AITIAO 2S 1A

AITIAO 2S 1A Type-C Boost Charging Module User Manual

Model: 2S 1A | Brand: AITIAO

Introduction

This manual provides detailed instructions for the AITIAO 2S 1A Type-C Boost Charging Module. This module is designed for charging 2-cell (2S) lithium-ion batteries, providing an 8.4V charging voltage. It features a Type-C USB input for convenience and incorporates essential protection mechanisms to ensure safe and efficient battery charging. Please read this manual thoroughly before use to ensure proper operation and longevity of the product.

Product Features

- **High Safety Performance:** Includes battery over-voltage protection and protection against voltage below input and battery short circuits.
- **Type-C USB Input:** Convenient power input via Type-C USB (DC 3-6V recommended).
- **LED Indicators:** "CR" LED indicates charging status; "OK" LED indicates fully charged or constant voltage mode.
- **Wide Application:** Suitable for various portable electronic devices such as PDA, MP3/MP4 players, game consoles, notebooks, and mobile phones.
- **Quasi-CV Mode:** Compensates for battery internal resistance voltage loss for optimized charging.
- **Compact Design:** Small dimensions (37mm x 18mm x 6.3mm) and lightweight (5g) for easy integration.

Specifications

AITIAO 2S 1A Module Parameters

Parameter	Value

Parameter	Value
Input Voltage	DC 3-6V (Recommended DC 3.7V-5V)
Input Current (1A version)	1A
Charging Voltage	8.4V
Charging Current (1A version)	0.55A
Switching Frequency	Up to 1MHz
LED Indicators	"CR" (Charging Status), "OK" (Fully Charged/Constant Voltage)
Working Ambient Temperature	-40°C to +85°C
Dimensions	37mm x 18mm x 6.3mm (1.45in x 0.7in x 0.2in)
Weight	5g

Note: This module is specifically for 2-cell (2S) lithium-ion batteries, providing an 8.4V charging output. Other versions (3S, 4S) have different charging voltages (12.6V, 16.8V respectively) and charging currents. Refer to the product listing for details on other versions.

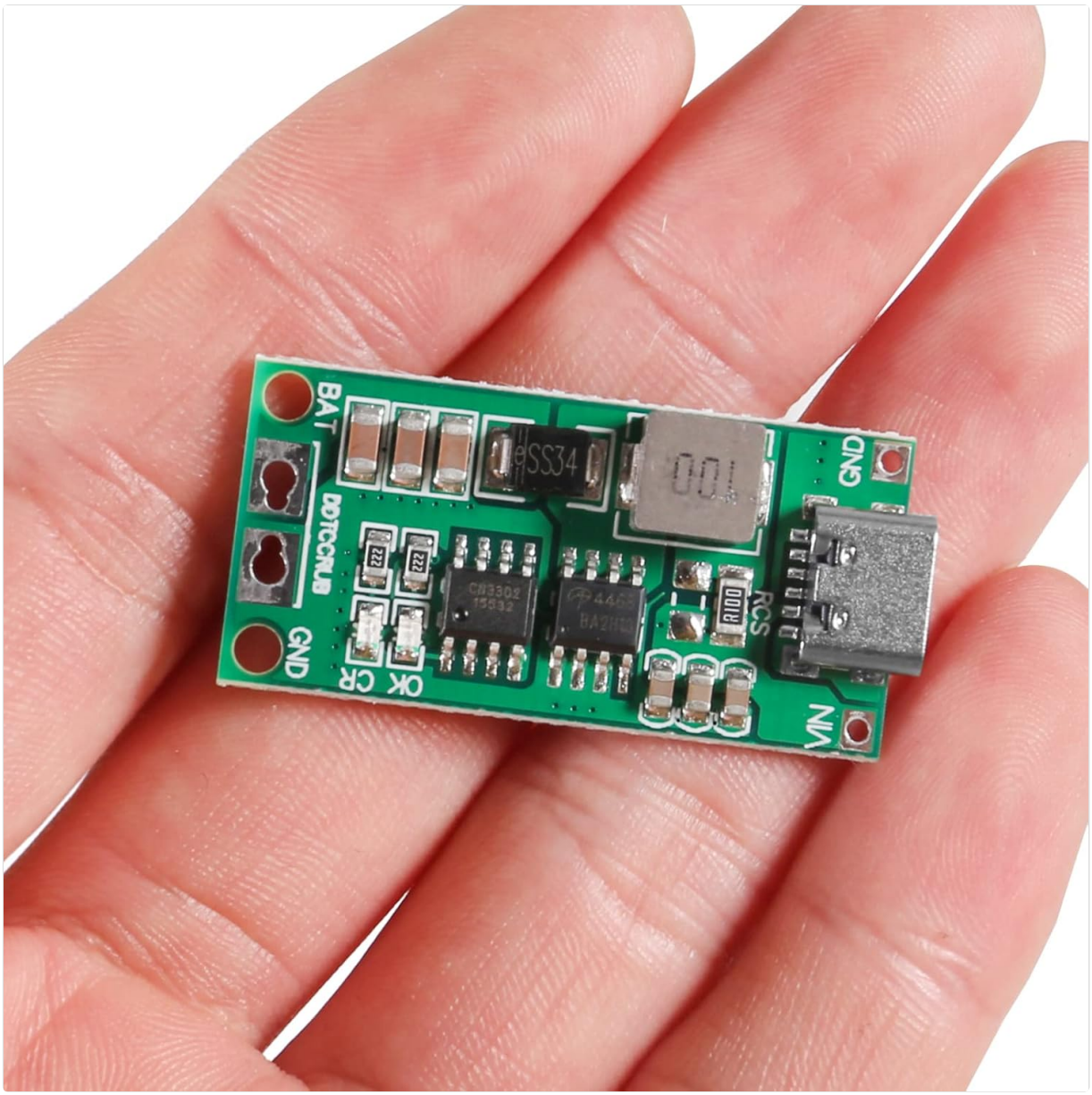
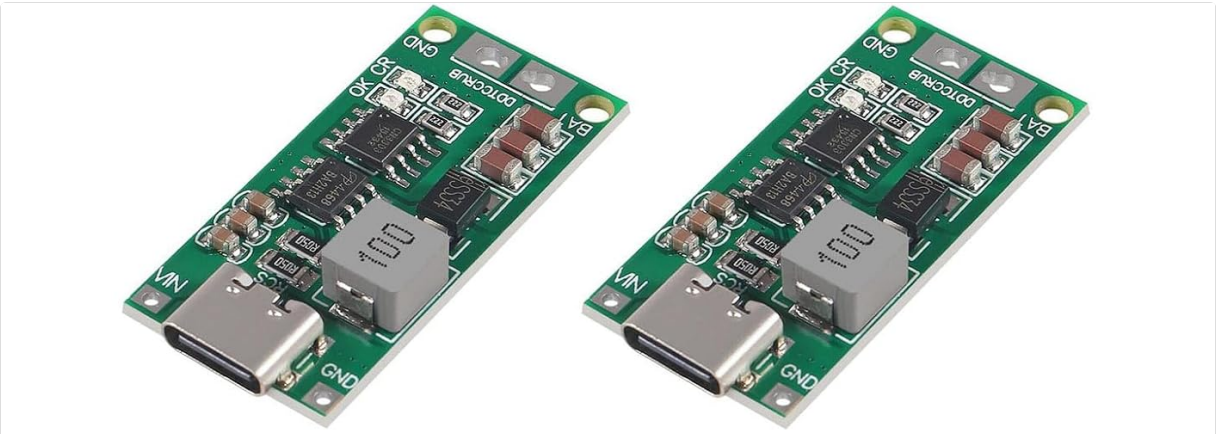


Table showing input current, charging voltage, and charging current for 2S, 3S, and 4S versions of the module.



Version	Input Current	Charging Voltage	Charging Current
2S-1A	1A	8.4V	0.55A
2S-2A	2A	8.4V	1.10A
2S-4A	4A	8.4V	2.20A
3S-1A	1A	12.6V	0.37A
3S-2A	2A	12.6V	0.74A
3S-4A	4A	12.6V	1.48A
4S-1A	1A	16.8V	0.28A
4S-2A	2A	16.8V	0.56A
4S-2A	4A	16.8V	1.12A

Image illustrating the physical dimensions of the charging module.

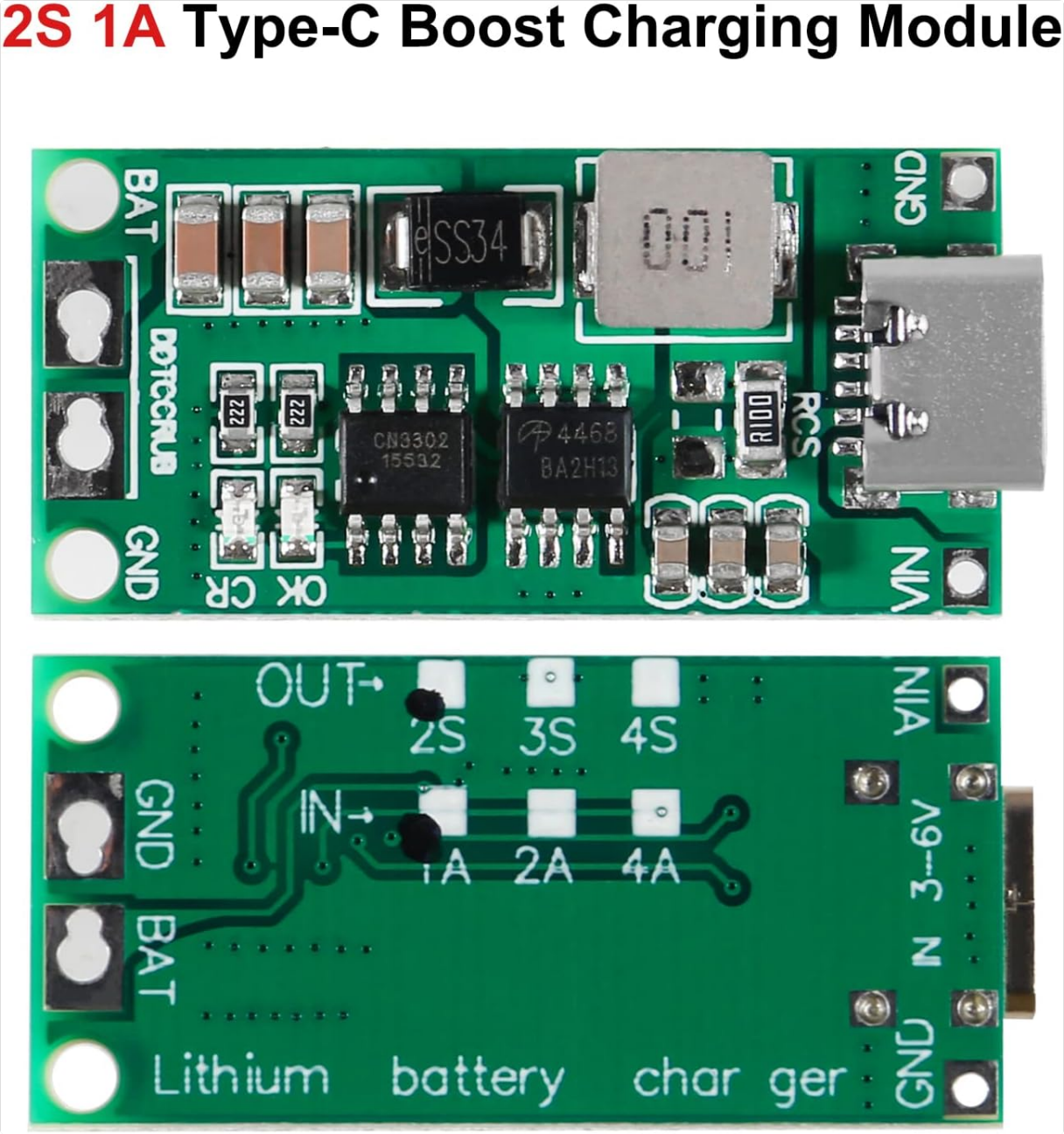
Safety Information

- Always ensure correct polarity when connecting batteries to avoid damage to the module or battery.
- Do not short-circuit the battery terminals or the module's input/output.
- Use within the specified input voltage range (DC 3-6V). Exceeding this may damage the module.
- Ensure adequate ventilation during operation, especially when charging at higher currents.
- This module is designed for lithium-ion batteries. Do not use with other battery chemistries unless explicitly stated.
- For the 4A version (if applicable), ensure your power supply can provide the necessary current.

Setup and Connection

Follow these steps to set up and connect your AITIAO 2S 1A Boost Charging Module.

1. Module Overview



Top and bottom views of the charging module, showing components and connection points.

The module features a Type-C USB input port, battery connection pads (BAT and GND), and indicator LEDs ("CR" and "OK"). The bottom side indicates the version (2S, 3S, 4S) and current ratings (1A, 2A, 4A).

2. Connecting the Battery

- Connect the positive terminal of your 2-cell (8.4V) lithium-ion battery pack to the "BAT" pad on the module.
- Connect the negative terminal of your battery pack to the "GND" pad on the module.
- Ensure all connections are secure and correctly polarized. Incorrect wiring can damage the module and battery.

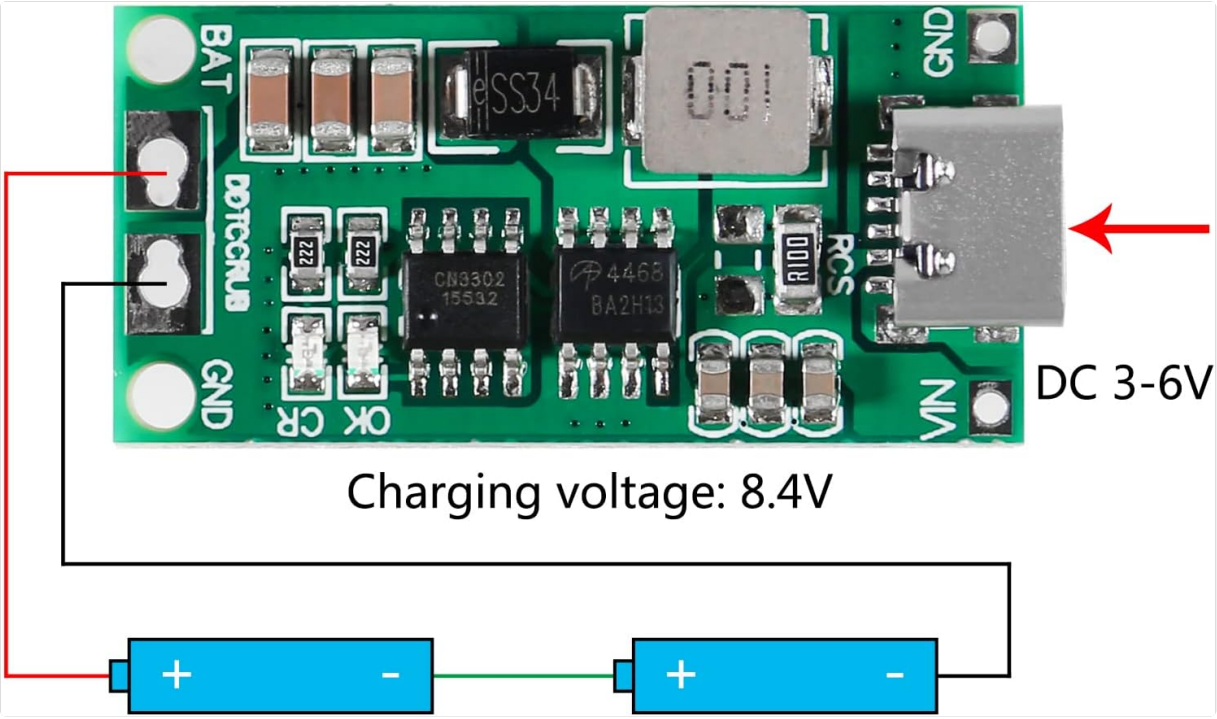


Diagram illustrating the connection of a 2-cell battery pack to the BAT and GND terminals of the module, with the Type-C input for power.

3. Powering the Module

The module can be powered via its Type-C USB port or directly through the VIN and GND pads.

Using Type-C USB Input:

- Connect a standard USB-A to Type-C cable from a 5V power source (e.g., USB wall adapter, power bank) to the module's Type-C port.
- **Important:** The module typically requires a 5V input. Some USB-C to USB-C cables may not trigger the necessary 5V power delivery (PD) from certain power sources, resulting in no power to the module. It is recommended to use a USB-A to USB-C cable for reliable operation.
- For higher current versions (e.g., 4A), ensure your Type-C power supply can provide the required current.

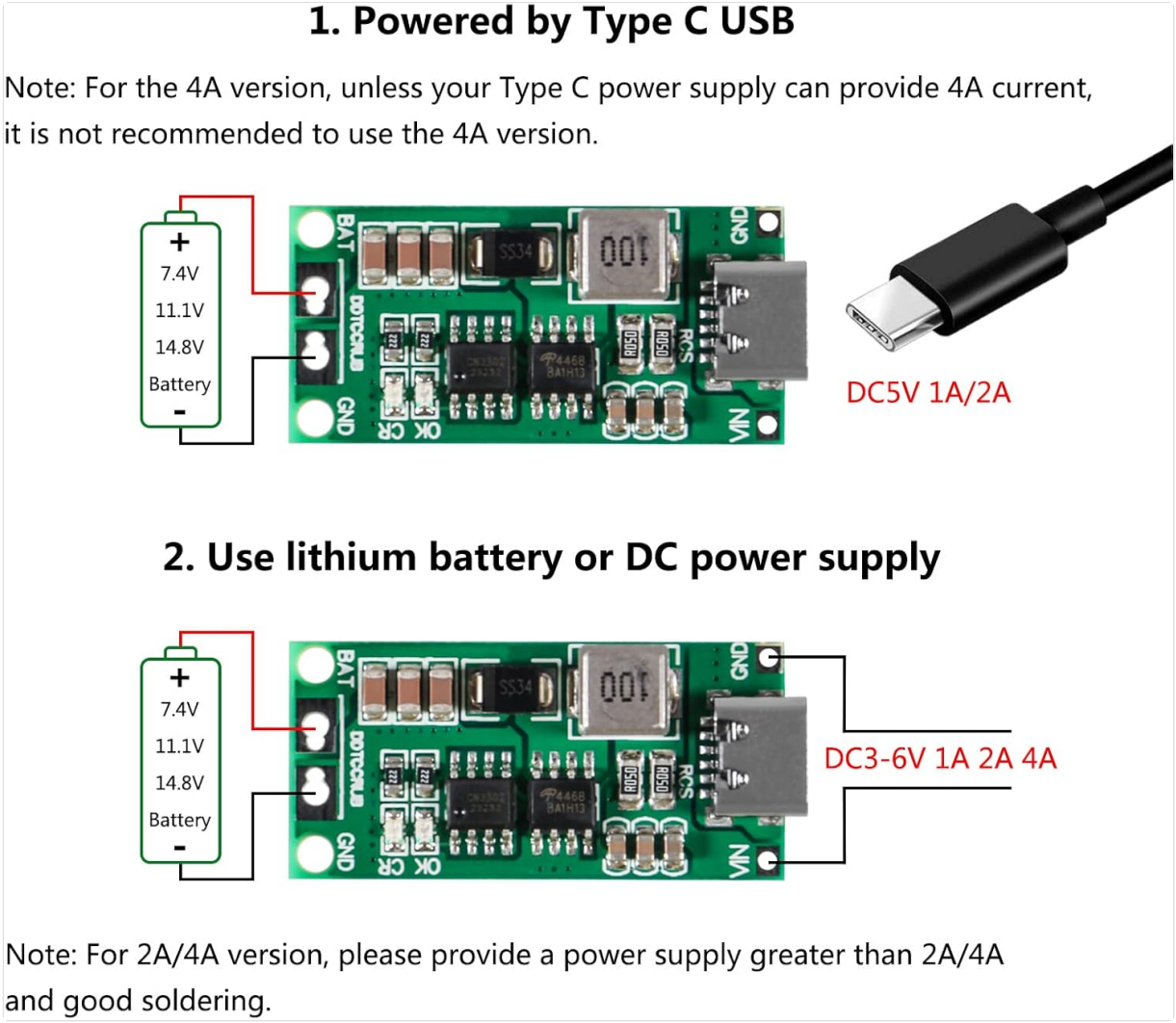


Illustration of connecting a Type-C USB cable to the module for power input.

Using DC Power Supply Input:

- Alternatively, you can connect a DC power supply directly to the "VIN" (positive) and "GND" (negative) pads on the module.
- Ensure the DC input voltage is within the 3-6V range.
- For 2A/4A versions, provide a power supply capable of delivering greater than 2A/4A current respectively.

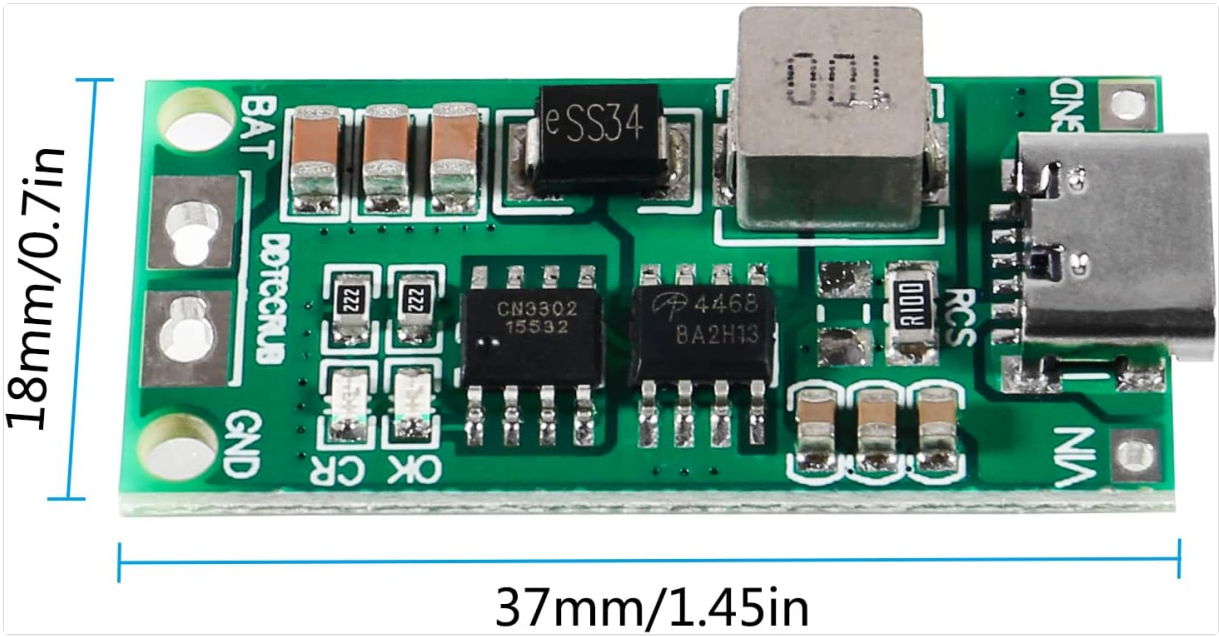


Illustration of connecting a DC power supply to the VIN and GND terminals of the module.

Operating Instructions

Once the battery and power supply are correctly connected, the module will begin charging the battery.

- **Charging Indicator ("CR" LED):** This LED will illuminate when the battery is actively charging.
- **Fully Charged Indicator ("OK" LED):** This LED will illuminate when the battery is fully charged or when the module enters constant voltage mode.
- The module automatically manages the charging process, including over-voltage protection.

Maintenance

- Keep the module clean and free from dust and moisture.
- Avoid exposing the module to extreme temperatures or direct sunlight.
- Regularly inspect connections for any signs of wear or damage.
- Do not attempt to modify the module, as this may void any implied warranty and could lead to unsafe operation.

Troubleshooting

Common Issues and Solutions

Issue	Possible Cause / Solution
Module does not power on / No charging activity.	◦ Ensure the input power supply is providing 3-6V DC. ◦ Verify the Type-C cable is a USB-A to USB-C type, as some USB-C to USB-C cables may not activate power delivery. ◦ Check all wiring connections for correct polarity and secure contact. ◦ Confirm the power supply can deliver sufficient current for the module version (e.g., 1A for 1A version).
Battery is not charging or charges slowly.	◦ Verify the battery is a 2-cell (8.4V) lithium-ion pack. ◦ Check the input current of your power supply. Insufficient input current will result in slower charging. ◦ Ensure the battery is properly connected to the BAT and GND terminals.
Module or battery gets excessively hot during charging.	◦ Ensure adequate ventilation around the module and battery. ◦ Verify the charging current is appropriate for the battery capacity. ◦ Check for any short circuits or incorrect wiring. ◦ If using a higher current version (e.g., 4A), ensure the power supply is stable and connections are robust.
"OK" LED does not illuminate after prolonged charging.	◦ The battery may not be reaching the full charge voltage. Check battery health. ◦ Verify the module is receiving stable input power.

Package Contents

The package includes:

- 2 x AITIAO 2S 1A Type-C USB Lithium Battery Step-up Charging Board

Warranty and Support

If you encounter any issues or have questions regarding the AITIAO 2S 1A Type-C Boost Charging Module, please contact the seller or manufacturer for support.