

Compact Air Conditioner – AC version

一体空调器用户手册

User Manual

文件版本 File version:1.8815N-V2.2

发布日期 Release date:2012-12-17

Reading this manual carefully before installation and using!

在产品安装使用前请仔细阅读本手册！

前言 Foreword

概述 Summary

该手册介绍交流 8815N 空调的使用须知、产品组成、工作原理、产品接线、操作指导、日常维护、故障处理和技术指标。

The manual describes the 8815N series air conditioner instructions, product composition, working principle, wiring, operating instructions, routine maintenance, troubleshooting, and technical indicators.

读者对象 Audience

本手册主要适用于以下工程师：

This manual applies to the following engineers:

- 技术支持工程师 Technical support engineer
- 维护工程师 Maintenance engineer
- 市场工程师 Marketing Engineer
- 服务工程师 Service Engineer

修改记录 Revision records

修改记录累积了每次文档更新的说明。

最新版本的文档包含以前所有文档版本的更新内容。

Revision records accumulated each document updated instructions.

The latest version of the document contains all the previous document version updates.

变更记录 Change History

文档版本：HRM8815N-V2.1

2012-12-17 第一次正式发布

The first official release is 2012-12-17

Document version: 1.8815N-V2.1

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1 使用须知 Instructions

- 本手册适用如下型号：

T A 008/S/A

This manual especially writhed for:

- T A 008/S/A
- 使用本机前请务必阅读本使用说明书。

Be sure to read this manual before using the unit.

- 用户必须按照本手册规定的内容执行才可享受到产品正常质保服务。

The user must be in accordance with the regulations manual content
execution can enjoy normal warranty service.

2 声明 Declaration

**RoHS Compliance Declaration of
AC Air Conditioner-8815N series
European Guidelines 2002/95/EC (RoHS)**

Legal regulation for Substances

Dear Sir/Madam

Referring to the European guideline of 2002/95/EC, we confirmed that according to the current status of our knowledge and in accordance with the regulations, we could produce products complying with above mentioned guidelines especially for below type:

TA 008/S/A



Declaration of Conformity

Suzhou Quick Thermal Control Co. Ltd

No.15 xiangpu Rd Suzhou Industrial Park Suzhou China.

Tel.: 0086 512 65335116; // Email: sale@topquickcooling.com

We herewith declare the following products:

Product Name: T A 008/S/A

Product No.:8815N series products is in conformity with the following directives:

98 / 37 / EEC	Machine Directive	EN 292, Machine Safety
73 / 23 / EEC	Low Voltage Directive	EN 60 335-1, Low Voltage
89 / 336 / EEC	EMC-Directive	EN 60 335-2-40, Low Voltage
87 / 404 / EEC	Simple Pressure Vessels	EN 61000-6-1, Immunity
97/23/EEC	The Pressure Equipment Directive, article 3, section 3.	EN 61000-6-4, Emission
	The Pressure Equipment Directive, category 1	
	The Pressure Equipment Directive, category 2	

and was manufactured in conformity with the following harmonised standard:

furthermore manufactured in conformity with the following disharmonised standard:

2002/95/EC	RoHS Directive
2002/96/EC	Waste of Electrical and Electronic Equipment (WEEE)

and furthermore declares that it is not allowed to put the machinery into service until the machinery into which it is to be incorporated or of which it is to be a component has been found and declared to be in conformity with the provisions of above-mentioned Directives and with national implementing legislation i.e. as a whole, including the machinery referred to this declaration.

3 产品概述 Product Overview

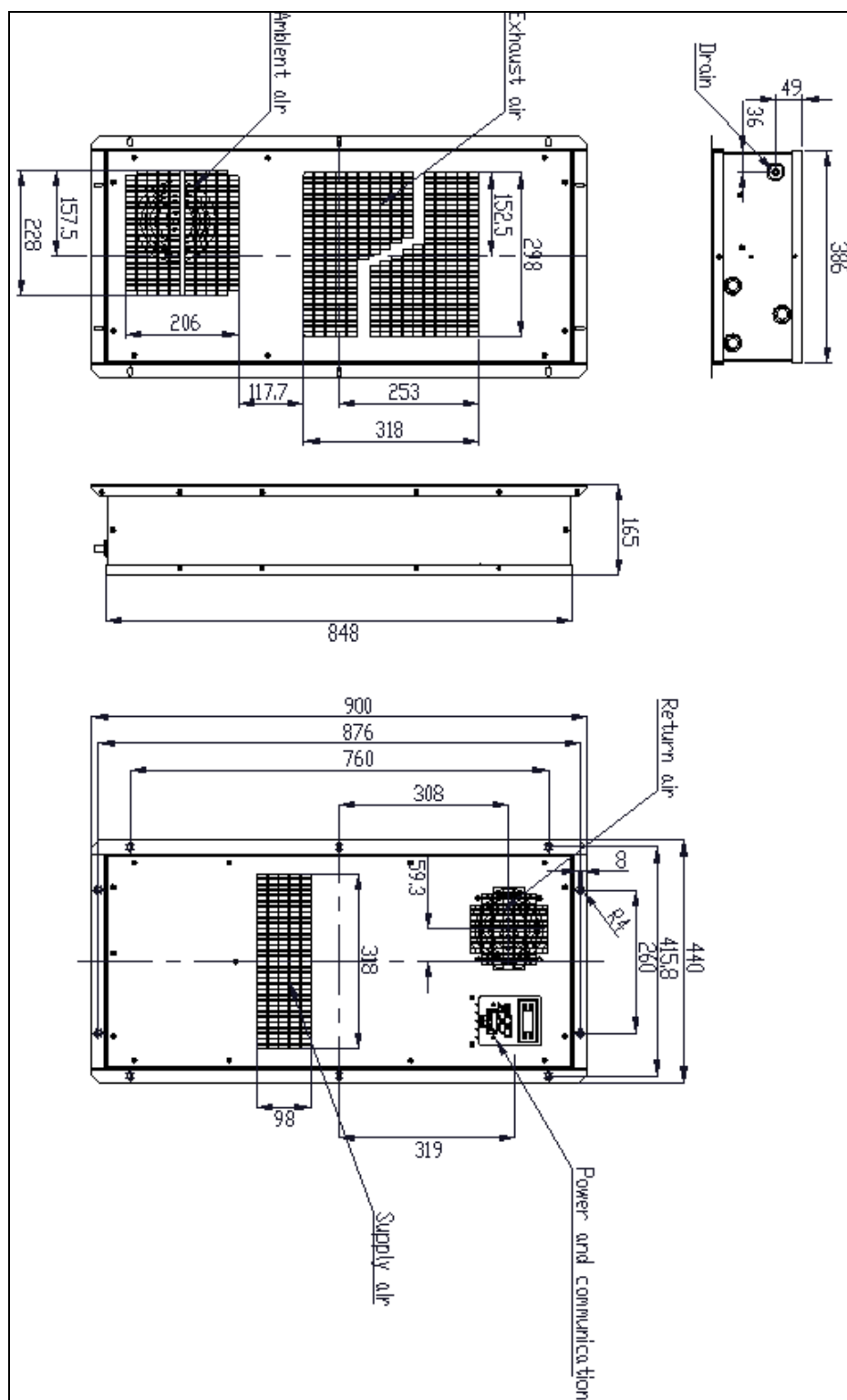
关于本章 About this chapter

本章介绍了 8815N 交流空调的外形、应用场景、产品铭牌、产品特点、产品组成、技术参数、工作原理、风道设计、控制逻辑、通讯协议及用户参数、告警及故障处理信息。请严格按照本手册的相关规定执行！

This chapter describes the shape of the 8815N air conditioner, application scenarios, product nameplates, product features, product composition, technical parameters, the working principle, duct design, control logic, communication protocols and user parameters, alarm and fault processing of information. Please strictly in accordance with the relevant provisions of this manual!

3.1 产品外形 Product appearance

图3-1 产品外形图 Figure3-1Product appearance



3.2 应用场景 Application of science



Important

- 该产品是专为通讯或相关工业设备应用场合而设计的高性能交流型空调器，可用于 AC230V，50Hz/60Hz 的电源供电。其安装的意义在于对控制柜（正常工作时为密闭状态）内部实行温度控制，将柜内温度控制在 20~40℃之间，以保证柜内的所有热敏元件可以正常工作，发挥其最佳工作性能。

The product is designed for communication or related industrial equipment applications and design of high performance AC type air conditioner, Please use the AC230V,50Hz /60Hz power, The installation is the significance of the control cabinet (normal work to a closed state) of internal temperature control, The cabinet temperature control between 20 to 40 degrees Celsius, To ensure that the cabinet all thermal element can work normally, Play the best performance.

- 除以上说明的应用对象以外的其他任何应用场合所造成的任何损害，我方不承担责任。

In addition to any damage caused by any other applications outside of the application object described above, we is not liable.



Warning

- 运输：搬运或运输该产品过程中，请勿翻倒或过度倾斜该产品。

Transport: In the process of handling or transport of the product, do not overturn or excessive tilt of the product.

- 存放：不要露天存放，或者长时间存放在高温、高湿的环境下(70℃,95%)。

Store: Don't open storage, or stored for a long time at high temperature, high humidity environment (70,95%).

- 关机：若长时间不使用该产品，请关掉主电源。

Shutdown: If not using this product for a long time, please turn off the main power



Warning

- 为了更好的使用本产品，请勿在高油污、高腐蚀性环境、含爆炸易燃气体环境使用，否则，将会造成对该产品严重的损害，我们将不会提供正常的售后服务。

Don't use the product under condition of high oli, burning gas, explosive gas, strong corrosivity condition area. Otherwise the product warrantee service is not been offered by manufacture.

- 严禁未成年人、身体或心理存在严重缺陷及不具有相关该产品知识的人员操作该产品。

This appliance is not intended for use by persons(including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for ther safety.

- 严禁儿童玩弄或使用该产品。




Children is forbid to play with or use this product.

- 为了避免风险，请一定使用同一公司或使用同规格的有质量认证的产品。

If the power supply cord is damaged, it must be replaced by the manufacturer, or service agency or similarly qualified person in order to avoid a hazard.

3.3 产品铭牌 Product nameplate

图3-2 产品铭牌 figure3-2 Product nameplate

  Cabinet AC Air Conditioner Code: 8815N Model: TA 008/S/A	SPECIFICATION Power: 230V~(50Hz/60Hz) Cooling Capacity: Rated Condition(35℃/35℃/):800W Cooling Current: Rated Condition(35℃/35℃/):3.5A Max Current:10A Heating Capacity: ----- Heating Current: ----- Ambient Range: T3 Refrigerant: R134a/350g Max Pressure: HP 2.8Mpa/LP 1.6Mpa Noise: 60dB(A) Weight: 27Kg IP Grade: IP55
 XXXXXXXXXXXXX	
Manufacturer Suzhou Quick Thermal Control Technology Co.,Ltd TEL: 0086 512 65335116	
Add: No15 xiangpu Road Suzhou Industrial Park Jiangsu China	

3.4 产品特点 Product features

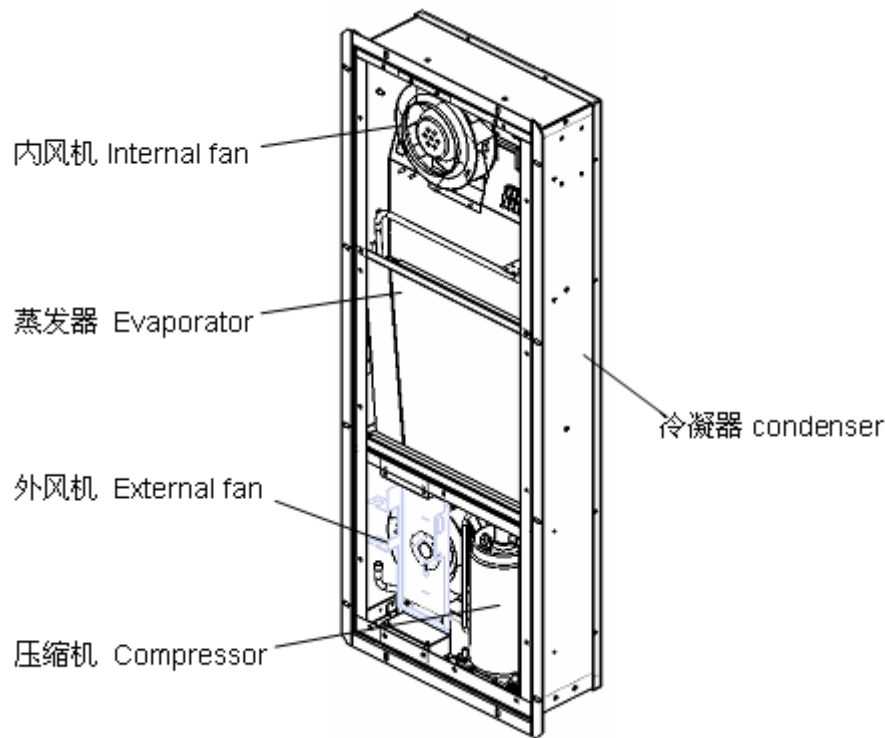
- 低除湿制冷功能 Less dehumidifying comparing traditional aircon
- 适合高温工况 Suitable for high temperature
- R134a 环保制冷剂 R134aEnvironmental protection refrigerant
- 开机自检 Self testing function
- 多重保护 The multiple protection
- 远程监控功能 Remote monitoring
- 报警输出功能 Alarming output to monitoring system

- 维护方便 Easy maintenance

3.5 产品组成 Product composition

空调系统由以下几部分组成 Air conditioner system is composed of the following parts

图3-3 空调组成图 Figure3-3 Air conditioner composition diagram



3.6 技术参数 Technical parameters

空调技术参数参见表 3-1。
Air conditioner technical parameters are listed in Table 3-1.

表3-1 空调技术参数表 table 3-1Technical parameters for air conditioner

性能指标 Performance index	参数值
型号 Mode	QUICK A 008/S/A-AU
额定电压 Rated voltage(V)	230VAC 50/60HZ
额定制冷量 Rated cooling capacity(W)（L35℃/L35℃）	800
额定制冷功率 Rated power（W）（L35℃/L35℃）	460
制冷剂 Refrigerant	R134a/450g
环境温度范围 Ambient temperature range（℃）	-15~55
相对湿度范围 Relative humidity range	5~90%

性能指标 Performance index	参数值
贮存环境范围 Storage of environmental range	<70℃,95%
噪音 Noise (dB/A) (25℃)	60
噪音 Noise (dB/A) (40℃)	65
IP 防护 IP proction	IP55
寿命可靠性 (年) Life reliability(Year)	10
风扇寿命 (内循环 L10/25℃, 外循环 L10/40℃) (小时) Fan life(internal circulation L10/25℃, external circulation L10/40℃(hour)	25000
尺寸 (含法兰) (mm) Dimension	900×440×165

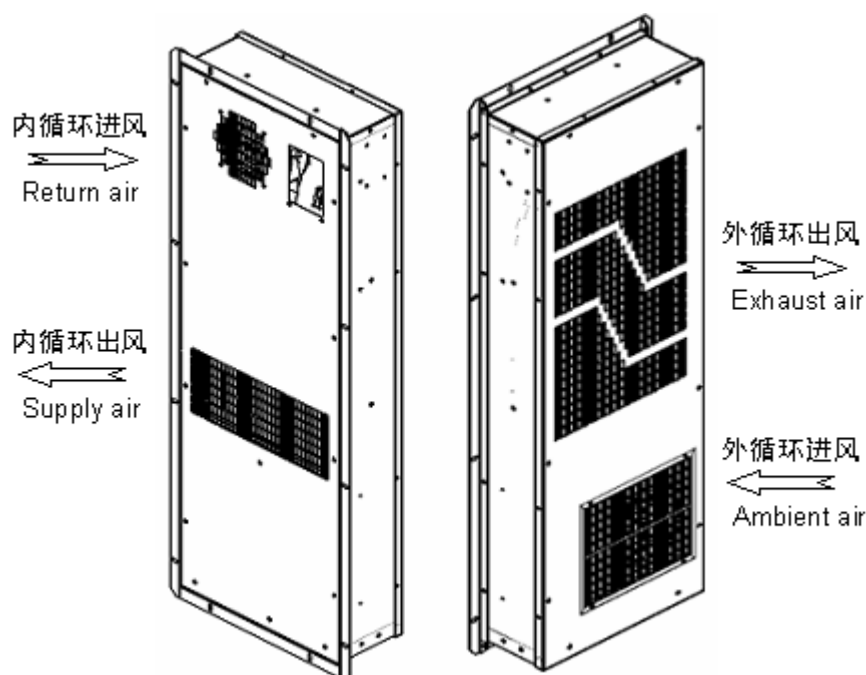
3.7 工作原理 Working Principle

- 本空调采用压缩机制冷。
Air-conditioning using the compressor refrigeration
- 参与制冷的部件主要：压缩机、冷凝器、膨胀阀、蒸发器、内风机、外风机、加热器。
Main parts of the refrigeration: compressor, condenser, expansion valve, an evaporator, internal fan, external fan, heater
- 制冷原理：压缩机抽取从蒸发器过来的低温低压的气态制冷剂并压缩成高温高压的气态制冷剂，流入到冷凝器中，和外界空气进行热交换后由气态的制冷剂冷凝成液态的制冷剂，流经膨胀阀减压进入蒸发器内蒸发，内循环空气流经蒸发器时被蒸发器中的制冷剂吸取了热量变成冷空气。
Principle of refrigeration: Compressor suck refrigerant gas from evaporator, and compressed, the compressed refrigerant gas pushed into condenser to cooled into refrigerant liquid, then pass the expansive valve, the refrigerant into evaporator and evaporate to cool air.

3.8 风道设计 Air duct design

内循环和外循环的风道见图 3-4.
Internal circulation and external circulation of the air duct is shown in Figure3-4.

图3-4 风道设计图 Figure3-4 Air duct design



3.9 工作控制逻辑 Control logic

空调上电后，首先执行自检程序，自检过程中若发现故障，则产生告警，显示器显示告警故障代码，系统按照对应的警进入故障处理方式运转。自检过程中若无故障，则自检结束后按照正常模式运行。

Power on the switch, the product will perform a self-test running program firstly. If there is any trouble during self-test, the alarm will be generated, the monitor Display alarm fault code, the system according to the alarm fault code to enter fault handling operation. If there is no trouble during the self-test, system will be normal running automatically.

- 自检: Self-test

自检过程如下: The self-test procedure is as follows

第一步: 检测系统电压, 格式为 LXXX;

First: Detection system for voltage;

第二步: 运行内风机, 显示器显示内风机电流;

Second: Running internal fan, the monitor display the internal fan current;

第三步: 内风机继续运行, 同时检测回风温度传感器, 显示器显示回风温度数值;

Third: The internal fan is running continue, the monitor display the value of the return air temperature;

第四步: 回风温度探头温度检测结束, 内风机继续运行, 同时运行加热器。显示器显示加热器电流;

The Fourth: The detected of the return air temperature ended. the internal fan is running continue. the heater is running at the same time. The monitor display the value of the heater current

第五步: 加热器检测结束, 内风机继续运行, 同时运行外风机。显示器显示外风机电流;

The Fifth: The detected of the heater current ended. the internal fan is running continue. the external fan is running at the same time. The monitor display the value of the external fan current

第六步：运行压缩机（内外风机继续运行），显示器显示压缩机电流值。

The sixth: the compressor is running (the internal fan and the external fan is running continue), the monitor display the value of the compressor.

- 待机状态 Standby mode



若回风温度低于压缩机启动设定温度，则空调处于待机状态，此时只运行内风机，显示器显示当前回风温度。


If the return air temperature is lower than the default set point of cooling temperature, the air conditioner is in a standby mode. At this time, the internal fan is running only, the monitor display the current return air temperature.

- 制冷运行 Cooling

若回风温度 \geq 压缩机启动设置温度，则空调按照以下步骤进入制冷循环：

If the return air temperature is greater than or equal to the default set point of cooling temperature, the air conditioner is according to the following steps into the refrigeration cycle:



外风机运行，显示器上标志亮。外风机运行 60 秒后，压缩机启动，标志亮。



The external fan is running, the monitor display  symbol. The compressor is running after 60 seconds, the  symbol is bright.

压缩机一旦启动，最小运行时间不小于设定值（默认为 3 分钟）。


If the compressor is running, the minimum running time is less than the set time (default time is 3 minutes).


- 制冷结束 The end of the cooling

若回风温度 \leq 压缩机启动设定温度-压缩机运行回差值，且压缩机持续运行时间 \geq 最小运行时间（默认为 3 分钟），则系统停止制冷。此时压缩机先关闭，熄灭。外风机滞后一段时间再关闭，熄灭。


If the return air temperature is less than or equal to the default set point of cooling temperature subtracts the Compressor return difference, and the compressor running time is more than or equal to the minimum set time (the default time is 3 minutes), then the compressor stopped. The  symbol is extinguished. the external fan stopped after a while, the  symbol extinguished.


- 加热运行 Heating

若回风温度 \leq 加热器设定温度，且从此刻计算，内风机持续运行 1 分钟，则加热器开启，对系统进行加热。此时亮。

If return air temperature is less than or equal heater set point temperature, and the internal fan running last 1 minutes from this time. the heater running to heat the system and the  symbol bright.

- 制热结束 Heating Over

若回风温度 \geq 加热器设定温度+加热器运行回差，则加热停止，熄灭。

If the return air temperature is greater than or equal to the haeter set poit temperature plus the heat temperature difference ,the heater is stopped and the  symbol extinguished.

3.10 用户参数 User parameter

用户参数如下：The user parameters are as follows:

表 3-2 用户参数 table 3-2 user parameter

代码 Code	参数名称 Parameter name	默认值 Default Value	范围 Range	单位 Unit	备注 Remarks
F01	压缩机启动温度 Compressor start temperature	25	20~50	℃	
F02	压缩机运行回差 Compressor return difference	5	2~10	℃	
F17	高温告警温度 High temperature alarm	45	30~70	℃	
F18	低温告警温度 Low temperature alarm	-5	-10~15		
F28	外部告警输入 1 External Alarm input 1	1	0 或 1 0 or 1	/	0: 常开, 1: 常闭 0: Normol oppend 1: Normol closed

3.11 告警与故障管理 Alarm and fault management

显示器正常时显示回风温度值，告警时交替显示回风温度和告警代码，告警代码定义如下表：
The monitor displys return air temperature at nomall, If the alarms, temperature and alarm codes are displayed alternately,the alarm code as follows:

表 3-3 告警代码 table 3-3 alarm code

告警代码 Alarm code	含义 Signification	备注 Remarks
E01	回风温度传感器故障 Thermal sensor alarm	

E05	压缩机欠流故障 Compressor current is too low	
E06	压缩机过载故障 Compressor over-current	
E09	内风机告警 Internal fan alarm	
E10	外风机告警 External fan alarm	
E13	高温告警 High temperature alarm	
E14	低温告警 Low temperature alarm	
E17	电源电压超限告警 Supply voltage overload	

注:

1、外部告警输入 1 发生故障时，显示器交替显示回风温度值和“—— ——”

Attention: External alarm input 1 fault, Display alternately shows the return air temperature values and "-- -- "

2、高温告警、低温告警、电源电压告警发生时，只在显示器上显示故障信息，不输出干接点信号。

High temperature alarm、Low temperature alarm、Supply voltage overload alarm occurs,dispal shows the alarm information , No dry contacts alarm information output.

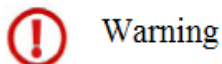
4 包装与运输 Packing and shipping

- 空调采用木箱包装，分(1-4)台/箱包装。内部配有 EPE 保护垫。附件等资料也放置于包装箱内（请参考表 5-1 装箱清单）

Air conditioner packed in wooden cases(1 to 4pcs/box) with EPE protection pad. the package includes Annex.(Please refer to table 5-1 packing List)

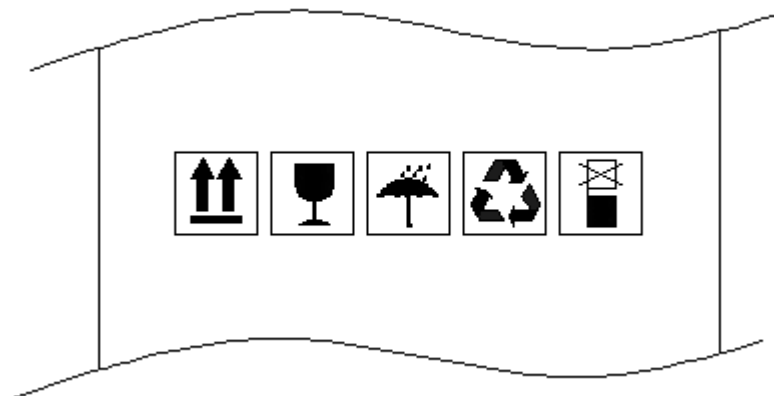
- 空调在运输时请注意以下事项：

The air conditioner during the transportation, please pay attention to the following matters



Warning

图 4-1 包装箱标识 figure4-1 Packing mark



- 搬运或者运输过程中空调必须按朝上放置。严禁倒置、平放、过度倾斜及碰撞。
During Handling or transport, Air conditioner must be upward placed as.  No inverted, flat, excessive tilt and collision.
- 空调为精密仪器，在搬运或者运输过程中，应小心轻放，包装箱上禁止踩踏，禁止站立或放置其他重物。
Air conditioner is precision instrument, in handling or transport process, should be handled with care, package boxes do not step, prohibit standing or placing other heavy objects.
- 搬运或运输过程中，注意防潮、防水、防雨。
During Handling or transport, pay attention to moisture, water, rain.

5 开箱与验收 Unpacking and Acceptance



Warning

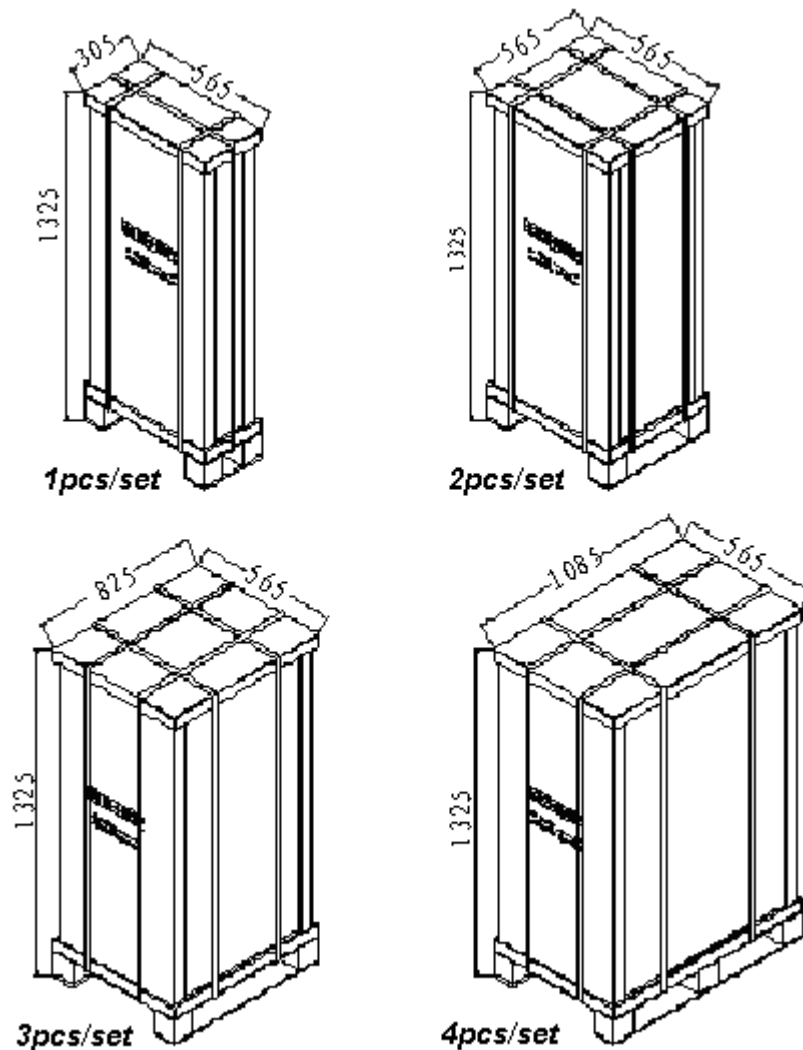
- 开箱前请注意外包装箱按照图 5-1 所示直立放置，请检查打包带是否断裂、木箱是否破损、变形、潮湿。

Make sure the package upright as shown in Figure 5-1 before you open the package, Please check the packing belt is broken, the wooden box is damaged, deformed, wet.

- 使用剪刀或者小刀拆除打包带，将包装木箱拆除。

Use scissors or a knife dismantling packing belt, then open the wooden box.

图 5-1 包装 figure 5-1 packaging



- 打开包装后，请按照装箱清单核对产品

After opening the package, please check the products according to the packing list.

表 5-1 装箱清单 Table 5-1 Packing list

序号 Serial number	名称 Name	型号/规格 Model / Specification	数量 Number
1	空调器 Air Condition	QUICK A 025/S/A-AU	1pcs
2	用户手册 Usermanual	HRM8814M-V2.1	1pcs
3	合格证 Certificate	8814M 合格证	1pcs
4	水管 Water tube	硅胶软管，10*14 Silicone hose	1pcs
6	电源线 Power line	UL1015 16AWG	1pcs
7	告警线 Alarm line	UL1015 20AWG	1pcs
8	通讯线 Communication line	2.5m	1pcs

注：表 4-1 装箱清单中的数量是针对 1 台空调/包装箱的数量。

若是 2 台/包装箱的空调，则各数量为 2pcs.

若是 3 台/包装箱的空调，则各数量为 3pcs.

若是 4 台/包装箱的空调，则各数量为 4pcs.

电源线、告警线、通讯线为选配附件

Attention: The number in table 4-1 is for 1 pcs air conditioner only.

For the 2 pcs air conditioner ,the number is 2pcs

For the 3 pcs air conditioner ,the number is 3pcs

For the 4 pcs air conditioner ,the number is 4pcs

Power line,Alarm line,Communication line for optional accessories

6 安装 Installation

关于本章 About this chapter

介绍空调的结构件安装与接线

Air conditioner installation and wiring

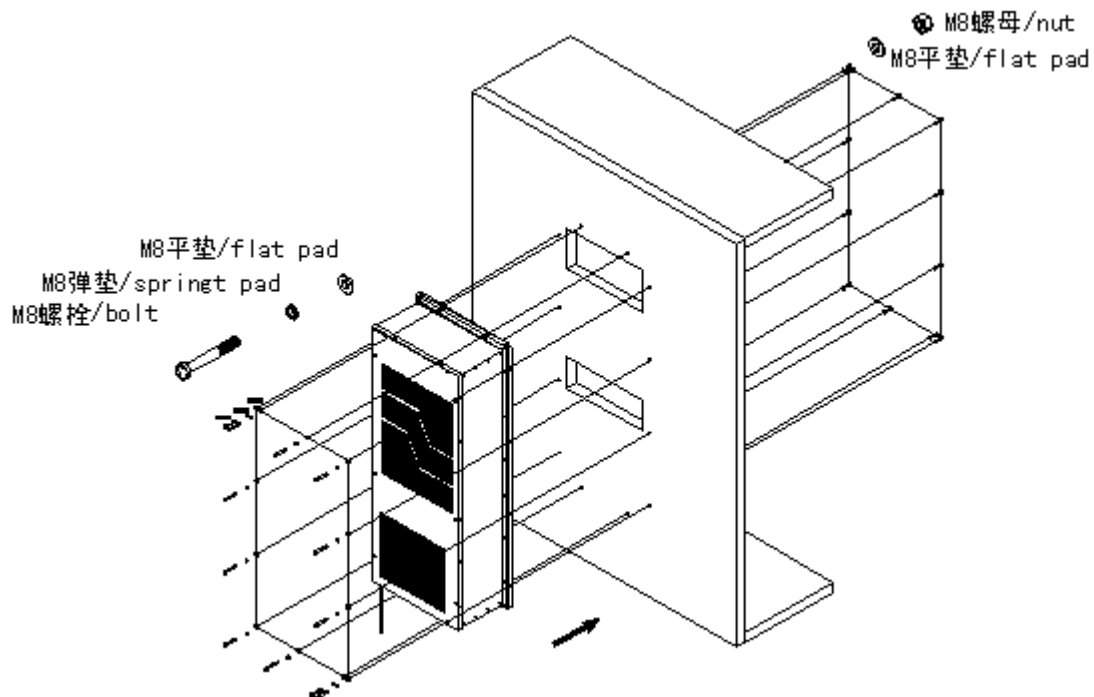
6.1 结构安装 Structure installation

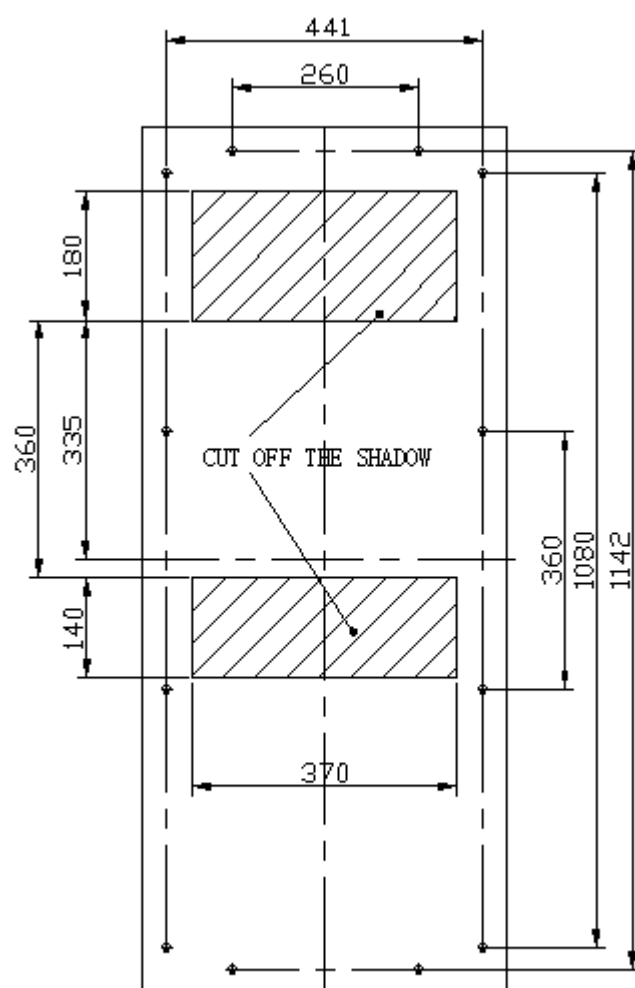
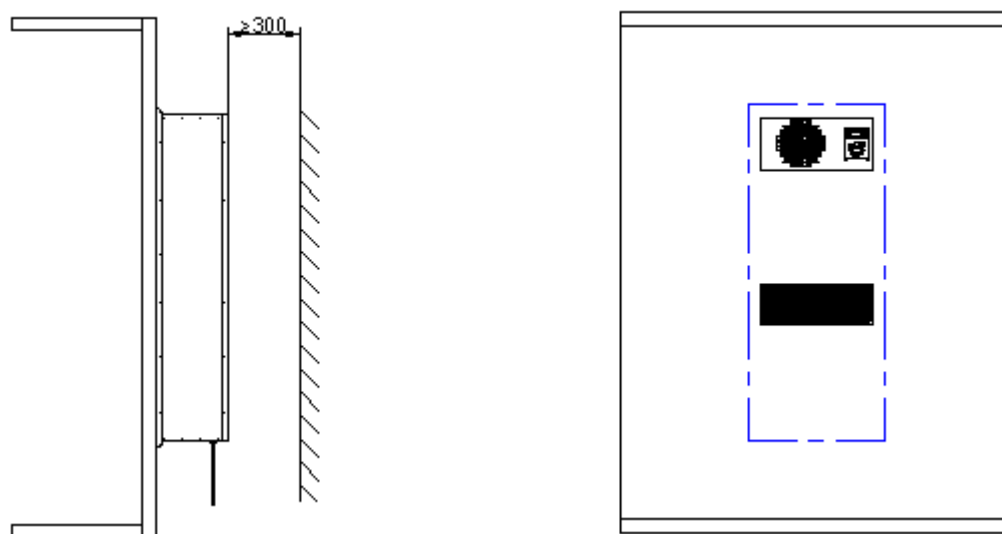
- 选择安装方式/selesct an installation method:

HRU 系列通讯机柜空调器可以适合多种安装方式（侧装、门装或半嵌入安装），用户最好在订购产品前根据机柜的设计方式选择一种安装方式。

HRU series telecom cabinet air conditioner can suit for multi-mounting (side mounted, door mounted and half embedded mounted on cabinet), It is very necessary for user to make a choice in advance to decide which mount way to apply according to the cabinet design. And clarify it on purchase order.

安装方式:Installation:





- 安装步骤: Installation steps:

- 1) 在机柜上画出安装开孔图;

Draw on the cabinet mounting cut-out map according to Figure 5-2;

- 2) 将阴影部分切割掉;

Cut off the shadow part;

- 3) 拆除空调外包装;

Removal of packaging box

- 4) 使用 M8 螺栓, 依次穿上 M8 弹垫和 M8 平垫, 将空调按图 5-1 安装在机柜上;

Installed the air conditioning on the cabinet use M8 screw ,flat pad,spring pad,as figure5-1

- 5) 连接产品底部的排水管, 以排出该产品运行时产生的冷凝水(排水软管作为附件提供)。

Connect drain pipe in the bottom of the unit to drainage system (to outside of shelter) , the drainage pipe and pipe clip provided as accessories

- 6) 安装外罩以保护产品或机柜免受雨水进入 (该外罩非标配件, 需要用户自行制作)。

Mount the out cover to the shelter---only side and half embeded needed. (the purpose of the out cover is prevent rain penetrate into the product also protection the product access from external side).

!! Note: the out cover is not a standard part of product, normally it is provided by an engineering company who install the product.

- 7) 以上安装步骤完成后, 请再次确认检查。

The mechanical part of installation is finished till now. please double check.



Important

- 安装确认检验项 Double check lists

- 1) 请勿在高油污、易燃气体、高腐蚀性及环境温度超过 55℃、湿度超过 95%的环境下使用该产品。

Don't apply this unit in high oli, burning gas, explosive gas, strong corrosivity condition, the ambient air must be under 55℃, and the humidity not higher than 95%.

- 2) 确保产品安装后倾斜度不大于 3°。

Make sure that the lean of the product nor more than 3°.

- 3) 确保机柜密封良好以免漏入空气产生不必要的冷量损失和产生过多的冷凝水。

Make sure that the cabinet should be sealed well to avoid the cooling losing and avoid ambient moisture penetrate into cabinet, this will avoid produce more condensate water.

- 4) 产品安装固定结束后, 确保产品直立 30 分钟后再加电运行。

Don't power on the unit immediately after finish the installation until the uint keep up stand for more than 30 min.

6.2 线缆 Cable

- 空调配有电源线、告警线、通讯线（选配附件）

Air conditioner with power lines、alarm lines and communication lines each one As an optional accessories;

图 6-3 告警线 Figure 6-3 Alarm line

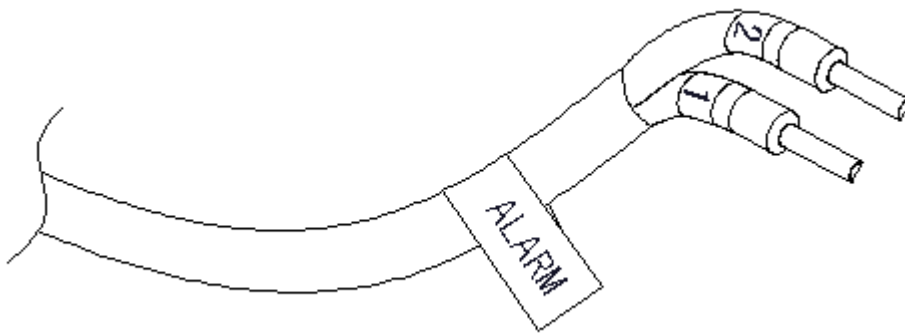


图 6-4 电源线 Figure 6-4 Power line

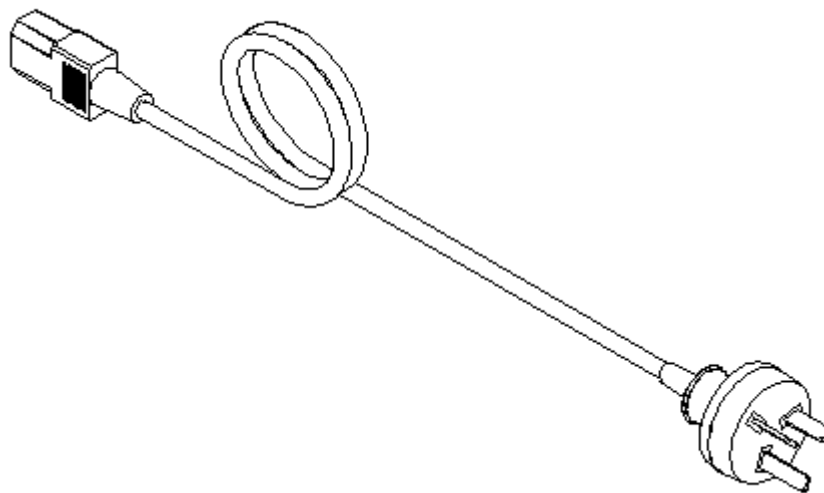
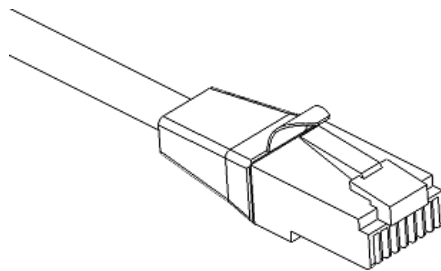


图 6-5 通讯线 Figure 6-5 Communication line



6.3 电气接线安装 Electrical wiring installation

图 6-6 空调接口界面 Figure 6-6 Air-conditioning Interface

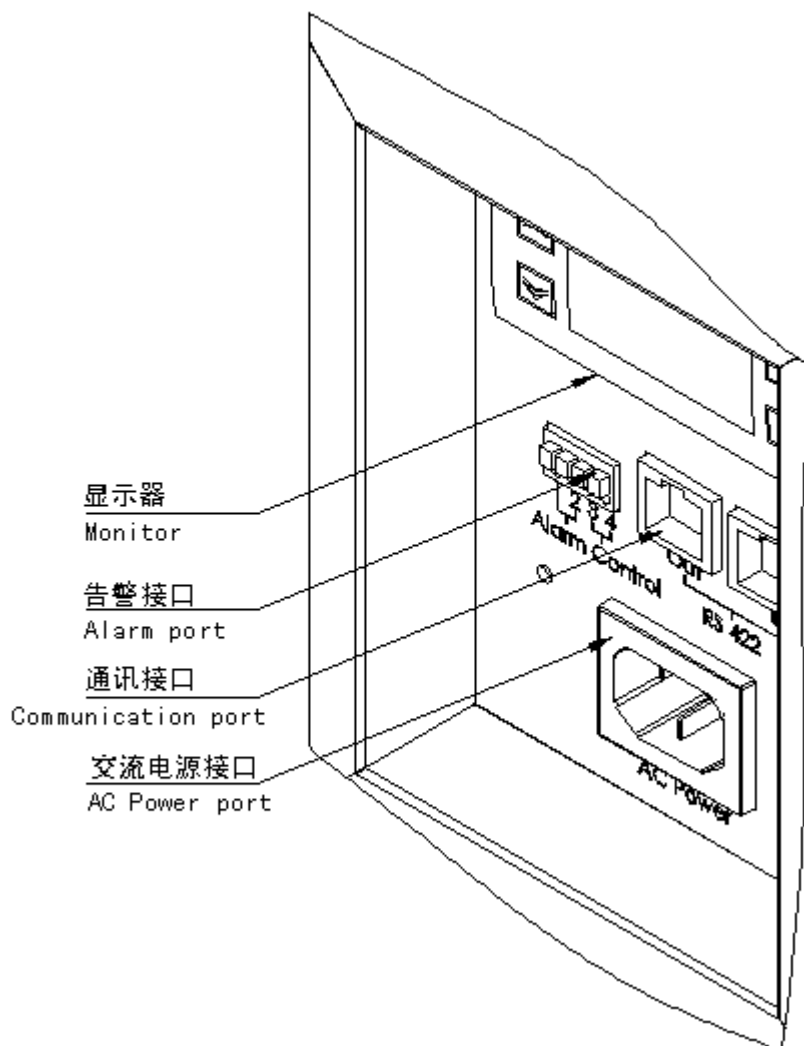
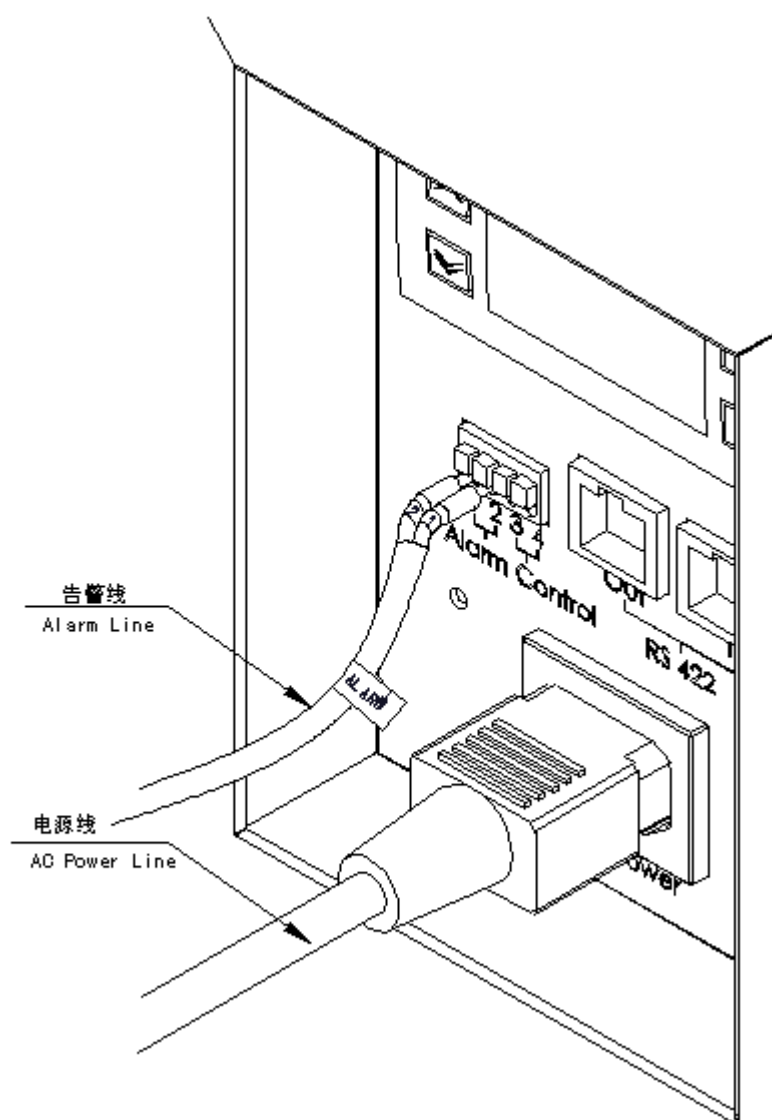
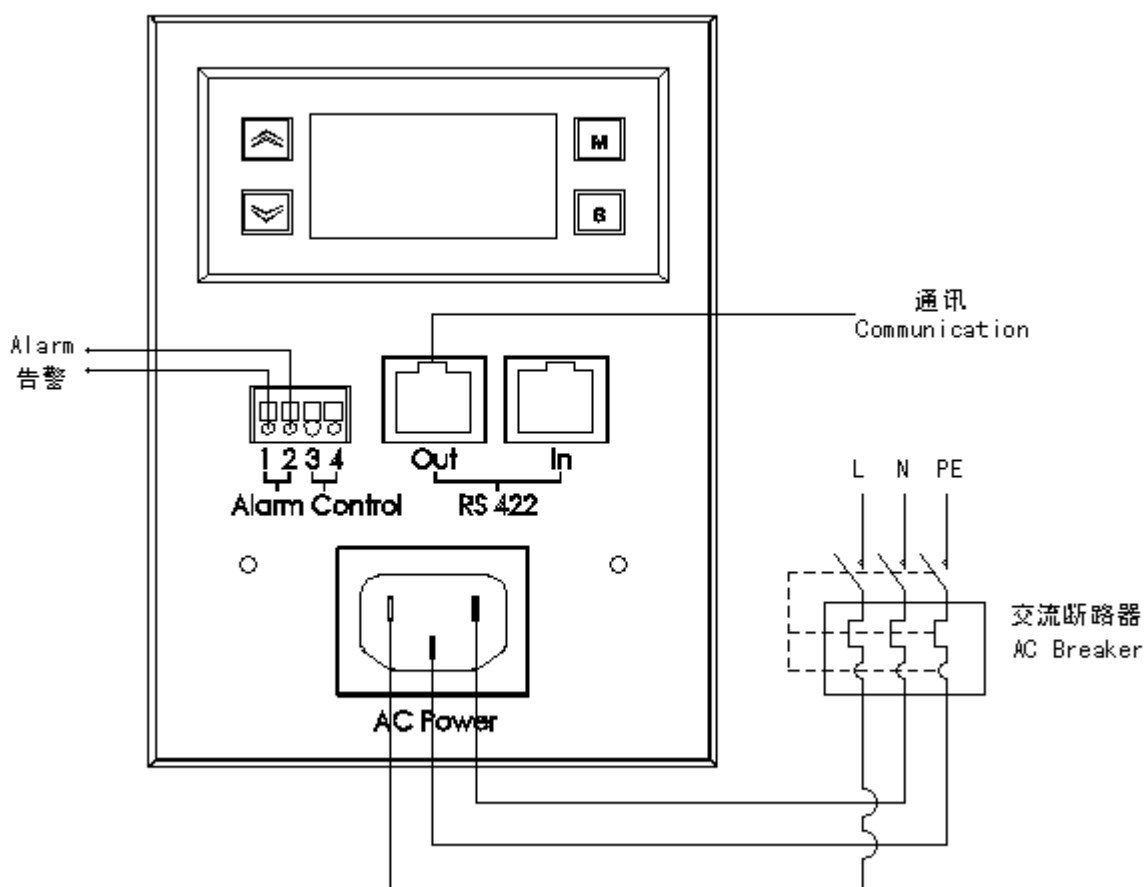


图 6-7 空调接线示意图 Figure 6-7 Air conditioner wiring diagram



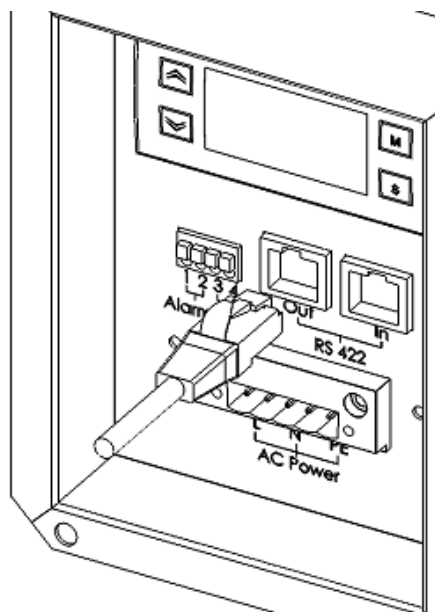


6.4 通讯连接 Communication line connection

- RS 422 通讯连接 RS 422 communication connection

如下图所示，将通讯线的端子直接插在通讯接口“OUT”处/ As shown below, the communication line terminal is directly inserted in the communication interface "OUT"

图 6-8 通讯连接示意图 Communication connection

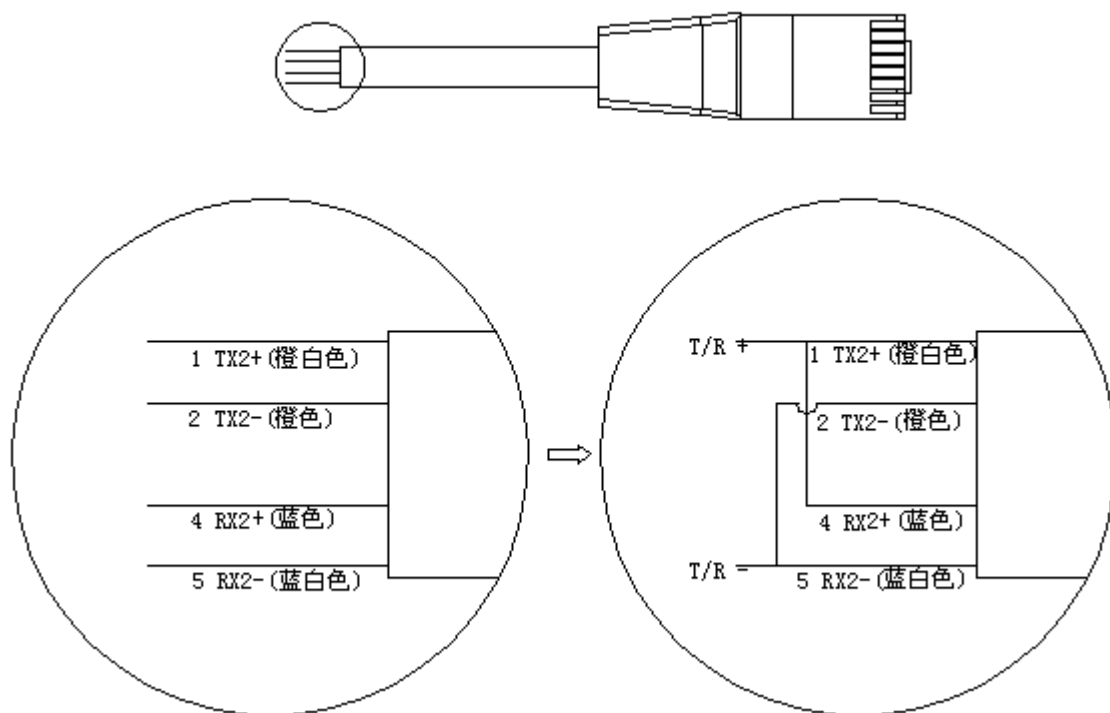


- RS485 通讯连接 RS 485 communication connedtion

将附件中的通讯线按照下图连接之后，再将通讯线的端子插在通讯接口处：

The attachment of the communication line according to the connection, then the communication line terminal is inserted in the communication interface:

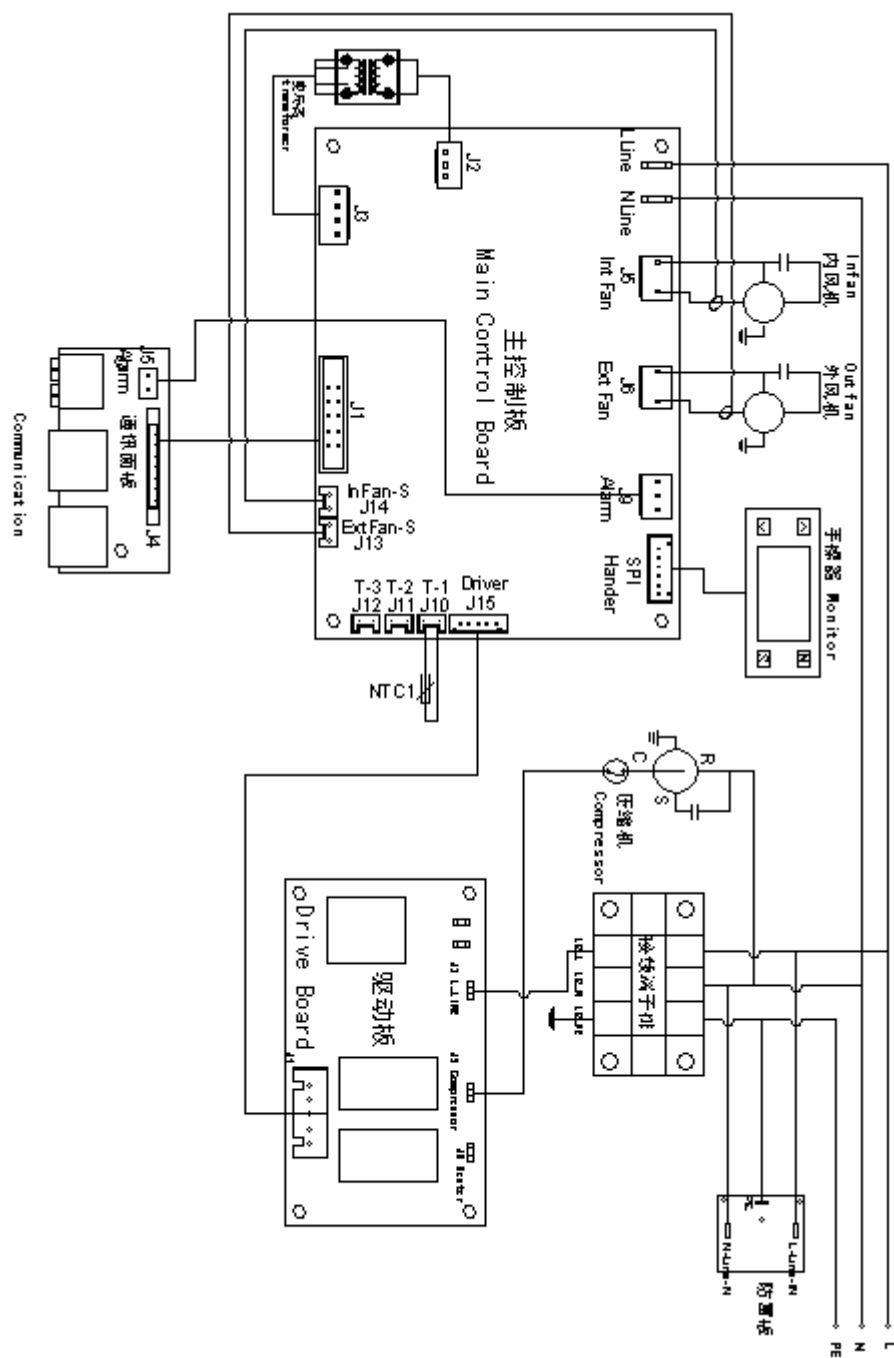
图 6-9 通讯连接示意图 Communication connection



如上图所示，将带标签“TX2+ ”的线和带标签“RX2+ ”的线短接在一起作为“T/R+”线。将带标签“TX2- ”的线和带标签“RX2- ”的线短接在一起作为“T/R-”线，然后作为 RS485 通讯线。

As shown above, The line labeled "TX2+ " and The line labeled "RX2+ " are shorted together as "T/R+ " line ; The line labeled "TX2- " and The line labeled "RX2- " are shorted together as "T/R- " line ;then the "T/R+ " line and "T/R- " line can be connected as RS485 communication line.

图 6-10 空调控制板接线图 Figure6-10 Air conditioner system wiring diagram



7 上电与检验 Running and Test

关于本章 About this chapter

介绍空调的上电与检验。

Introduce the ari conditioning running and test

7.1 上电前检查 Pre-operational checks

空调的安装和电气连接完成后，请核对下列检查表：

After Air conditioner installation and the electrical connection is completed, please check the following checklist:

表 7-1 空调上电前检查表 Table7-1 Pre-operational checks

序号 Serial number	检查项目 Check items
1	装配螺钉已经紧固。 Ensure the screw is fastening
2	内外循环的进出风口附近无明显的阻挡物。 Ensure that there is enough space near the internal and external of the air condition
3	电源线极性连接正确，告警信号线缆连接正确。 Power line to connect the right polarity Alarm signal cables are connected correctly
4	用万用表检查供电电压，供电电压正常，符合铭牌上的要求。 Using a multimeter to check the supply voltage, power supply voltage is normal, consistent with the requirements on the nameplate.

7.2 开机运行 Running

空调上电后，首先执行自检程序。自检运行通过后进入正常运行状态。

Power on the switch, the product will perform a self-test running program firstly, and then the unit will run normally.

- 自检：系统上电后首先执行自检程序，自检过程请参考“3.9 工作控制逻辑”。

自检过程中若发现故障，则产生告警，显示器显示告警故障代码，系统按照对应的警进入故障处理方式运转。

自检过程中如无故障，则自检结束后按照正常模式运行。

Self-test: Power on the switch, the product will perform a self-test running program firstly. The self-test process can refer to "3.9 Control logic"

If there is any trouble during self-test, the alarm will be generated, the monitor Display alarm fault code, the system according to the alarm fault code to enter fault handling operation.

If there is no trouble during the self-test, system will be normal running automatically.

- 正常模式：包括待机运行、制冷运行，加热运行，详细内容请参考“3.9 工作控制逻辑”。

Normal mode: include standby operation, cooling, heating. The Details can refer to "3.9 Control logic"

Warning

空调上电运行过程中，若发生异常噪音、震动，请立即切断电源，并通知专业人士进行检查。

When the air conditioner is running, if there is abnormal noise, vibration, please cut off power immediately and notify the professionals to inspect.

7.3 显示器操作 Monitor Operation

显示器界面如下：The interface of the monitor is as follows:

图 7-1 显示器操作界面 Figure 7-1 Interface of the monitor





面板上的指示灯从左到右排列的功能含义如下表：

The definition of the symbols from left to right are as follows:

表 7-2 面板指示灯含义 Table 7-2 Definition of the symbols

指示灯 Indicator	指示灯含义 Definition	亮 Light	闪烁 Flicker
	设定温度 Point setting	正在温度设置状态 Under setting	自检 Self test

	制冷 Cooling	正在制冷 Cooling running	压缩机告警 Compressor anarm
	外风机 External fan	外风机运转 Extrenal fan running	外风机告警 External fan Alarm
	除湿 Desiccant	NA	NA
	告警 Alarm	告警发生 Alarm Occurs	NA

- 参数设置：Parameter setting

长按“M”键 5 秒，进入参数设置状态，显示参数代码，用“▲▼”键选择参数代码，选择一个代码后按“Set”键则显示该代码对应的参数值，这时再用“▲▼”键即可对参数值进行设置（按住“▲”或“▼”键不放可连发），设置完成后再按“Set”键，回到显示参数代码状态。在显示参数时按“M”键可退出参数设置状态，在设置参数值过程中按“M”键表示放弃，退出但不改变参数值。

Long press "M" key for 5 seconds, enter the parameter setting mode, then display the code of parameters, with "▲▼" key to select the code of parameters, select a code and press "Set" button will display corresponding parameter values of the code, then re-use "▲▼" button can set the parameters, after finished the setting, press "Set" button, back to display states. During the setting mode, Press "M" key to exit the parameter setting mode, in the process of the parameter values setting by pressing "M" button that give up, quit, but does not change the parameter value.

- 电流查询：Current query

在主显示界面，按一次“▼”键，将显示内风机的当前运行电流，再按一次“▼”键，显示外风机电流、再按一次“▼”键或按一次“M”键返回到显示回风温度的主界面。

Under the return air temperature interface, press "▼" once will show internal fan current, press again, the monitor will show external fan current, press the third time or press "M", the monitor will return the main interface.

在主显示界面，同时按住“▼”键和“▲”键，将显示当前压缩机或加热器的电流值。按一次“M”键，返回到显示回风温度的主界面。

Under the main interface, press both "▼" and "▲" button will show the compressor or the heater current. Press "M" to return the main interface.

- 交流电输入电压查询：Voltage query

在主显示界面，按“set”键，将显示当前交流输入电压值，单位 V。按一次“M”键，返回到显示回风温度的主界面。

Under the main interface, press "set" button will show the voltage, the unit is V. Press "M" to return the main interface.

8 产品维护和质保 Maintenance and Warranty

关于本章

本章介绍空调的维护和质保

This chapter introduce maintenance and warranty

8.1 产品维护 Product maintance

8.1.1 准备工具：Prepare tools

表 8-1 维护工具 Table 8-1 Maintance Tools

序号 Number	工具 Tools
1	万用表 Multimeter
2	十字螺丝刀 Phillips screwdriver
3	一字螺丝刀 Slotted screwdriver

8.1.2 日常维护 Routine maintenance

为确保制冷系统良好运行、排水顺畅及电气系统安全稳定，维持设备正常运行与良好性能，避免因维护不当导致设备寿命缩短、运行品质下降，请严格按照以下事项进行

Purpose: To ensure the proper operation of the refrigeration system, smooth drainage, and the safety and stability of the electrical system, maintain the normal operation and good performance of the equipment, and avoid shortened equipment service life and reduced operational quality due to improper maintenance, please strictly follow the following items as specified

1 冷凝器清洗/Condenser clearance

为了确保制冷系统良好的运行，请每年清洗一次冷凝器（如果环境比较脏建议增加清洗次数），本产品内外循环间防护等级高达 IP55，可直接用水或压缩空气对冷凝器进行清洗。

To assure the cooling system running perfectly, the condenser should be cleared once annually (if it is too dirty, the times can be increased), this unit IP grade is IP55, so can clear the condenser with water directly.

2 排水检查并疏通/Drainage inspection and dredging

为排水顺畅，需不定期检查排水孔是否堵塞并疏通。

To ensure smooth drainage, it is necessary to check the drainage holes regularly for blockages and dredge them.

3 电气系统检查/Electrical system check

检查供电系统电压、电缆线及通讯线是否良好。

检查产品本身运行是否正常。

检查产品制冷效果是否良好。

至少每年检查 2 次。

Check the power supply and communication cable.

Check the unit running perfectly or not.

Check the cooling performance good or not.

Check the air conditioner at least 2 times every year.

4 注意/Maintance attention

不要用有机溶剂清洗本产品。

检修时请注意关闭电源。

若外风机风叶上积满了灰尘，可用毛刷清除。

长时间不使用本产品时，请关闭电源。

安装螺丝牢固。用螺丝刀拧动空调的安装螺丝，观察是否有松动现象，若有松动现象，则拧紧螺丝。

Don't clear air conditioner with organic solvent.

PLS power off it before carry out maintains.

The external side fan can be cleaned with a brush if dust accumulated on fan blades.

Please power off the unit before long time stop running.

Screw firmly. Use screwdriver to screw the screws and watch whether the screw is loosening. If the screw is loosening, please tighten it. Establish a systematic maintenance ledger to achieve preventive maintenance.

5 维护记录与数据分析/Data Record

建立系统化维护台账，实现预防性维护。

Establish a systematic maintenance ledger to achieve preventive maintenance.

8.1.3 告警代码及处理方法 Alarm code and Processing method

表 8-3 故障信息 Table 8-3 Alam information

代码 Code	故障名称 Code Name	故障机制 Principle	故障处理方法 Process Method
E01	回风温度传感器故障 Return air temperature sensor alarm	回风温度传感器短路或断路 Return air temperature sensor is short circuit or open circuit	检查回风温度传感器是否有 断路或者短路现象。 Check whether the return air temperature sensor is short circuit or open circuit.

E03	压缩机欠流故障 Compressor current is too low	压缩机电流值不在正常范围内 Compressor current is not within normal range	1、检查压缩机线和压缩机的连接是否松动。 Check whether the compressor line is lossening 2、压缩机本身故障，请联系专业人士维护。 Compressor fault,please contact professional maintenance.
E04	压缩机过载故障 Compressor over-current	压缩机电流值不在正常范围 Compressor current is not within normal range	1、检查冷凝器是否堵塞 Check whether the condenser is dirty block. 2、压缩机本身故障，请联系专业人士维护。 Compressor fault,please contact professional maintenance.
E07	内风机告警 Internal fan alarm	内风机电流不在正常范围内 Internal fan current is not within normal range.	1、检查内风机线和内风机的连接是否脱落或松动 Check Whether the internal fan line is lossening. 2、检查内风机电流互感器和 PCB 连接处是否脱落或松动。 Check Whether the

E08	外风机告警 External fan alarm	外风机电流不在正常范围内 External fan current is not within normal range.	1、检查外风机线和外风机的连接是否脱落或松动 Check Whether the external fan line is lossening. 2、检查外风机电流互感器和 PCB 连接处是否脱落或松动。 Check Whether the external fan current
E11	高温告警 High temperature alarm	机柜内温度高于设定值 The cabinet temperature is higher than the set point.	打开机柜门散热，直到告警消除。 Open the cabinet dorr until the alarm stop.
E13	电源电压超限告警 Supply voltage overload	电源电压不在正常范围内 Compressor current is not within normal range.	立即断掉空调输入电源，用万用表测量供电电压，直到供电电压在合理范围内，才能再次运行空调。 Turn off the power supply immediately.Use multimeter measure the voltage,power on the switch until the power supply within the normal range

8.1.4 其他故障分析与处理 Other fault analysis and processing

表 8-4 其他故障分析与处理 Table 8-4 other fault analysis and processing

故障状态 Fault state	原因分析 Analysis of the reasons	故障排除方法 Solutions
---------------------	---------------------------------	---------------------

<p>电源接通后，柜内温度过高，但空调不运转</p> <p>Power on the switch ,the cabinet temperature is too high but the air conditioner is not working</p>	<p>1、停电或无电源。 Power failure or no power</p> <p>2、设定温度高于柜内温度。 The cooling set temperature is higher than the cabinet temperature</p> <p>3、系统故障。 System fault</p>	<p>1、检查电源、电路。 Check the power supply and the electric circuit</p> <p>2、根据需要设定压缩机启动温度。 Setting cooling temperature according to the needs</p> <p>3、请与专业维修人员联系 Please contact professional maintenance.</p>
<p>设备正常运转，但制冷效果不理想</p> <p>The air conditioner is running but the cooling effect is not good</p>	<p>1、该机型制冷能力与负荷不匹配。 The cooling capacity of the air conditioner is not match with the load.</p> <p>2、环境温度过高。 The ambience temperature is too high</p> <p>3、其他系统故障。 Other system fault</p>	<p>1、根据负荷大小重新选配或增配制冷设备。 To add or choose another air conditioner according to the load.</p> <p>2、请确保机器工作环境温度在正常使用范围内。 Ensure the machine is used in the correct range.</p> <p>3、请与专业维修人员联系 Please contact professional maintenance.</p>
<p>正常运转中。突然停止制冷，且电器系统无故障。</p> <p>The machine is stopping suddenly ,and the electric system is normal</p>	<p>1、柜内温度已达到设定温度。 The cabinet temperature greater than or equal to the cooling set temperature.</p> <p>2、其他系统故障 Other system fault</p>	<p>1、根据需要设定压缩机启动温度。 Setting cooling temperature according to the needs</p> <p>2、请与专业维修人员联系 Please contact professional maintenance.</p>

8.1.5 空调备件列表 Spare parts list

表 8-5 空调备件列表 Table 8-5 Spare parts list

序号 Serial NUM.	名称 Name	型号 Mode	数量 Num.
1	内风机 internalfan	220 交流风机/220 AC FAN	1
2	外风机 externalfan	225 交流风机/225 AC FAN	1
3	主控板 main control board	AC Control V2.0	1
5	显示板 monitor board	AC Pannel V2.0	1

8.2 售后服务和维修 Service and repair

- 保修期 Warranty period

产品质保 12 个月（从产品开始运行时起），或最大 18 个月（从产品发货日时起）。

The product guarantee period is **12 months** from product up-running time or Max. **18 month** from product delivery date.

- 质保范围 Warranty coverage

本产品在本保修期内，凡属于产品本身质量问题而导致故障的，本公司将为您免费维修，客户报修时需提供产品标号。但是由以下任何原因造成的故障不属于我司的保修范围。

- 1) 已超过保修期的；
- 2) 不能提供产品出厂编号的（见机身贴示的铭牌）；
- 3) 由于在异常条件或环境中运行，或者用非本使用说明书中指定的不恰当安装方式安装、维护或操作导致的故障；
- 4) 非本设备造成的故障，比如由用户的设备、用户的软件等造成的故障；
- 5) 用户自行更换或拆装产品零部件造成损坏的，或由非授权维修服务者拆修而造成损坏的；
- 6) 诸如火灾、地震、洪水等不可抗力而造成损坏的故障。

During the warranty period, all belong to the product itself quality problems caused by fault, the company will be free for you to repair, Household repair is required to provide the product label. But by any of the following causes the failure does not belong to our warranty.

- 1) Out of the Warranty period
- 2) Can not provide the product label(the product lable is on the nameplate);
- 3) Because of the abnormal condition or environment ,or the instructions specified in the inappropriate installation installation, maintenance or operation causes the fault;
- 4) Not caused by equipment failure,caused by user`s other equipment or software.
- 5) User changed or disassemble by theirself,or maintanced by the person without authorization.
- 6) Caused by force majeure such as fires, earthquakes, floods and other damage to the fault.

- 免责声明 Disclaimer

我司的保修仅限于已发送的产品。我司对可能由设备故障衍生的任何损失不负责任。

The warranty is limited to the delivered products.

Division I is irresponsible for any loss that may be derived by equipment failure.



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