

HALL-SENSOR WIDE-VOLTAGE HIGH-ACCURACY POWER MODULE USER MANUAL



v1.0

September 2024

Thank you for purchasing SIYI product.

SIYI Technology continues to empower flight control system and launches a new wide-voltage high-precision power module with a matching Hall ammeter. Supporting 7 to 100 volt voltage input and 7 to 100 volt voltage detection, the Hall sensor can achieve non-contact high-precision measurement, with fast response, reliable and flexible, compact size, and excellent heat dissipation performance. It greatly improves the stability and safety of flight controller power supply and provides high-precision data support for equipment operation!

To ensure you a good experience of the product, please read this manual carefully. If you encounter any issue using the product, please consult the manual or check the online pages of this product on SIYI official website (<https://siyi.biz/en>). You can also write an email to SIYI official A/S center (support@siyi.biz).

SIYI User Group - Facebook



SIYI Official Website (<https://siyi.biz/en/>)

SIYI Official Store (<https://shop.siyi.biz>)

SIYI YouTube Channel (<https://www.youtube.com/c/SIYITech>)

SIYI Facebook Page (<https://www.facebook.com/siyitechnology>)

User Manual Update Log

Version	Date	Updates
1.0	2024.9	Initial version

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READ TIPS

Icons

Please pay more attention to content indicated with the following marks:



DANGER Dangerous manipulation probably leads to personal injuries.



WARNING Warnings on manipulation possibly leads to personal injuries.



CAUTION Cautions on what manipulation may lead to economic losses.



Prohibited



Mandatory



Mark

Safety

Hall-Sensor power module is designed and manufactured for professional application scenarios. Operators need to have certain basic skills, so please use it with caution. SIYI Technology does not assume any responsibility for any unnecessary product damage caused by irregular or irresponsible operation of this product, economic losses or even personal injury to the user or others. Minors must have professionals present to supervise and guide minors when using this product. SIYI Technology's products are designed for commercial use, and it is prohibited to use SIYI products for military purposes. It is prohibited to disassemble or modify this product without SIYI Technology's permission.

Storage / Carrying / Recycling

When the SIYI product you own is idle, or you want to take the SIYI product out for work, or the product has reached the end of its service life, please pay special attention to the following matters:



DANGER

When SIYI products are not in use, they should be kept away from areas easily accessible to children.

Please avoid placing SIYI products in an environment that is too hot (above 60 degrees Celsius) or too cold (below minus 20 degrees Celsius).



CAUTION

Please avoid placing SIYI products in humid or sandy environments.

When carrying and transporting SIYI products, please avoid operations that may damage components such as vibration or impact.

1 INTRODUCTION

1.1 Product Features

Wide Voltage Input

Wide Voltage Detection

The power module supports wide voltage input from 7 to 100 volts and wide voltage detection from 7 to 100 volts, providing reliable protection for flight safety.

Hall-Sensor Ammeter

Non-Contact Detection High-Precision Measurement

SIYI Technology's innovative design applies Hall sensors to ammeters to achieve non-contact current detection, which not only improves safety but also avoids measurement errors caused by contact resistance or poor contact. Compared with traditional shunts, Hall sensors eliminate insertion loss and electrical isolation, can more accurately reflect the actual value of the measured current, and have high measurement accuracy. Hall sensors are not affected by inductance, can truly transmit the waveform of the measured current, and are more accurate in measuring high-frequency and large currents.

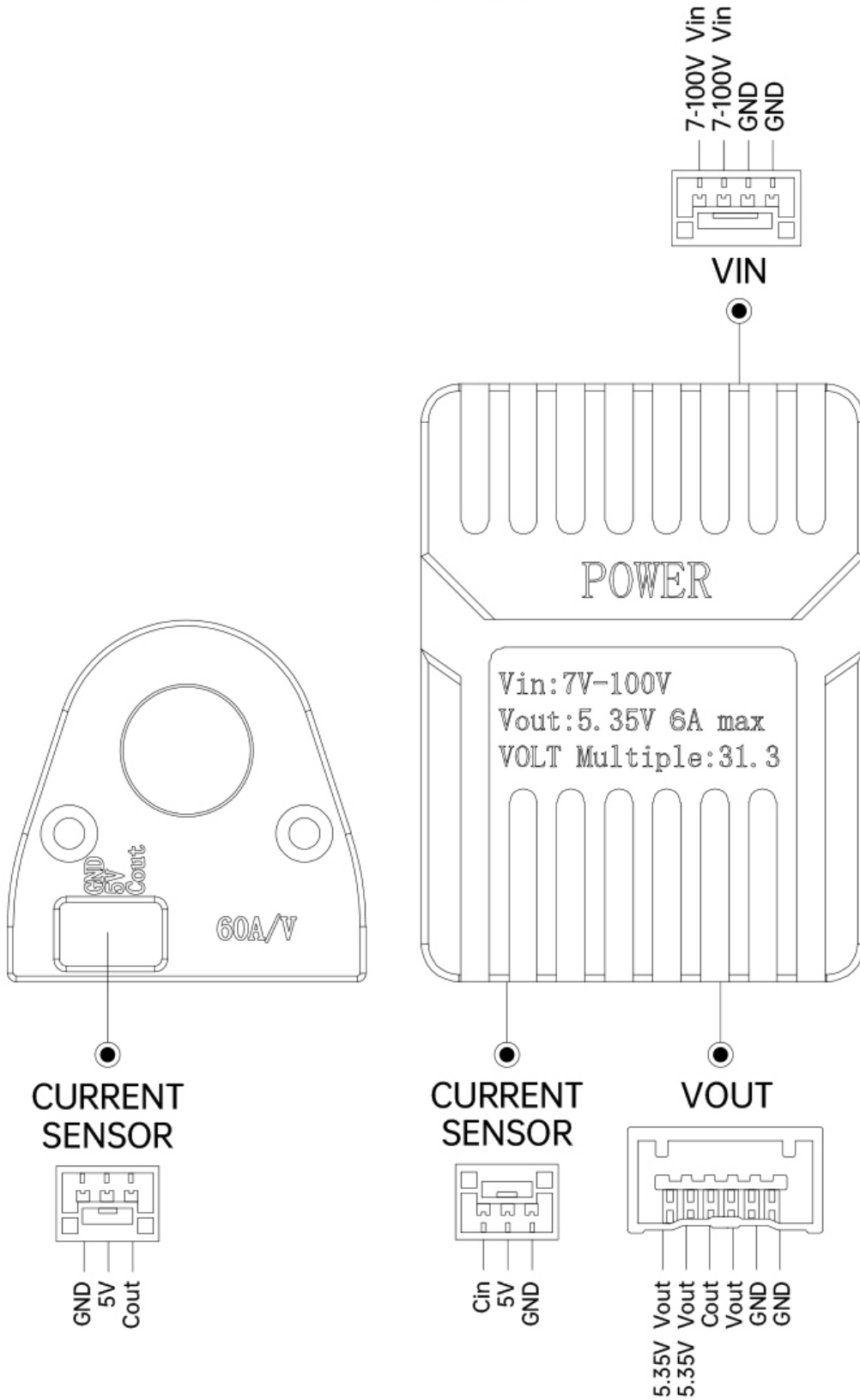
Compact & Lightweight

Excellent Heat Dissipation Performance

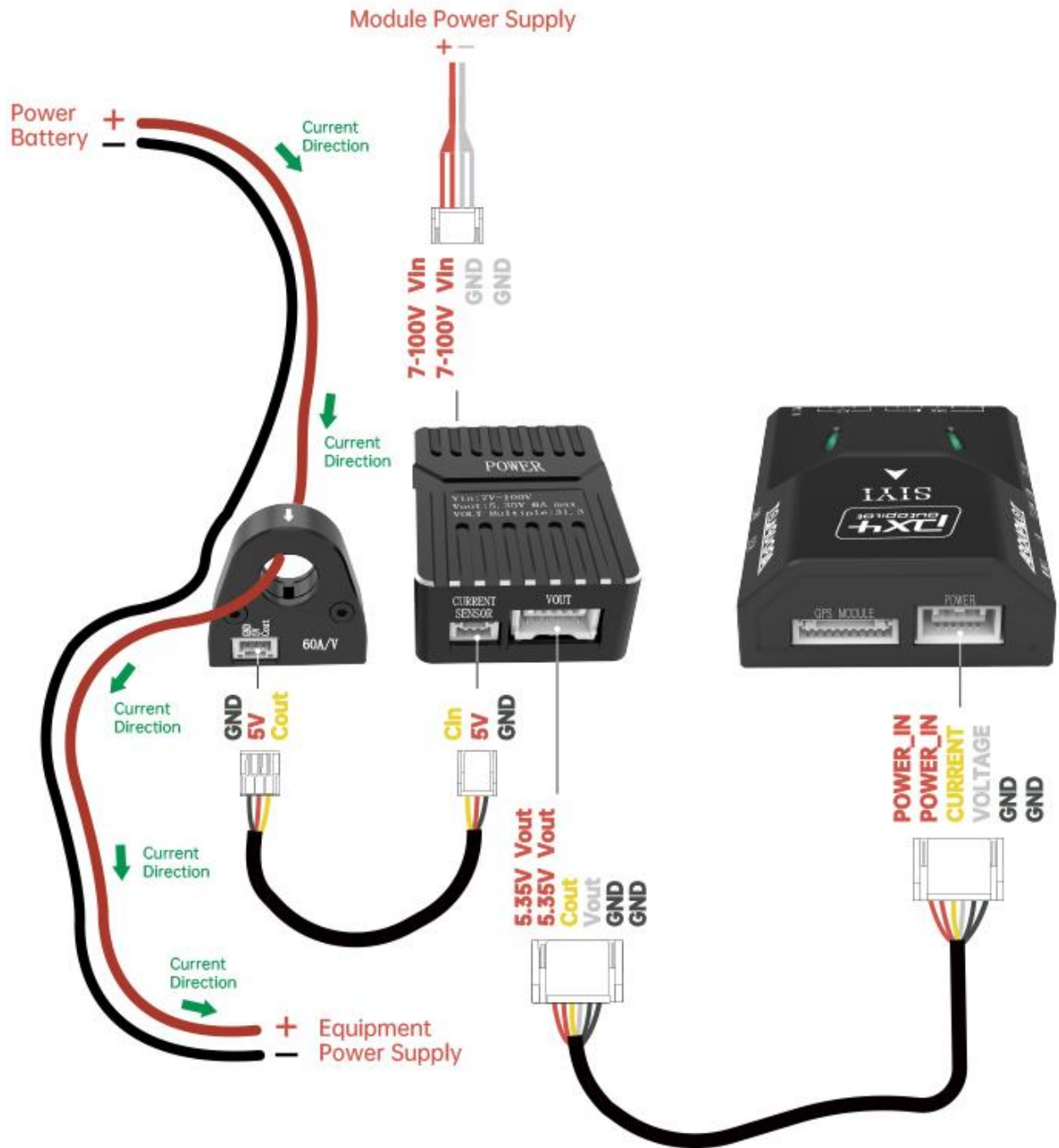
Born for the smart robotic ecosystem, minimalist design, small as millimeters, light as millet. All-aluminum alloy structure, high heat transfer coefficient and uniform

heat dissipation.

1.2 Interface & Pinouts



1.3 Typical Connection Diagram



Power Flight Controller and Measure Current through Hall-Sensor Ammeter

1.4 Technical Specifications

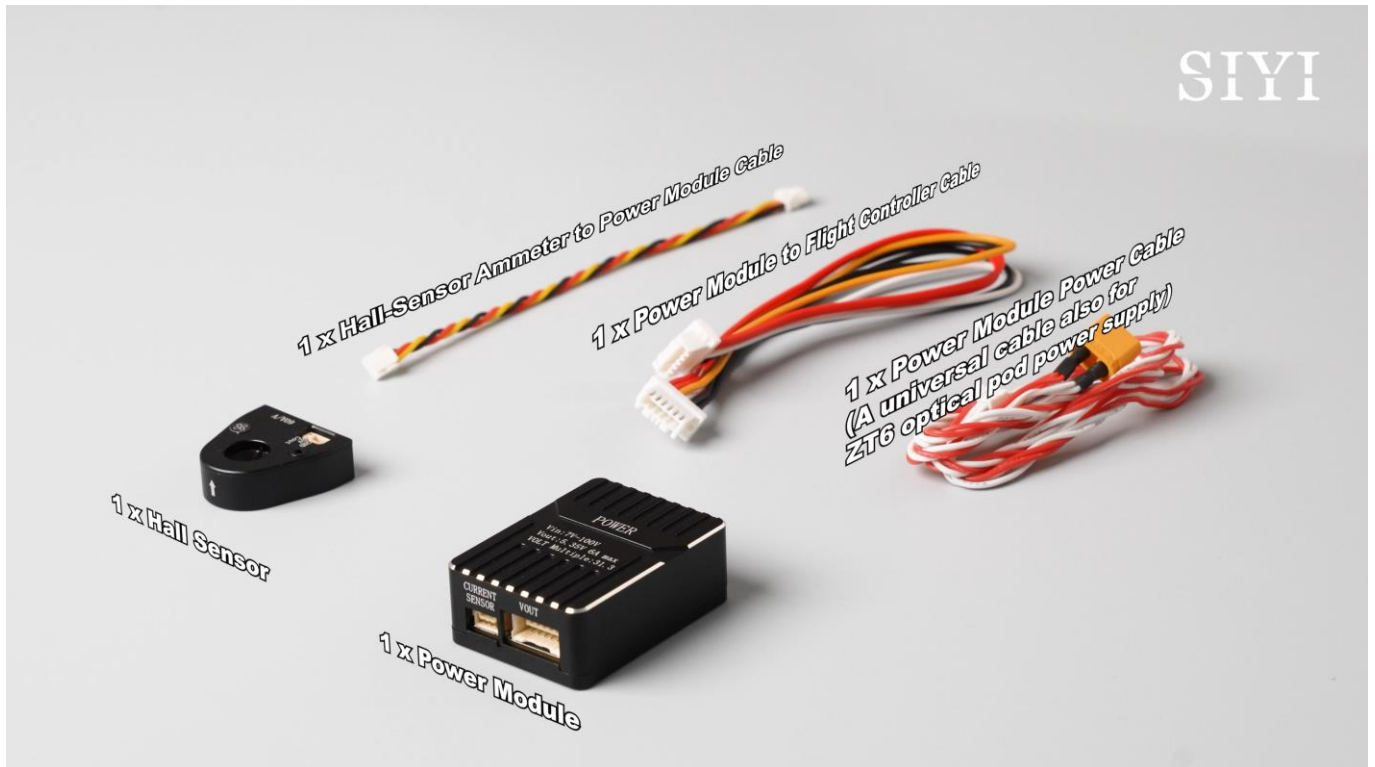
Power Module

Voltage Input Range	7 ~ 100 V
Voltage Divider Ratio	31.303
Voltage Output	5.35 V (± 0.03 V)
Max Current Output	6 A
Product Dimension	42.5 x 31.5 x 16 mm
Product Weight	28.6 g

Hall Sensor

Current Measuring Accuracy	± 0.1 A
Measuring Ratio	60 A / V
Max Measuring Current	180 A
Wire Hole Diameter	9 mm
Wire Hole Length	21 mm
Product Dimension	25 x 25 x 9 mm
Product Weight	9.4 g

1.5 Packing List



1 x Power Module

1 x Hall Sensor

1 x Power Module to Flight Controller Cable

1 x Hall-Sensor Ammeter to Power Module Cable

1 x Power Module Power Cable

(A universal cable also for ZT6 optical pod power supply)

2 GET READY TO USE HALL-SENSOR POWER MODULE

This chapter mainly introduces the basic settings and calibration instructions of the Hall-sensor power module.

Watch Tutorial Videos Directly

SIYI Hall Sensor Wide Voltage High Precision Power Module

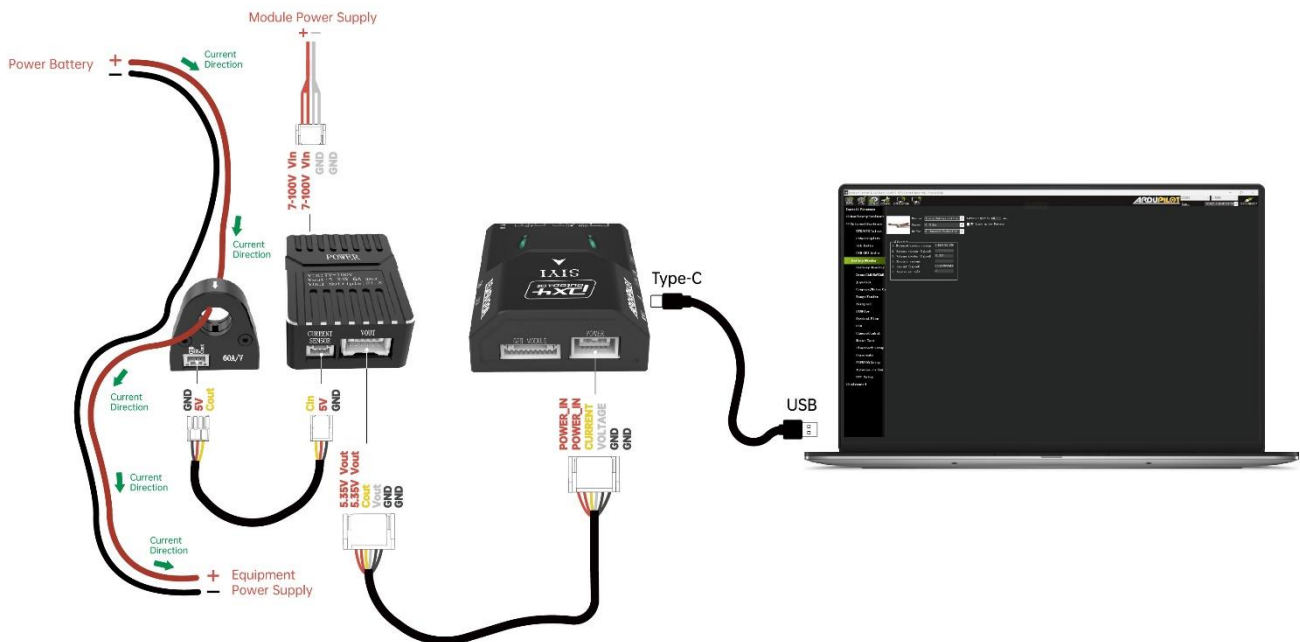
https://www.youtube.com/watch?v=nmNure_2FW4&list=PLnwDdKcxulbe5dS5WgqA83IJvdKa1W6zH&index=10

2.1 Configuring & Calibrating through Mission Planner

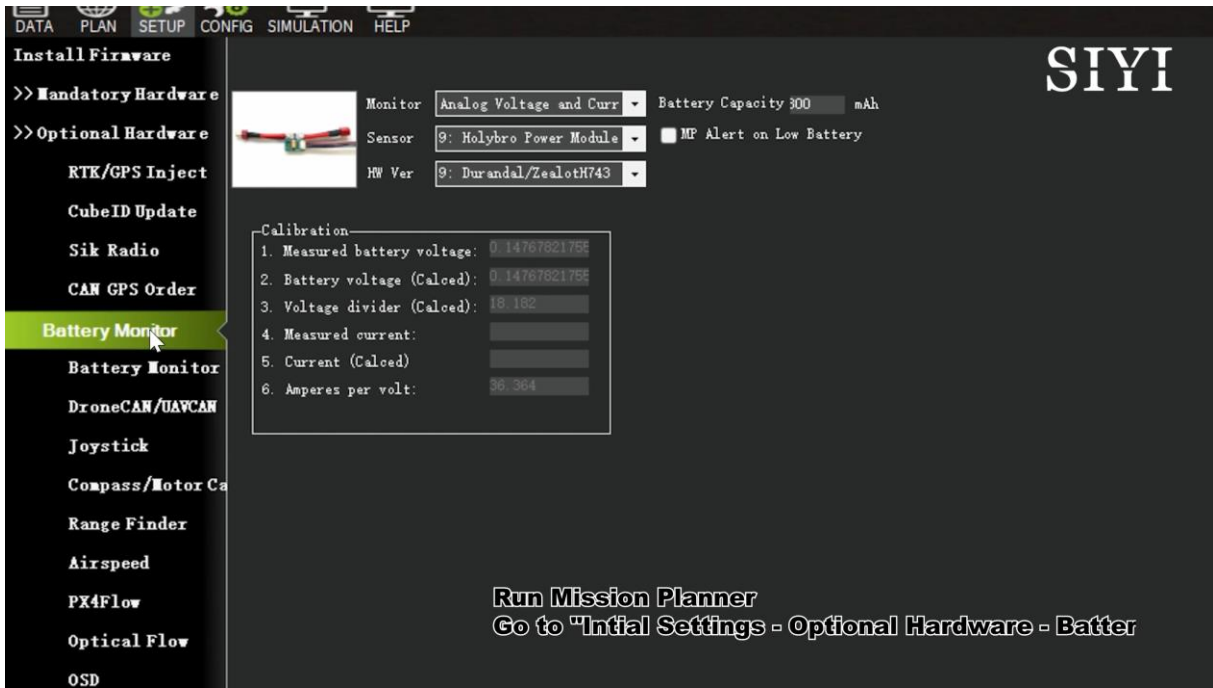
Let's take an example of using the power module with N7 autopilot.

2.1.1 Basic Settings

Steps

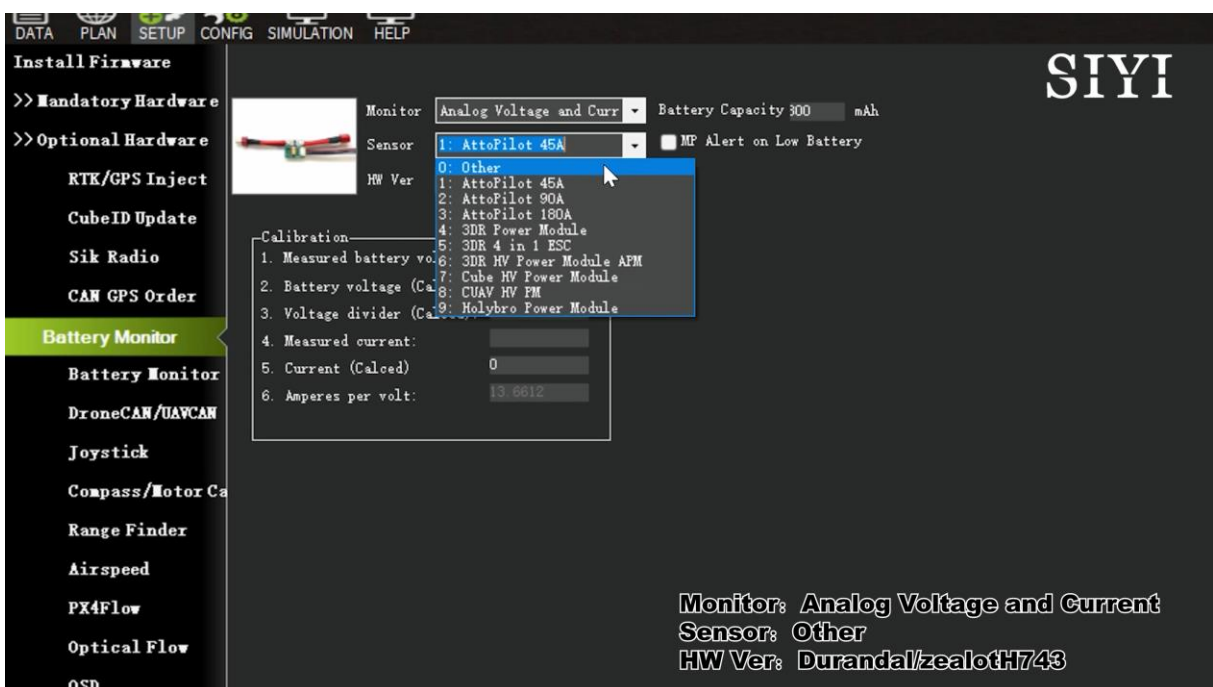


1. Please refer to the above picture and connect the power module, the flight controller, and the PC.
2. Run Mission Planner, go to “SETUP – Optional Hardware – Battery Monitor”.



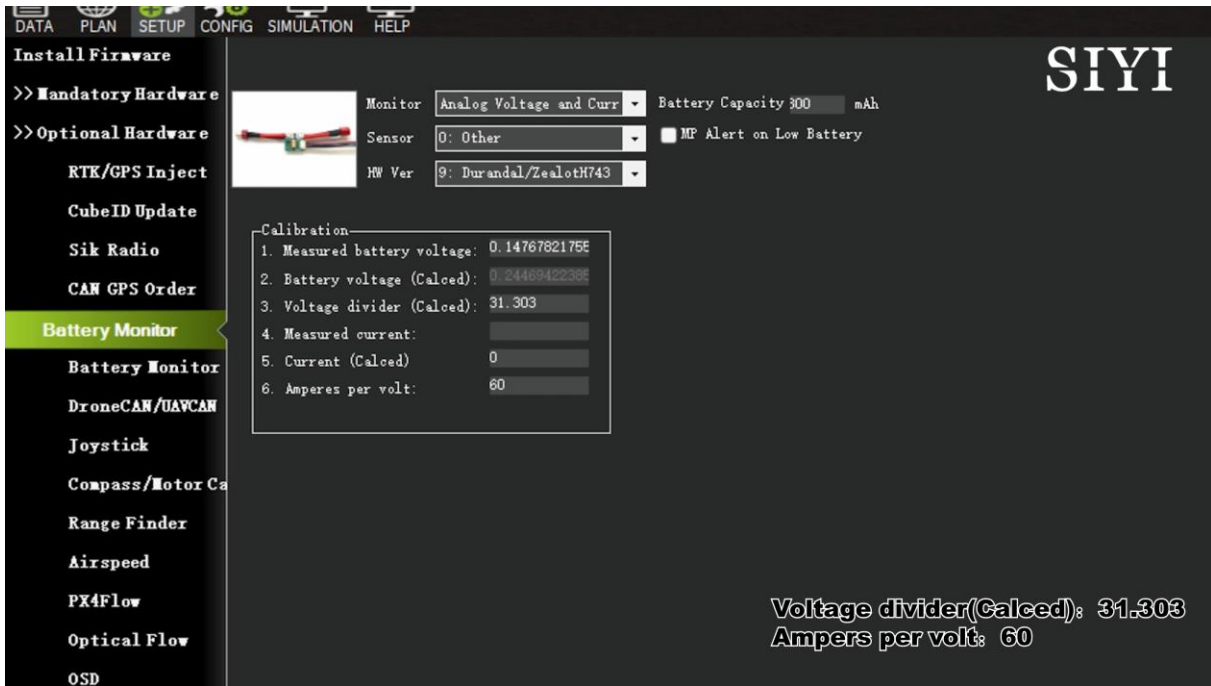
3. Select the below parameters accordingly.

- Monitor: Analog Voltage & Current
- Sensor: Other
- HW Ver: Duranda / Zealot H743



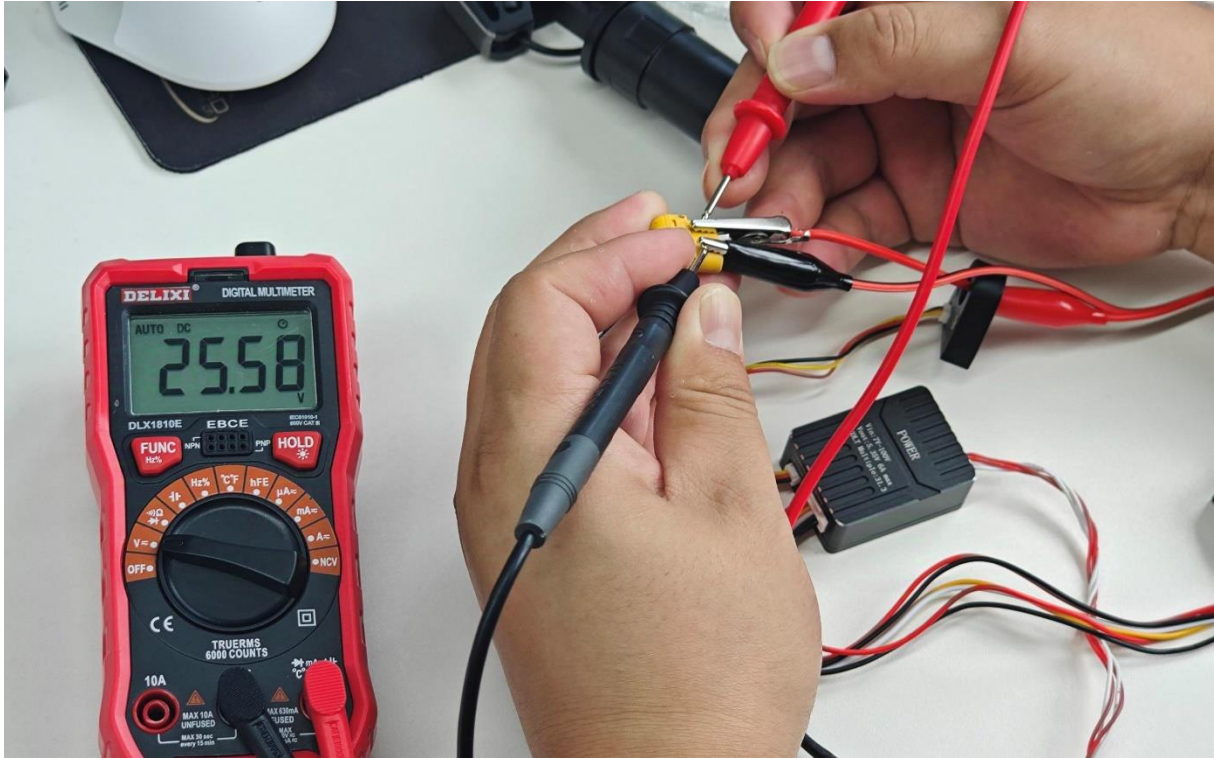
4. Then input the calibration parameters.

- Voltage Divider: 31.303
- Amperes per volt: 60

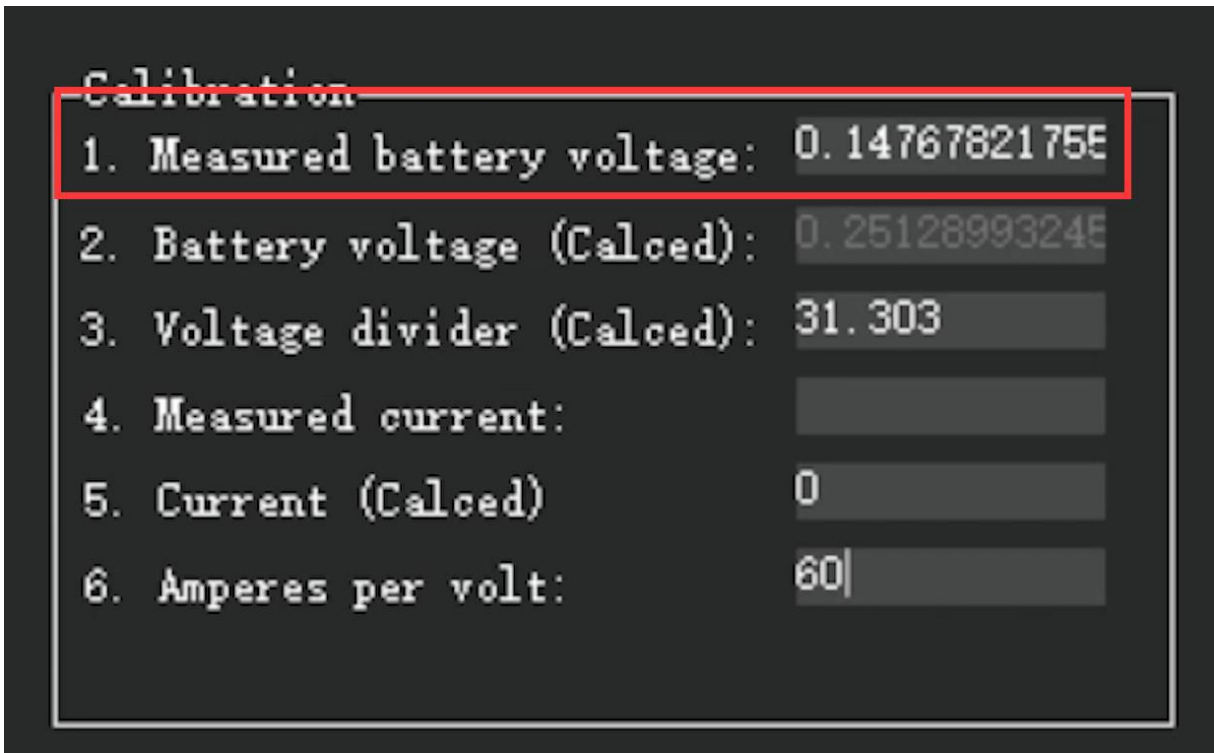


2.1.2 Calibrate Battery Voltage

Calibrating battery voltage can improve measuring accuracy.



Use a multimeter to measure the actual battery voltage, and input the voltage measured by the multimeter into this menu and save it.

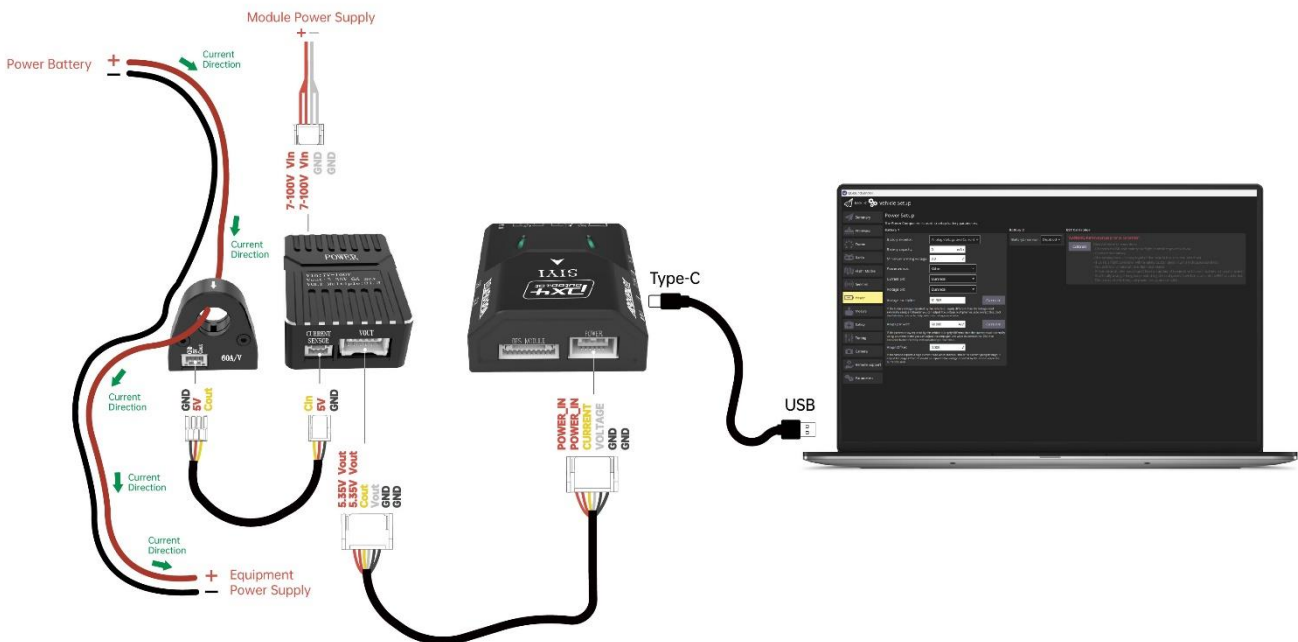


2.2 Configuring & Calibrating through QGroundControl

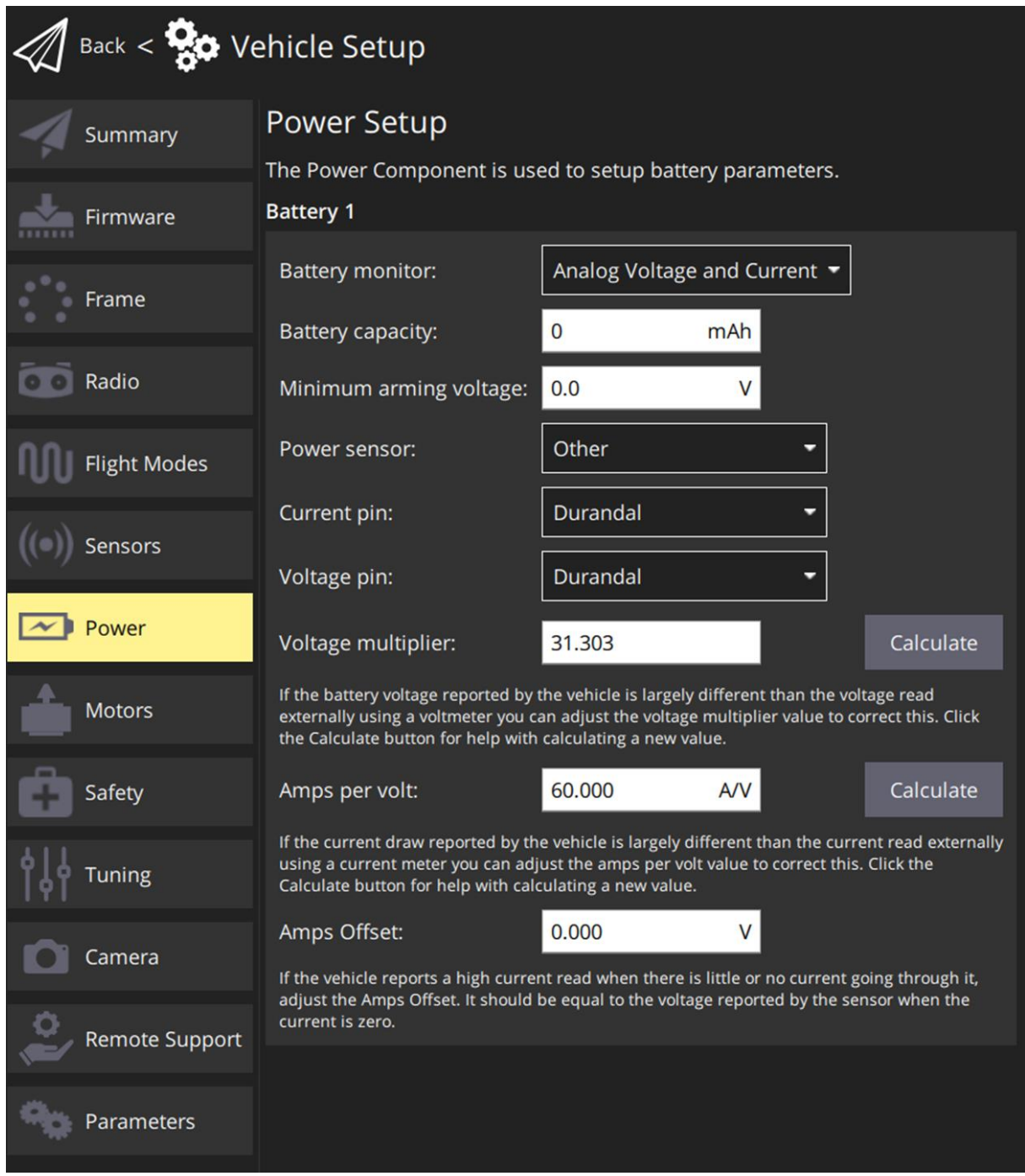
Let's take an example of using the power module with N7 autopilot.

2.2.1 Basic Settings

Steps



1. Please refer to the above picture and connect the power module, the flight controller, and the PC.
2. Run QGroundControl, go to "Vehicle Setup – Power".



3. Select the below parameters accordingly.

- Battery monitor: Analog Voltage & Current
- Power sensor: Other
- Current pin: Durandal

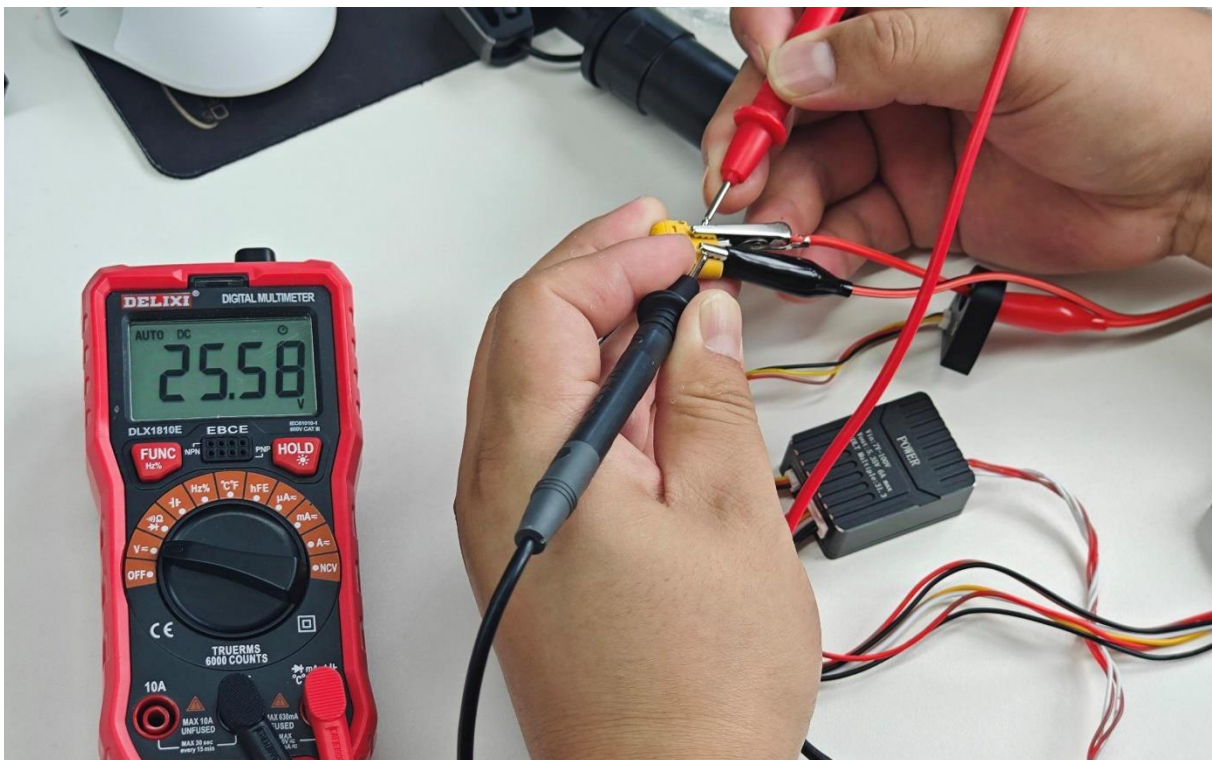
- Voltage pin: Durandal

4. Then input the calibration parameters.

- Voltage multiplier: 31.303
- Amps per volt: 60

2.2.2 Calibrate Battery Voltage

Calibrating battery voltage can improve measuring accuracy.



Use a multimeter to measure the actual battery voltage, and input the voltage measured by the multimeter into this menu and save it.

Calculate Voltage Divider Close

Measure battery voltage using an external voltmeter and enter the value below. Click Calculate to set the new voltage multiplier.

Measured voltage:

Vehicle voltage: 25.59

Voltage divider: 31.56076431

Calculate

Show UAVC/

Show Adv

Calibrate

WARNING: Pro

You must use

ESC PWM Minin

nt read externally using

e Calculate button for

performing ESC c

3 AFTER-SALE SERVICE

If there were any questions or problems using SIYI Technology's product, you can always try to send an email to SIYI Official A/S Center (support@siyi.biz) or consult your sales representative or dealer for answers or solutions.

3.1 Repair Service

If your purchased SIYI products cannot work properly, please contact SIYI Official A/S Center for consulting.

Usually there are two situations for acquiring repair service.

- Product Defect
- Product Damage

SIYI products under the two situations can be sent back to SIYI for repairing. Defect products with valid warranty can be repaired for free. Defect products without valid warranty or damaged products should be charged of repair fees after repairing. Please refer to SIYI's Official A/S Quotation for detail.

3.2 Warranty

SIYI Technology guarantees that, subject to the following conditions, Return & Refund Service, Replacement Service, and Warranty Repair Service can be requested. Please contact SIYI directly (support@siyi.biz or your sales manager) or authorized SIYI dealer for more detail.

3.2.1 7-Day Return & Refund

You can request Return & Refund Service:

Within seven (7) days of receiving a product if the product has no manufacturing defect, has not been activated and is still in new or like-new condition.

Within seven (7) days of receiving a product if the product has a manufacturing defect.

Return & Refund Service will not be provided where:

It is requested beyond seven (7) calendar days of receiving a product.

A product sent to SIYI for Return & Refund Service does not include all original accessories, attachments or packaging, or any item is not in new or like-new condition, i.e., with cracks, dents, or scratches.

A legal proof of purchase, receipt or invoice is not provided or is reasonably believed to have been forged or tampered with.

Any fault or damage of the product is caused by unauthorized use or modification of the product, including exposure to moisture, entry of foreign bodies (water, oil, sand, etc.) or improper installation or operation.

Product labels, serial numbers, waterproof marks, etc. show signs of tampering or alteration.

Damage is caused to the product by uncontrollable external factors, including fire, floods, high winds, or lightning strikes.

A product is not delivered to SIYI within seven (7) calendar days after Return & Refund Service confirmation is sent from SIYI.

Other circumstances stated in this policy.

3.2.2 15-Day Replacement

You can request Replacement Service:

Within fifteen (15) calendar days of receiving the product if the product has sustained a substantial damage in transit, provided always that the damage proof issued by the carrier can be provided to SIYI.

Within fifteen (15) calendar days of receiving the product if the product does not match the original description of the product in one or more significant respects.



Within fifteen (15) calendar days of receiving the product if the product suffers performance failure.

Replacement Service will not be provided where:

Service is requested more than fifteen (15) calendars days after receiving a product.

Legal proof-of-purchase, receipts, or invoices are not provided, or are reasonably believed to have been forged or tampered with.

A product sent to SIYI for replacement does not include all original accessories, attachments, and packaging, or contains items damaged by user error.

A product is found to have no defects after all appropriate tests are conducted by SIYI.

Any fault or damage of the product is caused by unauthorized use or modification of the product, including exposure to moisture, entry of foreign bodies (water, oil, sand, etc.) or improper installation or operation.

Damage is caused by uncontrollable external factors, including fires, floods, high winds, or lightning strikes.

Received product has not been sent back to SIYI seven (7) calendar days after replacement confirmation from SIYI.

Proof of damage during transit issued by the carrier cannot be provided.

Other circumstances stated in this policy.

3.2.3 1-Year Warranty Repair

You can request warranty repair service:

If a product does not function as warranted during the warranty period, you may obtain after-sales service by contacting SIYI's service center. You will need to provide a valid proof-of-purchase, receipt, or order number for the warranty service.

Charges may apply for services not covered by this Limited Warranty. Please contact SIYI for information specific to your location.

Please note that the warranty service is only available in the respective SIYI service regions where you purchased your SIYI product.

Warranty Repair service will not be provided where:

Crashes or fire damage caused by non-manufacturing factors, including but not limited to pilot errors.

Damage caused by unauthorized modification, disassembly, or shell opening not in accordance with official instructions or manuals.

Damage caused by improper installation, in correct use, or operation not in accordance with official instructions or manuals.

Damage caused by non-authorized service provider.

Damage caused by unauthorized modification of circuits and mismatch or misuse of the battery and charger.

Damage caused by operation in bad weather (i.e., strong winds, rain, sand/dust storms, etc.)

Damage caused by operating the product in an environment with electromagnetic interference (i.e., in mining areas or close to radio transmission towers, high-voltage wires, substations, etc.)

Damage caused by operating the product in an environment suffering from interference from other wireless devices (i.e., transmitter, video-downlink, Wi-Fi signals, etc.)

Damage caused by reliability or compatibility issues when using unauthorized third-party parts.

Damage caused by operating the unit with a low-charged or defective battery.

Products or parts with an altered identification label or from which the identification label has been removed.

SIYI Technology

Business Inquiry: info@siyi.biz

Phone: +86 400 838 2918

A/S Center: support@siyi.biz