P/N: 20718832GE6-A

# 空调热交换一体机

# Combined Unit of A/C with HEX

## 使用说明书

## User Manual

在产品安装使用前请仔细阅读本手册！

Read this manual carefully before installation and using!

# 前　言 Foreword

## 概述　Summary

该手册介绍 8832G 空调热交换一体机的使用须知、声明、产品概述、安装指导以及产品维护和质保。

The manual describes 8832G combined Unit of A/C with HEX instructions, declaration, product overview, installation guide, maintenance and warranty.

## 变更记录 Change History

| 版本 //Version | 文件历史 // Change History | Draft By// 起草 | Approved By // 批准 | 日期 // Date |
|---|---|---|---|---|
| A | 创建 // Created | | | 2019-7-30 |
| B | 更新维保内容// Update maintenance content | | | 2025-9-4 |
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# 目　录 Catalog

# 1 使用须知 Instructions

- 本手册适用于：TAE/A 020/080/H10 空热一体机
  This manual is for: TAE/A 020/080/H10combined Unit of A/C with HEX
- 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.
  Only when the user operate the unit in accordance with the user manual in warranty period Can offer maintenance with free of charge.

# 2 声明 Declaration

# RoHS Compliance Declaration of Combined Unit of A/C with HEX

**European Guidelines 2011/65/EU (RoHS)**

Legal regulation for Substances

Dear Sir/Madam,

Referring to the European guideline of 2011/65/EU, 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:

☒ TAE/A 020/080/H10

Yours sincerely,

Engineering Department

# Declaration of Conformity

We herewith declare the following products:

Product Name:  TAE/A 020/080/H10 products

series products is in conformity with the following directives:

| | | |
|---|---|---|
| 2006/ 42 / EC | Machine Directive | EN ISO 12100, Machine Safety |
| 2006 / 95 / EC | Low Voltage Directive | EN 60 335-1:2012, Voltage |
| 2004 / 108 / EC | EMC-Directive | EN 60 335-2-40：2012 Safety |
| 2009/ 105 / EC | Simple Pressure Vessels | EN 61000-6-1:2007, 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:

| | |
|---|---|
| 2011/65/EU | 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 TAE/A 020/080/H10 空调热交换一体机的应用、产品特点、工作原理、风道设计、运行逻辑、显示屏操作指导以及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 HRUC AE 020/080/N/E/A/H10 combined Unit of A/C with HEX application, product features, the working principle, air flow design, operation logic, monitor operation guide and alarm and fault processing of information. It is required to strictly operate the unit according to this user manual.

# 3.1 应用 Application

## 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空调热交换一体机，使用交流电源和直流电源同时供电（请参考产品铭牌）。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 20～45℃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 Combined Unit of A/C with HEX , Please use the AC and DC power（Please refer to the nameplate）, 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 45 degrees Celsius, To ensure that the cabinet all thermal element can work normally, Play the best performance.
- 除以上说明的应用场合以外的其他任何场合使用所造成的任何损害，我方不承担责任。

  Any damage caused by any other applications outside of the application object described above, Responsibility is not assumed.

## 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%RH)。

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

- 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 their safety.
- 为了避免风险，电源线请务必使用同一公司或使用同规格的有质量认证的产品

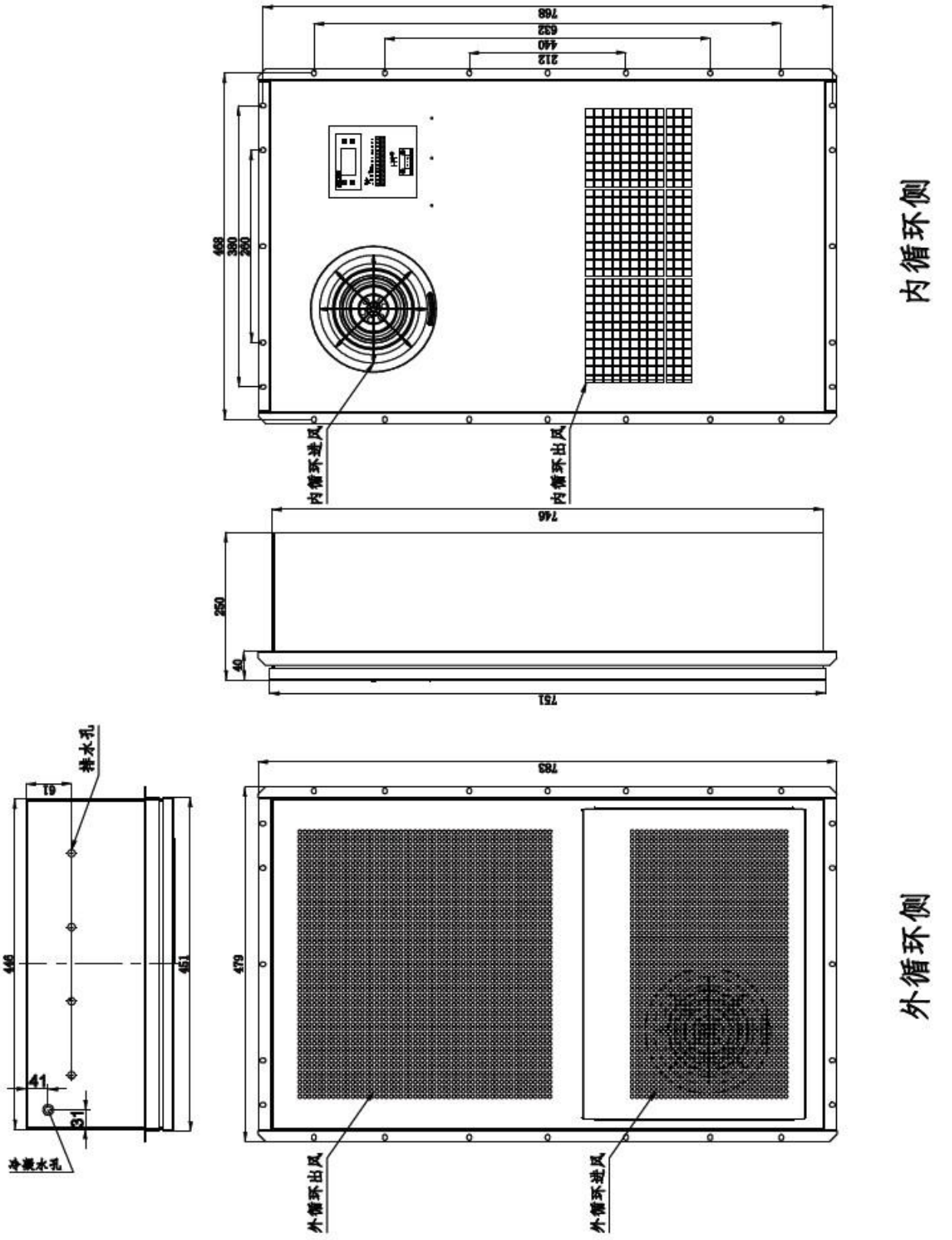
  If the power supply cord is damaged, it must be replaced by the manufacturer, or service agency or similarly qualified person in order to avoid a hazard.
- 为了更好的使用本产品，请勿在高油污、高腐蚀性环境、含爆炸易燃气体环境使用，否则，将会造成对该产品严重的损害，我们将不会提供正常的售后服务。

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

## 3.2 产品特点 Product features

- 双系统集成，双电源供电，可靠性大大提高，特别适合户外机柜；
  Dual system integration, double power supply, reliability greatly improved, especially suitable for telecom outdoor cabinet;
- 实现遥测、遥信、遥调，可实现多重自动保护和全面的故障自诊断功能；
  Remote measuring, remote communication, remote control, which can realize can realize multiple automatic protection and comprehensive self-testing function;
- 双系统既可独立运行也能并行工作，换热系统可最大限度利用自然冷源；
  Two sets of system not only running independently but also can parallel work; heat transfer system can be the best use of natural cold source;
- 适合 T3 高温工况、R134a 环保制冷剂；
  Fit for T3 high temperature working condition by using of R134a refrigerant gas;
- 多重保护功能、可视化人机界面、RS485 接口（MODBUS-RTU 协议）；
  Multiple self-protection design & visible monitoring interface, RS485 communication port (MODBUS-RTU protocol);
- 系统采用可调速直流风机，实现调速以降低噪音；
  DC Fan speed PWM control, low acoustic noise during low speed running;

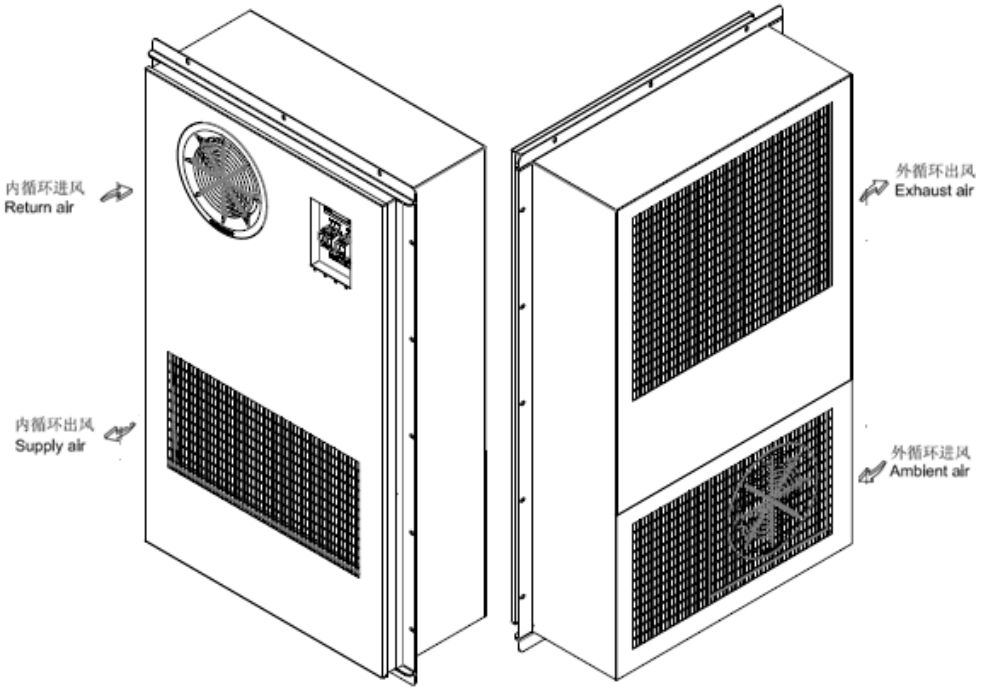
## 3.3 产品尺寸 Product dimensions



## 3.4 工作原理 Working Principle

- 空调热交换一体机利用压缩机进行制冷，利用系统内工质的相变实现换热。
  The Combined Unit of A/C with HEX using the compressor refrigeration; in the system of the working medium of phase change realize the heat transfer
- 参与制冷和热交换的部件主要有：压缩机、冷凝器、毛细管、蒸发器、内风机、外风机。
  Main parts of the refrigeration: compressor, condenser, Capillary, an evaporator, internal fan, external fan
- 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.
- 换热原理：当室内温度高于室外温度时，室内换热器内的制冷剂气化吸收热量，降低室内温度。气体上升到外侧换热器内液化变为液体，液体由于重力又回到室内换热器内，如此循环，达到降低室内温度的目的。
  Heat transfer principle: when the room temperature higher than outdoor temperature, the refrigerant in the internal heat exchanger evaporating and absorbing heat, indoor temperature reduced. Then the refrigerant gas rose to the external heat exchanger condensed to liquid by ambient air, the condensate liquid returns to the internal heat exchanger, so circulation, to reduce indoor temperature purpose.

## 3.5 风道设计 Air flow design



## 3.6 技术参数 Technical parameters

| | | |
|---|---|---|
| 产品名称 | Name | 空调热交换一体机<br>Combined Unit of A/C with HEX |
| 型号 | Model | TAE/A 020/080/H10 |
| 固定方式 | Mounting Method | 半嵌入 / Semi-embedded Mounting |
| 交流输入电源 | AC Power Supply | 230V±15%/50Hz |
| 直流输入电源 | DC Power Supply | 48V±20% |
| 制冷量 | Cooling Capacity | 2000W@L35/L35 |
| 制冷功耗 | Cooling Consumption | AC870W@L35/L35 |
| | | DC 68W@L35/L35 |
| 制冷量 | Cooling Capacity | 1200W@L35/L55 |
| 制冷功耗 | Cooling Consumption | AC 1090W@L35/L55 |
| | | DC 68W@L35/L55 |
| 换热量 | Heat Exchange Capacity | 80W/K |
| 换热功耗 | Heat Exchange Consumption | DC 68W |
| 内循环风量 | Internal Airflow | 450m3/h |
| 制冷运行温度范围 | Cooling Working Temperature Range | -15℃～+55℃ |
| 换热运行内部温度范围 | Heat Exchange internal circulation Temperature Range | -40℃～+65℃ |
| 换热运行外部温度范围 | Heat Exchange exernal circulation Temperature Range | -40℃～+55℃ |
| 最大噪音 | Max Noise Level | 65dB(A) |
| IP 等级 | IP Grade | IP55 |
| 净重 | Net Weight | 35kg |
| 制冷剂 | Refrigerant | R134a |
| 外形尺寸 | Dimensions | 783*479*250(mm,H*W*D) |
| CE 和环保 | CE & RoHS Compliant | 符合/YES |
| 表面处理 | Surface treatment | Outdoor type powder coating, standardcolor:RAL7032 |
| 加热器 | Heater | 1000W |

## 3.7 运行逻辑 Operation logic

空调上电，首先进行自检程序，若自检过程中发现故障。则产生告警，显示器显示告警故障代码，进入故障处理模式。若自检过程中无故障，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：检测直流电压值和交流电压值；

  First: Detection of DC voltage and AC voltage;

  第二步：检测内风机；

  Second: Detection of Internal fan;

  第三步：检测回风温度传感器、环境温度传感器、冷凝盘管温度传感器；

  Third: Detection of return air temperature sensor, ambient temperature sensor and condenser temperature sensor;

  第四步：检测加热器.

  The fourth: Detection of heater.

  第五步：检测外风机；

  The fifth: Detection of external fan;

  第六步：检测压缩机.

  The sixth: Detection of compressor.

  ***注：如果交流电未输入或者超出电压范围导致发出的电压告警，此告警可自动恢复***

  ***Note: if the alarm is sent out for no AC power input or power out of voltage, the alarm can recover by itself.***

  系统的正常工作状态包括待机、换热、制冷和加热四种状态

  The normal work state of the system includes the state of standby, heat transfer, cooling and heating.

- 待机运行 Standby mode

若回风温度满足待机运行条件（无需换热、制冷或加热时），则空调热交换一体机进入待机运行状态，此时只低速运行内风机。

If the return air temperature meets the condition of the Standby mode(no need heat exchange, cooling or heating), the air conditioner runs into the standby operating state, At this point only the low speed fan inside.

- 换热运行 Heat Exchange mode

若回风温度满足换热运行条件（***柜内温度高于换热停止温度+换热开启回差，并满足换热温差，且低于制冷启动温度时***），则空调热交换一体机进入换热运行状态，此时内外风机会根据柜内温度的不同进行调速运行。

If the return air temperature meets the condition of the heat exchanger (cabinet inner temperature is higher than heat exchange stop temperature plus heat exchange start delta temperature , and meet the heat exchange effective delta temperature, and less than cooling start temperature), the air conditioner runs into the heat exchange state, At this point the fan will change speed according to the delta temperature inside and outside cabinet.

- 制冷运行 Cooling mode

若回风温度满足制冷运行条件（***柜内高于制冷停止温度+制冷开启回差***），则空调热交换器一体机进入制冷运行状态，此时内风机全速运行，外风机调速运行，压缩机开启。

If the return air temperature meets the cooling condition (the cabinet inner temperature is higher than cooling stop temperature plus cooling start delta temperature), the product will run into cooling, with internal fan full speed, external fan speed governing, compressor operated.

- 加热运行 Heating

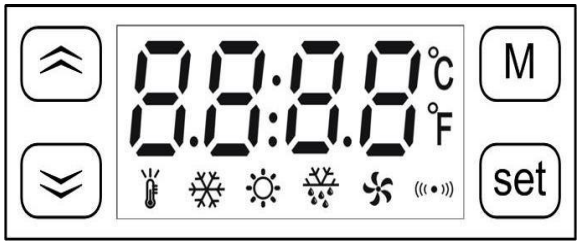
若回风温度满足加热运行条件，则空调热交换器一体机进入加热运行状态，此时内风机全速运行，外风机及压缩机关闭。

If the return air temperature meets the heating condition, the product will run into heating, with internal fan full speed, external fan and compressor stopped.

# 3.8 显示屏操作指导 Monitor operation guide

显示屏界面如下：

The interface of the monitor is as follows:




面板上的指示灯从左到右排列的功能含义如下表：

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

| 指示灯<br>Indicator | 指示灯含义<br>Definition | 亮<br>Light | 闪烁<br>Flicker |
|---|---|---|---|
| | 设定温度<br>Point setting | 正在温度设置状态<br>Setting mode | 自检<br>Self test |
| | 制冷<br>Cooling | 正在制冷<br>Cooling mode | 压缩机故障<br>Compressor Alarm |
| | 外风机<br>External fan | 外风机运转<br>External fan running mode | 外风机告警<br>External fan Alarm |
| | 告警<br>Alarm | 告警<br>Alarm mode | NA |

- **环境温度查询 Show ambient temperature**

在显示回风温度状态（主界面），按一次“▲”键，将显示环境温度传感器检测到的温度(°C 闪烁)，再按一次“▲”或者 M 键，返回到显示回风温度的主界面。

Under the return air temperature interface, press“▲” will show ambient temperature ， press “▲” again or press “M “,will show return air temperature back to main interface.

- **冷凝温度查询 Show condenser temperature**

在显示回风温度状态（主界面），按一次“▼”键，将显示冷凝温度传感器检测到的温度(°C 闪烁)，再按一次“▼”或者 M 键，返回到显示回风温度的主界面。

Under the return air temperature interface, press“▼” will show condenser temperature ， press “▼” again or press “M “,will show return air temperature back to main interface.

- **内风机转速查询 Show RPM of internal fan**

在显示回风温度状态（主界面），同时按下“▲”和 Set 键，将显示内风机转速，再按 M 键将返回到显示回风温度的主界面。

Under the return air temperature interface, press“▲” and “Set” will show the RPM of internal fan ，press “M “,will show return air temperature back to main interface.

- **外风机转速查询 Show RPM of external fan**

在显示回风温度状态（主界面），同时按下“▼”和 Set 键，将显示内风机转速，再按 M 键将返回到显示回风温度的主界面。

Under the return air temperature interface, press“▼” and “Set” will show the RPM of external fan ，press “M “,will show return air temperature back to main interface.

- **压缩机和加热器的电流查询 Show the current of compressor and heater**

在显示回风温度状态（主界面），按同时按住“▼”键和“▲”键，将显示当前压缩机或者加热器的运行电流，单位 A。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“▼” and “▲” will show the current of the compressor or the heater(A),press “M “,will show return air temperature back to main interface.

- **直流电压和交流电压查询 Show the DC voltage and AC voltage**

在显示回风温度状态（主界面），按“Set”键，将显示直流电压，再按一次“Set”键将显示交流电压，单位 V。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 “Set” will show the DC voltage , and press “Set” again it will show AC voltage with V unit, press “M “,will show return air temperature back to main interface.

- **控制参数设定 Controls parameter settings**

在主显示界面，长按“M”键 5 秒，进入参数设置状态，显示参数代码。参数代码分为用“▲▼”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；通过“▲▼”键即可对参数值进行设置；设置完成后再按“Set”键，系统保存新设置的参数并显示 End，然后回到显示参数代码状态；在设置参数时，按“M”键表示放弃，退回显示参数代码但不改变参数值。在显示参数代码时长按“M”键 3 秒可退出参数设置状态。

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.

| 代码 /Code | 参数名称 /Name | 范围 /Range | 默认 /Default | 单位/Unit |
|---|---|---|---|---|
| F01 | 换热停止温度<br>Heat exchange stop temperature | 15-58 | 25 | ℃ |
| F02 | 换热开启回差温度<br>Heat exchange start delta temperature | 2-10 | 5 | ℃ |
| F03 | 换热有效温差<br>Heat exchange effective delta temperature | 2-10 | 4 | ℃ |

| | | | | |
|---|---|---|---|---|
| F04 | 制冷停止温度<br>Cooling stop temperature | 17-60 | 30 | ℃ |
| F05 | 制冷开启回差<br>Cooling start return delta temperature | 2-10 | 5 | ℃ |
| F06 | 加热器开启温度<br>Heater start temperature | -42-15 | 10 | ℃ |
| F07 | 加热器停止回差<br>Heater stop delta temperature | 2-10 | 5 | ℃ |
| F08 | 高温告警温度<br>High temperature alarm temperature | 20-100 | 50 | ℃ |
| F09 | 低温告警温度<br>Low temperature alarm temperature | -42-15 | 2 | ℃ |
| F16 | 通讯地址<br>Communication address | 1-255 | 1 | |

## 3.9 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，告警代码见机身标签。

The monitor displays return air temperature at normally, if it is alarm, temperature and alarm codes are displayed alternately, the alarm code see the label on the machine:

| | | |
|---|---|---|
| 闪烁 1 次 | E01 | 内风机故障告警 Internal fan alarm |
| 闪烁 3 次 | E03 | 外风机故障告警 External fan alarm |
| 闪烁 5 次 | E05 | 压缩机欠流故障告警 Compressor low current alarm |
| 闪烁 6 次 | E06 | 压缩机过流故障告警 Compressor over current alarm |
| 闪烁 7 次 | E07 | 回风温度传感器故障告警 Internal temp. sensor alarm |
| 闪烁 8 次 | E08 | 环境温度传感器故障告警 External temp. sensor alarm |
| 闪烁 9 次 | E09 | 冷凝盘管温度传感器故障告警 Condenser temp. sensor alarm |
| 闪烁 10 次 | E10 | 高温告警 High temp. alarm |
| 闪烁 11 次 | E11 | 低温告警 Low temp. alarm |
| 闪烁 12 次 | E12 | 系统高压力告警 System high pressure alarm |
| 闪烁 13 次 | E13 | 外部输入告警 control input alarm |
| 闪烁 14 次 | E14 | 加热器欠流故障告警 Heater low current alarm |
| 闪烁 15 次 | E15 | 加热器过流故障告警 Heater over current alarm |
| 闪烁 16 次 | E16 | 系统频繁高压力告警 System frequent high pressure alarm |
| 闪烁 17 次 | E17 | 直流过压告警 DC over voltage alarm |
| 闪烁 18 次 | E18 | 直流欠压告警 DC under voltage alarm |
| 闪烁 19 次 | E19 | 交流过压告警 AC over voltage alarm |
| 闪烁 20 次 | E20 | 交流欠压告警 AC under voltage alarm |
| 闪烁 21 次 | E21 | 交流断电告警 AC outage alarm |

## 3.10 监控 Monitoring

机器可通过软件监控，只需连接 RS485 接口。请联系厂商以获取更多的信息。

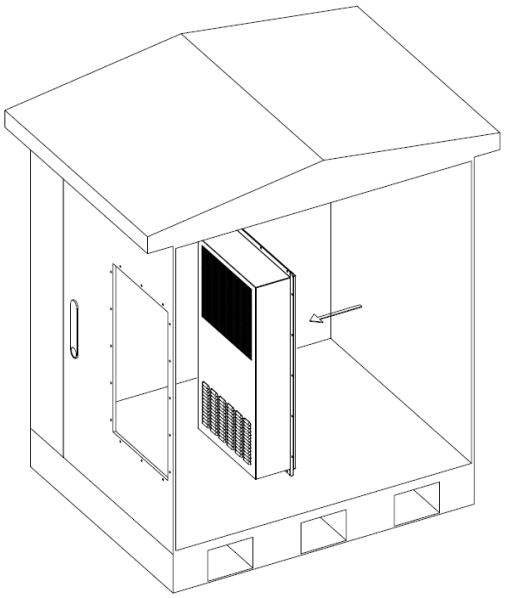
The machine can be monitored by software through RS485 port. Please consult to the manufacture for more information.

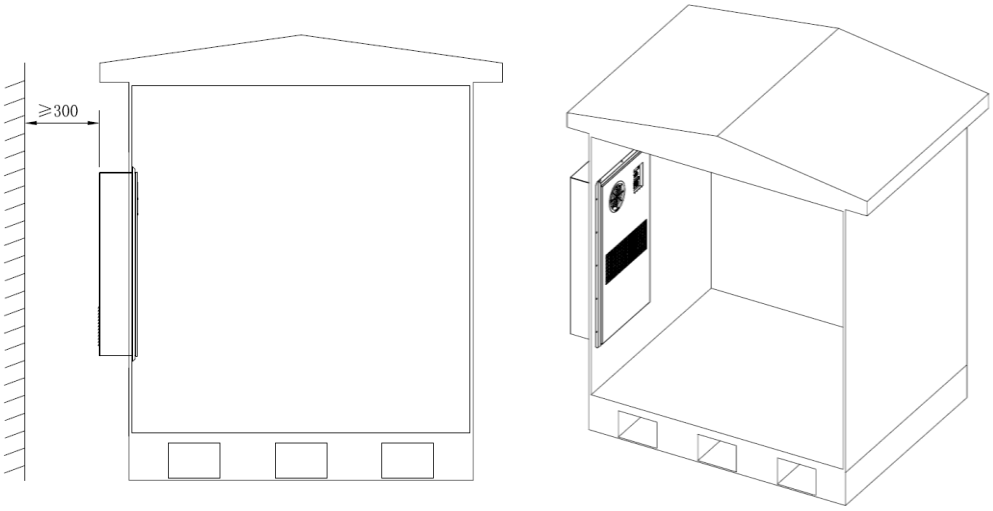
# 4 安装指导 Installation guide

## 4.1 设备安装 Machine installation

请按照下图示意进行安装

Please follow the below diagram of installation





- 安装步骤：Installation steps:

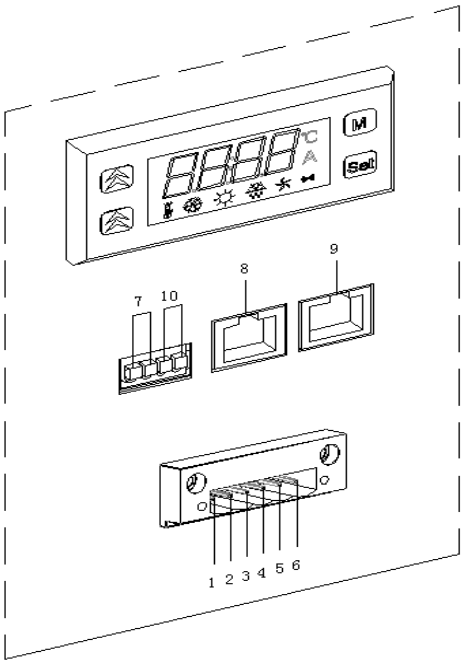
1) 拆除空调热交换一体机外包装，核对包装清单，确认设备是否完好；
   Removal of packaging box，check the package list and the machine is well.
2) 使用螺栓，依次穿上弹垫和平垫，将空调热交换一体机安装在机柜上；
   Installed the Combined Unit of A/C with HEX on the cabinet with screw, flat pad and spring pad.
3) 连接产品底部的排水管，以排出该产品运行时产生的冷凝水。
   Connect drain pipe in the bottom of the unit to drainage system，the drainage pipe and pipe clip provided as accessories
4) 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。
   Do not power on the unit immediately after finish the installation until the unit keep up stand for more than 30 min.

# 4.2 电气安装 Electrical installation




| 序号/No | 符号/Symble | 定义/Definition | 描述 / Description |
|---|---|---|---|
| 1 | L | 交流电源火线<br>Live line of AC power | |
| 2 | N | 交流电源零线<br>Neutral line of AC power | |
| 3 | PE | 电源地线<br>Ground wire of AC power | |
| 4 | / | / | / |
| 5 | -48V | 直流电源负极<br>Negative electrode of DC power | |
| 6 | GND | 直流电源正极<br>Positive electrode of DC power | |
| 7 | ALARM | 干接点告警输出<br>Dry contact alarm output | 干接点告警：常闭状态<br>Dry contact alarm：Normal closed |
| 8 | RS485-OUT | 通讯接口<br>Communication interface | |
| 9 | RS485-IN | 备用通讯接口<br>Standby communication interface | |
| 10 | CONTROL | 外部控制输入端口<br>External signal input port | 外部控制输入端口：接受外部控制信号控制空调<br>External singal input port：Accept external control signal to control the air conditioner. |

- 用户自配电源、电源线缆及断路器应该满足以下表格要求：

  The power supply, power cable and circuit breaker chosen by customers self should be recommended as below:

| 项目 // Item | 要求 // Demand |
|---|---|
| 电源 // Power supply | 直流电源// DC Power:-48 VDC |
| | 交流电源 // AC Power :230 VAC 50Hz |
| 电压范围 // Voltage range | DC:48V±20% |
| | AC:230V±15% |
| 断路器 // Circuit breaker | 直流断路器规格不小于 10A<br>Circuit breaker for DC power must more than 10A |
| | 交流流断路器规格不小于 10A<br>Circuit breaker for AC power must more than 10A |
| 电缆规格// Cable size | 建议使用不小于 14AWG 或者 2.0mm$^2$<br>more than 14AWG or 2.0mm$^2$ |

注：建议选用的漏电保护器（RCD）动作电流不要超过 30mA。

Note: The installation of a residual current device (RCD) having a rated residual operating current not exceeding 30mA is advisable.

## ● 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:

| 序号<br>Serial number | 检查项目<br>Check items |
|---|---|
| 1 | 装配螺钉已经紧固。<br>Ensure the screw is fastening |
| 2 | 内外循环的进出风口附近无明显的阻挡物。<br>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。<br>Power line to connect the right polarity<br>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。<br>Using a multimeter to check the supply voltage, power supply voltage is normal, consistent with the requirements on the nameplate. |

***注：空调需交流电和直流电同时供电，否则会有告警。***

***Note: the air conditioner must be powered on AC 230V and DC 48V, otherwise it will be alarm.***

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.

# 5 产品维护和质保 Maintenance and Warranty

## 5.1 产品维护 Product maintenance

### 5.1.1 准备工具：Prepare tools

表 5-1 维护工具 Table5-1 Maintenance 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 |

### 5.1.2 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

5.1 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.

5.2 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.

5.3 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.

5.4 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.

5.5 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.

## 5.1.3 告警代码及处理方法 Alarm code and handling method

表 5-3 故障信息 Table5-3 Alarm information

| 故障名称<br>Code Name | 故障机制<br>Principle | 故障处理方法<br>Process Method |
|---|---|---|

| | | |
|---|---|---|
| 回风温度传感器故障<br>Return air temperature sensor alarm | 回风温度传感器短路或断路<br>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。<br>Check whether the return air temperature sensor is short circuit or open circuit. |
| 压缩机欠流故障<br>Compressor current is too low | 压缩机电流值不在正常范围内<br>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。<br>Check whether the compressor line is loosening<br>2、压缩机本身故障，请联系专业人士维护.<br>Compressor fault, please contact professional maintenance. |
| 压缩机过载故障<br>Compressor over-current | 压缩机电流值不在正常范围<br>Compressor current is not within normal range | 1、检查冷凝器是否堵塞<br>Check whether the condenser is dirty block.<br>2、压缩机本身故障，请联系专业人士维护。<br>Compressor fault, please contact professional maintenance. |
| 内风机告警<br>Internal fan alarm | 内风机转速不在正常范围内<br>Internal fan current is not within normal range. | 检查内风机线和内风机的连接是否脱落或松动<br>Check Whether the internal fan line is loosening. |
| 外风机告警<br>External fan alarm | 外风机转速不在正常范围内<br>External fan current is not within normal range. | 检查外风机线和外风机的连接是否脱落或松动<br>Check Whether the external fan line is loosening. |
| 电源电压超限告警<br>Supply voltage overload | 电源电压不在正常范围内<br>Compressor current is not within normal range. | 立即断掉空调热交换一体机输入电源，用万用表测量供电电压，直到供电电压在合理范围内，才能再次运行空调热交换一体机。<br>Turn off the power supply immediately. Use multimeter measure the voltage, power on the switch until the power supply within the normal range |

## 5.1.4 其他故障分析与处理 Other fault analysis and treatment

表 5-4 其他故障分析与处理 Table5-4 other fault analysis and processing

| 故障状态<br>Fault state | 原因分析<br>Analysis of the reasons | 故障排除方法<br>Solutions |
|---|---|---|
| 电源接通后，柜内温度过高，但空调热交换一体机不运转<br>Power on the switch ,the cabinet temperature is too high but the Combined Unit of A/C with HEX is not working | 1、停电或无电源。<br>Power failure or no power<br>2、设定温度高于柜内温度。<br>The cooling set temperature is higher than the cabinet temperature<br>3、系统故障。<br>System fault | 1、检查电源、电路。<br>Check the power supply and the electric circuit<br>2、根据需要设定压缩机启动温度。<br>Setting cooling temperature according to the needs<br>3、请与专业维修人员联系<br>Please contact professional maintenance. |

| | | |
|---|---|---|
| 设备正常运转，但制冷效果不理想<br>The Combined Unit of A/C with HEX is running but the cooling effect is not good | 1、该机型制冷能力与负荷不匹配。<br>The cooling capacity of the Combined Unit of A/C with HEX is not match with the load.<br>2、环境温度过高。<br>The ambience temperature is too high<br>3、其他系统故障。<br>Other system fault | 1、 根据负荷大小重新选配或增配制冷设备。<br>To add or choose another Combined Unit of A/C with HEX according to the load.<br>2、 请确保机器工作环境温度在正常使用范围内。<br>Ensure the machine is used in the correct range.<br>3、 请与专业维修人员联系<br>Please contact professional maintenance. |
| 正常运转中。突然停止制冷，且电器系统无故障。<br>The machine is stopping suddenly ,and the electric system is normal | 1、柜内温度已达到设定温度。<br>The cabinet temperature greater than or equal to the cooling set temperature.<br>2、其他系统故障<br>Other system fault | 1、 根据需要设定压缩机启动温度。<br>Setting cooling temperature according to the needs<br>2、 请与专业维修人员联系<br>Please contact professional maintenance. |

# 5.2 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、洪水等不可抗拒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) Cannot provide the product label(the product label is on the nameplate);

  3) Because of the abnormal condition or environment ,or the instructions specified in the inappropriate 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 disassembles by themselves, or maintained by the person without authorization.
6) Caused by force major such as fires, earthquakes, floods and other damage to the fault.

- 免责声明 Disclaim

  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 for the delivered products.
  Irresponsible is for any loss that may be caused by equipment failure.

## 5.3 回收处理 Reclaim

At the end of the unit working life, the produce must not be disposed of as urban waste; it must be taken to a special local authority differentiated waste collection centre or to a dealer providing this service.
到本产品使用期限或不再使用该产品时，请勿将本产品直接作为垃圾处理，请交给当地政府认可的废物收集中心进行处理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