EN - User Manual

4-P 2-Ch 2-8S XT30, XT60, XT90 Parallel Charging Board

Read the operating instructions carefully before use!

Safety Precautions:

\bigtriangleup WARNING: Failure to follow these precautions may result in damage or fire.

- Check battery voltage & type before connecting (only use Li-ion/Li-HV/LiPo 2S-8S).
- Never mix different cell counts (e.g., 4S with 6S).
- Ensure all batteries have a similar charge level before connecting.
- Verify polarity alignment before plugging in power leads.
- Do not exceed charger's rated power and output.
- Use only in a fire-safe area (e.g., LiPo-safe charging bag).
- Monitor charging at all times never leave batteries unattended.
- Check fuses regularly and replace damaged ones immediately.
- Do not touch exposed traces or connectors with your hands
- **Do not remove** the top or bottom cover unless necessary.

How to Use the Parallel Charging Board:

Step 1: Preparing for Charging

1. Ensure the **charger is off** before connecting anything.

2. Connect the parallel board **to the charger** using the main power⁽¹⁾ ***and balance leads⁽²⁾,and their corresponding inputs⁽³⁾⁽⁴⁾.

3. Inspect all battery connectors and balance leads for damage.

Step 2: Connecting Batteries

Ensure batteries are at similar voltage levels.

Plug in the balance connectors⁽⁵⁾ (2S-8S, matching charger settings). Ensure all cells are correctly aligned (watch for reverse polarity alerts).
If an alarm sounds^{(9) ****}, disconnect immediately and check polarity.
Observe the fault indicators⁽⁷⁾ on each balancing pin. If lit, check for issues.
Connect power leads (XT30/XT60/XT90)⁽⁶⁾.

Step 3: Charging Process

1. Set the charger to **balance charging mode** and select the correct **battery cell count (S)**.

2. Choose a safe charging current (typically: Total C-rating × Capacity ÷ Number of Batteries).

3. **Start charging** while monitoring for errors or overheating.

4. Once charging is complete, **disconnect batteries one at a time**, starting with balance leads.

Features:

- **Dual-channel design**: Supports simultaneous charging of up to 8 batteries.*
- XT30, XT60, XT90 ports: Compatible with various battery types.
- Wide battery configuration supports: 2S to 8S battery cell
- **15A fuse protection**: Each power output has an independent fuse.
- 2.5A Polyfuse balancing output protection: Prevents overcurrent on balancing connector pins.
- **TVS+Polyfuse charger input protection**: Safeguards charger balancing outputs.
- **Negative pin alignment indication**⁽⁸⁾: Prevents incorrect polarity connection.
- **Sound alarm**⁽⁹⁾: Alerts when incorrect polarity is detected.
- **Fault indication per balancing pin**⁽⁷⁾: Visual feedback for balance lead issues.

Additional Notes:

- Recommended Charging Current: Up to 1C per battery (e.g., 5A for a 5000mAh pack).**
- **Do not charge damaged batteries** swollen, punctured, or overheating packs should be discarded safely.
- Keep the board clean and free from debris to maintain good connections.
- Refer to **Picture (10)** for the recommended charging process.
- The user can operate a **single channel** if a dualchannel charger is not available.
- Alternatively, the user can combine both board inputs into a single charger channel externally.

Troubleshooting:		
Issue	Possible Cause	Solution
Alarm sounds when connecting a battery	Incorrect polarity detected	Recheck connections and polarity
One balance pin fault LED is lit	Bad balance connection or damaged cell	Check balance lead and battery health
No charge current detected	Loose connection or fuse blown	Inspect connections, replace fuse if needed
Charger displays "Voltage Error"	Mismatched cell count or unbalanced batteries	Ensure batteries have similar voltage before connecting
Polyfuse has been blown	Current per cell exceeded or protection current exceeded	Check balance lead and battery health *****

* We recommend that the total current per channel not exceed 40A.

Although the fuses are rated at 15A per connector (totaling 60A per channel), this is a peak current rating for emergency situations and not the recommended operating current. The continuous operating current should not exceed 10A per connector.

** For longer battery lifespan, we recommend charging at 0.5C per battery.

*** XT90 power input leads are not included and must be purchased separately. The product comes with XT60 power leads and 6S + 8S balancing leads only.

**** The user can disable the beeper ("sound alarm") by removing the corresponding jumper ⁽⁹⁾. The beeper reliably activates with 6S batteries and larger. The LED indication ("negative pin alignment indication") cannot be disabled and functions with 2S batteries and above.

***** Polyfuses may blow or explode due to excessive short-circuit current or when a battery is connected in reverse while other batteries are already connected in series. *Replacing by qualified personnel is permitted.*

The manufacturer is not responsible for any damage to the device, property, or personal injury resulting from failure to follow these instructions.

The manufacturer reserves the right to modify the device or its components without prior notice to the user.

Copying the device's design without modification for commercial use is strictly prohibited.

© 2025 H.HL in association with Fractal Electrics.



1. Main power leads (XT60)



2. Balance leads (8S,6S)



3. Board input connectors and leads for 6S



Board input connectors and leads for 8S



5. Board balance output connectors battery plugin (right) and empty connector reference (left)



6. Board power output connectors battery plugin reference (XT 60)



7. Fault indicators



8. Negative pin alignment indication



9. Sound alarm buzzers and negative pin alignment indication leds



10. Recommended charging process & connection