

## Tefola IP2312

# Tefola IP2312 Type C Input 5V to 4.2V 3A Polymer Ternary Lithium Battery Fast Charging Board User Manual

## 1. INTRODUCTION

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This manual provides detailed instructions for the safe and effective use of the Tefola IP2312 Type C Input 5V to 4.2V 3A Polymer Ternary Lithium Battery Fast Charging Board. Please read this manual thoroughly before operating the device to ensure proper functionality and to prevent damage or injury.

## 2. SAFETY INFORMATION

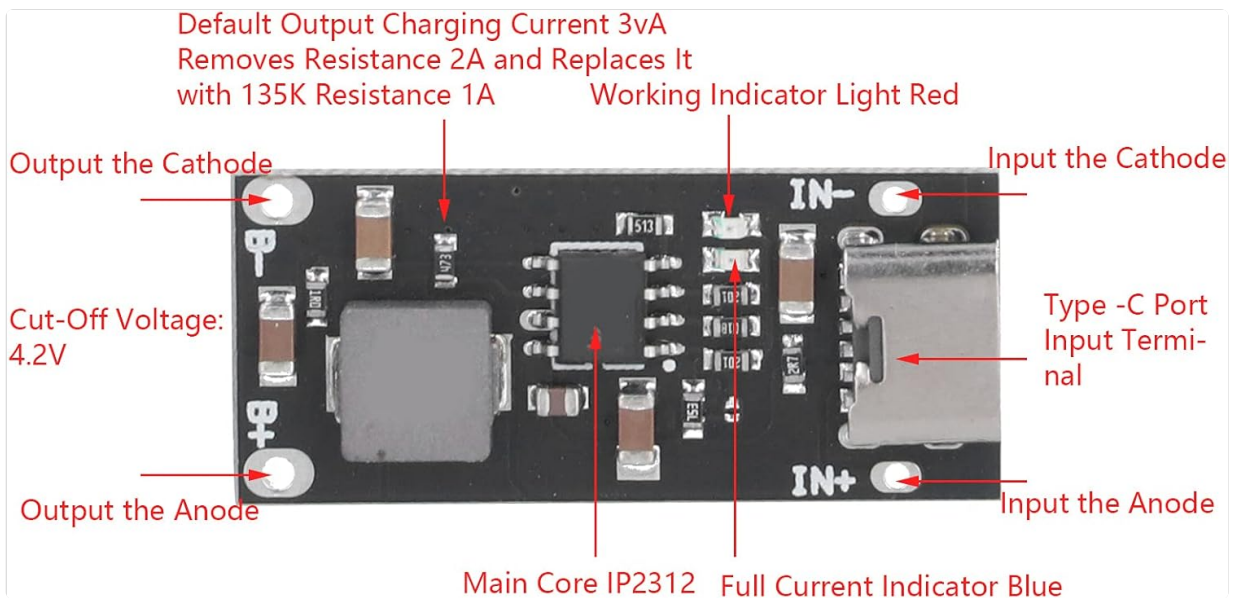
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- **Compatibility:** This charging board is designed for Polymer Ternary Lithium Batteries with a 4.2V charging cut-off voltage. It is **not applicable** to 3.2V lithium iron phosphate batteries.
- **Protection:** This product does not include a power indicator function or a battery protection function. External battery protection circuits may be required depending on your application.
- **Voltage:** Ensure the input voltage is within the specified range of 4.5V to 5.5V. Exceeding this range may damage the board.
- **Polarity:** Always observe correct polarity when connecting the battery and power input. Incorrect connections can cause damage to the board and battery.
- **Current:** The default charging current is 3A. Modifying the current requires adjusting the resistance on the board. Exercise caution if attempting this modification.
- **Environment:** Operate the charging board in a dry, well-ventilated area, away from flammable materials.

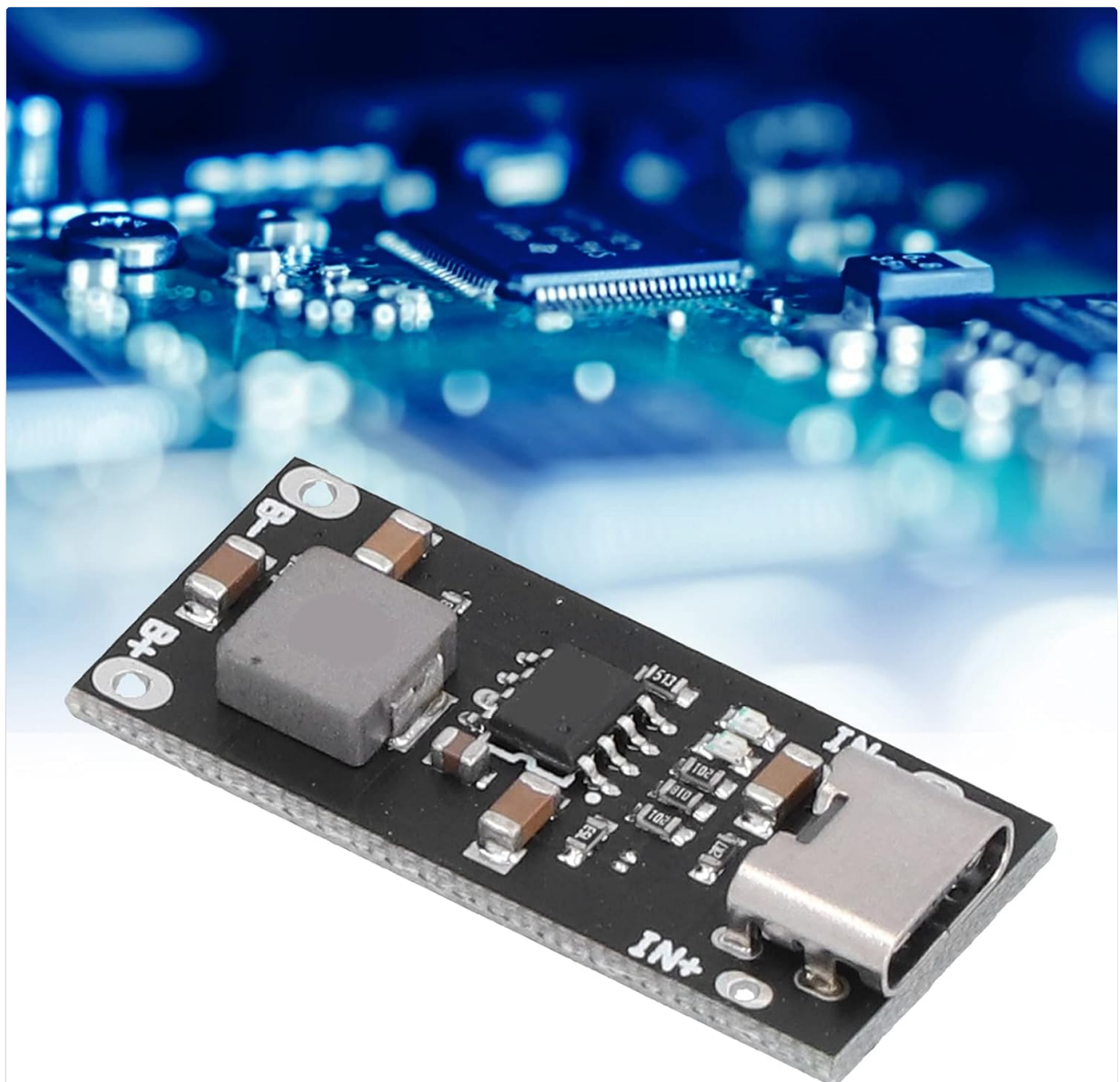
## 3. PRODUCT OVERVIEW

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The Tefola IP2312 charging module is a compact and efficient solution for fast charging 4.2V polymer ternary lithium batteries. It features a Type-C input port for convenient power supply and utilizes a full CC/CV (Constant Current/Constant Voltage) charging mode.



**Figure 3.1:** Labeled diagram of the Tefola IP2312 charging board, showing the Type-C input terminal, input anode (IN+), input cathode (IN-), output anode (B+), output cathode (B-), main control chip (IP2312), working indicator light (red), and full current indicator (blue). It also indicates the default output charging current of 3A and the cut-off voltage of 4.2V.



**Figure 3.2:** Top-down view of the Tefola IP2312 charging board, highlighting its compact design and component layout.

## 4. SPECIFICATIONS

Feature	Specification
Main Control Chip	IP2312
Input Voltage	4.5V ~ 5.5V (Type-C Input)
Charging Cut-Off Voltage	4.2V
Charging Current	3A (Adjustable by resistance modification)
Indicator Light (Red)	Working Indicator
Indicator Light (Blue)	Full Charge Indicator
Conversion Efficiency	3A: 93%, 2A: 94%, 1A: 95%
Product Model Number	Tefolaxcfdh4y908
Item Weight	0.352 ounces (approx. 0.01 Kilograms)

## 5. SETUP

Follow these steps to set up the charging board:

- 1. Connect Battery:** Connect the positive terminal of your 4.2V polymer ternary lithium battery to the **B+** pad on the charging board. Connect the negative terminal of the battery to the **B-** pad. Ensure correct polarity.
- 2. Connect Power Input:** Connect a 5V power source (e.g., a USB wall adapter or power bank) to the Type-C input port on the board. Alternatively, you can connect a 4.5V-5.5V power source directly to the **IN+** (positive) and **IN-** (negative) pads.
- 3. Verify Connections:** Double-check all connections for correct polarity and secure contact before applying power.

## 6. OPERATING INSTRUCTIONS

The IP2312 charging board operates in a full CC/CV (Constant Current/Constant Voltage) mode to efficiently charge lithium batteries.

- **Trickle Charging Mode:** When the connected battery voltage is below 3V, the board enters trickle charging mode, supplying a charging current of 100mA to safely pre-charge the battery.
- **Constant Current (CC) Charging Mode:** Once the battery voltage exceeds 3V, the board switches to constant current charging mode, delivering the set constant current (default 3A) to the battery.
- **Constant Voltage (CV) Charging Mode:** As the battery voltage approaches 4.2V and the charging current drops below 300mA, the board transitions to constant voltage charging mode. The voltage is maintained at 4.2V until the battery is fully charged.
- **Charging Completion:** The blue indicator light will illuminate when the battery is fully charged.
- **Recharge Trigger:** If, after being fully charged, the battery voltage drops below 4.1V, the charging process will automatically restart to maintain optimal charge.

- **Charging Interruption:** During the constant voltage mode, charging pauses every 4 minutes to detect the battery voltage. If the battery voltage is detected to be higher than 4.15V, charging stops. Otherwise, charging continues for another 4 minutes before re-detection.

#### Indicator Lights:

- **Red Light:** Indicates the board is actively working/charging.
- **Blue Light:** Indicates the battery is fully charged.

## 7. MAINTENANCE

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The Tefola IP2312 charging board requires minimal maintenance:

- Keep the board clean and free from dust and debris.
- Avoid exposing the board to moisture or extreme temperatures.
- Regularly inspect connections for any signs of wear or corrosion.
- Do not attempt to disassemble or modify the board beyond adjusting the charging current resistance, as this may void any implied warranty and could lead to damage.

## 8. TROUBLESHOOTING

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If you encounter issues with your charging board, consider the following:

- **No Charging / Red Light Off:**
  - Check if the input power source is connected correctly and providing 5V.
  - Verify that the battery is connected with correct polarity to B+ and B-.
  - Ensure the battery voltage is not already at 4.2V (fully charged).
- **Blue Light Not Illuminating After Extended Charging:**
  - Confirm the battery is a 4.2V polymer ternary lithium type.
  - Check the battery's health; a severely degraded battery may not reach full charge.
  - Ensure the charging current is appropriate for the battery capacity.
- **Overheating:**
  - Ensure adequate ventilation around the charging board.
  - Verify that the charging current is not excessively high for the battery or the board's thermal limits.

## 9. WARRANTY AND SUPPORT

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Tefola is committed to customer satisfaction. If you experience any problems after receiving your product, please contact customer service for assistance. We aim to provide satisfactory solutions promptly.

For further support or inquiries, please refer to the contact information provided with your purchase or visit the official Tefola store online.

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