diymore X521365

diymore TP4056 Type-C USB 5V 1A Battery Charger Module User Manual

Model: X521365 | Brand: diymore

1. Introduction and Overview

The diymore TP4056 Type-C USB 5V 1A Battery Charger Module is designed for charging single-cell lithium-ion batteries. It features a Type-C USB input for convenient power supply and integrates dual protection functions to ensure safe and efficient charging. This module is ideal for DIY electronics projects requiring reliable battery charging with built-in safety features.

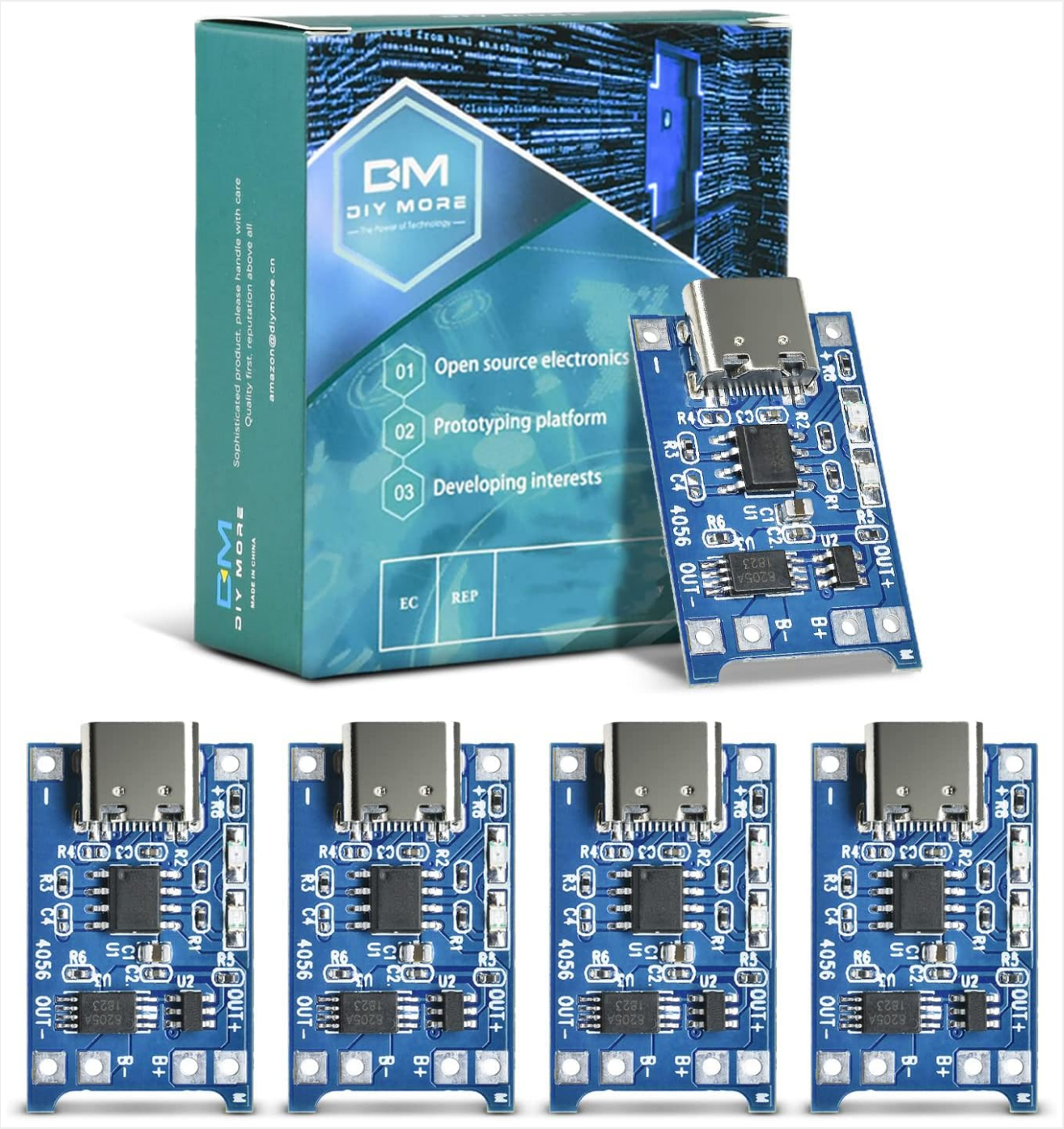


Figure 1: diymore TP4056 Type-C USB Battery Charger Modules.

This image displays five individual TP4056 Type-C USB battery charger modules alongside their retail packaging. Each module is a small blue circuit board with a Type-C USB port, integrated circuits, and solder pads for battery connections. The packaging highlights key features like "Open source electronics" and "Prototyping platform."

2. Product Features

- **Input Interface:** Standard Type-C USB for versatile power input.
- **Charging Current:** Maximum charging current output of 1000 mA (1A).
- **Battery Overcharge Protection:** Lifts charging at 4.00 V to prevent overcharging.
- **Battery Over-current Protection:** Features a 3 A over-current protection limit.
- **LED Indicators:**
  - Red light indicates the battery is currently recharging.
  - Blue light indicates the battery is fully charged.

- No light when no load is connected.

- **Integrated Protections:** Includes short-circuit protection, over-discharge protection, overcurrent protection, and overcharge protection.

Figure 2: Integrated Protection Features.

This image illustrates the four key protection features of the TP4056 module: short-circuit protection, over-discharge protection, overcurrent protection, and overcharge protection, each represented by a distinct icon.

3. Setup Instructions

Follow these steps to properly set up your TP4056 charger module:

1. **Identify Terminals:** Locate the input and output terminals on the module.
   - **IN+:** Positive input for power supply.
   - **IN-:** Negative input for power supply.
   - **B+:** Positive terminal for battery connection.
   - **B-:** Negative terminal for battery connection.
   - **OUT+:** Positive output for load (optional, for protected discharge).
   - **OUT-:** Negative output for load (optional, for protected discharge).
2. **Connect Battery:** Solder or connect your single-cell lithium-ion battery to the **B+** and **B-** pads. Ensure correct polarity. The **B+** pad is the anode (positive) and the **B-** pad is the cathode (negative).
3. **Connect Power Supply:** Connect a 5V power source to the Type-C USB port. Alternatively, you can solder a 5V power supply to the **IN+** and **IN-** pads.
4. **Connect Load (Optional):** If you wish to use the module's discharge protection, connect your load (e.g., a circuit or device) to the **OUT+** and **OUT-** pads. If you only need charging, you can connect the load directly to the battery terminals, but it will bypass the module's discharge protection.

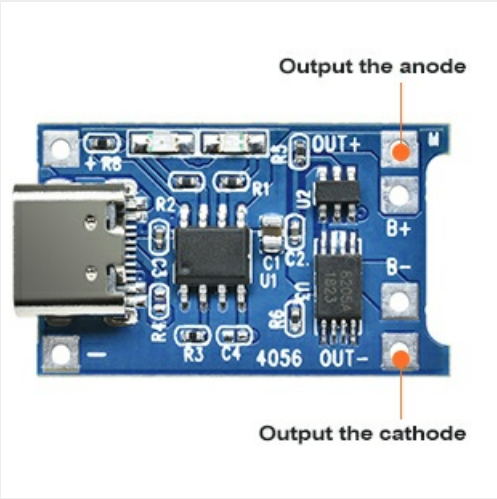


Figure 3: Output Terminal Identification.

This image provides a close-up view of the TP4056 module, specifically highlighting the "OUT+" (anode) and "OUT-" (cathode) terminals for connecting a load.

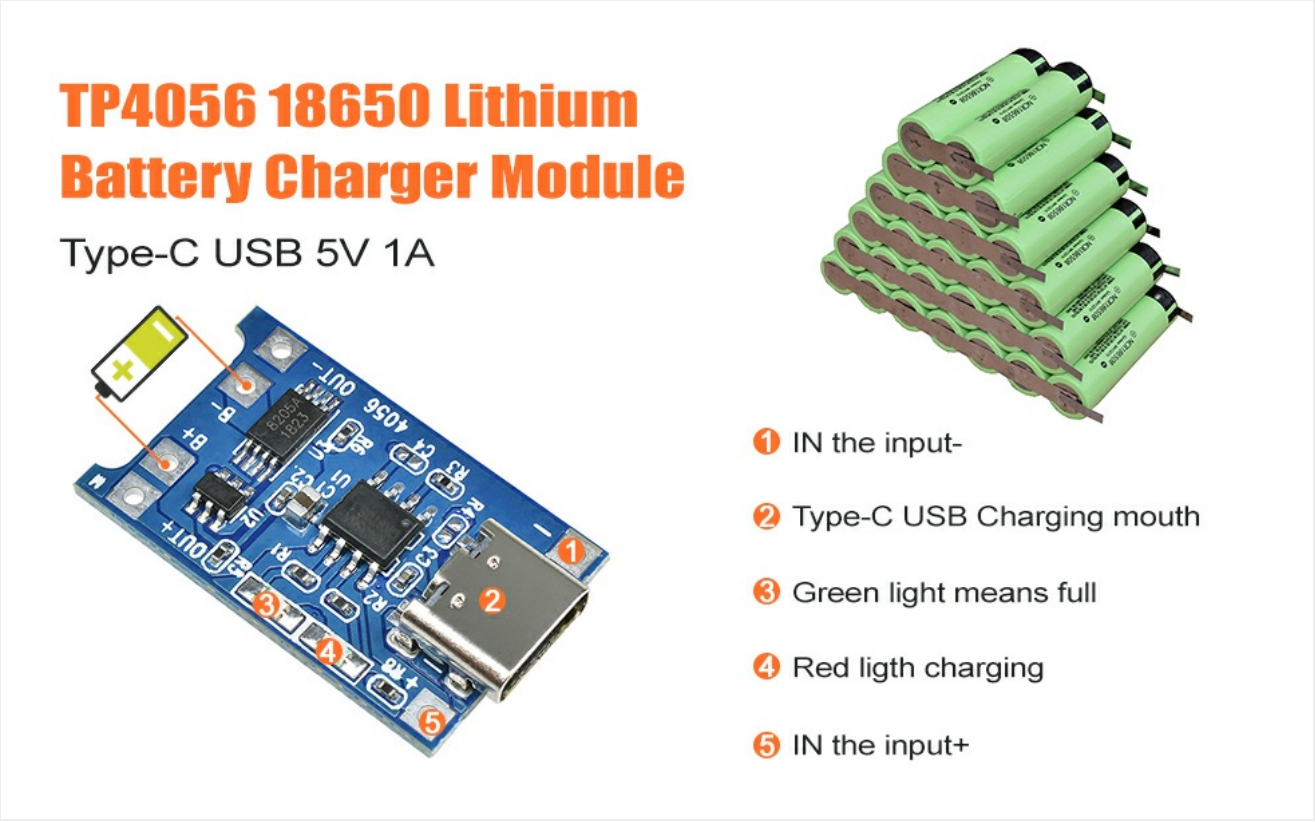


Figure 4: Module Connection Diagram.

This diagram shows the TP4056 module connected to 18650 lithium-ion batteries. Numbered labels point to key connection points: 1. IN input-, 2. Type-C USB Charging mouth, 3. Green light (full), 4. Red light (charging), and 5. IN input+.

4. Operating Instructions

Once the module is correctly wired and powered, it will begin charging the connected battery. Observe the LED indicators for charging status:

- **Red LED:** When the red LED is illuminated, it indicates that the battery is currently undergoing the charging process.
- **Blue LED:** When the blue LED illuminates (and the red LED turns off), it signifies that the battery has reached its full charge capacity.

- **No LED:** If no battery is connected or the module is not powered, no LEDs will be lit.

The module automatically manages the charging cycle, including constant current and constant voltage phases, and terminates charging when the battery is full.

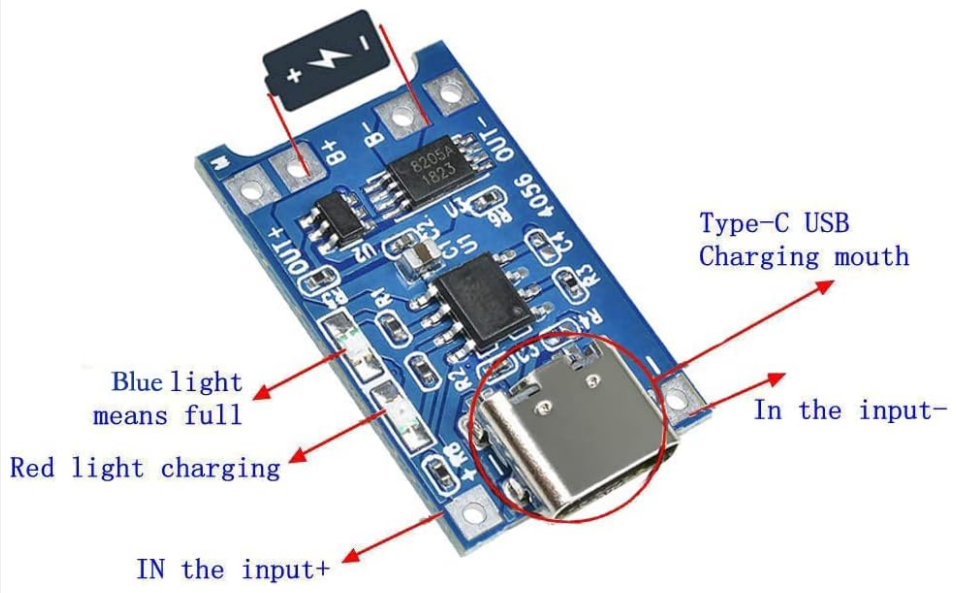


Figure 5: LED Indicator Guide.

This image highlights the Type-C USB charging port and the LED indicators on the TP4056 module. It clearly labels the red light as indicating "charging" and the blue light as indicating "full" charge, along with the input terminals.

5. Maintenance

The diymore TP4056 module requires minimal maintenance. To ensure longevity and proper function:

- Keep the module clean and free from dust and debris.
- Avoid exposing the module to moisture or extreme temperatures.
- Do not short-circuit the input or output terminals.
- Store in a dry, cool environment when not in use.
- Regularly inspect solder joints and connections for integrity.

6. Troubleshooting

If you encounter issues with your TP4056 charger module, consider the following common problems and solutions:

Problem	Possible Cause	Solution
No LEDs light up.	No power input; incorrect power connection; faulty module.	Verify 5V power supply to Type-C port or IN+/IN- terminals. Check polarity. Test with a different power source.
Red LED is on, but battery is not charging.	Incorrect battery connection; battery is already full or severely discharged; faulty battery.	Check B+/B- connections for correct polarity. Ensure battery voltage is within acceptable range (e.g., not below 2.5V for typical Li-ion). Try a different battery.
Blue LED is on, but battery is not full.	Rare, but could indicate a faulty module or incorrect battery voltage sensing.	Verify battery voltage with a multimeter. If the battery is not full, the module may be defective.

Problem	Possible Cause	Solution
Module gets excessively hot.	Overcurrent draw; short circuit; faulty component.	Disconnect power immediately. Check for short circuits on the board or connected components. Ensure the battery is not drawing excessive current.

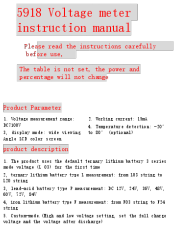
7. Specifications

Parameter	Value
Input Interface	Type-C USB
Input Voltage	5 Volts
Output Voltage (Charging)	5 Volts (to battery)
Maximum Charging Current	1000 mA (1 Amp)
Battery Overcharge Lifting Voltage	4.00 V
Battery Over-current Protection Current	3 Amps
Protection Functions	Short-circuit, Over-discharge, Overcurrent, Overcharge
Item Weight	0.317 ounces
Package Dimensions	3.58 x 2.8 x 1.02 inches
Model Number	X521365

8. Warranty and Support

For warranty information or technical support regarding your diymore TP4056 Type-C USB Battery Charger Module, please refer to the product packaging or contact the seller directly through the platform where the purchase was made. You may also visit the official diymore brand store for additional resources and contact details.
diymore Brand Store: Visit diymore Store on Amazon

Related Documents

	[Operating Instructions for Diymore Adjustable Voltage Regulator] Detailed operating instructions and parameter settings for the Diymore Adjustable Voltage Regulator DC Buck Boost Converter, covering voltage and current adjustment, protection settings, and calibration.
	[5918 Digital Voltage Meter User Manual] User manual for the 5918 Digital Voltage Meter by diymore. Covers product parameters, description, key functions, and detailed setup instructions for various battery types (ternary lithium, iron-lithium, lead-acid) and custom voltage/backlight settings.