Rimedyne
An ICEqube affiliate

Intelligent Electronic Enclosure
Thermal Management Systems
智能化一体式空调系统

OPERATION AND INSTALLATION MANUAL
操作和安装手册

*** IMPORTANT ***

Please read this manual. Follow the instructions for safe and satisfactory installation and operation of this system. Keep this manual for future reference. Some information may not apply to all systems.

提示：请仔细阅读此手册，按照本系统操作说明安装和使用该系统。请保留此手册，以便将来参考。某些内容可能并不适用于全部系统。

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1. INTRODUCTION: 介绍

Rimedyne's Thermal Management System, TMS, is designed to cool, dehumidify or heat the internal environment of modern electrical enclosures. Rimedyne offers efficient and aesthetically appealing packages that can be mounted on top or on the side of your enclosure. Our closed-loop circulation design protects your equipment from air-borne dust and contaminants which may hinder equipment operations, causing unnecessary down time. Rimedyne is able to provide cooling capacities from 1000 to 20,000 BTU per hour - a wide range of cooling systems to satisfy many of your conditioning needs.

齐力公司的空调可以对现代化电子设备箱的内部环境实现冷却、除湿、加热等功能控制。我们的产品还可以根据客户需求分有高效节能，外形美观的顶置式或侧装式空调机。科学严谨的空调封闭循环系统设计可有效的防止空气中的灰尘和污染物对您设备造成损坏。空调的制冷量选择根据您的需求可从 1000BTU/H 到 20000BTU/H——是一个广泛的制冷选择范围，可以满足您对空调的多种需要。

2. BASIC OPERATION: 基本原理

The Rimedyne's Thermal Management System, TMS, is actually a combination of three independent systems which function simultaneously to maintain environmentally friendly conditions for various types of electronic equipment enclosures. These three thermal related systems are: the closed-loop cool air system; the warm air system; and the vapor-compression refrigeration system. Please refer to Figure 1.

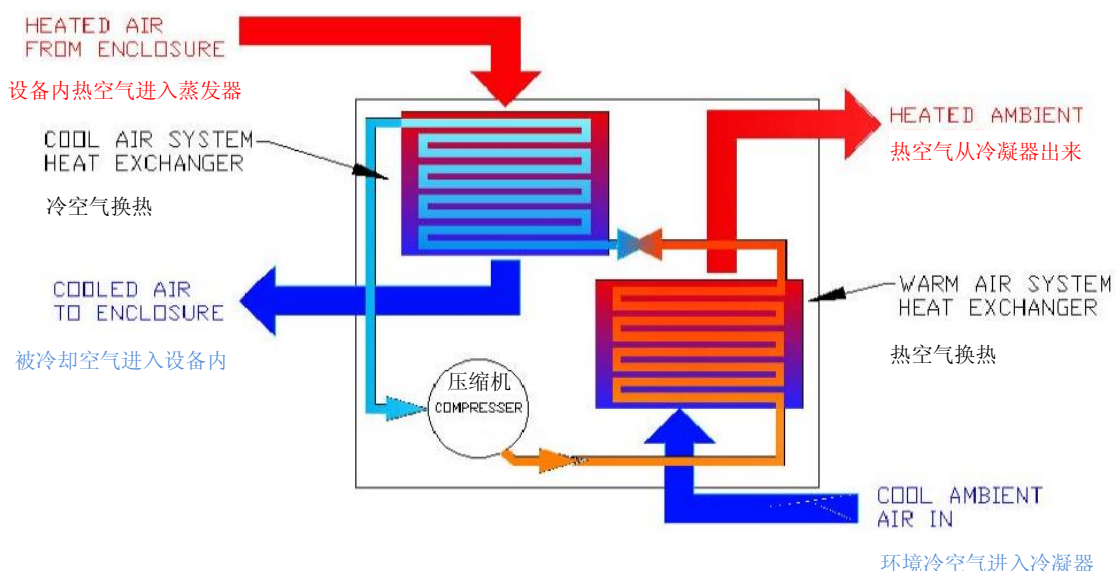齐力公司的热管理系统实际上是由三种同时维持各类电子设备机箱内环境的独立系统组合而成的。这三种相关的系统分别是冷循环系统，热循环系统以及压缩机制冷系统。
请看图 1：

Figure 1: Flow Diagram

图 1：工作原理图

The closed-loop cool air system circulates cold air from the Rimedyne TMS to the electronics enclosure. This air returns to the Rimedyne system bringing with it unwanted heat and humidity from inside the enclosure. Heat and humidity is then removed by a heat exchanger located within the Rimedyne TMS. This heat exchanger is part of the vapor-compression refrigeration system.

冷循环系统把冷风从空调输送到电子设备箱内，然后通过空气又将设备箱内热量和水分带回到空调系统。热量和水分通过空调内蒸发器换热移除掉。

At the heart of the vapor-compression refrigeration's system is a quiet, energy efficient rotary compressor which circulates environmentally friendly NON-CFC refrigerant. The main purpose of this compressor is to transfer heat laden refrigerant from the evaporator, located within the closed-loop cool air system, to a condenser, located in the warm air system. In the warm air system, air is circulated from the ambient surrounding the enclosure, through a filter, and across the warm air system heat exchanger. Here, heat from the enclosure is transferred from the warm air heat exchanger into the warm air stream and dissipated to the ambient.

压缩制冷系统采用静音高效节能的旋转式压缩机和环保无氟利昂制冷剂。其主要作用是把制冷剂从蒸发器中吸收的热量带到热循环系统中的冷凝器中。通过冷凝器周围流动的空气把机箱内的热量消散出去。

3．UNPACKING INSPECTION:开箱检查

a) The shipping container leaves the factory banded to a pallet with arrows imprinted on the box.   These arrows should be pointing in the proper (upward) direction.   The Rimedyne TMS is position sensitive.   Rimedyne recommends the unit to remain in the proper upright position for a minimum of 24 hours before initial operation.   This is to ensure the oil has returned to the compressor.   Operation before the 24 hour time period may cause damage to the compressor, hence shortening the life of the system.

空调的包装箱上都标有空调直立的箭头，所有的箭头指向必须是向上的。由于空调压缩机润滑系统的润滑油有可能在运输过程中因震荡倾斜而分流，可能会导致润滑不充分。为保证空调使用寿命，我们建议将空调在正确的方向竖立静置 24 小时后再通电运行。

Note: Operation the unit before maintaining an upright position for 24 hours will void all warranties.

注意：在维持竖立状态 24 小时之前操作装置将会导致所有的售后服务无效。

b) Check for any damage to the shipping container. If the shipping container has been damaged or marred in any way, carefully check to see if the Rimedyne TMS incurred any damage. Check for scratches, dents, rattles (which may indicate loose components), the presence of oil, and any other irregularities. Any evidence of damage will need to be recorded on the freight bill and reported to the carrier. The freight carrier will provide instructions on filing a claim. Rimedyne cannot accept responsibility for damages that occur during shipping.

检查空调的包装箱是否完好。如果发现包装箱已被任何方式损坏或是毁坏，请仔细地检查看看空调是否已被损坏。如：检查有无刮痕，凹痕，摇动是否有声响(可能空调内部有零件松动)。任何损坏的证据都需要记录在货运单上并报告承运人。该货运公司将提交关于赔偿的说明。齐力公司不承担在运送过程中空调发生损坏的赔偿。

4．PRE-INSTALLATION TEST: 安装前检测

Before installing the Rimedyne system on the enclosure, it is recommended the unit operate for 20 to 30 minutes to ensure it is functioning properly. Although the Rimedyne TMS has been tested at the factory, internal damage may have occurred during shipping which may have not been apparent during the unpacking inspection.

在空调正式安装到设备之前，建议让空调运行 20 到 30 分钟以确保其正常运转。即使空调已在生产出货前进行过全面的检查和测试，但可能在运输或搬运过程中发生的内部损坏，在开箱检查时没有显现出来。

a) Place the system on a solid base such as a workbench or table. Be sure to allow adequate space for airflow. There are two air streams that must not be restricted, the cool air stream and the warm air stream. Units can only be mounted on a flat vertical surface.

把空调放在一个坚固的平台上，确保空气流动有足够的空间，蒸发器和冷凝器进出风气流不能被阻挡。空调安装面确保平坦。

b) Check that the warm air system filter is in place, location varies with model type.
Models with the optional rain or wash down hood do not have a warm air filter and may require regular routine condenser maintenance.

检查冷凝器过滤网所放的位置，不同型号的空调过滤网位置会不一样，有些型号的空调是不带冷凝器过滤网的，这种可能需要定期进行保养，清洗冷凝器。

c) Check the data tag for proper electrical requirements. The data tag lists the design voltage and amperage requirements of the system. Verify that the electrical outlet where the system will be connected has the proper capacity. After noting the above, connect the power cord to a properly grounded electrical connection. The use of an extension cord is not recommended.

检查空调铭牌上对电源的要求。铭牌有标明空调系统的设计电压和所需的电流。请确保连接空调的插座能够满足空调的要求。注意上以上内容后，把电源线正确的接地，严禁使用延长线。

NOTE: If any unusual noise or vibration is present during the testing procedure, immediately disconnect the power cord and inspect the unit for the cause of the noise or vibration. Contact Rimedyne immediately.

注意：在测试过程中如果有不正常的噪音或是震动出现，请立刻拔掉电源线并检查导致噪音或震动的位置，并立即联系齐力公司。

d) As soon as power is supplied to the system, the cool air evaporator blower will begin to operate. The compressor and warm air condenser blower will not operate if the room air temperature is below 80°F. This is due to the fact the programmable controller has a factory setpoint of 80°F. (The digital display on the face of the controller will be displaying room temperature.) If the display is indicating 80°F or warmer, the "Cool" status LED will flash for 3.5 minutes before the compressor and the warm air condenser blower will operate.

If the display is indicating a temperature less than 80°F, adjust the setpoint to a temperature lower than the room temperature in order for the compressor and warm air condenser blower to operate. Refer to the "Programming the Controller" section of this manual in order to change the factory set points.

空调一旦通电，蒸发器风机就开始运作。当设备内空气温度低于 80℉（27℃），压缩机和冷凝器风机将不会启动。这主要是控制器的出厂设置：温度高于 80℉（27℃）开始

制冷（控制器表面显示的数字是设备箱内的温度）。如果显示的数字是 80℉（27℃）或是更高，"Cool"指示灯将闪烁 3.5 分钟之后，启动压缩机和冷凝风机，开始制冷。

如果显示屏上显示的温度低于 80℉（27℃），可以调整设定值上的温度低于室内的温度，让压缩机和冷凝器风机工作。请参阅手册中"控制器功能设置"的这一部分内容，以改变出厂设定值。

e) With the compressor and both blowers functioning, allow the unit to operate for 20 to 30 minutes. This will provide sufficient time for the vapor compression system to achieve equilibrium. Measure the cool air outlet temperature with an accurate thermometer. This temperature should be at least 10 degrees colder than the inlet air temperature, (if the room temperature is warmer than 70°F). Inlet air temperature will be displayed on the programmable controller. In areas of high humidity, the temperature difference may be less than 10 degrees.

启动压缩机和风机，让空调运行 20 到 30 分钟，为压缩机系统实现平衡提供足够的时间。用温度计测量冷风出风口的温度。这个温度应该比进风口温度至少低 10℉（5.5℃）（如果室内的环境温度高于 70℉（21℃）),进风温度将会显示在控制器上。当环境湿度较高的时候，温差可能会小于 10 华氏度。

f) After completing the above check points, the electrical enclosure is ready to be prepared for the installation of the Rimedyne system.

在完成以上检查要点之后，就可以为安装空调作准备了。

5．PREPARING THE ENCLOSURE: 空调的安装

Rimedyne air conditioning systems have been designed to be light weight for ease of installation. Side enclosure or vertical mount units have been designed with a simple "two stud" alignment feature to make initial fastening to the enclosure quick and easy. A few modifications must be made to the enclosure to provide proper airflow, to maintain enclosure integrity and to assure a secure installation. Required modifications will vary with each air conditioner model.

齐力空调系统设计的轻巧易安装。在机箱的侧边或是垂直安装面有两个定位螺柱，使空调的安装更加快捷，方便。在保证安装安全可靠的前提下，对电子设备箱的开孔必须保证散热器进出风口有足够的空气流通，具体的开口随每个机型而定。

a) Determine the location of the Rimedyne system on the enclosure.

确定空调在设备机箱上的安装位置。

*** CAUTION *** 注意***

Verify the weight of the air conditioning system will not cause the enclosure to become unbalanced. Equipment instability may cause bodily harm or equipment damage. For units mounted on enclosure doors, confirm the hinges will support the weight of the Rimedyne system. Refer to system specifications for model weights.

请确认空调的安装不会导致设备箱的不平衡。设备箱重心不稳可能会造成身体受伤或设备的损坏。如果是将空调安装在设备门上，请确定它们能够承受空调的重量。具体机型重量请参阅空调规格书。

b) Upon deciding the location of the Rimedyne system on the enclosure, attach the included template to the enclosure surface. This template drawing will assist the installer in

placing the air conditioning unit on the enclosure. Be sure that the Rimedyne system will be mounted level and the cool air inlet and outlet connections will not be restricted by equipment or shelving within the enclosure. Also check that the air flow of the warm air stream will not be effected or restricted by the surroundings.

在安装空调前请参照空调安装背板图在设备箱上开口（安装背板图见附件），为空调的安装做准备。安装背板图上会标明空调的安装孔、散热器进出风口及连接线（电源线、控制线、数据线等）出口的位置及大小尺寸。请确保空调水平安装，散热器进出风口不会被设备箱内部框架所阻挡，并且空调周围空气的流通不会受周围环境的影响。

c) After checking that all openings and bolt holes are in alignment, apply the gasket material provided to the Rimedyne air conditioning system cabinet to ensure enclosure integrity.

检查所有的开口和安装孔位准确无误后，将密封条按空调背面图所示紧贴在空调上，以确保空调与机柜之间安装后密封无漏气。

*** CAUTION ***注意***

Be careful while removing the backing on the gasket material. The material may stretch and the holes will not align. If the enclosure is not air tight, or the air conditioning system operates with the enclosure door(s) open, moisture will condensate inside the air conditioning system and may cause the condensate management system to overflow.

注意：在贴密封条的时候要小心，该材料可能会因延展导致开孔被阻挡。如果机箱不密封或者空调在运行时机箱门打开着，空气中水分会进入系统里，可能会导致有冷凝水流出。

d) After the gasket material has been installed, mount the Rimedyne system onto the enclosure and fasten it using the supplied nuts and bolts. Check to see if the power cord and all optional cables are in place. Fasteners need to be tightened securely and the gasket material needs to be in place in order to maintain enclosure integrity. The gasket material should be slightly compressed with no visible gaps. The Rimedyne system is now ready to begin operation.

密封条贴好之后，将空调安装在设备机箱上并用螺丝和螺母锁紧。检查连接线（电源线、控制线、数据线等）是否在合适的位置。密封条应稍微压紧，空调与机柜间没有明显的缝隙。完成以上工作空调就可以开始工作了。

NOTE: Near the bottom or on the side of the Rimedyne system cabinet is a nipple for condensate overflow. Although all vertical or side mounted Rimedyne air conditioners have built-in condensate management systems, it may be necessary to attach a drain hose to this nipple on enclosures which are located in extremely humid conditions, or where enclosure doors are left open or the door seals are leaking.

注意：靠近空调机柜的底部或是侧面有一个冷凝水出口。虽然所有的顶置或侧置空调内部都设有冷凝水排出系统，但在十分潮湿的条件下，或是机箱门经常处于开放状态或是门的密封性不好，都需要在空调的出水口上接一个排水软管，防止冷凝水流入设备箱。

6．OPERATING THE SYSTEM: 使用方法

Once the Rimedyne system has been installed onto the enclosure and the power cord has been attached to a properly grounded electrical outlet with adequate voltage and current supply, the unit is ready for operation. As soon as electrical power is supplied to the Rimedyne system, the cool air stream blower will start to operate. The blower will run continuously so that the controller can monitor the enclosure's internal temperature. The enclosure temperature will be displayed on the face of the controller.

设备机箱装上空调后，电源线插上能提供足够电压和电流的插座，空调就可以准备运转了。一旦空调系统通上电，蒸发器风机会马上开始运作，风机的持续运转使得控制器能够监测到设备箱的内部温度。设备箱的温度会在控制器的表面显示。

If the enclosure temperature is greater than the factory cooling setpoint of 80°F, the "Cool" status LED will flash. This indicates that the compressor's automatic off cycle timer is working. (The off cycle timer is factory set at 3.5 minutes). At the end of 3.5 minutes, the compressor and the condenser air blower will begin to operate. This signifies that the cooling system has begun operation to remove heat and humidity from the enclosure. This procedure may take 20 to 30 minutes before it reaches full capacity.

如果设备箱内温度高于控制器出厂制冷设定值 80℉（27℃），"COOL"状态指示灯就会闪烁。这表示压缩机启动定时器正在工作（定时器出厂设定值为 3.5 分钟）。在 3.5 分钟后，压缩机和冷凝器风机就会开始运作。这表明空调已经开始对设备箱进行制冷和除湿。这个过程可能要 20 到 30 分钟才能达到空调最大制冷功率。

Air Conditioner refrigerating capacity can be adjusted by compressor rotate speed. As the enclosure temperature reaches the factory set point of 98℉ (37℃), compressor will run at full speed while air conditioner reaches the maximum refrigerating capacity.

空调的制冷量可以通过压缩机的转速进行调节,当设备箱内温度达到出厂设定值 98℉（37℃）时,压缩机全速运行，空调达到最大制冷量。

Note: If the temperature of load cabinet is at 80℉ (27℃) to 98℉ (37℃), Air Conditioner will be in linear relation based on load temperature.

注意：当负载箱内温度在 80℉（27℃）——98℉（37℃）时，空调制冷量根据负载温度呈线性关系。

If the heat load within the enclosure is less than the cooling capacity of the Rimedyne system, the temperature on the digital display will begin to decrease. When the temperature inside the enclosure decreases 5 degrees Fahrenheit below the 'cooling on' setpoint, the compressor and the condenser blower will cycle off. The cool air blower will continue to operate, circulating air within the enclosure. The controller has a factory programmed temperature differential of 5 degrees Fahrenheit. Example: "Cooling on" @ 80°F; "Cooling off" @ 75°F.

如果设备箱里的发热功率低于空调的制冷功率，控制器上显示的温度数字将开始下降。当设备箱里的温度下降到低于"开始制冷"设定值 5℉（3℃）时（控制器有一个出厂设置 5℉（3℃）温差值），压缩机和冷凝风机将停止工作。冷风风机将持续工作，对机箱内的空气进行流通散热。例如：在 80℉（27℃）"开始制冷"，在 75℉（24℃）"停止制

冷"。

Rimedyne also offers an optional External Heat Output (EHO) to provide power to an external heater, typically located within the equipment enclosure. If the enclosure temperature is below the factory heating setpoint of 50°F, the heat status LED will be on. This indicates that the heat relay has been energized and is providing power to the field connected heater. (There is no time delay before heating begins). When the temperature of the enclosure rises 7 degrees Fahrenheit above the setpoint, the controller will de-energize the heat relay and cycle the heater off.

齐力公司还在空调内设有一个为设备箱提供可选的制热系统。如果设备箱内的温度低于出厂加热设定值 50℉（10℃），"HEAT"状态指示灯将会亮。这表示热继电器已通电并提供电源连接加热器（在开始加热前没有时间延迟），当设备箱内的温度升高到"开始制热"设定值的 7℉（4℃）温差（也就是到 57℉（14℃）时，控制器会关闭加热器。

NOTE: There is a dead band programmed into the controller that prevents heating and cooling from operating simultaneously.

See label attached to the rear of the air conditioner for maximum wattage heater that may be connected to the External Heat Output (EHO).

注意：为了防止加热和冷却同时运作，控制器上设有一个不工作区。
请注意空调铭牌上面标有的加热器的最大制热功率的标签。

7．PROGRAMMING THE CONTROLLER:控制程序设置

The digital controller has many features that may or may not be required for your application. However, the controller has been programmed at the factory with typical default settings for immediate system operation. Please review the following default settings:

控制器有许多功能设置，在应用中可能某些功能是不需要的。但无论怎样，为了系统操作，控制器已被设定了典型的出厂默认设置。默认设置如下：

1. Cooling system on temperature 制冷启动温度   80℉（27℃）
2. Heating system on temperature (optional) 制热启动温度   50℉（10℃）（可选）
3. High enclosure temperature alarm 设备箱内高温报警温度   100℉（38℃）
4. Low enclosure temperature alarm 设备箱内低温报警温度   40℉（5℃）
5. Air Conditioner maximum speed temperature 空调全速运行时温度 98℉（37℃）
6. Audible and Visual alarm   报警指示灯及声音   "ON"   "开"
7. Digital display in degrees Fahrenheit 控制板默认温度单位   ℉
8. User password setting   用户密码设置   1234
9. Filter maintenance alarm 过滤网维护清理提醒警报   0 days - Disabled 0 天—禁用

To change the factory default settings, enter the programming code sequence:

"+"、"-"、"**Select**"、"**Exit**".（1234）

要改变出厂默认设置，请按如下顺序输入密码进入程序修改设定内容（1234）：

"+" (plus sign)　　加号　　1

"-" (minus sign)　减号　　2

"Select"　　　　　选择　　3

"Exit"　　　　　　退出　　4

After pressing the above sequence the program LED should illuminate along with three alternating flashing boxes on the display face, indicating the code was accepted. If no selection is made within one minute, the system returns to the normal operating mode.

按上述顺序按键后,控制器 LED 会在显示屏上形成三个"口"形亮灯交替闪烁，这说明代码已被接受。如果在一分钟内没有做出选择或操作，系统会回到正常运行模式。

Note: Pressing the "Exit" button at any time while in the programming mode returns the controller to the normal operating mode.

注意：当需要从控制设定模式返回正常模式时，可以随时按"退出"键。

Press the "**Select**" button to continue programming. The set temperature "HI" LED illuminates with the display indicating the 'cooling on' setpoint. The compressor will begin operation at this temperature and will remain operating until the enclosure temperature decreases approximately five degrees Fahrenheit (three degrees Celsius).

按"选择"键继续进行设定。当 LED 指示灯"HI"亮的时候，表明进入"制冷启动"设定，压缩机将在这个温度下开始运作，并持续工作，直到设备内的温度下降大概 5℉（3℃）。

Press the "**+**"or "**-**" buttons until the desired set point is displayed. The range for this adjustment is 70° to 126°F, (21° to 52°C). When the adjustment is complete, press the "**Select**" button to continue.

按"+"或是"-"键直到所需要设定的温度。温度调整范围是 70° - 126°F(21° - 52°C)。当调整完成后，按下"选择"键继续。

The set temperature "LO" LED is on with the display indicating the (optional) 'heating on' set point. The heating system will begin operation at this temperature and remain operating until the enclosure temperature increases approximately seven degrees Fahrenheit (four degrees Celsius). Press the "+"or "-" buttons until the desired set point is displayed within a range of 0°F to 63°F (-17.8°C to +17°C).

指示灯"LO"亮的时候，进入"制热启动"设定(可选)。加热系统将开始运作，并持续工作，直到设备内温度升高 7℉（4℃）。按"+"或是"-"键直到所需要设定的温度。温度的调整的范围是 0°F - 63°F (-17.8°C --- +17°C)。

NOTE: Review alarm settings if the 'cool on' or 'heat on' set points have been changed.

注意：如果 "开始制冷" 或"开始制热" 设定的温度改变，同时要注意报警温度的设定.

Press the "**Select**" button to continue. The set alarm "HI" LED is on with the display indicating the high temperature alarm set point. The alarm will activate at this temperature and will automatically reset at two degrees Fahrenheit (one degree Celsius) below this temperature. Press the "**+**" or "**-**" key pads to change the alarm set point within a range of 8oF (or 4°C) above the set temperature "HI" set point, to 135°F (or 57°C).

按 "选择" 键继续设定。指示灯 "HI" 为高温报警温度设定。警报器将在屏幕显示的温度下报警，也会自动在低于这个温度 2°F（1°C）后解除报警。按下 "+" 或 "-" 键可以更改报警值设定，设定范围在 80°F -135°F (40℃-57℃)。

Press the "**Select**" button to continue. The set alarm "LO" LED is on with the display indicating the low temperature alarm set point. The alarm will activate at this temperature and will automatically reset at two degrees Fahrenheit (or one degree Celsius) above this temperature. Press the "**+**" or "**-**" key pads to change the alarm set point within a range of 8°F (4°C) below the set temperature "LO" set point, 80 to 34°F (40 or 1° C).

按 "选择" 键继续设定。指示灯 "LO" 为低温报警温度设定。警报器将在屏幕显示的温度下报警，也会自动在高于这个温度 2°F（1°C）后解除报警。按下 "+" 或 "-" 键可以更改报警值设定，设定范围 80-34°F (40-1℃)。

Press the "Select" button to continue. The display screen will show "SPH" indicating accessing to temperature setting of Air Conditioner operation full speed. Press "Select", the temperature of Air Conditioner operation full speed will show on the display screen. Press the "+" or "-" key pads to change the temperature setting of Air Conditioner full speed within a range of Air Conditioner Starting temperature TEMP-HI to (TEMP-HI+54)F based on requirements.

按 "选择" 键继续设定。显示屏上出现 "SPH"，进入空调全速运行时的温度设定。按下 "选择"，显示屏上将出现当前空调全速运行时的温度。按下 "+" 或 "-" 键根据需求可更改空调全速时的温度设定，设定范围：空调启动温度 TEMP-HI——(TEMP-HI+54)F。

Note: the actual setting value is the temperature difference of the setting value minus temperature high limit. If the setting of temperature high limit changes, the temperature of Conversion Air Conditioner at maximum speed will change correspondingly, but the temperature difference remain unchangeable at maximum speed.

注意：该设置实际存储的数值是该设定值减去温度上限 TEMP-HI 的温度差，当温度上限（TEMP-HI）设置变化时，变频空调最高速度的温度会相应变化，只是最高速度所对应的温差不变。

Press the "**Select**" button to continue. The alarm LED will flash and the display will show "ALL", indicating the "ALL" alarm on/off status. Press "**Select**" and the display will show either "ON" or "OFF", indicating current alarm status. Press the "**+**" or "**-**" key pads to toggle the mode as desired. If the "OFF" mode is selected, no alarms will activate and the audible on/off select function is skipped.

按 "选择" 键继续设定。指示灯 "ALL" 闪烁,进入报警开/关设定。按下 "选择"，显示

器将出现"ON"或是"OFF"，表明现在报警的状态。按下"+"或"-"键根据需求切换报警开关。如果选择"关闭"，蜂鸣声的开关设置将跳过。

Press the "Select" button to continue. The audible LED will flash and the display will show "AUD", indicating the audible alarm on/off status. Press "Select" and the display shows "ON" or "OFF" indicating the current audible alarm status. Press the "+" button or the "-" button to toggle the mode as desired.

按下"选择"键继续设定。发声指示灯"audible"闪烁，在显示屏上出现"AUD"。进入报警器蜂鸣声开/关状态的设定。按下"选择"，显示屏上将出现开"ON"或是关"OFF"，表明现在发声报警器的状态。按下"+"或"-"键根据需求切换模式。

Press the "Select" button to continue. The "C" LED flashes and the display shows either "F" for degrees Fahrenheit or "C" for degrees Celsius. Press the "+" button or the "-" button to toggle the mode as desired.

按下"选择"键继续设定。指示灯"C"闪烁，进入显示温度单位设置. 显示屏上会出现华氏度"°F"或是摄氏度"°C"。按下"+"按钮或是"-"按钮根据需求切换模式。

Press the "Select" button to continue. The code LED is on and the display shows "PIN". To set a new user PIN code, press the "+" button. The display will flash "4", prompting an entry of a four button sequence using the "+", "-", "Select" and/or "Exit" buttons. (Any sequence of the four buttons may be programmed as the code.) As the buttons are pressed, the display will show the number of buttons that were pressed.

按下"选择"键继续设定。密码指示灯闪烁，显示屏上出现"PIN"。要重新设置一个新用户密码，按下"+"按钮。显示屏将显示"4"，使用"+"，"-""选择"和"退出"四个按键，可重新设置一个 4 位数的密码。（任何顺序的四个按键都可以设为密码）在所有的按钮都按完后，显示屏将出现所设置的密码位数。

NOTE: After pressing a button, there will only be 5 seconds to press the next button. If the next button is not pressed within the allotted time, the system will default to no PIN code, indicated by "0" on the display. Once the sequence is entered the display will no longer flash, and will show "4".

注意:按下一个按键后，需要在 5 秒钟内按下一个按键。如果没能在规定好的时间内按下一个按键，系统将默认没有密码，在显示屏上显示"0"。一旦输入序列密码，显示屏将不再闪，而出现数字"4"。

To program the no PIN code mode, press "-" and the display will show "0", indicating no PIN code. With no PIN code, pressing any button will permit access to the program.

如果没有设置密码，按下"-"，显示屏将显示"0"。没有密码的情况下，按任何按钮将可以进入设置。

*** CAUTION *** 注意***

Always record the selection sequence (PIN code) and store in a secure place.
请牢记设置好的密码并储存在安全的地方。

Press the "Select" button to continue. The filter LED flashes and the display will show "FIL",

indicating the filter alarm days selection. Press the "Select" button and the display will show the number of days that the alarm is set in one-half day increments. (Example: 10.5 indicates the alarm will activate every ten and one-half days).

按下"选择"键继续。过滤网指示灯闪烁，显示屏上出现"FIL"，进入过滤网维护周期提醒设置。按"选择"键，显示屏出现的报警天数是一个以半天为增量的设置。(例如：10.5 表明警报器会每隔 11 天报警。)

Press the "+" or the "-" key pads to vary the desired number of days. (Range is 0-99 days). Programming 0 days will disable the alarm.

按"+"或"-"键根据实际需要设定报警周期。（调节范围在 0~99 天）设置 0 天会使警报失效。

NOTE: The required number of days to set this alarm will be determined by the ambient air conditions. If rain or wash down hoods are installed on the system, no filter is supplied and the filter alarm should be set to "0". This will disable the filter alarm.

注意：在控制器上设定的警报天数是由空调周围的环境状况所决定的。如果没有过滤网的空调，报警器天数设置应该为"0"。这样过滤报警器将关闭。

Press the "Select" button to continue. The program LED will be lit and the display will show "Add". Press the "Select" button again and a value of "0.0" will appear. Programming of the microprocessor is now complete.

按下"选择"键继续设定。程序指示灯"PGM"闪烁，显示屏上显示"ADD"。再按一下"选择"按钮，将出现数值"0.0"。这样控制器的程序设置就完成了。

Press the "Select" button to review all of the settings. Press the "Exit" button to enter the selected settings and to return to the normal operating mode.

按"选择"键，查看所有的设置是否正确。按"退出"键返回设置好的程序，按新设置好的程序开始运行。

NOTE: If the "Exit" button is not pressed, any changes to the program settings will not be saved.

注意：如果设置好后没有按"退出"按钮，更改好的任何程序都不会保存。

PC 监控软件操作

PC monitoring software operation
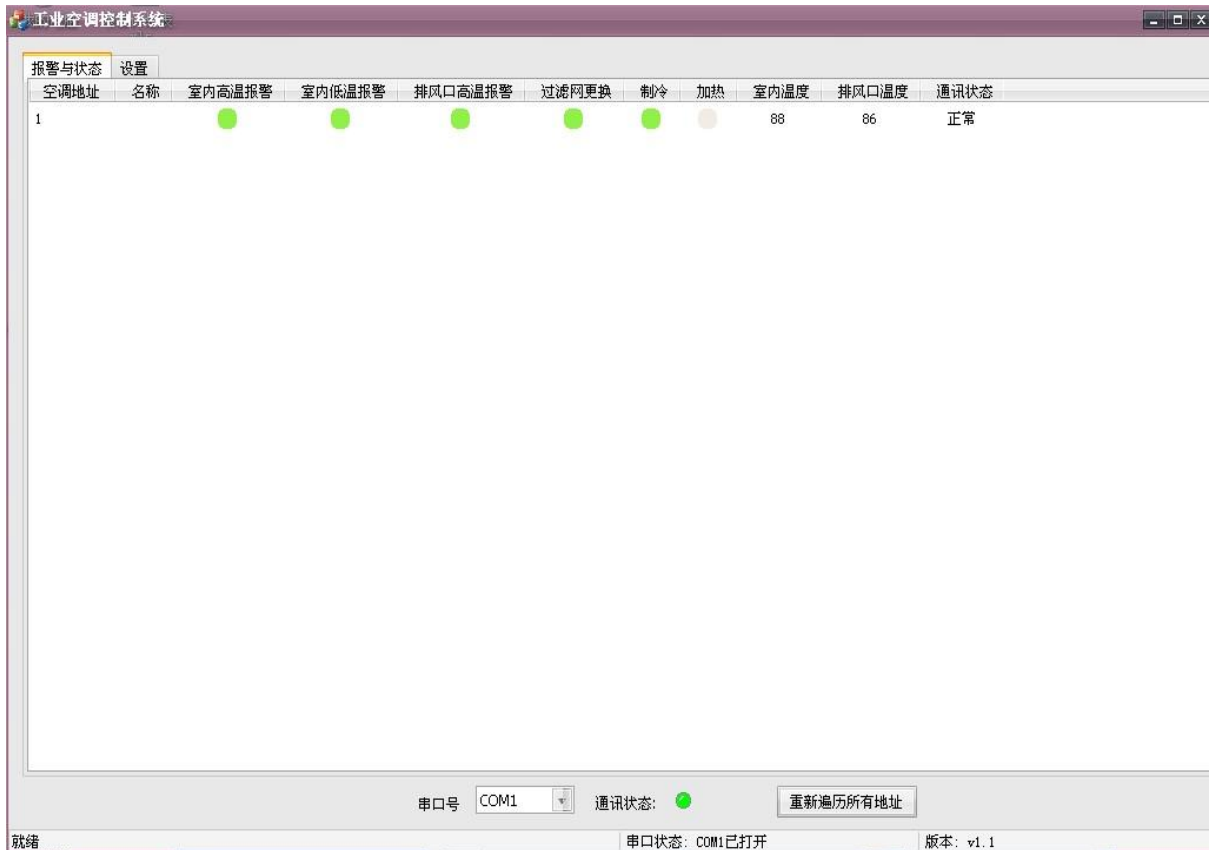
a) 监控软件的启动
   Monitoring software start

软件第一次启动时会读取空调的所有状态参数和设置参数，如果没有连接空调或通讯故障，最底下的状态栏显示 串口状态: 打开串口[COM5] 失败! ，所有的状态显示不作参考，参数显示、设置参数为空白。

Software will show all status parameters and settings parameters of Air conditioners as it first starting. If fail to connecting or communication fault, the

bottom status bar will show "serial port status: fail to open serial port", all the showing status will not be referred, parameters showing and setting parameters are blank.

如果空调与上位机已连接，通讯地址设置正确，且空调已通电，空调的状态与设置参数会正确读出并显示在相应的区域，通讯状态亮绿灯。如下图：

If air conditioner connected with computer, the setting of communication address is correct, and air conditioner being charging, the status and setting parameter will read and show in the related areas correctly, the LED of communication is green, as the below shows:

b) 报警与状态显示
   Alarm and status display

串口号 的设置应该与 RS232-RS485 转换器插入的串口号对应，如果电脑主机无串口，可使用 USB 转 RS232 串口。
监控软件有数据交换时指示灯会闪灯，同时会刷新数据。

The setting of Serial port should be corresponding with the insert serial port of RS232-RS485 converter. If there is no serial port in the computer, use USB convert RS232 serial port.

If there any data exchanging of monitoring software, indicating LED will flash, meanwhile refresh data.

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空调报警状态灯显示为绿色说明运行正常，报警时显示为红色。

制冷：绿灯亮表示空调正在制冷状态，暗灰色表示空调已停止制冷

加热：绿灯亮表示空调正在加热状态，暗灰色表示空调已停止加热（加热功能可选）

室内温度：表示当前空调蒸发器进风温度（室内温度）

<mark>排风口温度</mark>：表示当前空调冷凝器内部温度。

通讯状态：正常表示当前软件可以正确的反应空调的各种状态，异常表示通讯线路已断开，或者空调系统断电。

过滤网更换：指设定相应时间周期提醒，空调过滤网需要清洗或更换。

The status light of air conditioner alarm is green, indicating operating normally, while alarming is red.

Cooling: the green light is indicating cooling status, while grey light is stopping cooling.

Heating: the green light is indicating heating status, while grey light is stopping heating (optional heating function)

Indoor temperature: indicating the inlet air temperature of air conditioner evaporator.

Outlet air temperature: indicating inner temperature of air conditioner condenser.

Communication status: normal indicating software can reflect all kinds of air condition status correctly; abnormal indicating communication has being cut off or air conditioner system power off.

Filter net replace: setting time cycle reminder, air conditioner filter net needs clean or replace.

c) 空调设置区
   Air conditioner setting area

软件显示地址 需与空调的地址一致，系统默认地址为 1-255，指的是可以监控 1-255 台空调，点击名称可以自己为空调命名。

Software display address should be the same as the address of air conditioner. System default address is 1-255, is that monitoring 1-255 air conditioner, click name can name the air conditioner.

允许声音报警：选中该项时，当空调出现故障报警，空调上面控制板会出现蜂鸣声报警提示。

Audio alarm approval: select this button, when there any fault alarm of air conditioner, control panel will appear buzzing alarm indication.

室内温度上限：设置室内温度高于该值时将会启动空调。

Indoor temperature upper limit: it will start air conditioner automatically as the indoor temperature higher than the value.

室内温度下限：设置室内温度低于该值时将会启动空调加热。（需有加热功能）

Indoor temperature lower limit: it will start heater automatically as the indoor temperature lower than the value.(heating function)

温度单位：可以将显示温度进行℃和℉的转换。

Temperature unit: can display Celsius and Fahrenheit exchange.

室内高温报警温度：设置室内温度高于该值时将会高温报警。

Indoor high temperature alarm: it will alarm when the indoor temperature higher than the value.

室内低温报警温度：设置室内温度低于该值时将会低温报警。

Indoor low temperature alarm: it will alarm when the indoor temperature lower than the value.

排风口高温报警温度：设置空调冷凝器散热不良时空调高温报警。

Outlet air high temperature alarm: it will alarm when condenser heating dissipation abnormal.

清除 BUZZER 报警： 点击此按钮可消除控制板的蜂鸣器报警.

Remove Buzzer alarm： Click this button can remove control panel buzzer alarm.

8．ALARM OPERATION: 警报处理

a) **The enclosure temperature is above or below the alarm set point:**
设备箱内的温度高于或低于警报器的设定值：

The alarm LED will light, the display flashes, either "HI" or "LO" LEDs flash with the display and the audible alarm sounds (if activated). The enclosure temperature must rise or fall two degrees Fahrenheit (one degree Celsius) before the alarm will reset.

警报器指示灯会亮着，显示屏上数字也将会闪，"HI"或是"LO"指示灯也会跟着显示屏闪烁，警报蜂鸣声也会响起（如果被激活）。机箱的温度必须升高或是下降 2℉（1℃），警报器才会解除警报

b) **The filter day timer has expired:** 空调过滤网维护周期已到

The alarm LED lights, the display flashes showing "FIL", the filter LED flashes with the display and the audible alarm sounds (if activated). The filter alarm may be cleared by pressing "**Exit**".

警报器指示灯将亮着，显示屏将闪现"FIL"，"FILT"指示灯也跟着显示屏闪，警报蜂鸣声响起（如果被激活）。按下"退出"，警报解除。

c) **Sensor Malfunctions:** 传感器故障

E-O - Evaporator sensor open	E-O-表示蒸发器传感器断开
E-C - Evaporator sensor shorted	E-C-表示蒸发器传感器短路
C-O - Condenser sensor open	C-O-表示冷凝器传感器断开
C-C - Condenser sensor shorted	C-C-表示冷凝器传感器短路

NOTE: An alternating E-O … C-O display may indicate the sensor connector has become disconnected from the rear of the controller.

注意： E-O,C-0 交替显示可能表示传感器接头已经跟控制器断开了。

9．MAINTENANCE: 空调的维护

The Rimedyne air conditioning system is designed to provide many years of trouble-free operation with minimal amount of maintenance. Primary maintenance consists of checking the condition of the ambient air filter and the condensate management system.

齐力空调系统的设计保证多年无障碍运行及最少量的维护。其基本的维护包括根据环境状况检查空气过滤网和冷凝系统。

a) **Ambient Air Filter**: It is recommended that the ambient air filter be inspected and cleaned regularly, at least every 90 days, or more frequently depending upon ambient conditions. To check the condition of the air filter, it is recommended to first remove electrical power from the Rimedyne system. Next, locate the filter cover and filter, (location will vary by model). Slide the filter from the filter rack through the end slot, and clean by soaking in warm soapy water. Rinse with clean water. Use a shop-vac to remove excess water from the filter before returning it to the system. Replace the filter if it is showing signs of deterioration.

空气过滤网：我们建议对空气过滤网进行定期检查和清洗，至少每隔 90 天或根据环境条件更频繁的进行维护。检查过滤网时建议先关掉空调的电源。然后找到过滤网罩和过滤网的位置（具体位置随型号而异）。取出过滤网，用温肥皂水浸泡,清洗过后再用清水冲洗干净。滤干过滤网的水分后，再把它装回到空调。如果过滤网出现破损时，需要重新更换。

NOTE: If rain or wash down hoods have been installed, a filter would not have been supplied, therefore no filter maintenance is required. However systems equipped with rain or wash down hoods will require regular condensing section maintenance by qualified personnel. For systems equipped with filters, it is recommended to have a spare clean filter in stock in order to prevent prolonged cooling system downtime. The dirty filter may be cleaned at a more convenient time.

注意：如果空调设计有防雨罩，将不会提供有空气过滤网，所以就没有维护过滤网的需要了。然而系统配置了防雨罩将需要技术人员定期对空调的冷凝器部分进行维护。对于装有过滤网的空调，建议要有一个备用的干净过滤网以防止空调的停机时间过长(脏的过滤网可能不能马上进行清洗)。

B) **Condensate Management System:** The condensate management system should be checked periodically for scale, sludge and debris that may cause the system to fail. On open type enclosures and in areas where the enclosure door is opened frequently within dirty or industrial environments, maintenance should be performed on a regular basis. On sealed enclosures, clean environments, or where the door is not opened frequently, maintenance may be performed annually. The type of environment will determine the frequency of required maintenance.

冷凝管理系统：冷凝器及其风机应该定期检查。污垢，灰尘等可能导致空调散热不好而制冷功率下降。开放式机箱和机箱门经常打开的，必须定期进行维护。封闭性机箱，或在干净的环境，机箱门不经常打开的，可能一年只需进行一次维护。空调环境的类型决定了必要维护的频率。

Maintenance of the condensate management system will require removal of electrical power from the Rimedyne system and removal of the cover. Please contact Rimedyne before removing the cover during the warranty period..

冷凝器的清洗及维护需要切断空调的电源并拆下外壳。在保修期间需拆下外壳的请先与

*** CAUTION *** 注意***

Electrical wires are connected from the cover to the base.
从外壳到底座有电源线连着，拆开时请小心注意。

Removing the cover will allow access to the primary condensate management pan. Inspect the condensate pan and the drain nipple for signs of scale, sludge or debris that may prevent water flow through the nipple. To clean the debris from the pan, use a clean absorbent cloth or shop-vac. Nipples may be cleaned using a 1/4 inch tubing brush, then flush with clean water.

拆下外壳就可以看到冷凝器的位置。检查冷凝器翅片和排水胶管。污垢，或是灰尘都可能影响排水孔排水。用专用的清洗剂或是的吸尘器清除冷凝器盘管的灰尘。排水孔要用0.25 英尺的软管刷来清洗，然后再用清水冲洗。

Also inspect the neoprene tubing that is attached to the nipples on the condensate management system. Replace the tubing if it appears to have internal build-up or has become brittle.

同时要注意检查装在托水盘上的排水胶管。如果排水胶管出现内部堵塞或是变硬变脆，就要更换掉。

NOTE: If there is a secondary condensate management pan, maintenance will need to be performed in the same manner as explained above.

注意：如果系统有两个冷凝器，也需要按上述所说同样进行操作维护。

After all debris has been removed from the system, replace the cover onto the unit – being careful not to damage the wiring connecting the cover to the base.

清理完系统里的全部污垢后，把外壳重新装回底座——小心不要损坏连接外壳到底座的电线。

C) **Cooling system cabinet:** The cooling system cabinet may also need to be cleaned occasionally. To clean the system cabinet, simply wipe it with a damp, lint free cloth. A mild soap solution may be used if necessary.

冷循环系统：冷循环系统内部也需要不定期的进行清理。清理冷却系统比较简单，只需用非棉质的湿布简单地擦拭蒸发器。如有需要，也可以用温和的肥皂水清洗。

10．TROUBLE SHOOTING: 故障分析

Contact Rimedyne if the air conditioning system should fail to operate satisfactorily during the first year of operation. DO NOT remove the cover without first notifying the factory. **Removal of the cover will immediately void the warranty.**

如果空调系统在运行的第一年中出现故障，请联系齐力公司。请不要在没有通知齐力公司就拆开空调，自行拆开空调将使保修协议失效。

If an operating problem should occur, please review the items outlined in the following "Trouble Shooting Check List". If the problem persists, contact Rimedyne for technical assistance.

如果有任何操作上的问题，请参考下表中的故障排查表。如果问题仍存在，请联系齐力公司的技术支持。
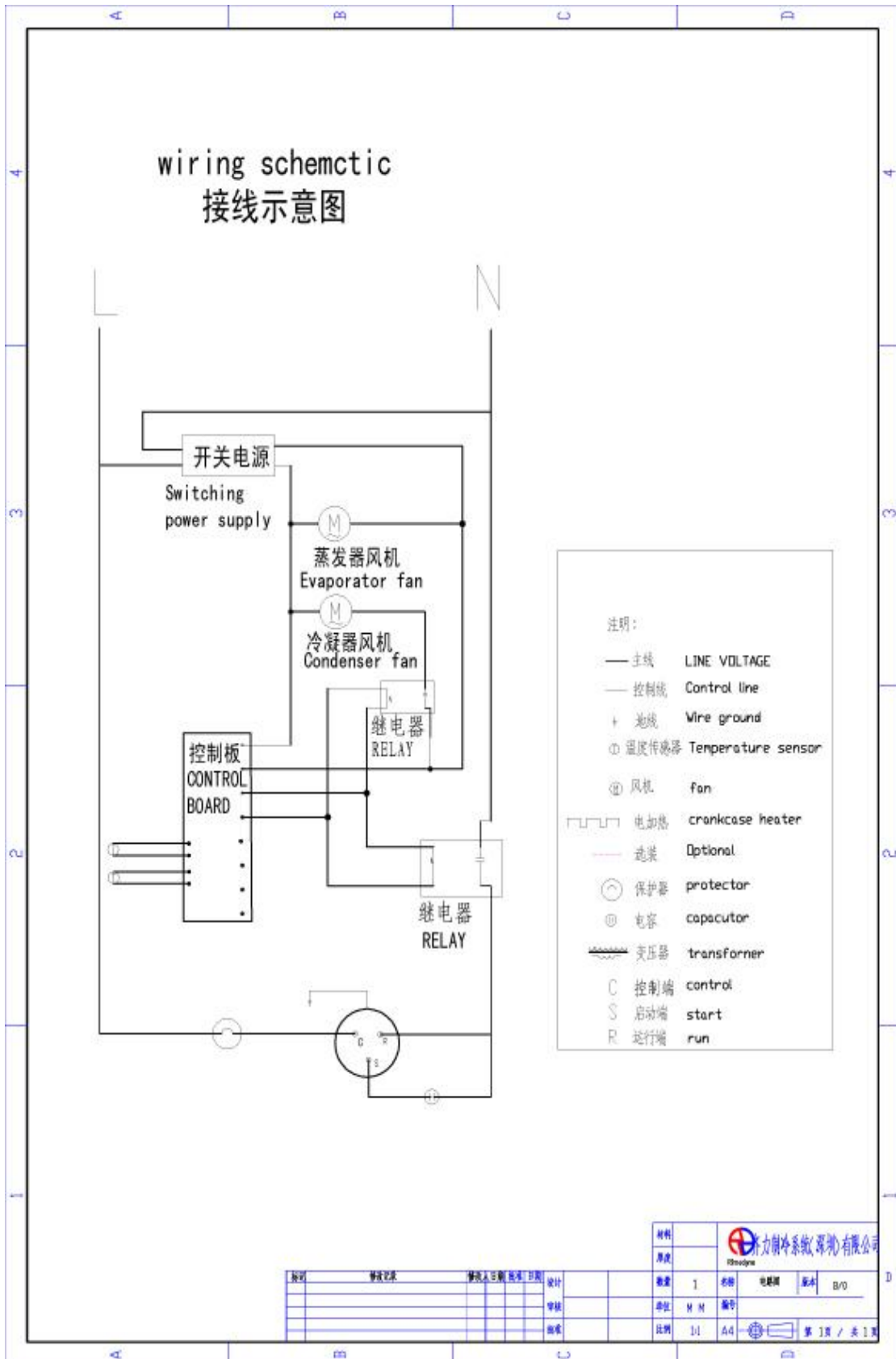
TROUBLE SHOOTING CHECK LIST

故障排除表

Model NO. 型号：			S/N NO. 产品编号：		
Voltage Rating: 额定电压：	Amps: 电流：		Phase: 相位：	Hz: 频率：	
Is proper electrical power available at the outlet? 空调供电电源是否满足需要				YES	NO
Is the power cord connected to the proper electrical supply? 空调电源线是否与供电电源连接正确				YES	NO
Is the controller set point temperature above or below the enclosure temperature? 设备箱内温度是否在空调控制器温度设定范围内				YES	NO
Is the evaporator (cold air stream) blower operating? 蒸发器风机(冷风口)是否正常运行				YES	NO
Is the compressor and condenser (warm air stream) blower operating? 压缩机或冷凝器风机(热风口)是否正常运行				YES	NO
Is the enclosure door closed tightly? 设备箱的门是否紧闭并密封				YES	NO
Are all of the gaskets in place? 空调背面密封条是否在合适位置				YES	NO
Has the condenser (warm air stream) filter been cleaned or changed recently? 冷凝器及过滤网是否清理(没有被灰尘堵塞)				YES	NO
Is the system mounted level on the enclosure? 空调是否竖直安装并且垂直于水平面				YES	NO
Is there adequate space within the enclosure for air flow? 设备内是否有足够空间让空气流通				YES	NO
Is there adequate space around the enclosure for air flow? 设备箱外部是否有足够空间让空气流通				YES	NO
Have you recently added electronic equipment to the enclosure? 最近是否有在设备箱内新增加电子设备				YES	NO

Still experiencing problems?

Please Call Rimedyne at +86-0755-33821986

如果问题依然存在，请联系齐力公司：+86-0755-33821986

11．**Schematic Wiring Diagram** 空调电路图

wiring schemctic
接线示意图

开关电源
Switching power supply

蒸发器风机
Evaporator fan

冷凝器风机
Condenser fan

继电器
RELAY

控制板
CONTROL BOARD

继电器
RELAY

注明：

—— 主线　LINE VOLTAGE
—— 控制线　Control line
+　地线　Wire ground
① 温度传感器　Temperature sensor
⑭ 风机　fan
电加热　crankcase heater
选装　Optional
保护器　protector
电容　capacutor
变压器　transforner
C　控制端　control
S　启动端　start
R　运行端　run

齐力制冷系统（深圳）有限公司
Rhodyne

备注：此图仅供参考。个别机型的电路图存在差异。解释权归齐力公司所有。

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12．Warranty：保修

The seller warrants to the original Buyer that the products manufactured by the seller are free from defects in material and workmanship. If the buyer notifies the seller within one year of such defects (the "warranty period "), and returns the products to the seller at the buyer's sole expense, seller shall, at its option, repair the products, or replace them with products of comparable value. In either case, the warranty period for the repaired or replace products shall extend after the date of repair or replacement for a time equal to the original warranty period. If the buyer does not notify the seller of such defects, whether patent or latent, within the warranty period, seller shall have no further liability or obligation to the buyer. Therefore, in no event shall seller's liability under this warranty exceed the original purchase price of the products which are the subject of a proper notice of defects.

齐力公司向用户保证，齐力生产的产品没有材料和工艺上的缺陷。如果用户在一年之内（保修期）发现产品有质量问题，可通知齐力公司，退回这个产品给齐力。用户可以选择维修该产品或是更换有同等价值的其它产品,但需支付货运费用。不管是哪一种选择,维修或是更换产品后的保修期都会按新购产品重新算起。如果用户没有通知齐力公司这类缺陷,不管保修期内是否存在潜在的问题,齐力公司对用户没有进一步的责任和义务。因而在何种情况下，齐力对产品缺陷承担的责任上限不超过产品本身的价格，使用引起的间接损失本公司不承担连带责任。

In no event will seller be liable for any incidental or consequential damages of the buyer. The foregoing remedies are the sole and exclusive remedy of buyer for any breach of warranties in this transaction.

在任何情况下，对偶然因素或不可抗拒力因素造成的损失本公司不承担相关责任。上述的赔偿方式也只是在此次交易中卖方违反了质量保证后给予客户的唯一赔偿。

The scope of disclaimer 免责范围

❖ Exceed the warranty period
已超过保修期限的

❖ Can not provide the factory code of the products (see nameplate of tips)
不能提供产品出厂编号的（见机身贴示的铭牌）

❖ The damage caused by user to replace or dismount components of products at will, or by the unauthorized service agency to repair.
用户自行更换或拆装产品零部件造成损坏的，或由非授权服务拆修而造成损坏的

❖ Because of the unsteady supply voltage, surpassing air-conditioner usage scope or the disorder circuit, or violating the state security electricity utilization standards that result in the damage of air conditioner.
因用户电源电压不稳,超过空调器使用范围或线路不规范,不符合国家安全用电标准造成空调损坏的

❖ The improper ways of shipment、storage、usage and management (such as air conditioner should not be placed upside down) lead to the air conditioner physically damage.
由于运、装、用、管不当等导致空调物理损坏(如空调不能倒置)等

- ✧ The erosion (or burning down) of control circuit panel and the damage of electrical appliances result from liquid or solid entering the internal air conditioner.
  由于液体或固体进入空调内部而导致控制线路板腐蚀（或烧毁）、电器的损坏等
- ✧ Due to ultra high temperature or ultra low temperature, electrical appliances and wire stock have been burned down (or exceeding ageing)
  由于超高温或超低温工作导致电器及线材烧毁（或者过渡老化）
- ✧ To make a equipment or maintenance without according to the specification , or result from irresistible factor
  未按照说明书要求进行安装使用或维护的，或因不可抗拒因素造成损坏的
- ✧ Other non-qualities factors caused the air conditioner damage.
  其它非产品质量原因所引起的空调损坏
- ✧ The service items which are not guaranteed by our company.
  非我公司承诺的服务项目

13. Manufacturer Address（制造商地址）

齐力制冷系统（深圳）有限公司　Rimedyne Refrigeration System (Shenzhen) Co., Ltd
中 国 广 东 省 深 圳 市 横 岗 镇 安 良 五 村 福 坑 路 172　N0. 172, Fukeng Road, Anliang Village, Henggang Town, Longgang District, Shenzhen 518115, Guangdong, China
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