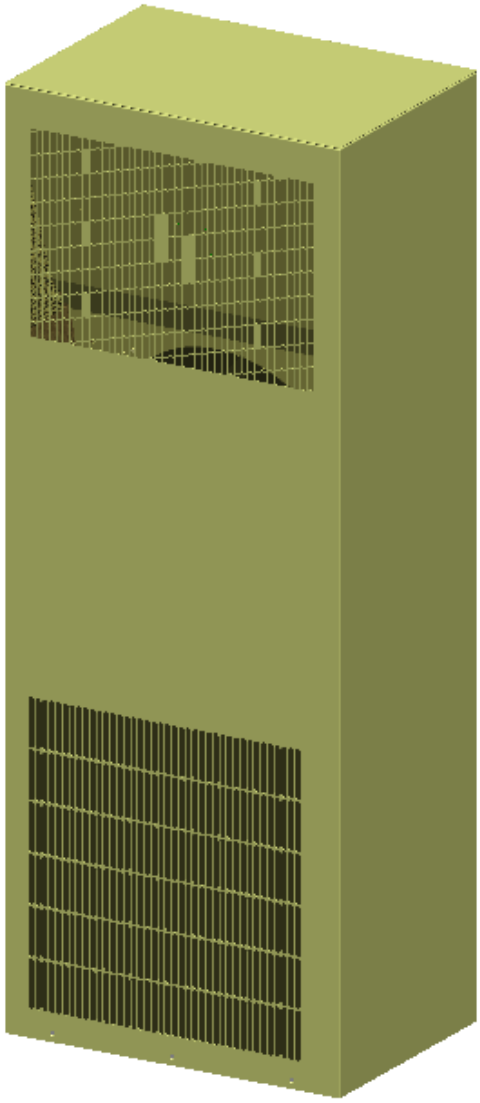
Service Manual

(服务手册)

Agility 3000w



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Revision History（版本信息）		
Revision（版本号）	**Description（描述）**	**Date/Author（作者/日期））**
01	**Release（正式发行）**	Roge. Wang Tom. Sun 2010-10-27

Table of contents

1. Introduction

Purpose

This Service Manual is addressed to the technical crew, who installs and maintains the Agility 3000W through all steps in its lifetime.

The manual includes descriptions of functionality, replacement of parts as well as how to carry out preventive maintenance.

Usage of the product

This unit is especially designed for cooling of electronic equipment and for door mounting. The unit requires access to ambient air through slots on the backside of the unit.

The unit must under no conditions be used for other purposes and should be installed and placed according to the instructions in this manual.

Storage

Under storage and transportation the unit must be kept in an upright position.

Declaration of conformity

Dantherm declares, meet 2002/95/EC.ROHS directive for mass production. This unit is in conformity with the following directives and standards:

Directive	Name / Area
98/37/EEC	Safety of machines
73/23/EEC	Low Voltage
89/336/EEC	EMC
Standard	**Name / Area**
EN 292	Machine safety
EN 60 335-1	Low voltage
EN 60 335-2	Low voltage
EN 60 950	Electrical Machinery safety
EN 50 082-1	Immunity
EN 50 081-2	Emission
EN 50 106	Safety for electrical machinery
GR-487-CORE	According to Belcore (shock)
GR-63-CORE	According to Belcore (shock)
529-IP 55	IP rating according to IEC
CE	Declaration of conformity for machinery.

Kristian Askegaard

General Manager,

Dantherm Air handling (Suzhou) Co., Ltd.

2. Identification of the Unit

All units have a silver type plate label, where all the important information about the specific unit can be found. Also the Dantherm address and phone numbers are printed here so the contact can be made on the site.

Serial number

Especially the serial number is important, and should always be mentioned when Dantherm is contacted about issues concerning the specific unit.

3. Installation and start-up

Within this section the procedure of getting started is described from unpacking till start-up.

Package

Contents in the package

The Agility 3000W air conditioner is delivered with an installation kit with the following content:

Item description	Quantity	Unit
Agility 3000W Air Conditioner	1	PCS
Service manual	1	PCS
Gasket	3	M
M8 screw	10	PCS
M8 flat washer	10	PCS

Tools For installation:

- AC power supply (Rated Voltage :220 V, 50/60Hz)
- Small screwdriver (electrical shock protected)
- cutting nippers
- spanner

Mounting

Mounting procedure

The mounting procedure of this unit should follow these steps:

1. Demount the package.
2. Stick the gasket on the inside round.
3. Mount this unit on the chosen wall/cabinet with 10-M8 screws. (The unit must keep in an upright position, and the mounting angle must ≤ 3°).
4. Connect the AC power cable and alarm cable.

Start-up

Turn on the power and the unit will start running.

Demounting

If the unit by any need should be demounted the steps below should be followed:

1. Uninstall the main power cable from power supply. (Make sure that the power supply is powered off!)
2. Take out the signal cable.
3. Unscrew the 10-M8 mounting screws. (Save the screws for reinstallation.)
4. Take off the air conditioner form cabinet or wall.

4. Description of functionality

General description

The Agility 3000W unit is an industrial controller Heat Management System especially designed for heat management of electronic enclosures. The unit contains compressor, condenser, evaporator, fans as well as an active cooling section. The unit will work in extreme temperatures ranging from -20℃ to +55℃.

The active parts that are controlled by the Control board are:

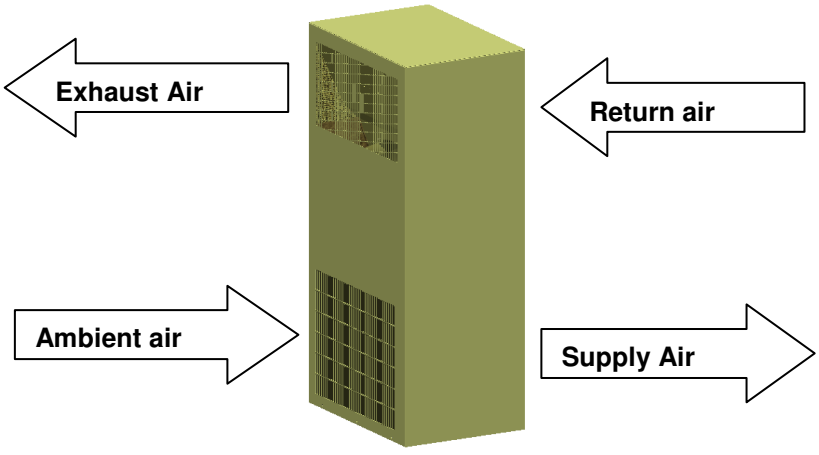
- Compressor
- Evaporator fan
- Condenser fan
- Heater

Temperature

The controller manages the internal temperature based on the return air temperature.

The following terms for temperatures are used in the following description (see below figure):

- Supply Air temperature is the temperature of the air leaving the unit to cool down the electronic equipment.
- Return air temperature is the temperature of the air entering the air conditioner from the electronic equipment.
- Ambient air temperature is the outside air temperature.
- Exhaust air temperature is the temperature of the air leaving the unit to the ambient.



Set points

The set points can be adjusted on the control board.

Standard settings	Range	Unit	Descrip-tion	Function
35	[25 – 40]	°C	Compressor	If the return air temperature exceeds set point the compressor starts. If the return air drops to set point -10℃ (0-15 adjustable) the compressor stops.
5	0 – 15	℃	Heater	If the return air temperature drops to set point the heater starts. If the return air increases to set point +10℃ (0-15 adjustable) the heater stops.

Alarm signal

The following conditions will result in alarms output:

Alarm description	Initialise	Unit	Function
High temperature	Return. temp > 60	℃	System surveillance
Low temperature	Return. temp < 0	℃	System surveillance
Heater failure	No current	-	System surveillance
Compressor failure	No current	-	System surveillance
High pressure	> 28	bar	Compressor protection

Controller operation

Designation	Temp	[℃]	up	down	[℃]	Temp	Designation
Internal fan runs							
High temperature alarm		60			60		
		55			55		High temperature alarm rescind
		50			50		
		45			45		
		40			40		
Compressor starts Condenser fan starts	Return	35			35		
		30			30		
		25			25	Return	Compressor stops Condenser fan stops
		20			20		
Heater stops	Return	15			15		
		10			10		
Low temperature alarm rescind		5			5	Return	Heater starts
		0			0		Low temperature alarm
		-5			-5		
		-10			-10		
		-15			-15		
Heater starts	Return	-20			-20		
Internal fan runs							

Compressor operation

Runtime protection

To increase the lifetime of the compressor, the length of respectively for on/off mode can be no shorter than 3 minutes.

External fan operation

When the compressor starts it will activate the external fan to run.

If the return air temperature decreases to 25 [°C] the compressor will stop. This will force the external fan to stop. And this will take place until the condenser temperature exceeds 35 [°C] again.

Internal fan operation

The purpose of the internal fan is to circulate the internal air, and therefore the internal fan will constantly be running when the power supply is turned on.

If the current to the internal fan is missing, a serial output signal will be activated.

Heater operation

The heater is turned on and off by the electronic temperature controller according to the set point- see table above in the section: Set points.

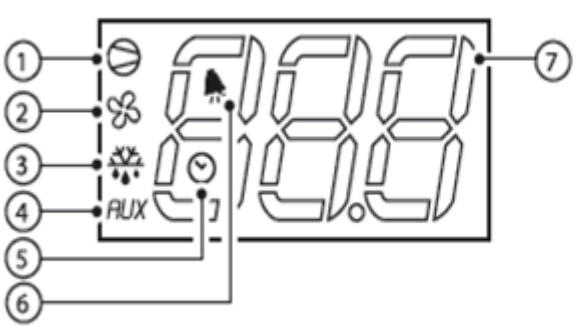
If the heater is turned on the compressor will not be able to start, because the electronic temperature controller is prohibiting this situation to appear.

If the current to the heater is missing, a serial output signal will be activated.

5. Operating panel

The electronic temperature controller includes an operating panel, which can be activated after inputting the password.

NO.	Function Compressor	Normal Operation			Display
		ON	OFF	Flash	
1	compressor and cond fan	compressor and cond fan on	compressor and cond fan off	call	ON
2	unused	-	-	-	-
3	Heat	Heat on	Heat off	call	ON
4	Aux/Alarm	Alarm	No Alarm	call	OFF
5	unused	-	-		-
6	buzzer	Alarm	No Alarm	call	OFF
7	digits	three digits with decimal point and range -199 to 999. values in ℃/℉			



Modifying the parameters

The operating parameters, set using the front keypad, are divided into two families: frequent (type F) and configuration (type C). Access to the latter type is protected by a password that prevents random modifications or entry by unauthorized persons.

Accessing the type F parameters:

- Press the SET button for more than 5 seconds (in the event of alarms, first mute the buzzer) the display shows the code of parameter 'PS' (password);
- Use the UP and DOWN buttons to scroll the names of the parameters. The scrolling of the parameters is accompanied by an icon on the display that represents (where possible) the category the parameter belongs to;
- Press SET to display the value associated with the parameter; increase or decrease the value using the UP or DOWN button respectively; press SET to temporarily save the new value and return to the display of the parameter;
- Repeat the operations if necessary;
- Press the SET button for more than 5 seconds to permanently save the parameters and exit the parameter setting procedure.

Accessing the type C parameters:

- Press the SET button for more than 5 seconds (in the event of alarms, first mute the buzzer) the display shows the code of parameter 'PS' (password);
- Press the SET button to enter the password; use the UP and DOWN buttons to scroll the numbers until displaying "22" (password to access the parameters);
- Press the SET button to confirm the password;
- Use the UP and DOWN buttons to scroll the names of the parameters. The scrolling of the parameters is accompanied by an icon on the display that represents (where possible) the category the parameter belongs to;
- Press SET to display the value associated with the parameter; increase or decrease the value using the UP or DOWN button respectively;
- Press SET to temporarily save the new value and return to the display of the parameter;
- Repeat the operations if necessary;
- Press the SET button for more than 5 seconds to permanently save the parameters and exit the parameter setting procedure.

Parameter List

Par.	Description	Vis.	min	max	unit	def
PS	Password	F	0	200	-	22
/2	Probes stability	C	1	15	-	4
/4	Displayed probe selection	C	1	3	-	1
/5	℃/℉ selection	C	0(℃)	1(℉)	-	0
/6	Decimal point inhibit	C	0	1	-	0
/C1	Probe 1 offset	C	-50	50.0	℃/℉	0
/C2	Probe 2 offset	C	-50	50.0	℃/℉	0
St1	set point for compressor(setpoint1)	F	r1L	r1H	℃/℉	35
St2	set point for heater(setpoint2)	F	r2L	r2H	℃/℉	5
rd1	Regulation differential 1	F	0	15	℃/℉	10
rd2	Regulation differential 2	F	0	15	℃/℉	10
r1L	Min value for set point 1	C	-50	r1H	℃/℉	16
r1H	Max value for set point 1	C	r1L	+150	℃/℉	40
r2L	Min value for set point 2	C	-50	r2H	℃/℉	0
r2H	Max value for set point 2	C	r2L	+150	℃/℉	15
c0	start delay after power-on for compressor and heater	C	0	100	Min	0
c1	delay between 2 consecutive starts	C	0	100	Min	0

c2	minimum compressor OFF time	C	0	100	Min	3
c3	minimum compressor ON time	C	0	100	Min	3
A0	alarm differential temperature	C	-1	10	℃/℉	5
AL	low temperature alarm	C	-50	10	℃/℉	0
AH	high temperature alarm	C	30	80	℃/℉	60
Ad	temperature alarm delay	C	0	199	Min	0
A4	3rd input conf.	C	0	1	-	1
A7	digital input alarm delay	C	0	199	Min	0
F0	Fan control by temperature probe 2(CON.T)	C	0	199	Min	0
F1	Set point for fan	F	-50	130	℃/℉	45
F2	Controller close fan	C	0	1		1
F4	Regulation differential of fan	F	0	15	℃/℉	10
Ft	Set time for the temperature probe 2(CON.T) is higher F1 if the compressor is stop	C	0	200	Min	1
H0	supervisor serial address	C	0	207	-	1
H1	Choose the heater or fan	C	0	1		1
H4	disable buzzer	C	0	1	-	0
H5	ID code (read-only)	C	1	199	-	1

Notes:

Vis: "F" means the parameters can access without password.

"C" means the parameters are protected by password.

Self-test

Press UP + DOWN for more than 5 seconds, start a self-test process:

Test point	Description	Int. Fan	Heater	Comp.	Cond. Fan	Alarm	Duration
1	Off	On	Off	Off	Off	Off	8s
2	Heater	On	On	Off	Off	Off	20s
3	Alarm	On	Off	Off	Off	On	10s
4	Comp. and Cond.	On	Off	On	On	Off	45s

6. Technical data

Performance(return/ ambient : 35℃/35℃)			
Specification	**Unit**	**Designation**	**Value**
Loads			
Cooling capacity	W	Incl. osmotic heat and solar gain	3000
Heater	W	Heat dissipation (nominal voltage)	1600
Refrigerant	g	R134a	1000
Flow			
Internal	M^3/h		1430
External	M^3/h		1700
Pressure			
Operation	K Pa	Operating pressure	101.3 (70-106)
Disp.	Pa	Estimated pressure drop internal	100
Drop	Pa	Pressure drop in climate unit (int.)	50
Temperature			
T_{cool}	°C	Cooling set points	[+25 ~ +40]
$t_{operate}$	°C	Operating temperature	-20 ~ +55
$t_{storage}$	°C	Storage temperature range	-20℃～70℃
$t_{humidity}$	°C	Storage Relative humidity	≤80%
Noise level	Db(A)	Sound Pressure （50 Hz）	68
Noise level	Db(A)	Sound Pressure （60 Hz）	71.1

Cabinet data:			
Specification	**Unit**	**Designation**	**Value**
Dimensions.	mm	Height x Width x Depth	1273.5*490.5*343
Net Weight	kg	Total	76
Metal sheet material	mm	Aluzinc steel & stainless steel	1.0 / 1.5
Packaging	-	Customer requirement	Wooden pallets + Carton
Signage	-	Type signage and warnings	-

Electrical data			
Specification	**Unit**	**Designation**	**Value**
Voltage supply	VAC	One phase	220 ± 10%
Frequency	Hz	Nominal (tolerance ± 2)	50/60
Power consumption	W	Measured at specified condition (50Hz)	1293
		Measured at specified condition (60Hz)	1750
Current	A	Measured at specified condition (50Hz)	5.36
		Measured at specified condition (60Hz)	7.72

7. Preventive maintenance

Introduction

This heat management system contains moving mechanical parts, and is often placed in rough environments with high temperatures, humidity and dirt. To keep the air conditioner in a shape where it will perform according to the specifications, preventive maintenance has to be carried out.

Caution

Do not start working on the unit before both the AC supply is safely switched off. Do not switch it on before all the work has been performed and the unit is ready for use. Only trained and certified technicians are to carry out replacement of parts and other maintenance tasks!

Tools

Needed equipment	To carry out...
Vacuum cleaner or compressed air.	Carefully clean the internal of unit
Soft bristle brush	Remove dirt that the vacuum cleaner or compressed air could not remove
Screwdriver	Tighten loose screws

Like a car the units need to be maintained with at regular interval to prevent an overheated situation causing the units to shut down abnormally. Also lack of maintenance could cause unnecessary pollution to the environment.

The interval between the preventive visits should not exceed 6 months. The visits should be planned so that one of the visits is done before and after the hot season. In that way the air conditioner will be ready, when the demand for cooling is high.

Conditions of warranty

The factory warranty is only valid if documented preventive maintenance has been carried out with an interval of maximum six month（normally air quality location）or two month (very bad air quality location). The documentation could be in form of a written log on the site, or a report from the computer test program.

Recommended maintenance approach

The recommended approach when performing a preventive maintenance visit is:

Step	Action
1	Make sure that the power to the unit is safely switched off.
2	Clean the unit carefully for dust especially at: Air ducts, Fans, Condenser and evaporator coils.
3	Perform the" tasks" using the checklist.
4	Perform a test simulating all temperatures within the specified temperature range.

Checklist	Yes	No
Are the fans and the compressor clean and free of corrosion?		
Are the fans and the compressor mounted securely and free of excessive vibration?		
Is the compressor free of excessive noise?		
Are the coolant pipes free of obstructions, damage, and corrosion and show no obvious signs of leakage?		
Are the coil lamellas clean and undamaged?		
Are all fan blades free of obstructions, cracks, missing blades and in balance?		
Do the fans rotate freely and are they free from excessive vibration or noise?		
Is all wiring and insulation undamaged?		
Are all connectors seated properly and in good conditions?		

Before leaving the site

Make sure that there are no alarms and that the BTS is in operation before leaving the site.

8. Replacement of spare parts

When to replace

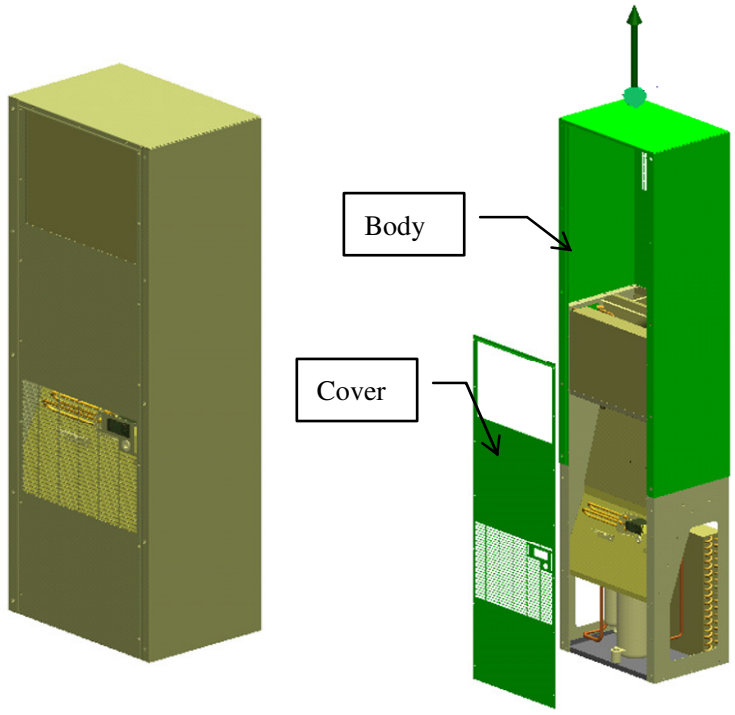
No components in the Agility 3000W are to be replaced regularly. This section is therefore only describing how to replace the spare parts if they are not running smoothly – so only replace if they component is faulty!

Before the demounting the old spare part it is very important to order the new spare part at Dantherm. To do this most effectively the product version and serial number should be checked so this information can be passed on when ordering. This information can be found on the silver type plate on the cabinet.

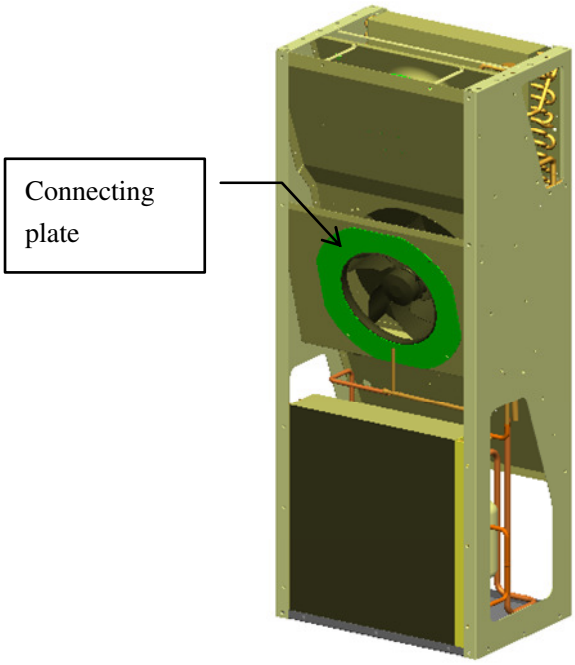
Caution: it is very important to cut off the power before replace spare parts!

Replacing the external fan

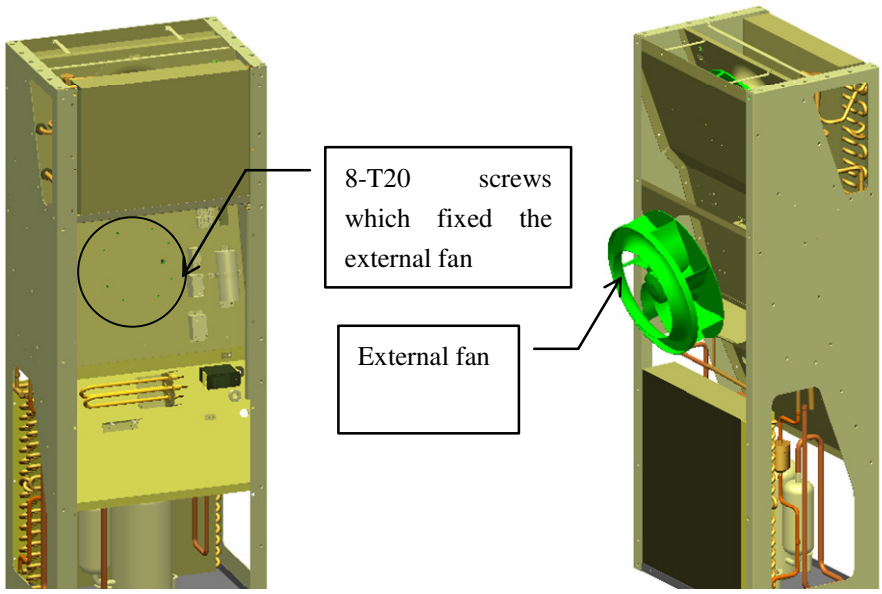
Step 1, Remove 20-T20 screws on the cover, and remove the cover and the body from the unit.



Step 2, Remove 4-T20 screws on the connecting plate, and remove the connecting plate from the unit.

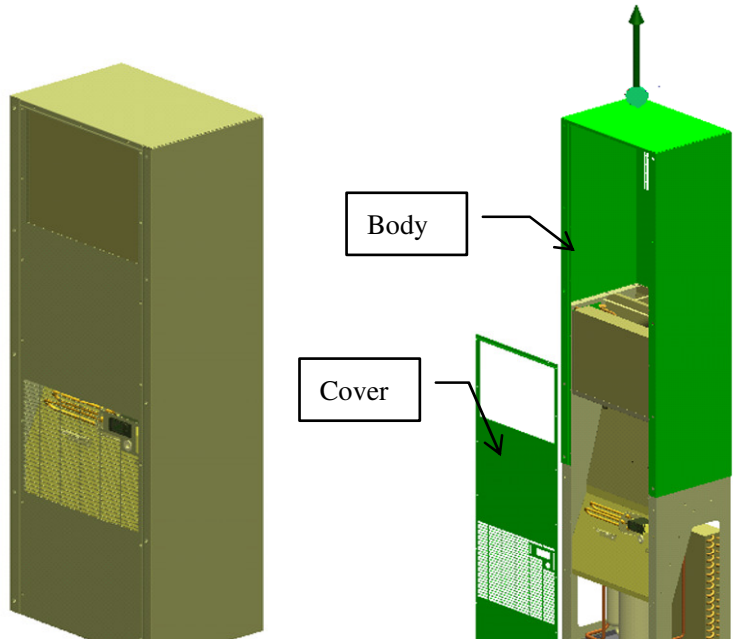


Step 3, Disconnect the fan connector, remove 8-T20 screws which fixed the fan, then take out the fan with its bracket, and replace the external fan.

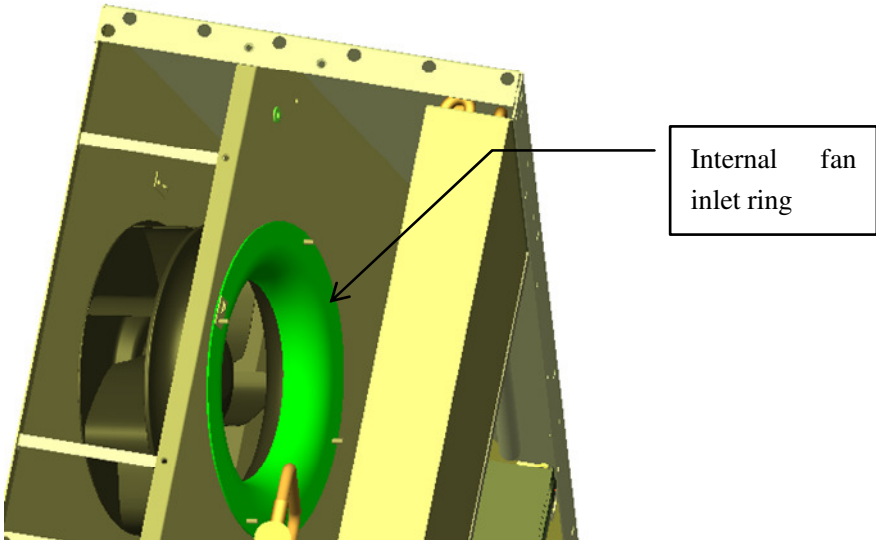


Replacing the internal fan

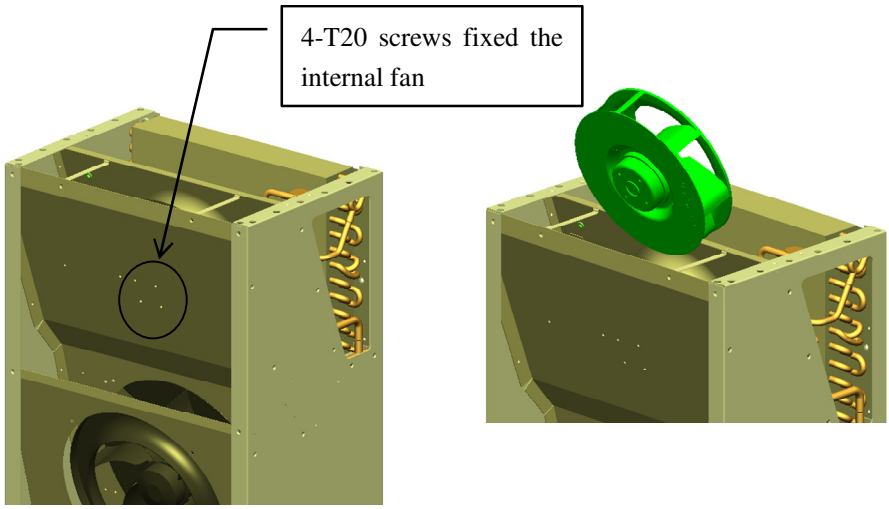
Step 1, Remove 20-T20 screws on the cover, and remove the cover and the body from the unit.



Step 2, From the top view, unscrew the 4-M4 nuts which fixed the internal fan inlet ring, then take out the inlet ring.

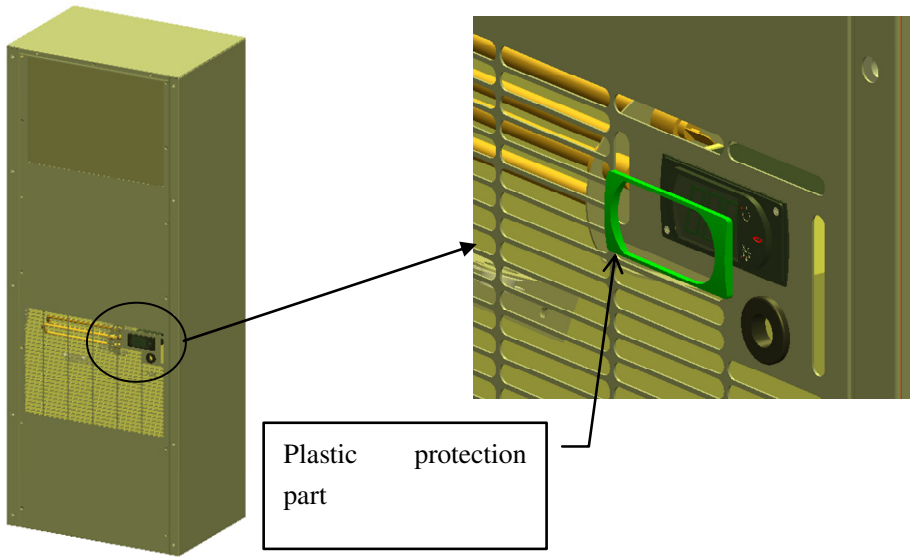


Step 3, Remove the 4-T20 screws which fixed the internal fan, then take out the fan and replace it.

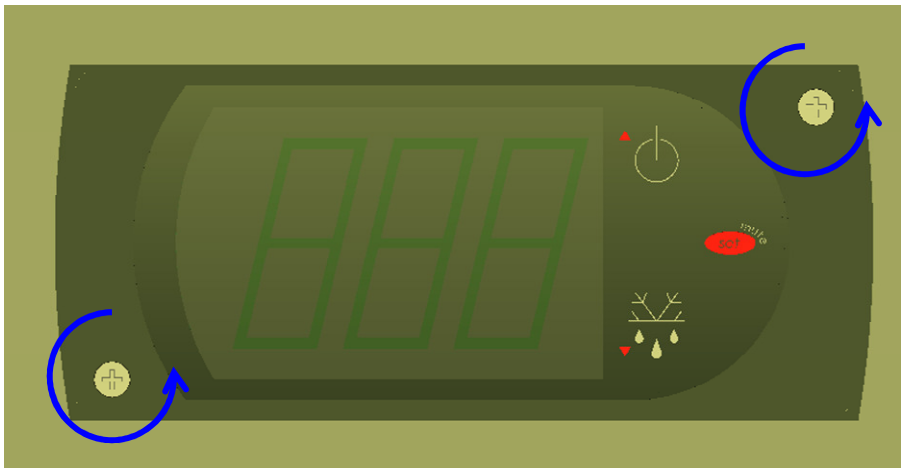


Replacing the control board

Step 1, pull off the plastic protection part, then can see the 2 cross screws on the controller front.

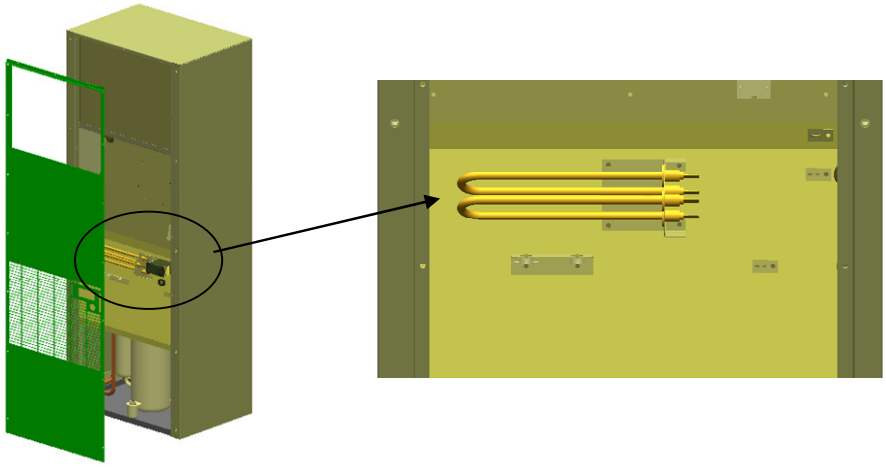


Step 2, loose the 2 cross screws just need 2 cycles, then can take out the controller and disconnect the cables, and replace it.

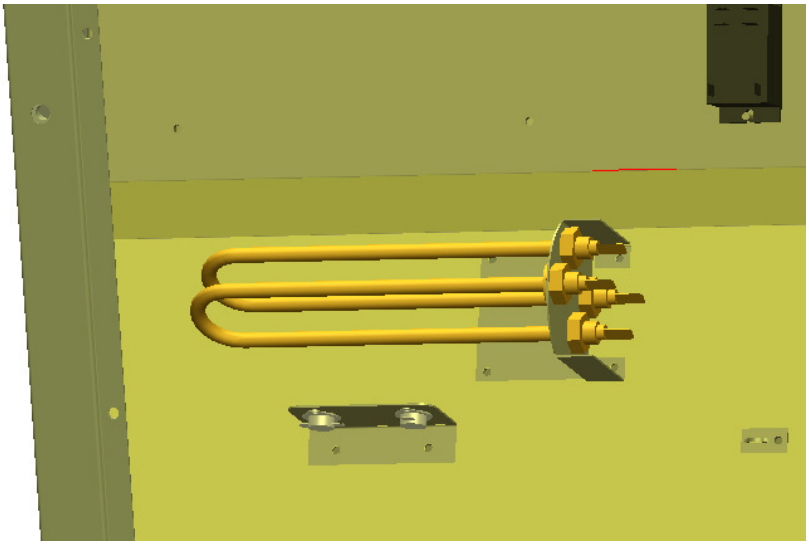


Replacing the heater

Step 1, Remove 17-T20 screws on the cover, and remove the cover from the unit, then can see the heater elements mounted on the plate.



Step 2, Un-plug the heater cable, then unscrew the nuts, take out the heater and replace it.



9. Scrapping

Introduction

The air conditioner is designed to last for a number of years. When the time comes that the unit needs to be scrapped the following precautions should be taken to protect our environment.

Please note that the guidelines are general – local rules and procedures may overrule these guidelines and should be observed and followed carefully.

Main components

The main components of the unit are:

- The cooling circuit including the compressor, coils and refrigerant liquid.
- Fans
- Metal parts such as shells

Cooling circuit

Refrigerant gas

When scrapping an air conditioner the refrigerant needs to be removed from the unit even though the air conditioner is using an environmental friendly type of refrigerant gas named R134a.

Only a certified cooling technician should carry out the evacuation by using the necessary evacuation and recycling equipment. If the refrigerant gas is not to be recycled by the evacuator it must be passed on to the local authorities for decomposition.

Compressor

The compressor contains oil and precautions must be taken to prevent the oil from polluting our environment. The compressor should together with the copper tubes be left at local recycling authorities.

Fans

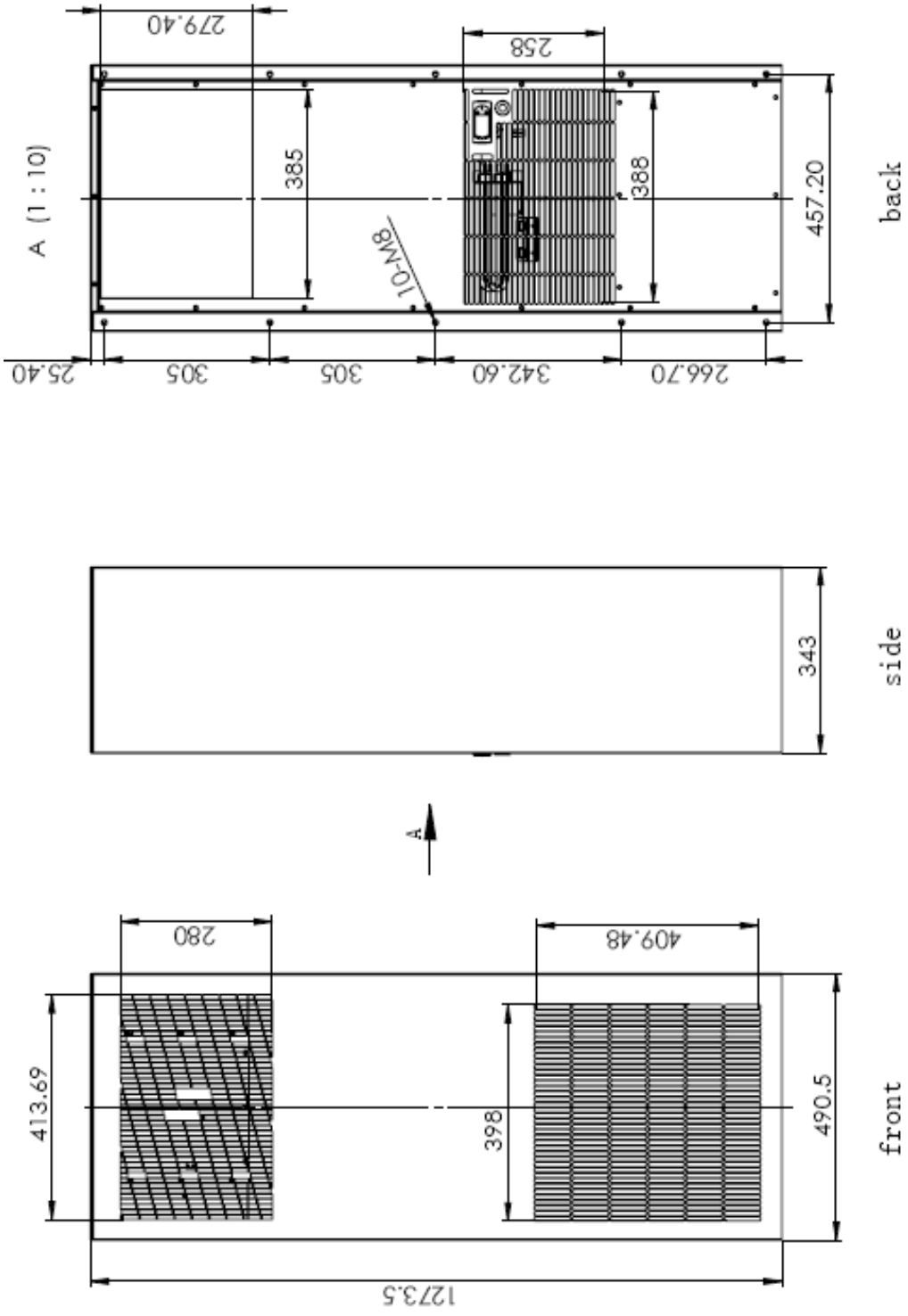
The fans consist of plastic, metal and an internal PCB. They are subject to recycling and should be left to the local "scrap dealer".

Metal parts

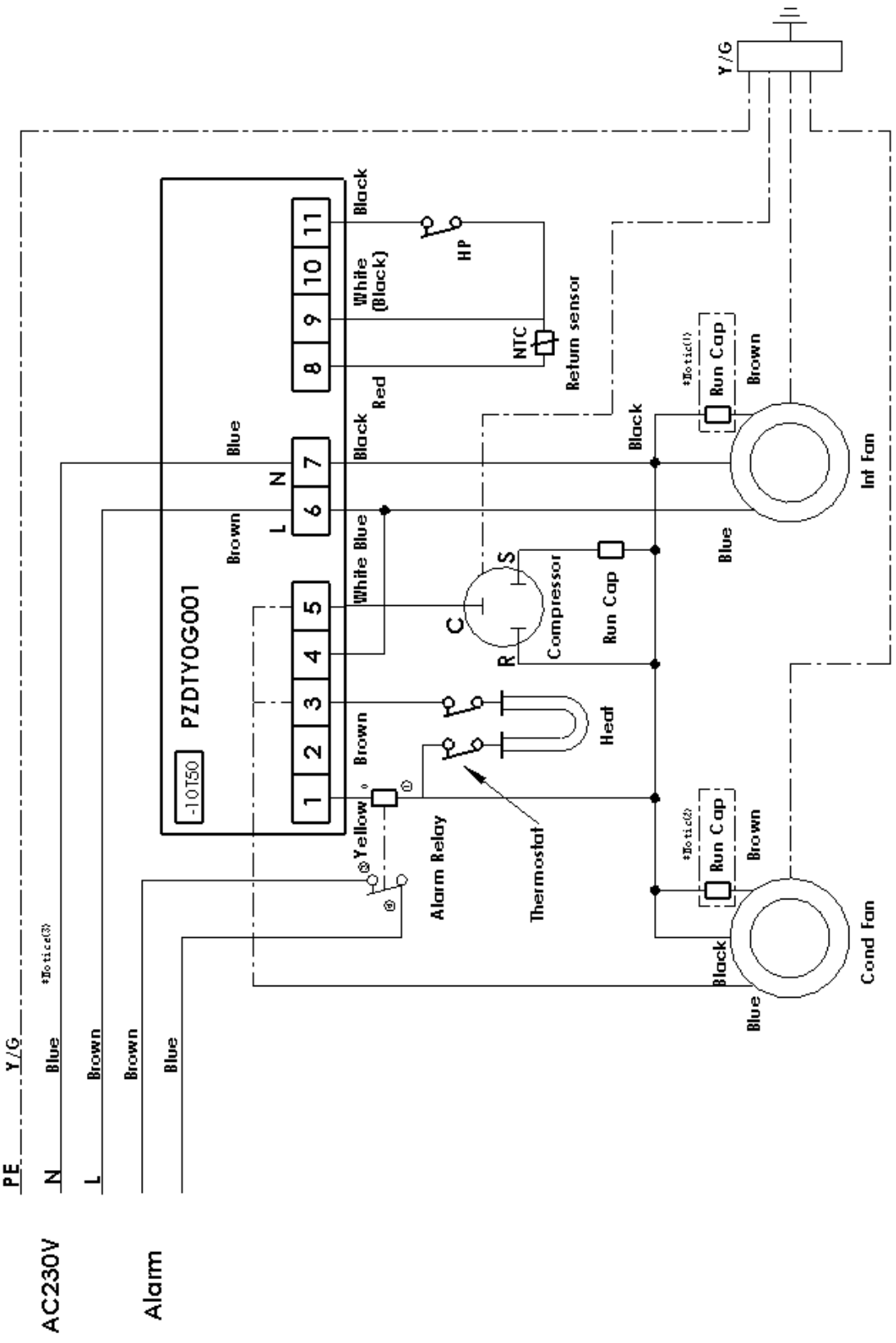
The metal parts are uncritical to scrap and can be left to local "scrap dealer". A few parts might have a thin visible layer of PVC-foam insulation. In that case the PVC should be separated from the metal part and scrapped separately.

10. Model drawings and Wiring diagram

Model drawings



Wiring diagram



1. 简介

目的

本手册用于给安装及维护 Agility3000 的技术人员参考。

本手册包含了该产品的功能描述，备件的更换及日常维护等内容。

产品的使用

该产品专为电气设备的冷却而设计，不得用作其它用途。安装方式为外挂式门装，安装时必须按照本手册中的指导方法执行。

保存

在保存及运输过程中，必须保证设备始终处于正确的站立位置。

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一致性声明

丹腾公司声明，本产品如大批量生产，将符合 2002/95/EC.ROHS 及以下指令和标准。

指令	名称/ 领域
98/37/EEC	机械安全
73/23/EEC	低压
89/336/EEC	电磁兼容性
标准	**名称/ 领域**
EN 292	机械安全
EN 60 335-1	低压
EN 60 335-2	低压
EN 60 950	电气设备安全
EN 50 082-1	电磁兼容性
EN 50 081-2	电磁兼容性
EN 50 106	电气设备安全
GR-487-CORE	震动
GR-63-CORE	震动
529-IP 55	IP 等级
CE	电气设备安全

Kristian Askegaard

总经理

丹腾空气系统（苏州）有限公司

2. 产品标识

序列号

本公司所有产品均贴有银色铭牌，上面有标记一些产品的重要参数及丹腾公司的联系方式等。尤其重要的是产品的序列号，产品一旦出现问题，本公司将只承认序列号。

3. 安装及开机运行

本章节将介绍产品从拆箱到开机运行的一系列过程

包装

Agility 3000W 一体式空调包装内含有如下物品：

名称	数量	单位
Agility 3000W 空调器	1	台
服务手册	1	本
海绵条	3	米
M8 螺丝	10	个
M8 平垫	10	个

安装工具：

- 交流电源 (额定电压：220 V，50/60Hz)
- 小螺丝刀 (具有漏电保护功能)
- 斜口钳
- 扳手

安装步骤

按以下步骤安装本产品：

1、将包装打开。

2、将海绵条粘贴在机器与安装面结合的四周。

3、使用 10 个 M8 的螺丝将机器安装在门上或墙面上。

安装时必须保证产品处于垂直状态，安装偏移角度必须≤ 3° 。

4、将电源线和告警线连接到相应的位置。

交流电源

正确布置电源线，并连接到交流电源。

开机及运行

打开电源，空调将会自动运行。

拆卸

如机器需要拆卸下来，请遵照以下步骤：

1、 将电源线从供电电源上面拆除

2、 将告警信号线从信号终端上面拆下

3、 拆下 10 个 M8 的螺丝（保留以备重新安装）

4、 取下空调

4. 功能描述

综合描述

Agility 3000W 是一款专为电气柜的温控而设计的带有工业控制器的产品。 该产品包含一套由压缩机、蒸发器，冷凝器以及风扇组成的主动制冷系统，该产品可以在-20℃到+55℃的极端条件下运行。

运动部件

该产品的受控制板控制的运动部件主要有以下几个：

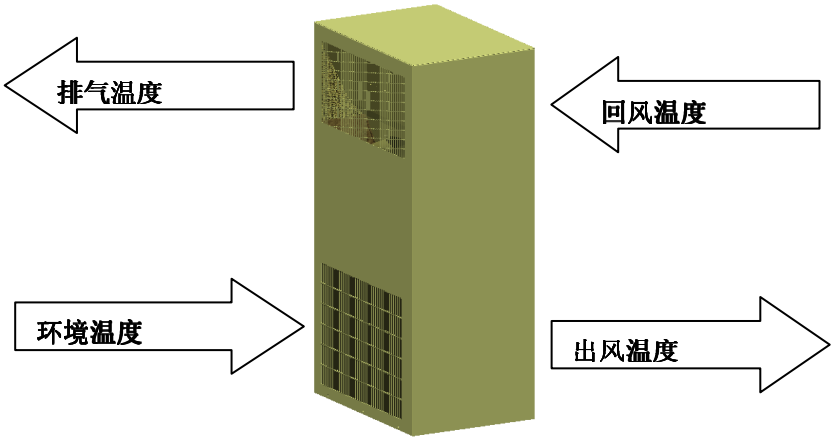
- 压缩机
- 蒸发风扇
- 冷凝风扇
- 加热器

温度点

控制器主要通过回风温度来实现内部的温度控制。

以下的几个温度点的描述会在之后的后半部分的叙述中用到：

- **出风温度：**用于冷却机柜内部空调出风口的温度。
- **环境温度：**设备外部的正常环境温度。
- **回风温度：**就是机柜内部元器件所产生的热风回到空调进风口的温度。
- **冷凝温度：**通常指冷凝器中部的温度。



设定点

设定点可以通过控制器的设置来改变。

标准设置	可设定范围	单 位	描 述	功 能
35	20 – 40	°C	压缩机	如果回风温度达到设定点，压缩机启动。如果回风温度低于设定点 10 度（可在 0 到 15 度之间设置），压缩机停止。
5	0 – 15	℃	加热器	如果回风温度达到设定点，加热器启动。如果回风温度高于设定点 10 度（可在 0 到 15 度之间设置），加热器停止。

告警信号

以下条件的出现将会导致有告警信号输出：

描 述	设 定 值	单 位	功 能
高温报警	回风温度 > 60	℃	控制器监控
低温报警	回风温度< 0	℃	控制器监控
加热器报警	无电流	-	控制器监控
压缩机报警	无电流	-	控制器监控
高压报警	> 2.8	MPA	压缩机保护

控制原理

名 称	温 度	[℃]	升	降	[℃]	温 度	名 称
蒸发风扇运行							
高温报警		60			60		
		55			55		高温报警消失
		50			50		
		45			45		
		40			40		
压缩机启动 冷凝风扇启动	回风温度	35			35		
		30			30		
		25			25	回风温度	压缩机停止 冷凝风扇停止
		20			20		
加热器停止	回风温度	15			15		
		10			10		
低温报警消失		5			5	回风温度	加热器启动
		0			0		低温报警
		-5			-5		
		-10			-10		
		-15			-15		
加热器启动	回风温度	-20			-20		
蒸发风扇运行							

压缩机的运行

运行时间保护

为了延长压缩机的使用寿命，压缩机的最少运行时间和停止时间都不得低于 3 分钟。

外（冷凝）风扇的运行

当压缩机运行时，外风扇会同时被激发运行。

只有当回风温度低于 25 度，压缩机停止运行时，才会使外风扇停止运行。直到回风温度再次达到 35 度，压缩再次运行。

内（蒸发）风扇的运行

内风扇的运行是为了使内部的空气的流通，所以从电源接通开始，内风扇会一直运行。

当控制器检测不到内风扇的电流时，会有一个告警信号输出。

加热器的运行

加热器的通、断是由控制器通过监测到的回风温度并依据其设定值来实现的，具体可参考“设定值”部分。

一旦加热器启动，控制器将会控制压缩机不能在同时运行。

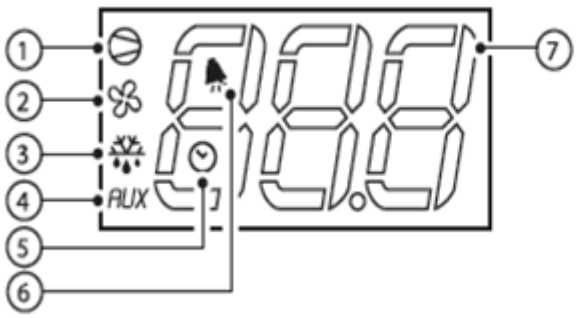
当控制器检测不到加热器的电流时，会有一个告警信号输出。

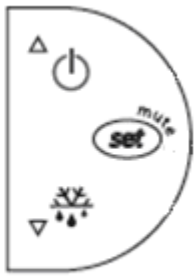
5. 操作面板

本产品的电子式温度控制器带有一个可操作的面板，输入密码后可调整相应的参数。

操作显示

序 号	功 能	显 示		
		点 亮	未 点 亮	闪 烁
1	压缩机及冷凝风扇	压缩机及冷凝风扇运行	压缩机及冷凝风扇未运行	请求
2	未使用	-	-	-
3	加热器	加热器启动	加热器未	请求
4	AUX报警	有报警输出	无报警输出	请求
5	未使用	-	-	
6	报警信号	有报警输出	无报警输出	请求
7	数字显示	三位数字（带有小数点）显示可显示从-199 到999的值，单位为℃或℉		





参数的修改

通过操作面板可以修改一些参数，这些参数可以分为两类：频繁使用的参数（F 类）和结构参数（C 类），对结构参数的访问需要密码，以防止意外或未授权的修改。

访问频繁使用类参数（F 类）

- 按住 SET 键并保持 5 秒以上（在报警情况下，使蜂鸣器禁鸣）来显示参数“PS”（口令）代码；
- 使用 UP 键和 DOWN 键上下翻动显示参数的名称；
- 当翻动到的参数与示屏上的 LED 图标对应时，LED 灯会亮；按下 SET 键来显示与参数有关的值；分别使用 UP 或 DOWN 键来增加或减小参数的值；如果任何参数需要修改，请重复以上步骤
- 按住 SET 键并保持 5 秒以上的时间，将参数永久保持并退出参数设置程序。

访问结构参数（C 类）

- 按住 SET 键并保持 5 秒以上（在报警情况下，使蜂器禁音）来显示参数“PS”（口令）代码；
- 按下 SET 键输入口令，使用 UP 或 DOWN 键来上下翻动显示数字，直到显示“22”（访问参数的口令）；
- 按下 SET 键确认口令；
- 使用 UP 键和 DOWN 键上下翻动显示参数的名称；
- 按下 SET 键来显示与参数有关的值；分别使用 UP 或 DOWN 键来增加或减小参数的值；
- 按下 SET 键临时存储参数的新值，并再次显示参数；
- 如果任何参数需要修改，请重复以上操作步骤；
- 按住 SET 健并保持 5 秒以上的时间，将参数永久保持并退出参数设置程序。

参数表

参 数	描 述	可 见 性	最 小 值	最 大 值	单 位	默认值
PS	密码	F	0	200	-	22
/2	探头稳定性	C	1	15	-	4
/4	主界面显示探头选择	C	1	3	-	1
/5	℃/℉选择	C	0(℃)	1(℉)	-	0
/6	禁止小数点	C	0	1	-	0
/C1	探头 1 校准	C	-50	50.0	℃/℉	0
/C2	探头 2 校准	C	-50	50.0	℃/℉	0
St1	压缩机设定点	F	r1L	r1H	℃/℉	35
St2	加热器设定点	F	r2L	r2H	℃/℉	5
rd1	压缩机温度控制偏差值	F	0	15	℃/℉	10
rd2	加热器温度控制偏差值	F	0	15	℃/℉	10
r1L	设定点 1 最小值	C	-50	r1H	℃/℉	16
r1H	设定点 1 最大值	C	r1L	+150	℃/℉	40
r2L	设定点 2 最小值	C	-50	r2H	℃/℉	0
r2H	设定点 2 最大值	C	r2L	+150	℃/℉	15
c0	通电时压缩机启动延时	C	0	100	Min	0
c1	压缩机二次启动间隔时间	C	0	100	Min	0

c2	压缩机最小关机时间	C	0	100	Min	3
c3	压缩机最小工作时间	C	0	100	Min	3
A0	温度报警偏差值	C	-1	10	℃/℉	5
AL	低温报警	C	-50	10	℃/℉	0
AH	高温报警	C	30	80	℃/℉	60
Ad	温度报警延时	C	0	199	Min	0
A4	第三个输入配置	C	0	1	-	1
A7	数字输入报警延时	C	0	199	Min	0
F0	风扇由温度探头 2（CON.T）控制	C	0	199	Min	0
F1	风扇控制设定点	F	-50	130	℃/℉	45
F2	控制器关闭风扇	C	0	1		1
F4	风扇控制回差	F	0	15	℃/℉	10
Ft	风扇延时如果压缩停止温度探头 2（CON.T）高于设定点 F1	C	0	200	Min	1
H0	监控地址	C	0	207	-	1
H1	加热器或风扇选择	C	0	1		1
H4	使能蜂鸣器	C	0	1	-	0
H5	ID code (只读)	C	1	199	-	1

注意事项：

“F” 表示参数无需密码可直接修改

“C” 表示参数受密码保护

自检过程

通过按下“UP”+“DOWN”组合键 5 秒，启动一个自检过程

自检顺序	描 述	内风扇	加热器	压缩机	外风扇	报 警	持续时间
1	关闭	开启	关闭	关闭	关闭	关闭	8 秒
2	加热器	开启	开启	关闭	关闭	关闭	20 秒
3	报警	开启	关闭	关闭	关闭	开启	10 秒
4	压缩机和外风扇	开启	关闭	开启	开启	关闭	45 秒

6. 技术参数

性能(回风温度/环境温度：35℃/35℃)			
名 称	**单 位**	**描 述**	**数 值**
载荷			
制冷量	W	包括漏热及阳光辐射	3000
加热器	W	热消散 (额定电压)	1600
制冷剂	g	R134a	1000
风量			
内侧	M^3/h		1430
外侧	M^3/h		1700
压力			
运行压力	K Pa	正常运行压力	101.3 (70-106)
运行压降	Pa	运行时机柜内压降	100
设备压降	Pa	设备硬币产生的压降	50
温度			
T_{cool}	°C	制冷温度设定范围	[+25 ~ +40]
$T_{operate}$	°C	设备正常运行温度	-20 ~ +55
$T_{storage}$	°C	保存温度	-20℃～70℃
$T_{humidity}$	°C	保存相对湿度	≤80%
噪音	Db(A)	声压 （50 Hz）	68
噪音	Db(A)	声压（60 Hz）	71.1
设备外形参数：			
名 称	**单 位**	**描 述**	**数 值**
外形尺寸	mm	高 x 宽 x 厚	1273.5*490.5*343
净重 t	kg	总重量	76
材质	mm	覆铝锌板和不锈钢	1.0 / 1.5
包材	-	客户要求	木托盘+纸箱
标签	-	设备铭牌，警告标志	-

电气参数			
名 称	**单 位**	**描 述**	**数 值**
额定电压	VAC	单相	220 ± 10%
额定频率	Hz	正常 (偏差 ± 2)	50/60
功率	W	在额定条件下 (50Hz)	1293
		在额定条件下(60Hz)	1750
电流	A	在额定条件下(50Hz)	5.36
		在额定条件下(60Hz)	7.72

7. 定期检修

简介

本产品包含了运动的机械部件，其运行环境通常处于高温，高湿等恶劣环境下，为保证其能在产品的设计寿命到达前运行良好，必须按时完成定期检修。

注意事项

请在确保交流电源已经切断的前提下执行定期检修。

请在确保所有工作都做好的前提下再接通电源。

只有受过培训的专业人员才能执行此操作。

工具

需要的工具	实现方法
真空吸尘器或压缩空气	清洁设备内部
软毛刷	清除真空吸尘器或压缩空气无法清除的地方
螺丝刀	拧紧松动的螺丝

就像汽车一样，本空调器也需要定期的检修来保证其正常的运行，不会因过热等因素导致其非正常断电。而疏于维护也有可能对环境造成污染。

定期检修的间隔时间一般来说不应超过六个月。定期检修的时间最好安排在夏季的前后，这样设备就可以为夏季的高温作好准备。

品质保证条件

本公司产品的品质只有在做好了定期检修的前提下才保证有效（正常环境下六个月为间隔，恶劣环境下二个月为间隔）。

定期检修记录应随设备一起存放。

推荐维护方法

步 骤	动 作
1	确认电源已安全关闭
2	小心地清洁机器，特别是过滤网、风扇、蒸发器和冷凝器等
3	执行以下“检查清单”中的项目
4	在设定的温度范围内执行温度点的模拟以保证空调的运行正常

检查清单

检 查 清 单	是	否
风扇及压缩机是否有清洁且无腐蚀现象？		
风扇及压缩机是否安装牢靠且无异常震动？		
压缩机是否有异常的噪音？		
制冷系统的铜管是否有泄露，腐蚀等情况？		
蒸发器和冷凝器是否有清洁且无被破坏现象？		
风扇的叶片是否完好？		
风扇是否运行正常，没有异常的震动或噪音？		
所有有电线及绝缘层是否完好？		
所有的连接头是否连接完好？		

离开之前

开机后确保没有告警出现，并等设备能正常运行后再离开。

8. 备件的更换

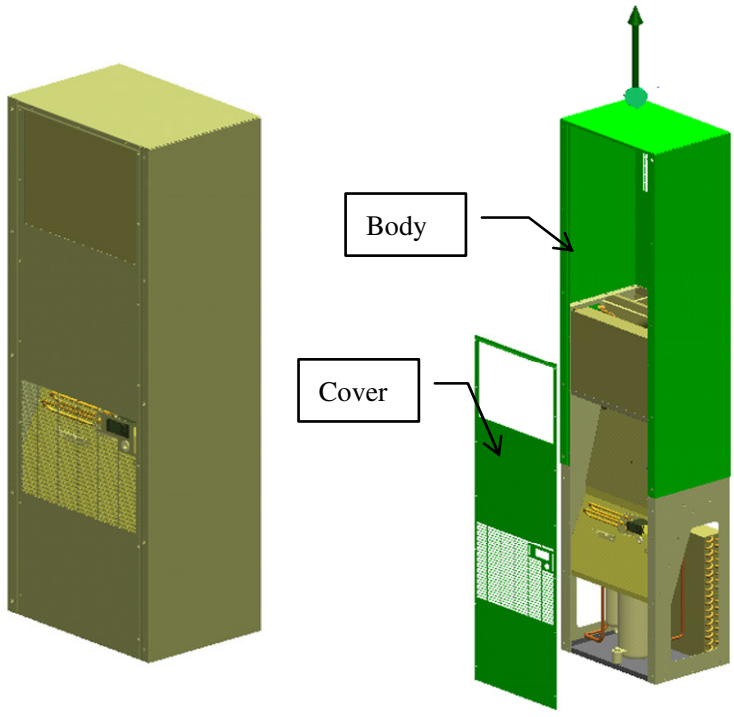
本产品的部件并不需要定期地更换，只有在产品的部件出现故障时才需要更换。

在更换故障部件时，请通过产品序列号联系丹腾公司，以保证所备部件的正确性。

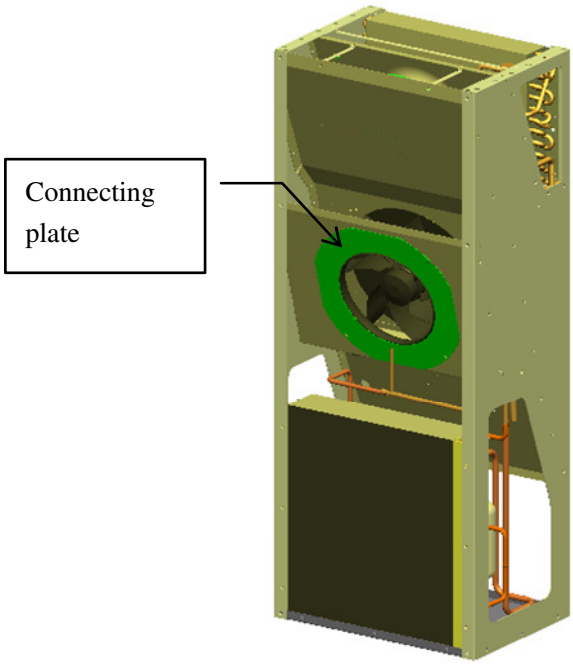
注意：更换部件之前请先切断电源！

更换外风扇

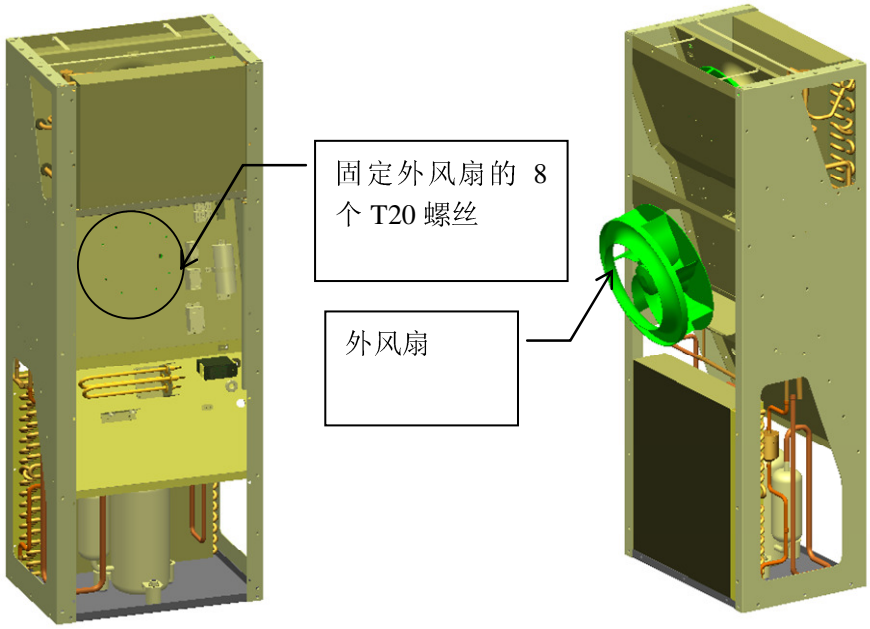
步骤 1：取下固定外壳的 20 个 T20 螺丝，然后将“COVER”和“BODY”从设备本体上取下来。



步骤 2：取下固定“connecting plate”的 4 个 T20 螺丝，然后将“connecting plate”取出来。

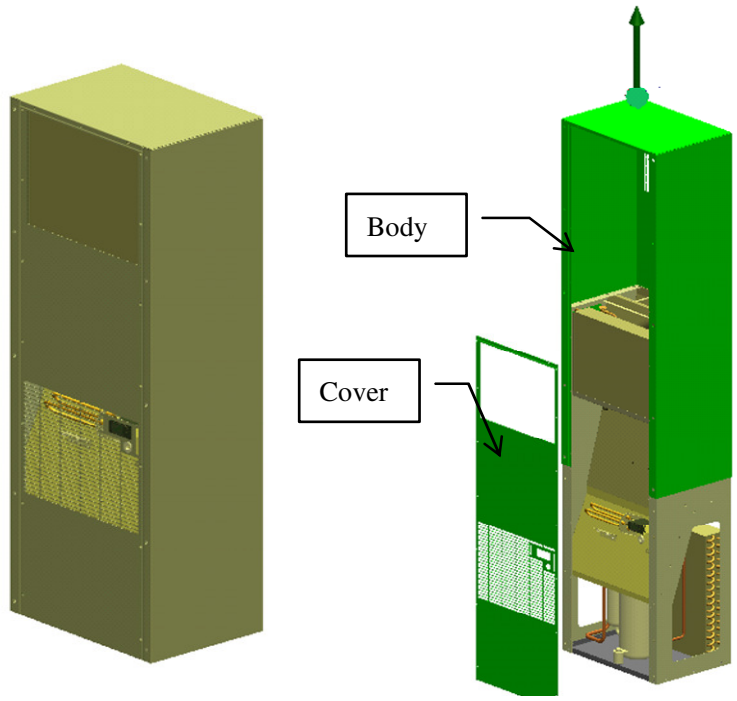


Step 3, 将外风扇电源线的插头拔下，拧下固定外风扇的 8 个 T20 螺丝，然后连同外风扇支架一起取下来，更换外风扇。

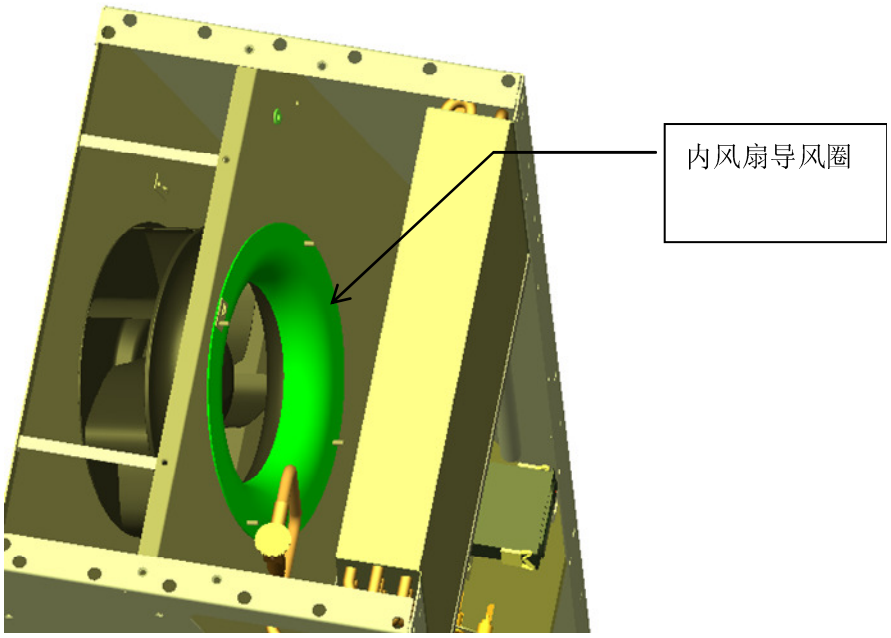


更换内风扇

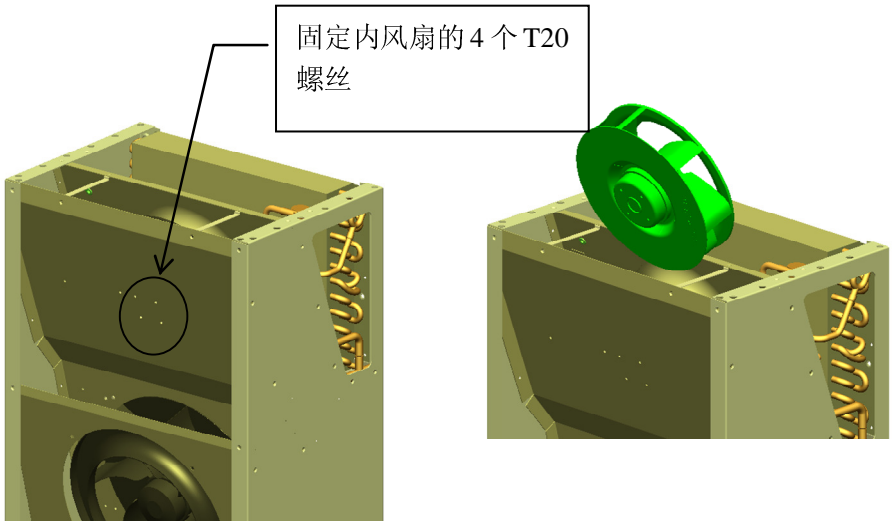
步骤 1：取下固定外壳的 20 个 T20 螺丝，然后将“COVER”和“BODY”从设备本体上取下来。



步骤 2：从顶部看，取下固定内风扇导风圈的 4 个 M4 的螺母，然后取出内风扇导风圈。

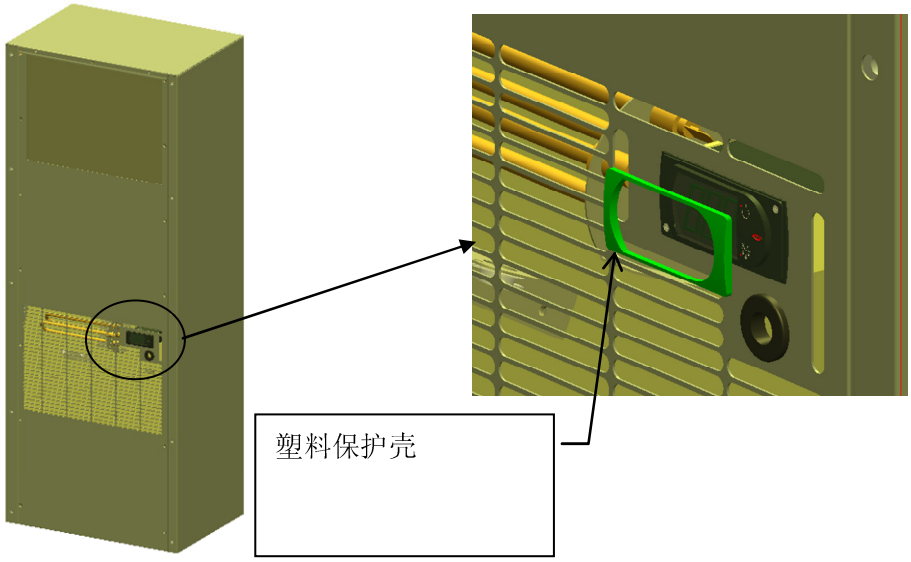


步骤 3：拧下固定内风扇的 4 个 T20 螺丝，取出内风扇并更换。

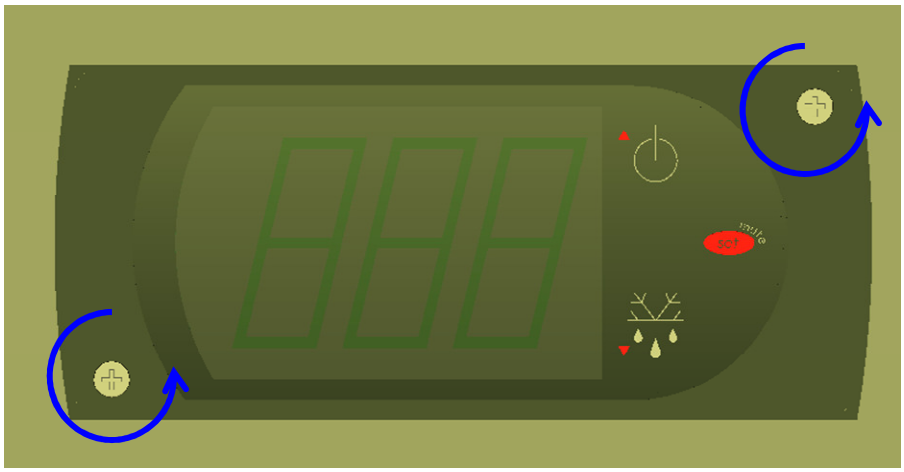


更换控制器

步骤 1：取下控制器外观面的一圈塑料保护壳，然后就可以看见控制器对角线位置的 2 个十字螺丝。

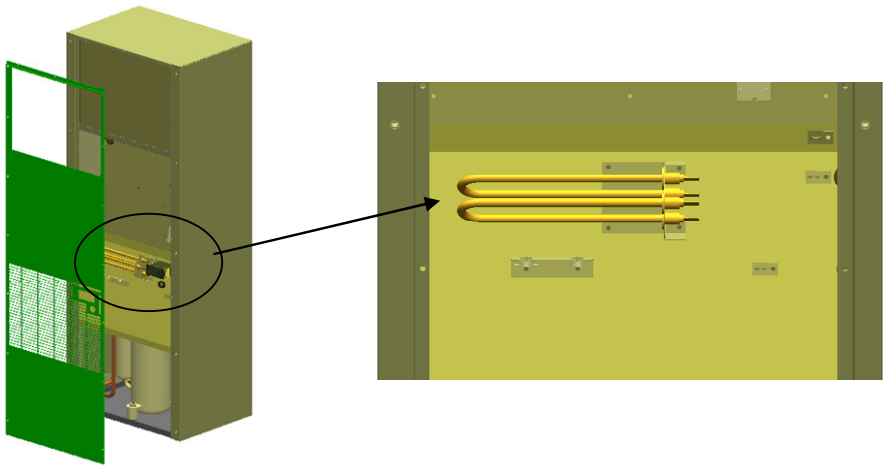


步骤 2：松开这 2 个十字螺丝，只需要拧松 2 圈就行了，然后控制器就能够取出来更换了。

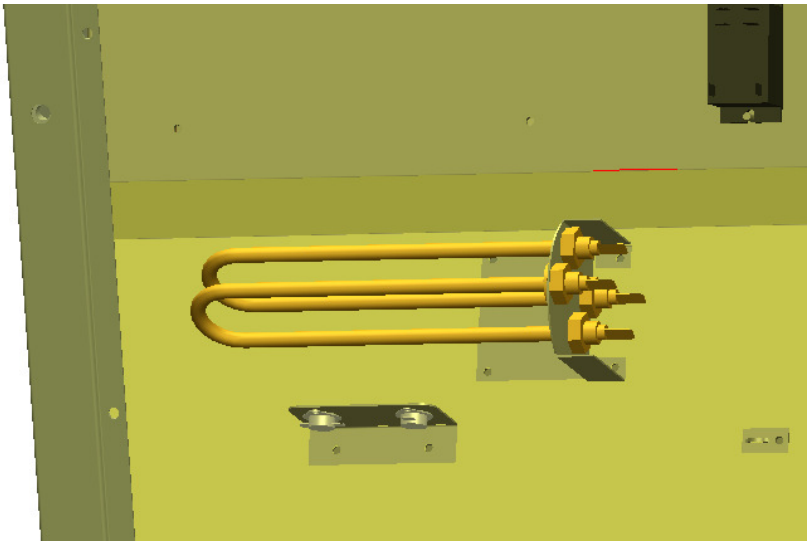


更换加热器

步骤 1：拧下前盖板上的 17 个 T20 螺丝，移开前盖板就可以看到装着的加热器了。



步骤 2：拔下加热器的连接线，松开固定加热器的螺母，取出加热器并更换。



9. 报废

简介

本空调有数年的设计寿命，当设计寿命到时，建议按以下步骤实行产品的报废，以保护我们的环境。

以下的报废步骤只是一般性的建议，具体请遵从当地的相关法律法规。

本产品的主要部件有以下几个：

- 制冷系统，主要有压缩机，铜管及制冷剂
- 风扇
- 金属材料

制冷系统

制冷剂

本产品使用环保制冷剂 R134A，报废时请注意先回收制冷剂。

只有专业的技术人员或当地正规的回收机构才能回收制冷剂。

压缩机

压缩机内含有润滑油，请注意在报废的时候不要洒出来污染了环境，压缩机最好的铜管一起到当地的正规回收站报废。

风扇

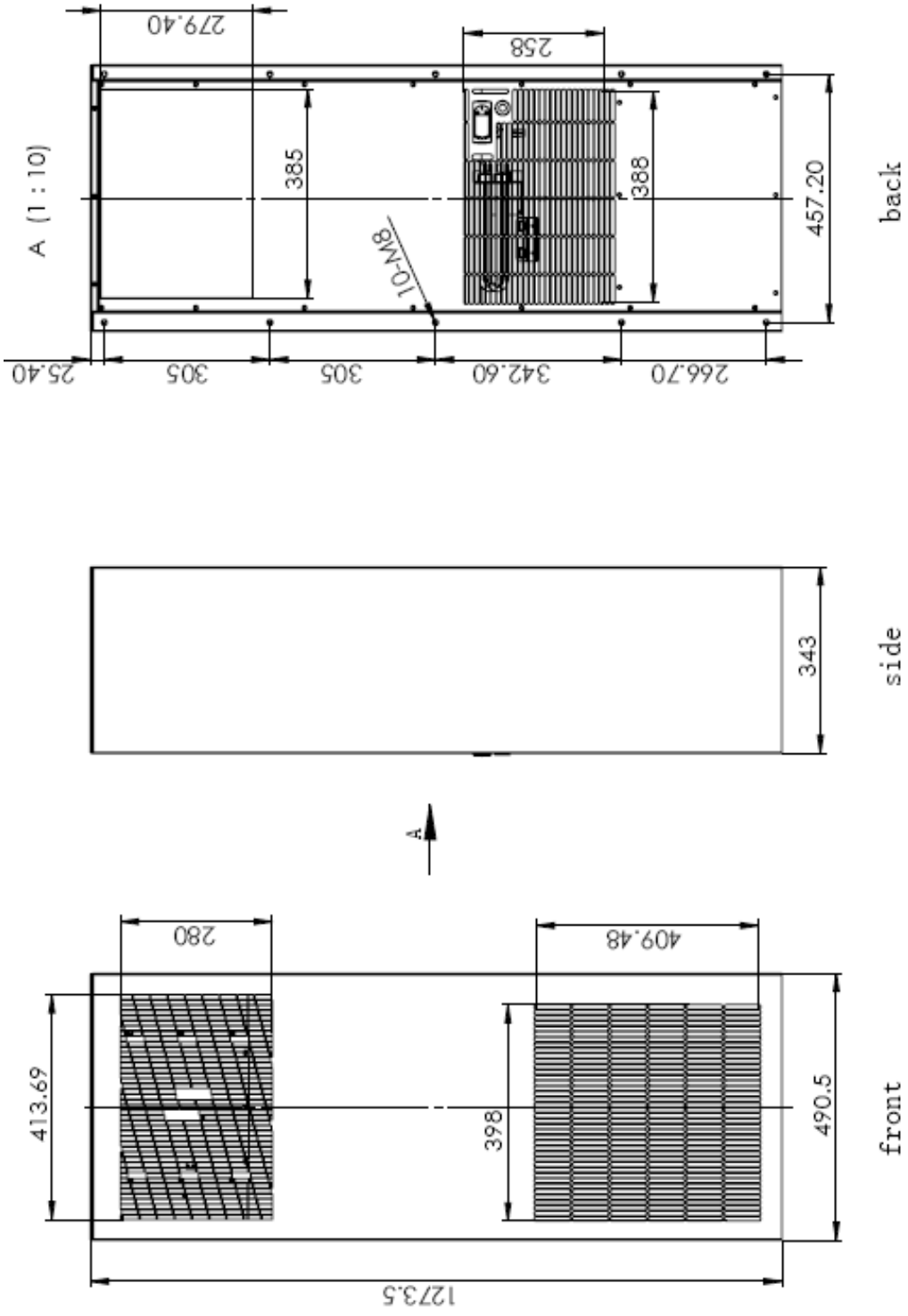
风扇一般含有塑料，金属以及内部可能有 PCB 等，请报废到当地的正规回收站。

金属材料

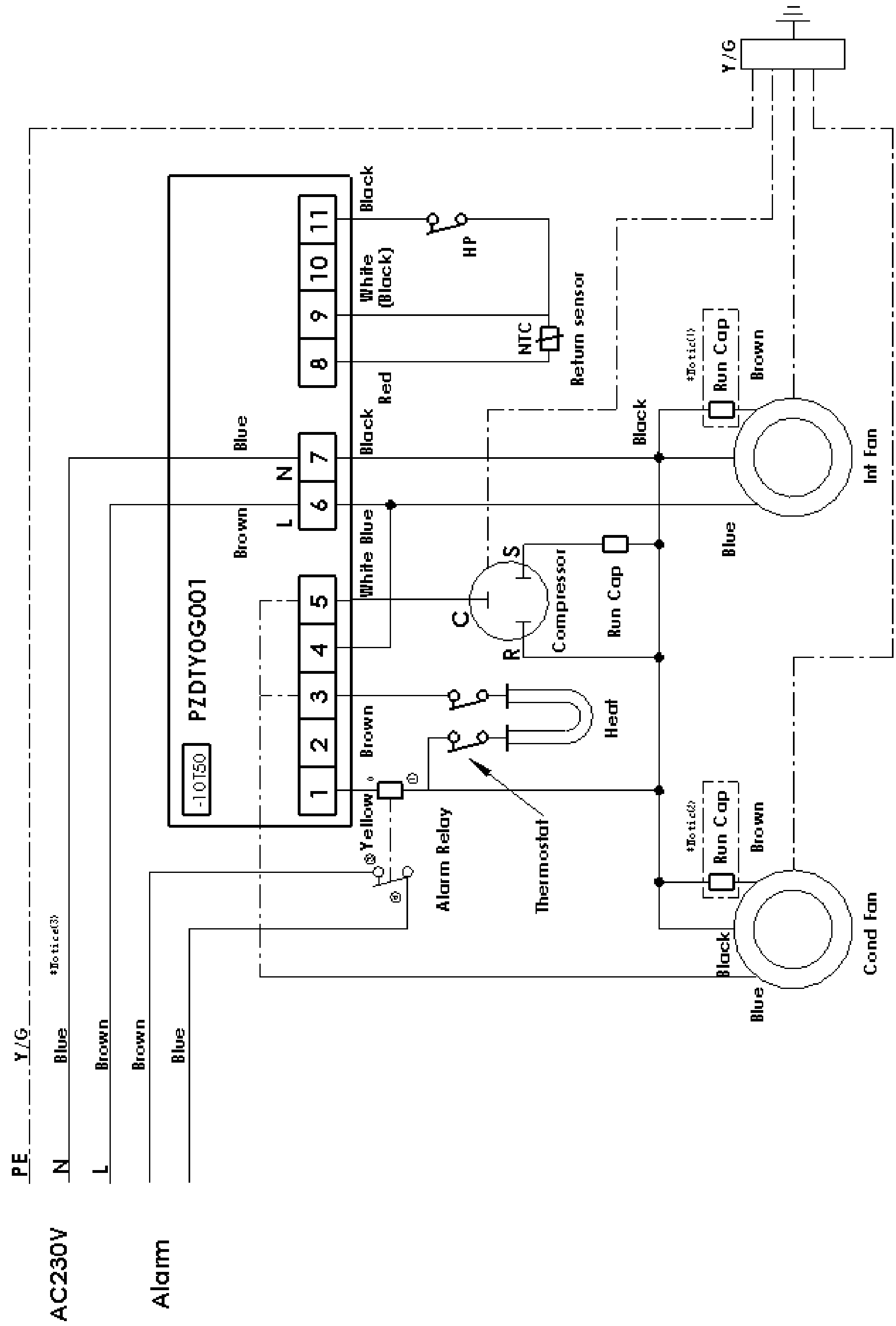
金属部件可以处理给当地的废品回收站，有些部件上面可能有 PVC 涂层之类的，这些必须单独处理或将其从金属表层分离后处理。

10. 外形尺寸及电路图

外形尺寸



电路图


Y/G
PZDTY0G001
-10T50
1
2
3
4
5
6
7
8
9
10
11
L
N
Black
White (Black)
Red
Blue
Brown
White Blue
Yellow
HP
NTC
Return sensor
Run Cap
Int Fan
Cond Fan
Compressor
C
S
R
Heat
Alarm Relay
Thermostat
PE
N
L
AC230V
Alarm