENCY DEVICES Subpart B - Unintentional Radiators	Conform



This marking indicates that this product should not be disposed with other household wastes throughout the EU. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased.

They can take this product for environmental safe recycling.



NEVER USE CHARGER UNSUPERVISED!

- Batteries pose a SEVERE risk of fire if not properly handled.
- Read Entire operation manual before using charger.
- This unit may emit heat during use.
- Only operate this device in a cool ventilated area away from flammable objects.
- Failure to observe safety procedures may cause damages to property or injury.

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