onbon 仰邦科技

Product Specifications

BX-V7503P 2-in-1 Receiver Card

Version : V1.0 Release Date : 2025.12.25

Update Log

Document Version	Release time	illustrate
V 1.0	2025-12-25	first edition

Catalog

Introduction

Thank you for purchasing our LED control card. We hope you enjoy the superior performance of this product. While this LED control card is designed to meet international and industry standards, improper operation may still result in personal injury and property damage. To avoid potential hazards and to maximize your benefits from the equipment, please follow the instructions in this manual when installing and operating the product.

About the software

It is illegal to modify, decompile, disassemble, decrypt, or reverse engineer the software installed on this product.

Activation Guide

Safety Precautions

1. warn:

This product is classified as a Class A product: In living environments, it may cause radio interference; in such cases, users may need to take practical measures to address the interference.

1.1 Power supply margin provision

1.2 Definition of power supply operating environment temperature: All power supplies provided by our company to customers are of full power. The operating environment temperature refers to the ambient temperature around our power supply (or the temperature inside the customer's enclosure system), not the ambient temperature outside the customer's enclosure system.

When selecting and using power supplies, customer engineers should fully consider the

external environment and internal temperature of the customer's enclosure to avoid overheating protection or shortening the power supply's lifespan due to excessively high internal temperatures.

1.3 System enclosure structure: Our company is concerned with whether the customer's enclosure is sealed or unsealed, and whether the power supply's bottom shell is installed close to or not close to the enclosure; rather than the specific appearance and internal structure.

Sealed enclosures primarily dissipate heat through heat transfer and radiation; unsealed enclosures primarily dissipate heat through air convection. Air convection is superior to heat transfer and radiation.

When selecting a power supply based on the enclosure, customers should use the enclosure's maximum peak current as the primary consideration, not the effective current. The system enclosure's peak current is typically about 30% higher than the effective current. If a power supply is selected based on the enclosure's effective current, even if the effective current is lower than the power supply's rated output current, the peak current will still exceed the power supply's overcurrent protection point, causing the overcurrent protection to trip malfunction. We recommend that customers ensure the maximum peak current of their enclosure does not exceed the rated output current of our power supplies. Peak current needs to be measured with an oscilloscope; if the customer does not have this testing equipment, we can provide related services.

It is recommended that customers use power supplies within 80% of their rated output power to better ensure the product's lifespan.

2. Precautions for the use of the enclosure:

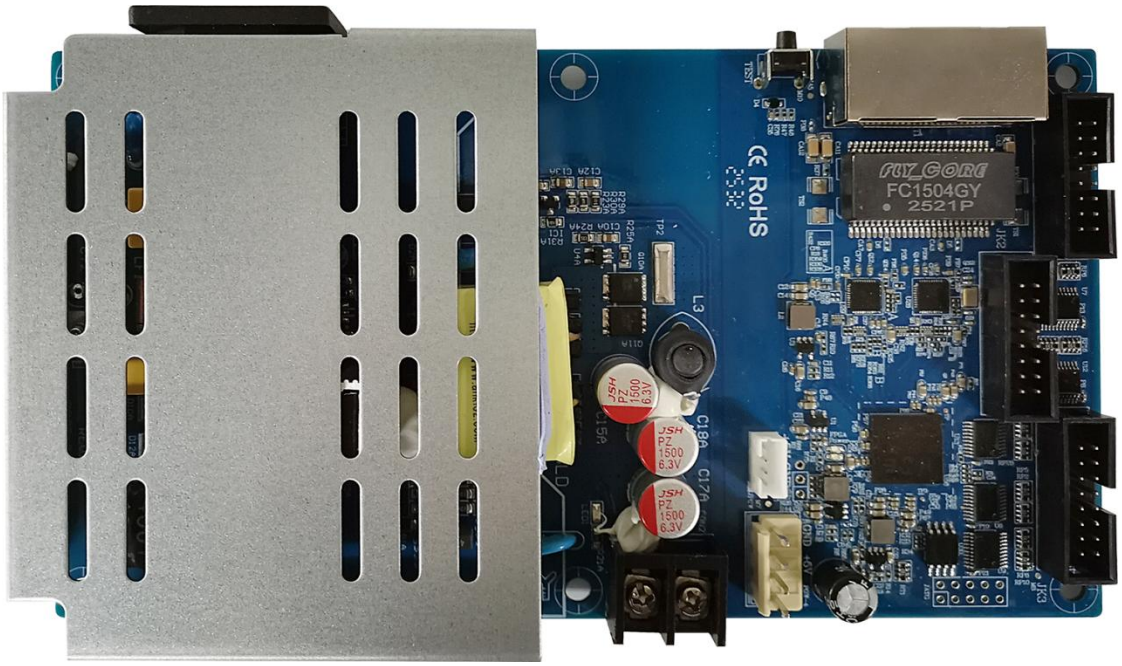
2.1 The system enclosure is suitable for use in high humidity, coastal areas, rainy areas, and areas with ambient temperatures below -30℃. When placing an order, please note that the power supply should be protected against three types of damage. The enclosure should be sealed whenever possible.

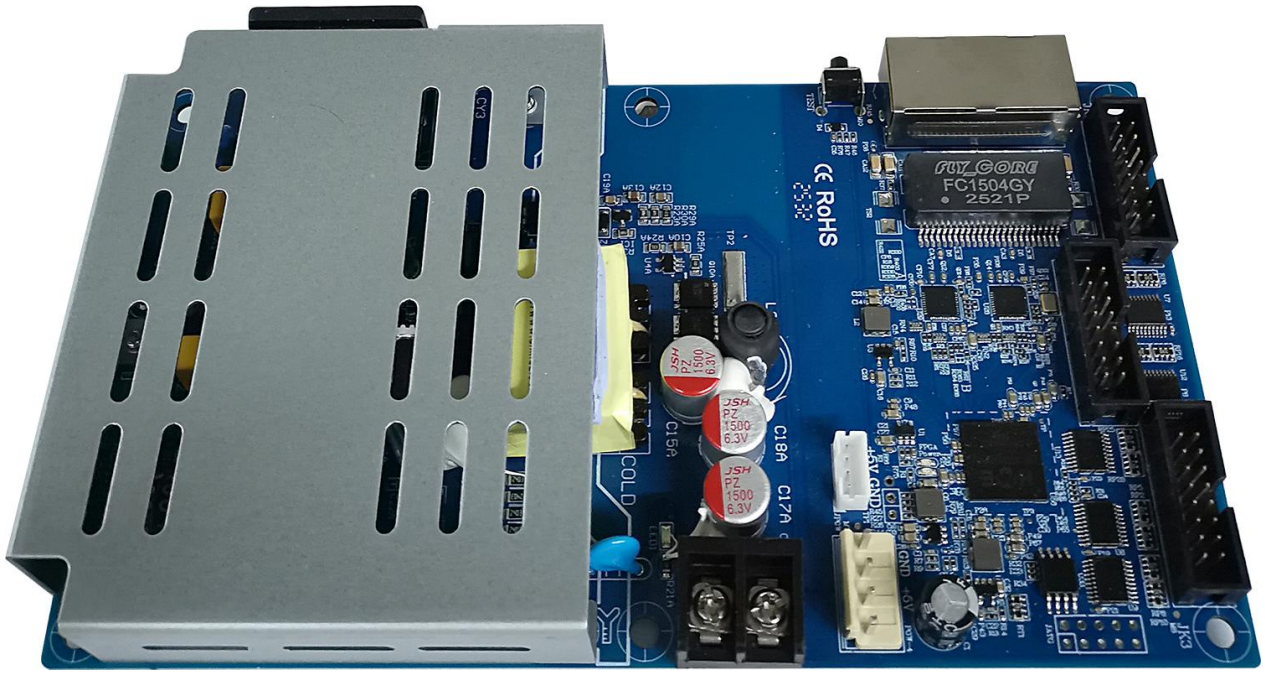
2.2 The system enclosure is used in high-dust environments such as roadsides. It is recommended that customers use a sealed system, select a fanless power supply, and require the power supply to be equipped with three-proof treatment. If the system uses a non-sealed enclosure, a dust cover must be added to prevent excessive dust from entering the customer's system and the inside of the power supply, which may cause quality problems.

2.3 The system enclosure is used in rented enclosures and suburban areas, which may involve low power input voltage, causing problems such as power undervoltage protection activation or low power efficiency. It is recommended that customers use a full voltage input power supply in areas where the input voltage may be low, or that the system enclosure wiring be balanced, increase the wire diameter of the system enclosure input wires and reduce the number of power supplies on one line to ensure that the power input voltage is higher than 190V.

1.Product Introduction

The BX-V7503P features a power supply and receiver card integrated into one unit, boasting a stable structure, vibrant colors, easy installation, energy efficiency, and user-friendliness. This integrated design reduces the number of required components, lowers material costs, and simplifies installation and maintenance, reducing labor costs. The BX-V7503P receiver card hardware system can be upgraded online, maximizing user benefits.





2.Receiver card main functions

Function	illustrate
quick seam repair	Adjusting the light and dark lines created by the splicing of modules or cabinets improves the visual effect and is quick and easy to use.
Quick Correction	Adjusting the brightness of the module or cabinet can improve display differences between different batches.
Angle rotation	Supports module rotation at any angle
Alien structure	The cabinet can be freely constructed using data groups as units, making it suitable for complex irregular-shaped screens.
Module number	Displays module serial numbers and clearly shows module connection relationships.
Box serial number	Displays network port number, enclosure number, status, dimensions, height, and cabling information; provides visual debugging capabilities.
Error detection	Detect the number of erroneous packets in the data transmission of the receiving card's network port to quickly identify abnormal receiving cards in the link.
Row and column extraction	Supports arbitrary row and column extraction from modules
Parameter readback	Supports reading back and saving configuration parameters.
Built-in firmware	It comes with factory-installed firmware and supports 99% of driver chips on the market without requiring upgrades.
Parameter self-recovery	When maintaining an old card, there is no need to readjust parameters when replacing it with a new card.

3.Receiver card basic parameters

Screen metrics	
Minimum number of control points	16 x 16
Number of control points	256*192
Total pixels	49412
Cascade Quantity	Number of receiver cards cascaded on a single network cable ≤ 1024
Scan type	Any scan type between static and 64 scans

Network ports can be switched freely	The network port can be used for both input and output purposes.
Gray levels	≤65536 levels
Compatibility range	Full-color LED displays of various specifications
Supported chips	All mainstream LED display driver chips
Display Interface	3 T75 display interfaces, 6 RGB data ports
Brightness adjustment	256 levels of brightness
Row and column extraction	Supports arbitrary row and column extraction from modules

4.Main electrical specifications of the product

Output power (W)	Rated input voltage (Vac)	Output voltage (Vdc)	Output current (A)	Voltage regulation accuracy	Ripple and noise
54.6W	100-240Vac	4.2V	0-13A	±2%	100mV

5.Referenced standards and specifications

5.1. GB/T 2423.1-2011 Electric and electronic products, environmental testing, part 2: Test methods/Test A: Low-temperature

5.2. GB/T 2423.2-2011 Electric and electronic products, environmental testing, part 2: Test methods/Test B: High-temperature

5.3. GB/T 2423.3-1993 Environmental testing procedures for electric and electronic products—Test Ca: Damp heat test method; GB/T 2423.3-1993 Basic environmental testing procedures for electrical and electronic products—Test Ca: Constant damp heat test method;

5.4. GB/T 2423.4.1993 Environmental testing procedures for electric and electronic products—Test Db: Damp heat test method; GB/T 2423.4.1993 Basic environmental testing procedures for electrical and electronic products—Test Db: Alternating damp heat test method;

5.5. GB/T 2423.5-1995 Electric and electronic products, environmental testing, Part 2: Test Methods/Test Ea and guidance: Shock; GB/T 2423.5-1995 Environmental testing of electrical and electronic products, Part 2: Test Methods/Test Ea and guidance: Shock

5.6. GB/T 2423.6-1995 Electric and electronic products, environmental testing, Part 2: Test Methods/Test Ea and guidance: Bump; GB/T 2423.6-1995 Environmental testing of electrical and electronic products, Part 2: Test Methods/Test Ea and guidance: Bump
5.7. GB/T 2423.8-1995 Electric and electronic products, environmental testing, Part 2: Test Methods/Test Ed: Free fall; GB/T 2423.8-1995 Environmental testing of electrical and electronic products, Part 2: Test Methods/Test Ed: Free fall
5.8. GB/T 2423.10-1995 Electric and electronic products, environmental testing, Part 2: Test Methods/Test Fc and guidance: Vibration (sinusoidal); GB/T 2423.10-1995 Environmental testing of electrical and electronic products, Part 2: Test methods/Test Fc and guidance: Vibration (sinusoidal)
5.9. GB/T 2423.11-1997 electric and electronic products, environmental testing, Part 2: Test Methods/Test Fd: Random vibration wide band - General requirements; GB/T 2423.11-1997 Environmental testing of electrical and electronic products, Part 2: Test Methods/Test Fd: Random vibration wide band - General requirements
5.10. GB/T 2423.22-2002 Electric and electronic products, environmental testing, Part 2: Test N: Temperature change; GB/T 2423.22-2002 Environmental testing of electrical and electronic products, Part 2: Test N: Temperature change

6.Environmental conditions

Serial Number	project	Technical Requirements	unit	Remark
6.1	Operating temperature	-40～+60	℃	Please refer to the load derating curve.
6.2	Storage temperature	-40～+80	℃	
6.3	Operating relative humidity	10–50% RH, non-condensing	%	Note 1
6.4	Storage relative humidity	10–90% RH	%	
6.5	Heat dissipation method	Natural cooling	/	
6.6	Atmospheric pressure	80-106	Kpa	

6.7	Altitude	Suitable for safe use only in areas below 2000m altitude.	M	
6.8	Usage Environment	Suitable for safe use only in non-tropical climates	℃	
6.9	Vibration tolerance	10-55Hz 19.6m/S2(2G),20minutes each along X,Y and Z axis	/	
6.10	Impact resistance	49m/S2(5G),20 once each X,Y,and Z axis	/	

Note 1 : If the power supply will be used in a high humidity environment, please add this new requirement when placing your order.

7.Electrical characteristics

7.1. Input characteristics

Serial Number	project	Technical Requirements	unit	Remark
7.1.1	Rated input voltage	100～240	Vac	Note 2
7.1.2	Input voltage range	90～2 64	Vac	
7.1.3	Input frequency	47～63	Hz	
7.1.4	efficiency	≥ 86	%	Full load (ac=230V)
		≥ 83		Full load (AC=115V)
7.1.5	Power factor	≥ 0.5	/	Full load
7.1.6	Maximum input current	≤ 2.0	A	@115Vac
7.1.7	Input surge current	≦6 0	A	

Note 2 : The meaning of rated input voltage and input voltage range: Rated input voltage is an internationally accepted term. The upper limit (maximum value) of the input voltage is 10% above the highest rated input voltage. The lower limit (minimum value) is 5% below the lowest rated input voltage. A rated input voltage of 200-240V corresponds to an input voltage range of 190-264V. These two are not contradictory; in essence, they are consistent and unified.

Note 3 : Power efficiency: Multiply the terminal output voltage by the output current, then divide by the AC input voltage, divide by the AC input current, and divide by the power factor; Efficiency = Terminal voltage × Output current / (AC input voltage × AC input current × Power factor).

7.2. Output characteristics

Serial Number	project	Technical Requirements	unit	Remark
7.2.1	Output rated voltage	4.2	Vdc	
7.2.2	Output current	0～13	A	
7.2.3	Output voltage range	April 12 to April 28	Vdc	
7.2.4	Voltage regulation	±2%	Vo	
7.2.5	Load regulation	±2%	Vo	
7.2.6	Voltage regulation accuracy	±2%	Vo	
7.2.7	Ripple and noise	≤ 100	mVp-p	Full load; 20MHz, 104+10uF NOTE 3
7.2.8	Boot delay time	<2000	mS	NOTE 4
7.2.9	Output hold time	>10	mS	Vin=220Vac NOTE5
7.2.10	Output voltage rise time	<50	mS	NOTE 6
7.2.11	Output overshoot	±5%	V	
7.2.12	Output dynamic response	Voltage changes less than ±5% VO; dynamic response time≤ 250us	V us	LOAD 25%-50%, 50%-75%

Note 4: Ripple and noise testing: The test bandwidth for ripple and noise is 20 MHz. A 0.10 μF ceramic capacitor and a 10.0 μF electrolytic capacitor are connected in parallel at the output port.

Note 5: The power-on delay time is the time from AC input power-on to the output voltage rising to 90%.
Note 6: The output hold time is the time from when the input AC power is cut off until the output voltage drops to 90% of the output voltage.
Note 7: Output rise time is the time it takes for the output voltage to rise from 10% to 90%.

7.3. Protective features

Serial Number	project	Technical Requirements	unit	Remark
7.3.1	Output overcurrent protection	16-20	A	
7.3.2	Output short circuit protection	The output terminal is protected against short circuits and automatically resumes normal operation after the short circuit is removed.	A	Hiccups, self-recovery

7.4. Other features

Serial Number	project	Technical Requirements	unit	Remark
7.4.1	MTBF	≥183.8K hrs.MIL-HDBK-217F(25℃)	H	
7.4.2	7 Leakage Current	< 1	mA	@2 4 0VAC
7.4.3	ESD (Electrostatic Distance Immunity)	Level 3 Criterion: B	/	GB17626.2-1998/ IEC61000-4-2

8.Safety features

Serial	project	Test conditions	Standards and

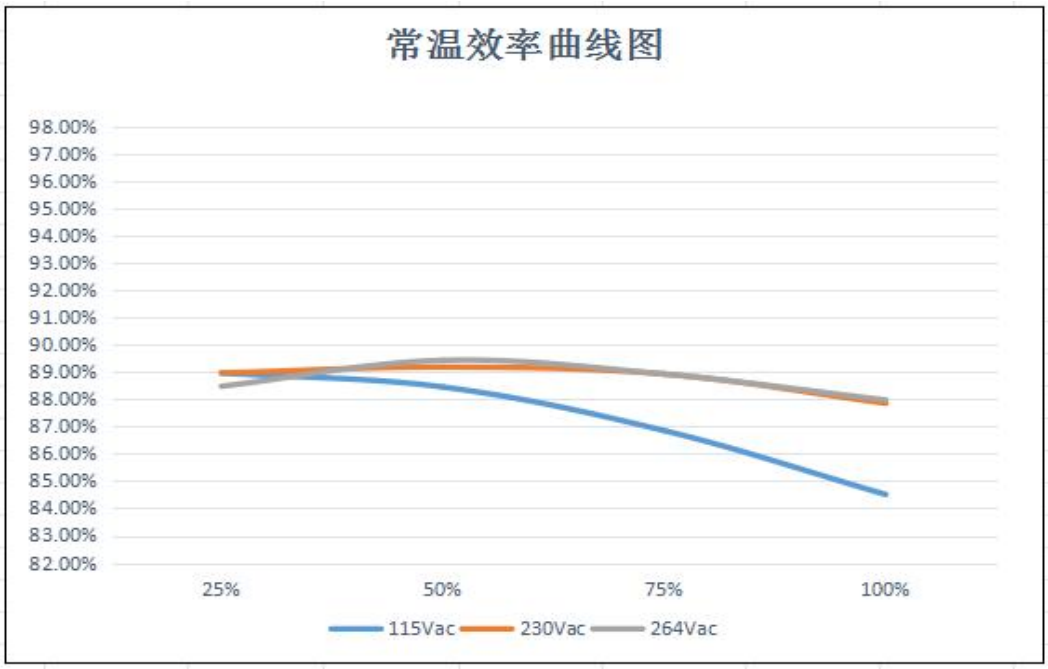
Number				technical requirements
8.1	Insulation withstand voltage	Input to output	3000 Vac/10mA/1Min	No damage
		Input to Earth	1500Vac/10mA/1Min	
		Output to Earth	500Vac/10mA/1Min	
8.2	Insulation resistance	Input to output	DC 500V	10MΩ min
		Input to Earth	DC 500V	10MΩ min
		Output to Earth	DC 500V	10MΩ min

Note : All input lines (including L and N lines) must be short-circuited and all outputs, including positive and negative terminals, must be short-circuited.

9.Curve graph

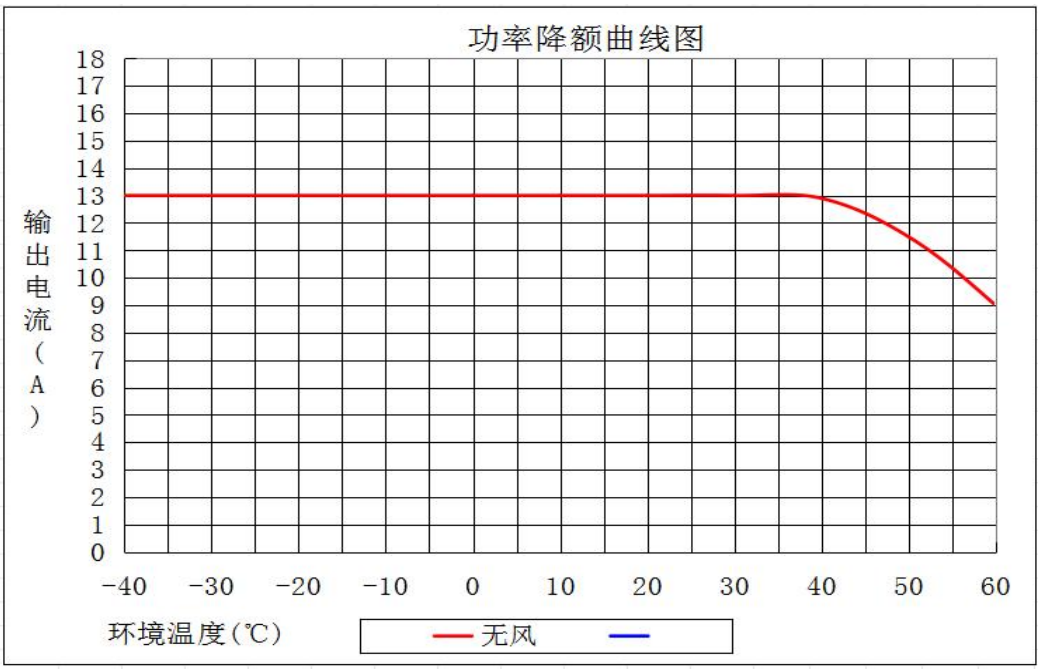
9.1. Efficiency vs. Load Curve

Full-load output efficiency curve



9.2. Temperature derating curve

Operating temperature derating curve

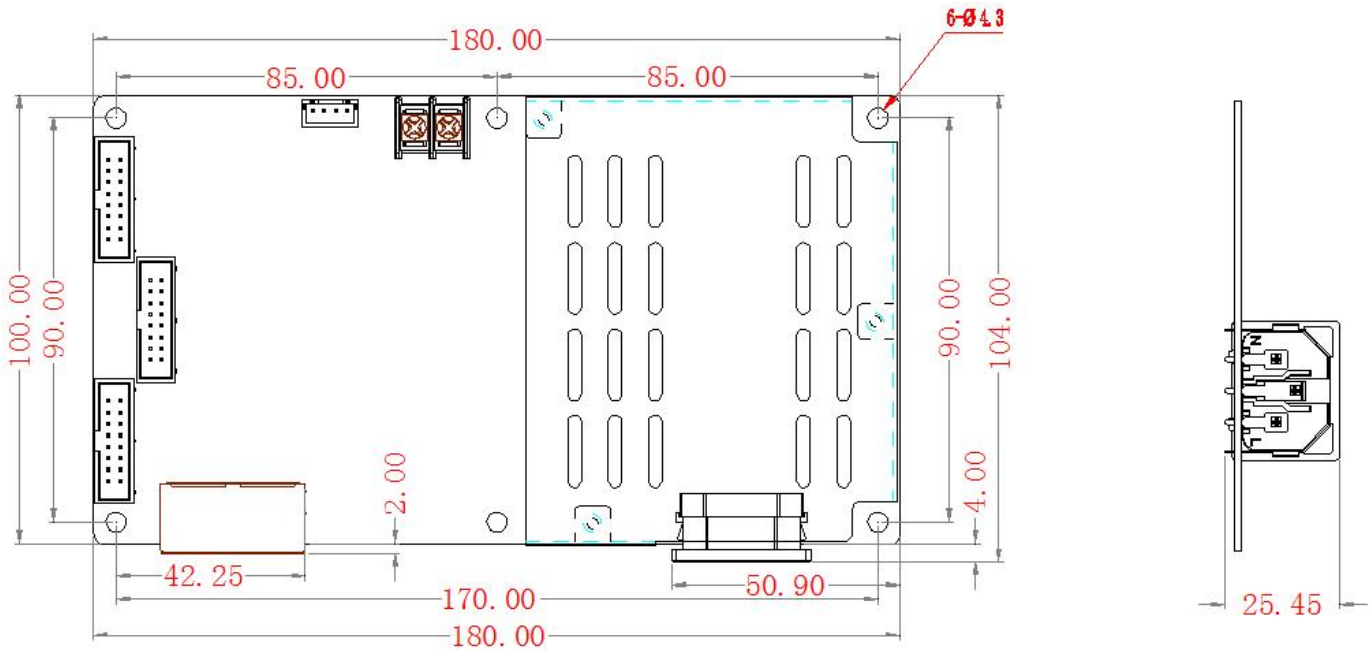


10.Mechanical properties and connector definitions (unit: millimeters)

10.1. size

The power supply dimensions are: 180mm (L) x 104mm (W) x 25.5mm (H), ±0.5mm.

10.2. Mounting hole dimensions



10.3. Connector pin definitions

10.3.1. AC input connector CON1

Serial Number	Serial Number	definition
1	Triangular socket (DE-14-3P1-20)	Earth
		Neutral wire
		LINE

Note: When facing the input/output connector, the pins increase sequentially from left to right: e.g., PIN1.....PIN2.

11.Contact us

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