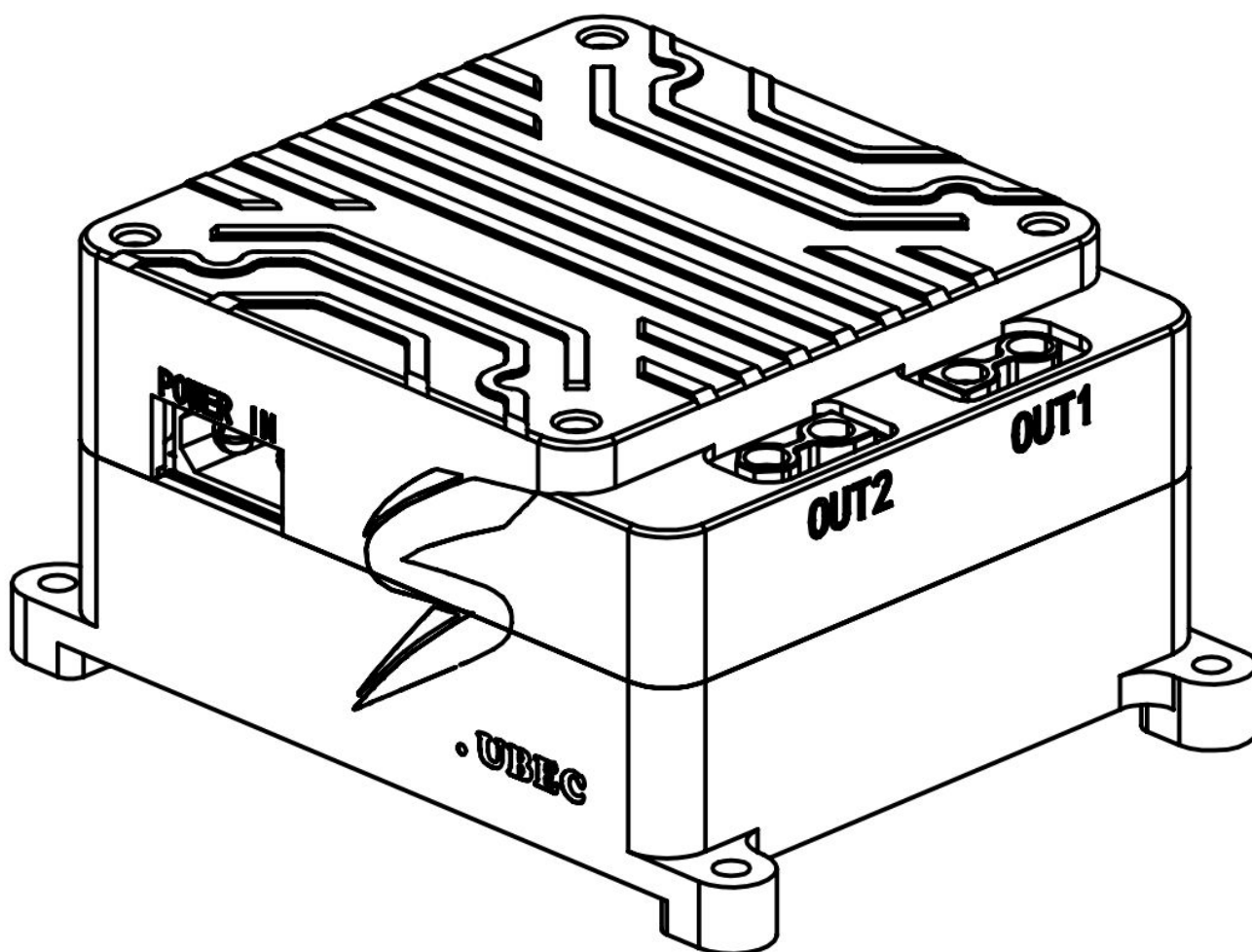


TAROT

120W High Power Buck Module S.UBEC User Manual



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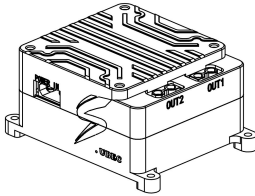
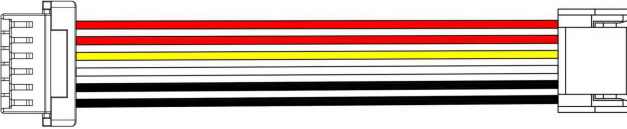
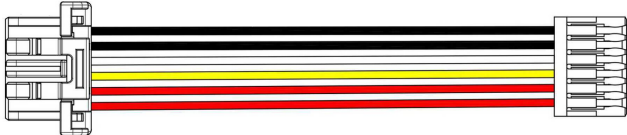
I. Product Description

- Tarot's 120W High-Power S.UBEC Buck Power Supply Module;
- The product design features high voltage resistance, high power capacity, and strong overload protection capabilities. It incorporates voltage and current detection functions and is compatible with mainstream flight control systems.

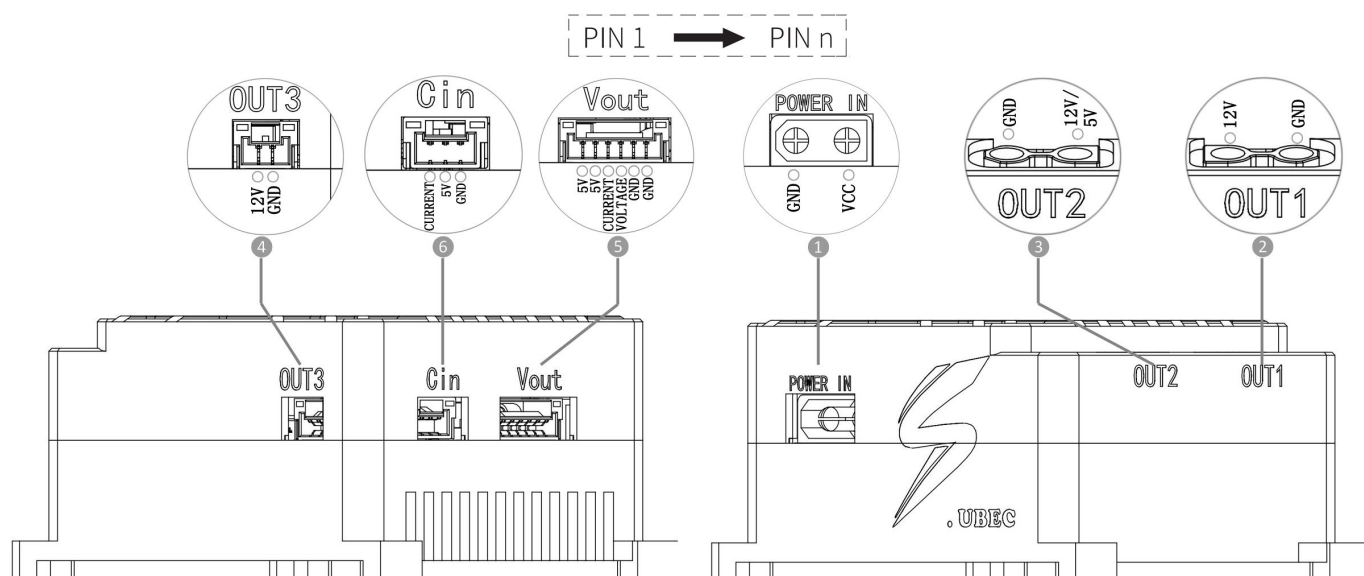
Product Features:

1. Wide voltage input design, supporting up to 80V input;
2. High-power output, maximum support up to 120W output;
3. Three primary 12.3V outputs (total 10A) for powering 12V devices;
4. Secondary 5.3V buck output (total 5A) for powering 5V devices;
5. Primary circuit supports up to 33A transient overload;
6. Built-in low-temperature drift, high-precision voltage sampling resistor;
7. Supports integration with mainstream flight control systems via the Vout interface to enable voltage monitoring;
8. Supports external Hall sensor modules via the Cin interface to enable current monitoring;
9. The housing is constructed from 6061-T6 aluminum alloy and fully CNC-machined, offering an aesthetically pleasing design with excellent passive heat dissipation;
10. Built-in integrated silent turbo fan provides active cooling, ensuring more stable module operation during high-power usage;
11. Built-in integrated Amass XT30 plug inputs and outputs eliminate exposed wires, ensuring a clean and elegant overall appearance for the module.

II. Product List

S.UBEC Buck Module ×1	
OUT3 Interface Output Cable ×1 GH1.25-2P Single-Ended Cable	
Vout Interface Output Cable/Pixhawk 2.4.8 ×1 GH1.25-6P to 1.25-6P Optional accessories,not included	
Vout Interface Output Cable/Pixhawk4 ×1 GH1.25-6P to GH1.25-6P Optional accessories,not included	
Vout Interface Output Cable/HEX ×1 GH1.25-6P to HEX Optional accessories,not included	
Vout Interface Output Cable/CUAV ×1 GH1.25-6P to CUAV Optional accessories,not included	
Cin Interface Input Cable ×1 GH1.25-3P to GH1.25-4P Optional accessories,not included	
FCS200 Hall Sensor Module Optional accessories,not included	

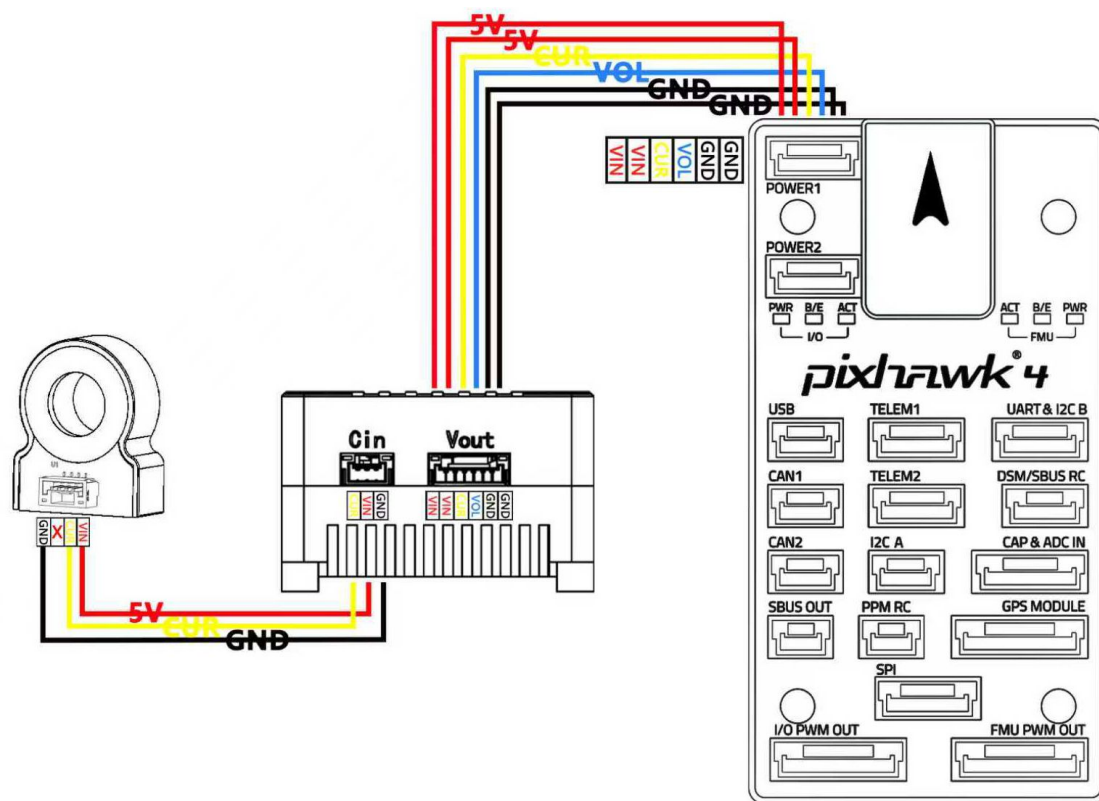
III. Product Interface Definition



①	POWER Input Connector	④	OUT3 Output Interface
②	OUT1 Output Interface	⑤	Vout Voltage Monitoring Interface
③	OUT2 Output Interface	⑥	Cin Current Monitoring Interface

Interface	Instructions	Interface Type	Define
①.Power	Power Supply Interface: DC 16.5V–80V Note: 1.Pay attention to the voltage input range; both excessively low or high voltage may cause damage to the module. 2.The level of voltage input determines the no-load current of the module.	XT30-M	1 : GND 2 : VCC(DC 16.5V-80V)
②.OUT1	12.3V/10A Voltage Output Interface For powering 12V devices, with a maximum continuous current of 10A and a peak current of up to 33A.	XT30-F	1 : 12V OUT 2 : GND
③.OUT2	1.12.3V/10A or 5.3V/5A Voltage Output Interface 2.1. Default 12.3V/10A output for powering 12V devices, with a maximum continuous current of 10A and a peak current of up to 33A; 3.Requires internal jumper configuration to enable 5.3V/5A output for powering 5V devices, with a maximum continuous current of 5A;	XT30-F	1 : GND 2 : 12V/5V OUT
④.OUT3	12.3V/10A Voltage Output Interface For powering 12V devices, maximum continuous current 1A Note: 1. The GH1.25 female connector has a maximum current rating of 1A; 2. The maximum output current is also limited by the terminal wires.	GH1.25-2P	1 : 12V OUT 2 : GND
⑤.Vout	VOLTAGE OUT Voltage Monitoring Interface Compatible with mainstream Pixhawk flight controllers, voltage monitoring voltage divider ratio 24.28	GH1.25-6P	1 : 5V 2 : 5V 3 : CURRENT 4 : VOLTAGE 5 : GND 6 : GND
⑥.Cin	CURRENT in Current Monitoring Interface Compatible with FCS-200 Hall Sensor Module, output ratio 60.61A/V	GH1.25-3P	1 : CURRENT 2 : 5V 3 : GND

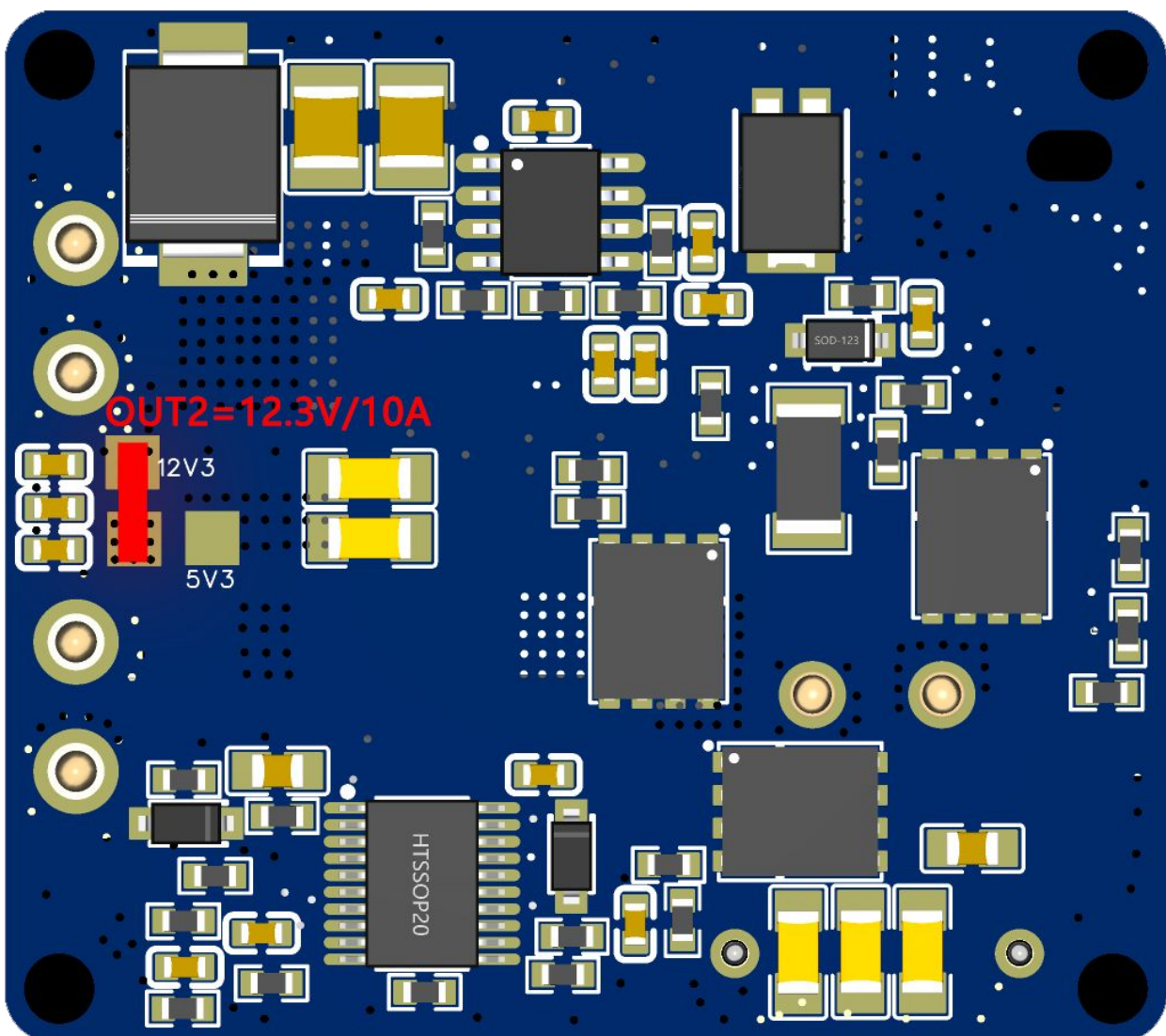
IV. Product Wiring Diagram



V. OUT2 Interface Wiring Sequence Selection Guide

The OUT2 interface defaults to outputting 12.3V/10A. To enable secondary step-down to 5.3V/5A output, manually adjust the 12V/5V solder points on the internal circuit board. Changes take effect after rewiring.

OUT2 = 12.3V/10A Output Wiring Diagram: - 12V3 solder point is shorted (factory-soldered short by default) - 5V3 solder point must be disconnected

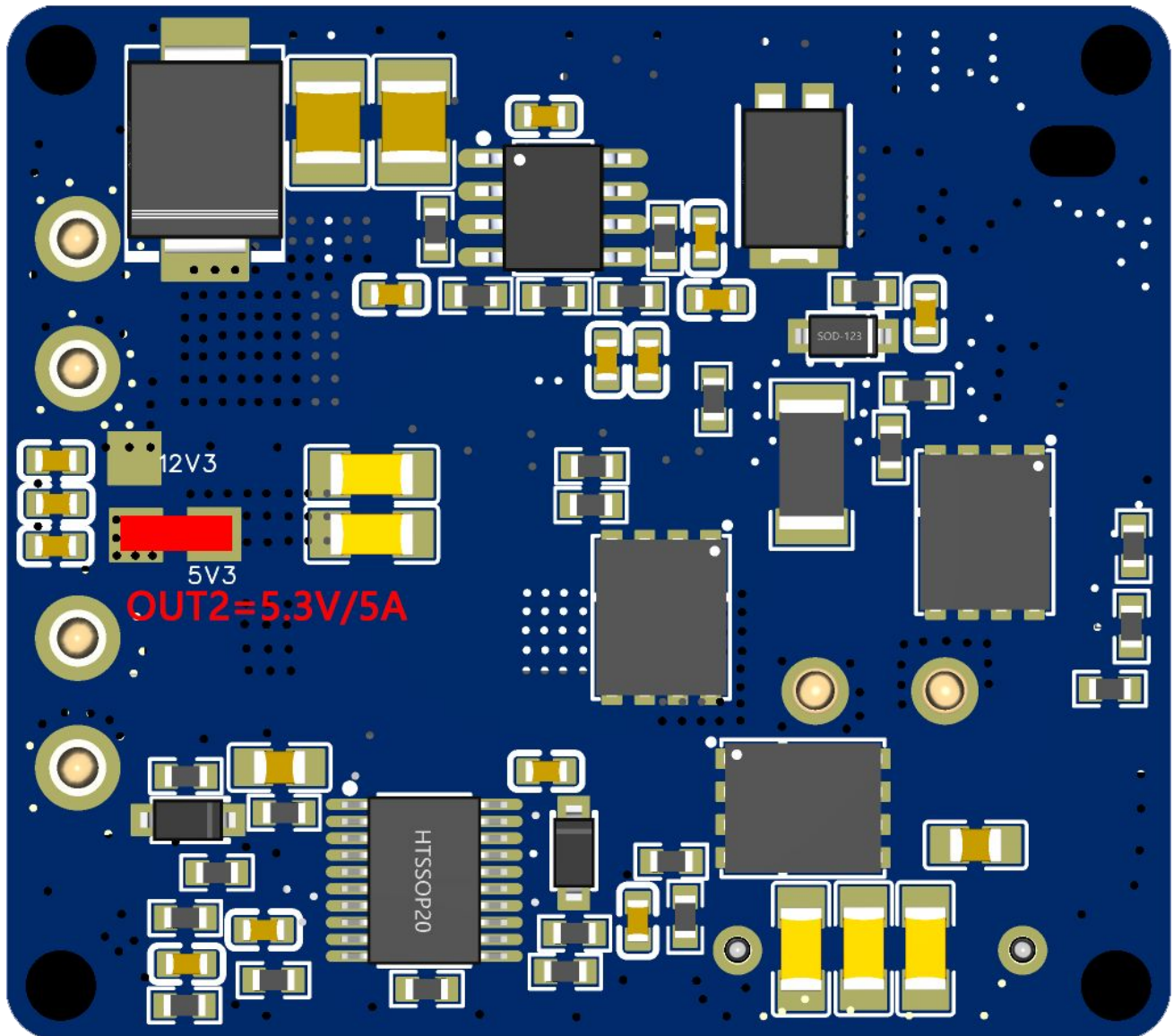


OUT2=5.3V/5A Output Wiring Diagram:

12V3 solder joint disconnected (factory default is soldered short; manually clean and disconnect the two solder joints to ensure no electrical connection between them),

5V3 solder joint shorted.

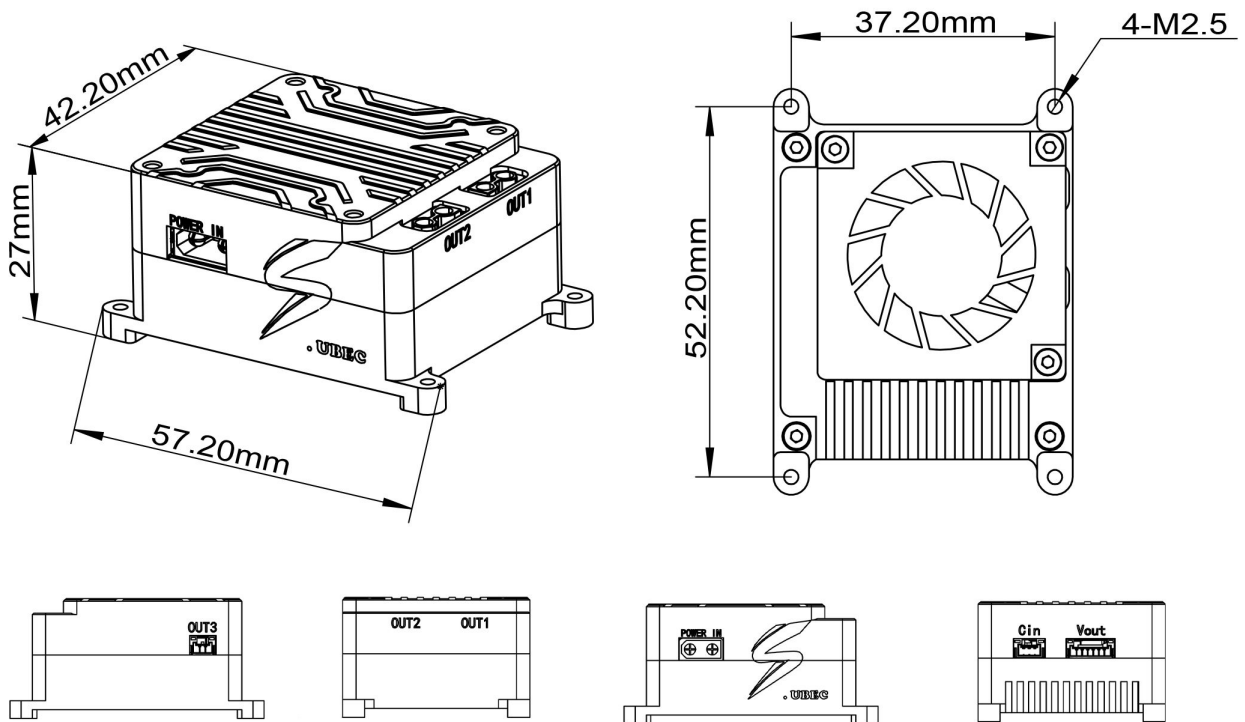
When rewiring or performing shorting/disconnection operations, ensure meticulous execution to prevent equipment damage.



VI. Product Parameters

Project		Parameters
Complete machine Technology Indicators -S.UBEC	Item Number	TL3304
	Weight	81g
	Size	42.2mm*57.2mm*27mm
	Mounting holes	52.2mm*37.2mm(M2.5*6*4)
	Operating Voltage	DC 16.5-80V
	No-load standby power consumption	1.32W(80mA@16.5V); 3.52W(44mA@80V);
	Maximum Output Power	120W(10A@12V)
	Conversion efficiency	≥92%
Function Indicators	Output Voltage/OUT1	12.3V/10A
	Output Voltage/OUT2	12.3V/10A (factory default) or 5.3V/5A (requires internal wiring change to take effect)
	Output Voltage/OUT3	12.3V/1A (Maximum current limited by GH1.25 wiring)
	Output Voltage/Vout	5.3V (with voltage divider detection, compatible with Pixhawk flight controllers)
	Voltage Monitoring Voltage Divider Ratio	24.28
	Heat Dissipation Method	Active cooling (with silent turbo fan)
Hall Sensor Module/FCS200 (Optional)	Power supply	5V
	Range	200A
	Output Ratio	60.61A/V

VII. Product Specifications



VIII. Question&Answer

Q: The voltage monitoring voltage divider ratio has been set to 24.70, but why is the voltage displayed by the Pixhawk flight controller inaccurate?

A: The voltage monitoring voltage divider ratio of 24.70 is calculated based on a 12S (50V) input. If you are using a different input voltage, please manually fine-tune the voltage divider ratio to achieve precise output.

Q: When connecting 1-15S batteries to the Pixhawk flight controller, the voltage readings are accurate. Why are the voltage readings inaccurate when connecting 16-18S batteries?

A: It's not that the S.UBEC module isn't supported; rather, the Pixhawk flight controller only supports voltage monitoring around 65V.

The Pixhawk series flight controllers utilize analog ammeters, employing ADC (Analog-to-Digital Conversion) to capture voltage signals. This process uses 16-bit data, where the maximum value after binary-to-decimal conversion is 65536. During firmware calculations, the upper two bits of the integer are retained, resulting in a maximum value of 65.536. Therefore, the flight controller can only accurately measure voltages up to approximately 65.5V (for a 15S battery). Voltage readings exceeding this threshold overflow, causing the display to show values significantly lower than the actual voltage. For instance, an 80V battery would only display around 14V.

Q: Can I adjust the component parameters myself to change the output voltage?

A: No, the parameters of each component in the power supply are interrelated and cannot be altered arbitrarily.

Q: Can multiple units be connected in parallel to increase the output current?

A: No, this module is a synchronous PWM-controlled buck converter. The PWM duty cycle is regulated by feedback from the output terminal. If other power supplies are connected in parallel to the output, the PWM duty cycle cannot be properly regulated due to the lack of feedback, leading to abnormal output voltage and potential damage to the equipment.