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XTAR®
XP4
CHARGER MANUAL

The name XTAR, derived from "X-STAR", representing the innumerable unknown stars in the universe, brings to mind a vision of infinite imagination. The XTAR logo, a trademark of Hong Kong XTAR Co., Ltd., contains a spheroidal figure and character that together represent the modest spirit of our company, XTAR being tolerant to diversity and our aspirations towards continuing development and innovation.

HONG KONG XTAR CO., LTD

XP4

CHARGER MANUAL

Introduction:

- XP4 is a professional compatible intelligent charger, which is compatible with 10440/14500/14650/16340/17500/17670/18350/18500/18650/18700/22650/2550/26650 3.6V/3.7V rechargeable lithium ion batteries and AAA/AA/A/SC/C rechargeable Ni-MH batteries. Four slots are independent and no effect for any other slot.
- XP4 has the battery-type recognition feature-based on the battery type, the charger could choose the different charge method automatically. For 3.6V/3.7V lithium ion batteries, XP4 adopts three-phase charge method (TC, CC, CV); for Ni-MH batteries, XP4 has the trickle charge and pulse charge plus the $0\Delta V$, $-\Delta V$ detection method, over-voltage and stopping charging when overtime as well.
- For the memory effect of Ni-MH batteries, XP4's CH1 slot has the specialized discharge function that helps to repair the battery capacity. Meanwhile, XP4 could do real-time detection, which provides a safe and intelligent charging process.
- The XP4 uses a high efficiency DC - DC step-down circuit, which can greatly reduce energy losses while resulting in a more reliable, safer, and efficient charger. In addition, the XP4 provides reverse-polarity and short-circuit protection.

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- Three charge current options (0.25 A, 0.5 A, 1.0A) allow you to choose a suitable charge current to balance charge time and battery lifespan. The XP4 uses a soft-start function, to avoid damage from large charging currents when reviving over-discharged batteries.
- In addition, the XP4 has the activation function, which helps to repair the over-discharged batteries.
- With the USB power output feature (Only CH4 slot), the XP4 can use your lithium-ion battery to charge and supply power for your mobile devices, whose input current is below 1.0A. In this mode, the XP4 has low-voltage, over-load, short-circuit protection and automatically stop supplying function.

Charge Parameter:

Lithium batteries charging parameter:

Input Power	12.0V DC/2.0A
0.25A CC Current	250±30mA
0.5A CC Current	500±50mA
1.0A CC Current	1000±80mA
Cut-Off Voltage	4.2±0.05V
0.25A/0.5A cut-off current/TC current	≤60mA
1.0A cut-off current/TC current	≤100 mA
Operation Temperature	0-40°C

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Ni-MH batteries charging parameter:

Input Power	12V DC/2.0A
0.25A Pulse Charging Current	250±30mA
0.5A Pulse Charging Current	500±50mA
1.0A Pulse Charging Current	1000±80mA
Cut-off voltage	1.4±0.05 V
Operation Temperature	0-40°C

USB output parameter:

USB Output no-load Voltage	5.0±0.3V
Max Output Current	1000mA
Over-discharge protection Voltage	3.0±0.3V

Performance:

Charging rate:

- "0.25 A": Constant charging current 250 mA.
- "0.5 A": Constant charging current 500 mA.
- "1.0 A": Constant charging current 1000 mA.

LED indicator:

Red on: Within about one second after the XP4 turning on or Battery is being charged.

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Red flashing: Ni-MH batteries are being discharged (Only CH1 slot).

Blue on: USB power output indication or charging current indication.

Green on: Any of the following conditions:

- Charge is complete
- No battery is inserted.
- Over-discharged battery is being activated.
- Battery polarity is reversed, short circuit.
- Poor connection.

Usage:

Before charging batteries, check that the battery types are compatible with the XP4, and then determine suitable charge current settings for them. 22650/ 25500/ 26650 3.6V/3.7V lithium ion batteries and SC/C Ni-MH batteries are only suitable for the CH1 and CH4 slot.

Note: Damage can occur to the batteries and charger if improper batteries and charge current are selected.

Charging batteries:

- Connect the supplied power adaptor to the XP4. The XP4 performs a self-check, meanwhile, charge current indicators and USB output indicator are blue on; charging indicators are red on. After about one second, the LEDs extinguish. And then the charger switches to standby, with a default charge current setting of 0.25 A, the "0.25 A" gear indicator is blue on, and the charging indicators are green on.

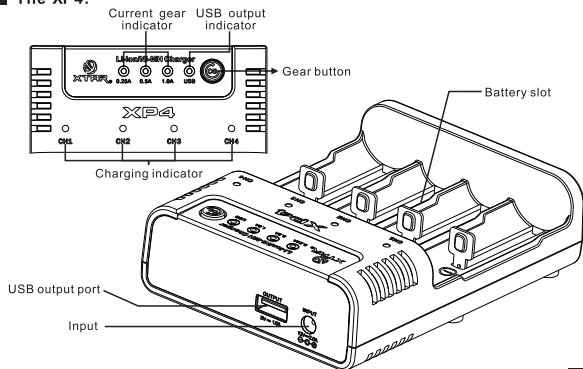
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- Insert batteries into the charging slots, and be careful to insert them with the correct polarity. If the battery voltage is below 1.0 V, the XP4 starts the battery activation function. After the battery activation completes, the XP4 begins its intelligent charging cycle.
- Choose the charge current that best suits your 3.6 /3. 7V rechargeable lithium ion batteries or Ni-MH batteries:
 - **"0.25 A"**: best for those lithium ion batteries and AAA/AA Ni-MH batteries whose capacity is below 1000mAh.
 - **"0.5A"**: best for those lithium ion batteries and AA /A Ni-MH batteries whose capacity is equal or greater than 1000mAh.
 - **"1.0A"**: best for those lithium ion batteries and A/SC/C Ni-MH batteries whose capacity is above 2600mAh.
- To change to a different charge current, press the button one or more times, the current arrangement is: 0.5A-1.0A-0.25A-0.5A, the corresponding indicators are blue on.
- When the lithium ion battery is fully charged, the XP4 stops charging, and the corresponding LED turns green. It is recommended that you remove batteries from the charger once charging has completed. If lithium ion batteries are left in the charger after charging completes, the charger will automatically restart the charge cycle when the voltage drops below 3.9 V.
- **Discharging Ni-MH batteries:**
 - For Ni-MH batteries, using XP4's CH1 slot to discharge batteries to repair the capacity and eliminate the memory effect is recommended. When the XP4 is in standby status, after the Ni-MH battery is put into the CH1 slot correctly, then press the gear button for about 1.5 seconds, the charging indication LED red flashes and the battery is being discharged. When the battery voltage reaches to 1.0V, XP4 starts the charging process automatically.

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- If there are batteries in other slots, they are being charged independently without any influence of CH1.

■ The XP4:



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● USB power output

- Ensure that the XP4 is not connected to any power source. Insert one or more lithium ion batteries (Capacity is above 2200mAh) into the slots (Only CH4 slot), being careful to insert them with the correct polarity, then press and hold the button for 1.5 seconds to start the USB power output. After the USB indicator is blue on, you can now connect external equipment to the USB port.
- When finished using the USB power output, disconnect the external equipment, press and hold the button for 1.5 seconds to switch off the USB power output, after the USB indicator extinguishes, remove the batteries.
- When the battery in slot is under voltage, the USB power output automatically switches off, and the USB indicator extinguishes.

■ Notice:

- XP4 could also charge for AAA/AA/A/SC/C Ni-Cd rechargeable batteries.
- The XP4 could only be used with 10440/ 14500/ 14650/ 16340/ 17500/ 17670/ 18350/ 18500/ 18650/ 18700/ 22650/ 25500/ 26650 3.6/3.7V rechargeable lithium-ion batteries and AAA/ AA/ A/ SC/ C Ni-MH/Ni-Cd batteries. Attempting to charge other battery types may be hazardous, and can damage the batteries and charger.
- Only XP4'S CH1 has the discharging batteries function and is only suitable for Ni-MH/ Ni-Cd batteries; Do not discharge for lithium ion batteries.
- XP4 has integrated short-circuit protection to protect the charger if a short circuit occurs in a battery. Note that this short-circuit protection protects the charger; it does not prevent batteries from short-circuiting internally.

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- Keep the XP4 away from water and excessive dust.
- Do not disassemble the XP4; Damage may result.
- Do not operate the charger if it appears damaged in any way.

■ Tips:

- Because of different battery types, capacities, and over-discharge depths, the battery-revive time may vary; heavily over-discharged batteries may not be able to be revived.
- The XP4 has three charge current options to choose from. You can choose different charge currents to achieve different charge speeds, but remember that faster charging may reduce battery lifespan. For low-capacity batteries, over-discharged battery and long time no use battery, the 0.25A current setting is recommended, to prolong the battery lifespan; for high-capacity batteries, the 1.0A current setting is recommended, to shorten the charge time.
- The USB power output is only for lithium ion batteries; And only when no external power source is connected, USB is available.
- When USB stops outputting because of over-discharged, taking out and recharging the batteries are recommended.
- If this manual description has differences with the official website, please prevail official website.

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■ Warranty:

- 15 days free replacement: We will repair or replace a charger within 15 days of purchase if it is afflicted with a manufacturing defect. If the problem calls for a replacement, we will replace the charger with the same model as the one you bought. If the model has been discontinued, customers will receive a product with similar or improved performance.
- 24 months free repair. We offer free repair within 24 months of purchase if problems develop with normal use.
- Limited lifetime warranty. If problems develop after 24 months of the purchase date, we will charge for parts. The total repair fee will assess according to the cost of the replaced materials. If damage to the charger is grave, XTAR will contact distributors with a quote who should contact the customers to decide whether to exchange the parts or not. Freight should be paid by distributors or customers.
- (This warranty is not applicable for damages cause by artificial damage or intentional force.)

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■ Website and Anti-fake inquiry:

- Welcome to visit our company website to get more information. www.xtarlight.com
- Anti-fake inquiry: A group of eighteen-digit number could be gained by scraping the anti-counterfeiting label on our product or package. Then, input it to the corresponding query window in our service column of our official website to distinguish the product's authenticity. The serial number does the same work.
- Thank you for choosing our excellent products, your satisfaction and feed backs are essential to our progress.

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