GREE
Change for life

Service Manual

GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI

Table of Contents

Abbreviations Used Within this Manual:

Abbreviation	Clear Words
OFDN	Oxygen free and dry nitrogen
PPE	Personnel protective equipment
LFL	Lower flammability level
UFL	Upper flammability level
HC	Hydrocarbon

INTRODUCTION

ATTENTION

Please read this manual carefully before installing and operating the GREE Hydrocarbon Air– Conditioner unit.

Careless installation and operation could cause severe injuries to operators, workers and damage to the air-conditioner unit itself.

Keep this manual in a location for easy access as it is needed for reference during installation, maintenance, service and operation of the unit.

This manual does not cover all aspects of installation, maintenance and service of the chiller units; if additional information is needed, contact the GREE Costumer Service or Sales Office.

General Information

Warning and cautions appear at appropriate locations throughout this manual book.

Notices

General Safety Instructions

Please pay careful attention to these safety instructions, to avoid risks to people and property. Before starting work on maintenance read this manual thoroughly and pay particular attention to the relevant chapters.

Regardless of further requirements of the country, in which the equipment will be installed: assembly, first start up, technical service, maintenance and repair and as well as dismantling and disposal have to be carried out by authorised personnel only.

During every operation strictly follow the instructions within this manual. Pay attention to the specific rules of air conditioning, electrics and refrigerant handling of the country within which the equipment is installed.

Key sections and/or sentences are highlighted with specific icons and symbols to the right side of the page. Please pay particular attention to this information.

The Symbols Used in this Manual are as Follows

This is a specific remark and points out the importance of a specific section

Information window highlighting important content of the specific section or additional information to consider.

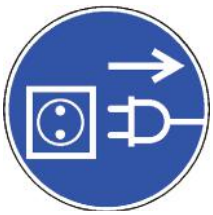
This sign will indicate that you are handling a flammable substance and the surrounding environment can possibly contain it.

This is a general warning sign.

The Label is used to indicate that the flammable refrigerant is present within the application and service equipment.

Images that indicate something what you should strictly avoid.

Specific bans!



Specific commandments!

Instructions for first aid!

Fire protection!

Carefully read the instructions!

Working on components with safety-relevant functions jeopardise the safe operation of the installation. In case it is necessary to replace components, only use approved parts from GREE Electric, the Original Equipment Manufacturer(OEM) or Gree released or authorised components. The system contains the refrigerant R-290 (propane). This condition requires special safety precautions to be observed. Maintenance for the system is strictly prohibited. At the installation site, no matter what kind of activities are executed, smoking is strictly prohibited!
Likewise, ensure the installation site is well ventilated. For further details as far as it concerns the handling of the refrigerant R-290 (propane) .

ONLY original GREE (OEM) spare-parts are permitted for Service and Re-pair!

The Symbols Used in this Manual are as Follows

Electric operations (installation, repair, modification, maintenance, adjustment) have to be fulfilled by trained and authorised personnel only. When dealing with electrical issues, the specific rules of the country within which the equipment is installed must be followed, in addition to the instructions within this manual.

When working on the equipment or parts of it, the system has to be deenergised (by master switch, circuit breaker or separate cut-out) and made safe against restart of the system. Do not reconnect the system to the electric circuit until all work is done and all connections are tested. If handled unsafely or unprofessionally, severe electric shocks can occur. Consider the wiring diagram and follow the instructions of this manual very carefully whilst working on electrical parts. Wrong connections or incorrect grounding may lead to severe injuries and mortal danger.

Proceed according the manuals Instructions!

Ground the system according to the particular requirements of the country within which the equipment is installed.
Connect all the wires properly and durably. Loose cables may lead to overheating or fire

Minimum Room Size

HC R290 is a flammable refrigerant and can form explosive mixtures in low concentrations. To minimise the risk of fire or explosion, the system must be installed in a room with a minimum floor area.

Pay attention to the room size for indoor unit installation!

For specific in-formation refer page XXX of this manual.

Unless there are further requirements, standards and legislation of the country within which the equipment is installed may apply. Any technicians that works on GREE hydrocarbon air– conditioners must be competent in the safe handling of flammable refrigerants, in addition to being in possession of knowledge and skills to maintain best refrigeration installation and servicing practices.

There are already training activities in place for engineers, technicians and sales staff to provide professional knowledge and skills for the handling of HC refrigerants and refrigeration systems operating with HCs.

Get your Best Practices knowledge and skills update for HC refrigerants and be certificated for these jobs!

Get trained and have your
“HC Refrigeration Professional” certification!

Basics in RAC

Knowledge of the basic SI standard units for temperature, pressure, mass, density, energy.

Understanding of the basic theory of refrigeration systems including the functions of the main components in the system (compressor, evaporator, condenser, thermostatic expansion valves).
Understanding how to read a refrigerant flow chart and an electrical circuit diagram.

The determination of non condensable gases in the refrigeration system and how to eliminate them.
The importance of the use of oxygen free dry nitrogen (OFDN) for system flushing, leak test and strength test.
The elimination of humidity from the refrigeration system and how to recover or vent HC refrigerant from a system.

Usage of tables and diagrams (log p/h diagram, saturation tables of a refrigerant, diagram of a single compression refrigeration cycle) and interpretation of these tables and diagrams.

Knowledge of the basic operation of the following components in a refrigeration system and their role and importance for refrigerant leakage prevention and identification:

- Temperature and pressure controls
- Sight class and moisture indicators
- Defrost controls, reverse cycle operation
- System protectors
- Measuring devices such as the pressure gauge manifold
- Thermometer
- Leak detector
- Refrigerant charging devices
- Vacuum pump
- Oxygen free dry nitrogen cylinder and pressure regulator

Read More!
SAFETY CODE OF PRACTICE FOR REFRIGERATING SYSTEMS *UTILISING A2 & A3 REFRIGERANTS*

ISBN
1 872719 15 5

Fault finding – analysis and repair.
- Knowledge of flammable refrigerants
- Risk analysis for the application of flammable refrigerant and properties of flammable refrigerants
- Electrical circuit assessment and repair

Checks before putting in operation, after a long period of nonuse, after maintenance or repair intervention or during operation.

Carry out a pressure and leak test to check the strength and the tightness of the system.
Usage of a vacuum pump.
Evacuation of the system to remove air and moisture according to standard practice.

Checks for Leakage

Knowledge of potential leakage points of refrigeration, air-conditioning and heat pump equipment. Making a visual and manual inspection of the whole system.
Carry out a check for leakage of the system using an indirect method and/or one of the direct methods.

Direct leak detection methods:
1. Fixed leakage detection systems
2. Portable electronic gas detectors
3. Ultraviolet (UV) indication fluids
4. Weak soapy water solution (bubble test) also in combination with OFDN
5. New installation tightness test for leakage detection procedure e.g. H2/N2
6. Operational system tightness test for leakage detection procedure

Indirect refrigerant detection methods:
1. Visual
2. Manual checks

HC R290 Refrigerant Lssues

Please notice that the unit is filled with propane. Details to this refrigerant are found in chapter “refrigerant”. Propane is highly flammable and leads to explosion under certain conditions. Inappropriate treatment of the unit involves the risk of severe damages of people and material.

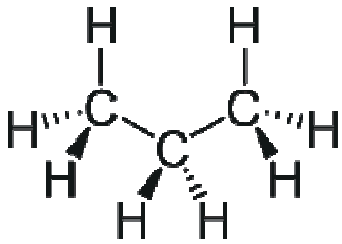
Basics

HC R-290 (propane) is an odourless and colourless gas of the group of hydrocarbons.
HC R-290 is heavier than air and at high concentrations can cause narcotic effects and eventually asphyxiation.
R-290 is highly flammable within the range of 2,1% and 9,5% by volume, or 38 g/m3 to 170 g/m3 in air. The auto-ignition temperature is about 470°C.
Since R-290 is an odourless and colourless gas, it is difficult to perceive that it is present (as with most other refrigerants).
Propane is often used as a fuel such as for heating or barbecues. However, for use on refrigeration systems, fuel-grade propane is not suitable since it contains high levels of impurities, which would damage the refrigeration system and may not provide the desired refrigerating capacity or efficiency.

HC R-290 refrigerant has a high grade of purity.

Propane as a cooking gas is not useful for refrigeration purpose!

The structural formula of HC R-290 (propane)



Important Refrigerant Properties and Parameters:

Molecular formula	C3H8
Melting point [°C]	-188
Boiling point under atmospheric pressure [°C]	-42
Molar mass [g mol -1]	44,10
Critical temperature [°C]	96,8
Critical pressure [bar]	42
Practical limit [g/m3]	8
Lower flammability level LFL [g/m3]	38
Lower flammability level LFL [%]	2,1
Upper flammability level UFL [g/m3]	171
Upper flammability level UFL [%]	9,5
Ignition temperature [°C]	470

Read More!

Guidlines for the safe use of hydrocarbon refrigerants

GIZ—PROKLIMA

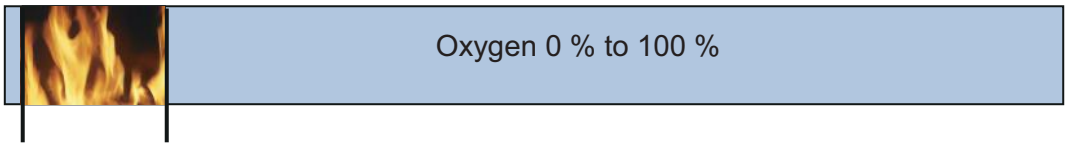
http://www.gtz.de/proklima

Flammability

Three components are needed simultaneously for causing fire:

1. Oxygen
2. Ignition source
3. The flammable concentration of HC

For ignition, the concentration of HC in air has to be between the lower and upper flammable limits. If the concentration is below the lower flammability limit (LFL) of about 2% by volume in air, there is not enough HC for combustion. If the concentration is above the upper flammability limit (UFL) of about 10% there is insufficient oxygen for combustion.



By way of illustration please compare to the schematic view:

To ignite HC R-290, three (3) components must exist at the same time at work area to cause the refrigerant burning!

Possible ignition sources are:

1. A flame, for example from brazing torch, halide torch leak lamp, match or lighter, cigarette
2. A spark from an electrical component
3. Static electricity
4. Hot surfaces

Safety Data

Hazard Identification

1 kg of liquid HC R-290 refrigerant creates about 250 litres of gas

- Extremely flammable (F+).
- Readily forms an explosive air-vapour mixture at ambient temperatures.
- Vapour is heavier than air and may travel to remote sources of ignition (e.g. along drainage systems, into basements etc).
- Liquid releases generate large volumes of flammable vapour (approx 250:1)
- Cold burns (frostbite) will result from skin / eye contact with liquid.
- Liquid release or vapour pressure jets present a risk of serious damage to the eyes.
- Abuse involving inhalation of high concentrations of vapour, even for short periods, which can produce unconsciousness or may prove fatal. Inhalation may cause irritation to the nose and throat, headache, nausea, vomiting, dizziness and drowsiness. In poorly ventilated areas unconsciousness or asphyxiation may result.

Beside the flammability, most other safety properties are similar to other refrigerants!

Rely always on best service practices in refrigeration!

First Aid Measures

Inhalation:
Remove the affected person to fresh air. If breathing has stopped, administer artificial respiration. Give external cardiac massage if necessary. If the person is breathing but unconscious, place them in the recovery position. Obtain medical assistance immediately.

Skin:
In case of cold burns: flush with water to normalize temperature. Cover the burns with sterile dressings Do not use ointments or powders. Obtain medical assistance immediately.

Eyes:
Cold burns should be flushed with water to normalise temperature, cover the eye with a sterile dressing and obtain medical assistance immediately.

Fire Fighting Measures

HC R-290 is delivered, stored, and used at temperatures above their flash point. Avoid all naked flames, sparks, cigarettes etc.

- In case of fire, immediately alert fire brigade
- Ensure an escape path is always available from any fire
- If gas has ignited do not attempt to extinguish but stop gas flow and allowto burn out.
- Use water spray to cool heat-exposed containers, and to protect surroundingareas and personnel effecting the shut off
- Every precaution must be taken to keep containers cool to avoid the possibilityof a boiling liquid expanding vapour explosion (BLEVE)

Extinguishing Media:

In case of a large fire:
Release must be stopped and container cooled by water spray.
Water mist should be used to assist approach to the source of the fire.
Large fires should only be handled by Fire Brigade.

DO NOT USE WATER JET

Small fire:
Use dry powder extinguisher

DO NOT USE WATER JET

Special protective equipment for fire fighters:
In confined spaces use self-contained breathing apparatus

Hazardous combustion products:
Incomplete combustion may form carbon monoxide.

Accidental Release Measures

Immediate emergency action:
- Clear people away from the area to a safe place
- Do not operate electrical equipment unless “Ex”-rated
- Summon the emergency services
- Treat or refer casualties if necessary

Further action (when release is made safe):
- Extinguish all naked lights – avoid creating sparks
- Position fire fighting equipment
- Cover drains and disperse vapour with water spray.

Note: vapour may collectin confined spaces.

Further actions:
- Stop release
- Use dry powder or carbon dioxide extinguishers
- Cool containers exposed to fire by using water / mist spray.

Accidental Release Measures

Due to the flammability of R-290 and the risk of fire or explosion during servicing, special safety rules must be followed during operation. In order to avoid damage for people and property, particular requirements are listed hereafter.

Before servicing the unit, the surrounding area were the work will be done must be clear of safety hazards to ensure safe working. Nevertheless it is required to carry out a risk assessment in order to minimise the risk of ignition of R-290.

The following safety measures must be followed:

1. Any employees and other present persons must be informed about the service and the way the service is done, first.
2. It is recommended to isolate the working environment in order to keep out any unauthorised personnel.
3. It is useful to set up signs such as „no smoking“ or „access denied“.
4. It is prohibited to store any combustible goods within the working environment.
5. Within two (2) metres radius, ignition sources are not allowed in the working area.
6. Fire extinguisher (dry powder) must be easily accessible at any time.
7. During service work, proper ventilation of the environment must be ensured.

The HC leak detector is indeed a Personal Protective Equipment (PPE) device!

Sign plate to protect and mark the working area.

Appropriate detectors, suitable for hydrocarbons, must be available and operational all the time. Appropriate tools and appliances must be available and ready for operation.

Any employees need to be instructed extensively about the safety measures and the possible safety hazard.

Gas Detection

While servicing the unit it is recommended for the whole period of work — before,during and after — to monitor the gas concentration in the air within the work environment. By monitoring the air within the work environment the danger of a possible formation of flammable atmosphere can be detected early.

The HC leak detector is indeed a PPE device!

Doing the monitoring, ensure that the gas detectors are suitable for hydrocarbon detection. Never use open fire or a device with an ignition source for the detection of gas or for leak detection.

Before operation of the gas detector the instruction manual must be read carefully. In case of any questions refer to the detector manufacturer. Furthermore ensure the detector is correctly calibrated. Instructions for calibration can be found in the instruction manual of the detector or upon request from the manufacturer.

A possible re-calibration must be done within an area which is free of refrigerants.

In case of a positive detection by the detector any work must be stopped immediately. Any open flames or ignition sources must be extinguished or removed. In addition to a suitable and approved HC gas detectors, portable gas detectors can be used.

Such a detector can be clipped to clothing or placed on the floor within the working area. It should be switched on for the duration of the work, and set to alarm at 15% of the lower flammability level (LFL), to warn that flammable concentration may be nearby. In this way, technicians can be alerted whenever an inadvertent release of flammable refrigerant occurs, and can immediately act upon the relevant emergency procedures.

Portable HC Gas Detector

Pressure—Temperature Chart

HC Refrigerant R-290							
Temperature		Absolute pressure			Gauge pressure		
°C	°F	kPa	bar	PSI	kPa(g)	bar(g)	PSI(g)
-40	-40	111,12	1,11	16,12	11,12	0,11	1,61
-39	-38,2	116,00	1,16	16,83	16,00	0,16	2,32
-38	-36,4	121,05	1,21	17,56	21,05	0,21	3,05
-37	-34,6	126,27	1,26	18,31	26,27	0,26	3,81
-36	-32,8	131,66	1,32	19,10	31,66	0,32	4,59
-35	-31	137,23	1,37	19,90	37,23	0,37	5,40
-34	-29,2	142,97	1,43	20,74	42,97	0,43	6,23
-33	-27,4	148,90	1,49	21,60	48,90	0,49	7,09
-32	-25,6	155,02	1,55	22,48	55,02	0,55	7,98
-31	-23,8	161,33	1,61	23,40	61,33	0,61	8,89
-30	-22	167,83	1,68	24,34	67,83	0,68	9,84
-29	-20,2	174,54	1,75	25,31	74,54	0,75	10,81
-28	-18,4	181,44	1,81	26,32	81,44	0,81	11,81
-27	-16,6	188,56	1,89	27,35	88,56	0,89	12,84
-26	-14,8	195,89	1,96	28,41	95,89	0,96	13,91
-25	-13	203,43	2,03	29,51	103,43	1,03	15,00
-24	-11,2	211,19	2,11	30,63	111,19	1,11	16,13
-23	-9,4	219,18	2,19	31,79	119,18	1,19	17,29
-22	-7,6	227,39	2,27	32,98	127,39	1,27	18,48
-21	-5,8	235,84	2,36	34,21	135,84	1,36	19,70
-20	-4	244,52	2,45	35,46	144,52	1,45	20,96
-19	-2,2	253,44	2,53	36,76	153,44	1,53	22,26
-18	-0,4	262,61	2,63	38,09	162,61	1,63	23,58
-17	1,4	272,03	2,72	39,45	172,03	1,72	24,95
-16	3,2	281,70	2,82	40,86	181,70	1,82	26,35
-15	5	291,62	2,92	42,30	191,62	1,92	27,79
-14	6,8	301,81	3,02	43,78	201,81	2,02	29,27
-13	8,6	312,27	3,12	45,29	212,27	2,12	30,79
-12	10,4	323,00	3,23	46,85	223,00	2,23	32,34
-11	12,2	334,00	3,34	48,44	234,00	2,34	33,94
-10	14	345,28	3,45	50,08	245,28	2,45	35,58
-9	15,8	356,85	3,57	51,76	256,85	2,57	37,25
-8	17,6	368,70	3,69	53,48	268,70	2,69	38,97
-7	19,4	380,85	3,81	55,24	280,85	2,81	40,73
-6	21,2	393,29	3,93	57,04	293,29	2,93	42,54
-5	23	406,04	4,06	58,89	306,04	3,06	44,39
-4	24,8	419,09	4,19	60,78	319,09	3,19	46,28
-3	26,6	432,45	4,32	62,72	332,45	3,32	48,22
-2	28,4	446,13	4,46	64,71	346,13	3,46	50,20
-1	30,2	460,13	4,60	66,74	360,13	3,60	52,23
0	32	474,46	4,74	68,82	374,46	3,74	54,31
1	33,8	489,11	4,89	70,94	389,11	3,89	56,44
2	35,6	504,10	5,04	73,11	404,10	4,04	58,61
3	37,4	519,43	5,19	75,34	419,43	4,19	60,83
4	39,2	535,10	5,35	77,61	435,10	4,35	63,11
5	41	551,12	5,51	79,93	451,12	4,51	65,43
6	42,8	567,49	5,67	82,31	467,49	4,67	67,80
7	44,6	584,22	5,84	84,74	484,22	4,84	70,23
8	46,4	601,31	6,01	87,21	501,31	5,01	72,71
9	48,2	618,77	6,19	89,75	518,77	5,19	75,24
10	50	636,60	6,37	92,33	536,60	5,37	77,83

HC Refrigerant R-290							
Temperature		Absolute pressure			Gauge pressure		
11	51,8	654,81	6,55	94,97	554,81	5,55	80,47
12	53,6	673,40	6,73	97,67	573,40	5,73	83,17
13	55,4	692,38	6,92	100,42	592,38	5,92	85,92
14	57,2	711,75	7,12	103,23	611,75	6,12	88,73
15	59	731,51	7,32	106,10	631,51	6,32	91,59
16	60,8	751,68	7,52	109,02	651,68	6,52	94,52
17	62,6	772,25	7,72	112,01	672,25	6,72	97,50
18	64,4	793,24	7,93	115,05	693,24	6,93	100,55
19	66,2	814,64	8,15	118,16	714,64	7,15	103,65
20	68	836,46	8,36	121,32	736,46	7,36	106,82
21	69,8	858,71	8,59	124,55	758,71	7,59	110,04
22	71,6	881,39	8,81	127,84	781,39	7,81	113,33
23	73,4	904,51	9,05	131,19	804,51	8,05	116,69
24	75,2	928,07	9,28	134,61	828,07	8,28	120,10
25	77	952,07	9,52	138,09	852,07	8,52	123,58
26	78,8	976,53	9,77	141,64	876,53	8,77	127,13
27	80,6	1001,45	10,01	145,25	901,45	9,01	130,75
28	82,4	1026,83	10,27	148,93	926,83	9,27	134,43
29	84,2	1052,68	10,53	152,68	952,68	9,53	138,18
30	86	1079,00	10,79	156,50	979,00	9,79	141,99
31	87,8	1105,79	11,06	160,38	1005,79	10,06	145,88
32	89,6	1133,08	11,33	164,34	1033,08	10,33	149,84
33	91,4	1160,85	11,61	168,37	1060,85	10,61	153,87
34	93,2	1189,12	11,89	172,47	1089,12	10,89	157,97
35	95	1217,88	12,18	176,64	1117,88	11,18	162,14
36	96,8	1247,16	12,47	180,89	1147,16	11,47	166,38
37	98,6	1276,94	12,77	185,21	1176,94	11,77	170,70
38	100,4	1307,24	13,07	189,60	1207,24	12,07	175,10
39	102,2	1338,07	13,38	194,07	1238,07	12,38	179,57
40	104	1369,42	13,69	198,62	1269,42	12,69	184,12
41	105,8	1401,31	14,01	203,25	1301,31	13,01	188,74
42	107,6	1433,73	14,34	207,95	1333,73	13,34	193,44
43	109,4	1466,71	14,67	212,73	1366,71	13,67	198,23
44	111,2	1500,23	15,00	217,59	1400,23	14,00	203,09
45	113	1534,31	15,34	222,54	1434,31	14,34	208,03
46	114,8	1568,96	15,69	227,56	1468,96	14,69	213,06
47	116,6	1604,18	16,04	232,67	1504,18	15,04	218,17
48	118,4	1639,97	16,40	237,86	1539,97	15,40	223,36
49	120,2	1676,34	16,76	243,14	1576,34	15,76	228,63
50	122	1713,30	17,13	248,50	1613,30	16,13	233,99
51	123,8	1750,86	17,51	253,94	1650,86	16,51	239,44
52	125,6	1789,02	17,89	259,48	1689,02	16,89	244,98
53	127,4	1827,79	18,28	265,10	1727,79	17,28	250,60
54	129,2	1867,17	18,67	270,81	1767,17	17,67	256,31
55	131	1907,17	19,07	276,62	1807,17	18,07	262,11
56	132,8	1947,80	19,48	282,51	1847,80	18,48	268,01
57	134,6	1989,07	19,89	288,49	1889,07	18,89	273,99
58	136,4	2030,98	20,31	294,57	1930,98	19,31	280,07
59	138,2	2073,54	20,74	300,75	1973,54	19,74	286,24
60	140	2116,75	21,17	307,01	2016,75	20,17	292,51

1. Summary

Model:

GDN10BF-K5EBA3A
GDN10BF-K5EBA3B
GDN12BF-K5EBA3A
GDN16BF-K5EBA3A

Model list:

No.	Model	Product code
1	GDN10BF-K5EBA3A	CK051045700
2	GDN10BF-K5EBA3B	CK051050400/CK051050401
3	GDN12BF-K5EBA3A	CK051050700/CK051050701
4	GDN16BF-K5EBA3A	CK051050600

2. Specifications

2.1 Specification Sheet

Model			GDN10BF-K5EBA3A	GDN10BF-K5EBA3B
Product Code			CK051045700	CK051050400
Power Supply	Rated Voltage	V~	220-240	220-240
	Rated Frequency	Hz	50	50
	Phases		1	1
Rated Dehumidification Capacity		L/h	0.21	0.21
Power Input		W	195	180
Current Input		A	1.1	1.1
Set Humidity Range		%	40-60	40-60
Air Flow Volume		m^3/h	95	95
Fan Motor Speed		r/min	1080	1080
Fan Motor Power Output		W	3	3
Fan Motor RLA		A	0.09	0.09
Fan Motor Capacitor		μF	1	1
Fan Type			Centrifugal	Centrifugal
Fan Diameter Length(DXL)		mm	Φ176X62	Φ176X62
Throttling Method			Capillary	Capillary
Fuse Current		A	3.15	3.15
Sound Pressure Level		dB (A)	39	39
Sound Power Level		dB (A)	52	52
Climate Type			T1	T1
Isolation			I	I
Moisture Protection			IPX0	IPX0
Permissible Excessive Operating Pressure for the Discharge Side		MPa	3	3
Permissible Excessive Operating Pressure for the Suction Side		MPa	1.5	1.5
Dimension (WXHXD)		mm	352X398X206	352X398X206
Dimension of Carton Box(LXWXH)		mm	389X248X422	389X248X422
Dimension of Package(LXWXH)		mm	392X251X437	392X251X437
Application Area		m^2	12-16	12-16
Net Weight		kg	10.5	11.5
Gross Weight		kg	11.5	12.5
Refrigerant			R290	R290
Refrigerant Charge		kg	0.040	0.045
Bucket Capacity		L	1.5/1.8	1.5/1.8
Control Type			Electronic	Electronic
Evaporator	Evaporator Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Evaporator Pipe Diameter	mm	Φ7	Φ7
	Evaporator Row-fin Gap	mm	1-1.3	1-1.3
	Evaporator Coil Length (LXDXW)	mm	210X12.7X152.4	210X12.7X152.4
Condenser	Condenser Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Condenser Pipe Diameter	mm	Φ5	Φ5
	Condenser Rows-fin Gap	mm	2-1.4	2-1.4
	Condenser Coil Length (LXDXW)	mm	210X22.8X152.4	210X22.8X152.4
Compressor	Compressor Manufacturer		NingBo Anuodan Machinery Co.,LTD.	Sichuan Danfu Environment Technology Co.,Ltd.
	Compressor Model		QD30R	DFR30HF
	Compressor Type		Reciprocating	Reciprocating
	Compressor Power Input	W	185	185
	Compressor Overload Protector		HPA-007	HPA-008
	Compressor LRA.	A	3.50	5.65
	Compressor RLA	A	1.07	1.1

The above data is subject to change without notice; please refer to the nameplate of the unit.

Model			GDN10BF-K5EBA3B	GDN12BF-K5EBA3A
Product Code			CK051050401	CK051050701
Power Supply	Rated Voltage	V~	220-240	220-240
	Rated Frequency	Hz	50	50
	Phases		1	1
Rated Dehumidification Capacity		L/h	0.24	0.25
Power Input		W	220	225
Current Input		A	1.4	1.3
Set Humidity Range		%	40-60	30-80
Air Flow Volume		m^3/h	95	95
Fan Motor Speed		r/min	1080	1080/900
Fan Motor Power Output		W	3	3
Fan Motor RLA		A	0.09	0.09
Fan Motor Capacitor		μF	1	1
Fan Type			Centrifugal	Centrifugal
Fan Diameter Length(DXL)		mm	Φ176×62	Φ176×62
Throttling Method			Capillary	Capillary
Fuse Current		A	3.15	3.15
Sound Pressure Level		dB (A)	39	39
Sound Power Level		dB (A)	52	52
Climate Type			T1	T1
Isolation			I	I
Moisture Protection			IPX0	IPX0
Permissible Excessive Operating Pressure for the Discharge Side		MPa	3	3
Permissible Excessive Operating Pressure for the Suction Side		MPa	1.5	1.5
Dimension (WXHXD)		mm	352X398X206	352X398X206
Dimension of Carton Box(LXWXH)		mm	389X248X422	389X248X422
Dimension of Package(LXWXH)		mm	392X251X437	392X251X437
Application Area		m^2	12~16	16~22
Net Weight		kg	11.5	11.5
Gross Weight		kg	12.5	12.5
Refrigerant			R290	R290
Refrigerant Charge		kg	0.045	0.045
Bucket Capacity		L	1.5/1.8	1.5/1.8
Control Type			Electronic	Electronic
Evaporator	Evaporator Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Evaporator Pipe Diameter	mm	Φ7	Φ7
	Evaporator Row-fin Gap	mm	1-1.3	2-1.4
	Evaporator Coil Length (LXDXW)	mm	210X12.7X152.4	210X25.4X152.4
Condenser	Condenser Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Condenser Pipe Diameter	mm	Φ5	Φ5
	Condenser Rows-fin Gap	mm	2-1.4	2-1.4
	Condenser Coil Length (LXDXW)	mm	210X22.8X152.4	210X22.8X152.4
Compressor	Compressor Manufacturer		ZHUHAI LANDA COMPRESSOR CO., LTD.	ZHUHAI LANDA COMPRESSOR CO., LTD.
	Compressor Model		QR-DT-S040PBB	QR-DT-S040PBB
	Compressor Type		Reciprocating	Reciprocating
	Compressor Power Input	W	215	215
	Compressor Overload Protector		HPA-106	HPA-106
	Compressor LRA.	A	6.5	6.5
	Compressor RLA	A	1.3	1.3

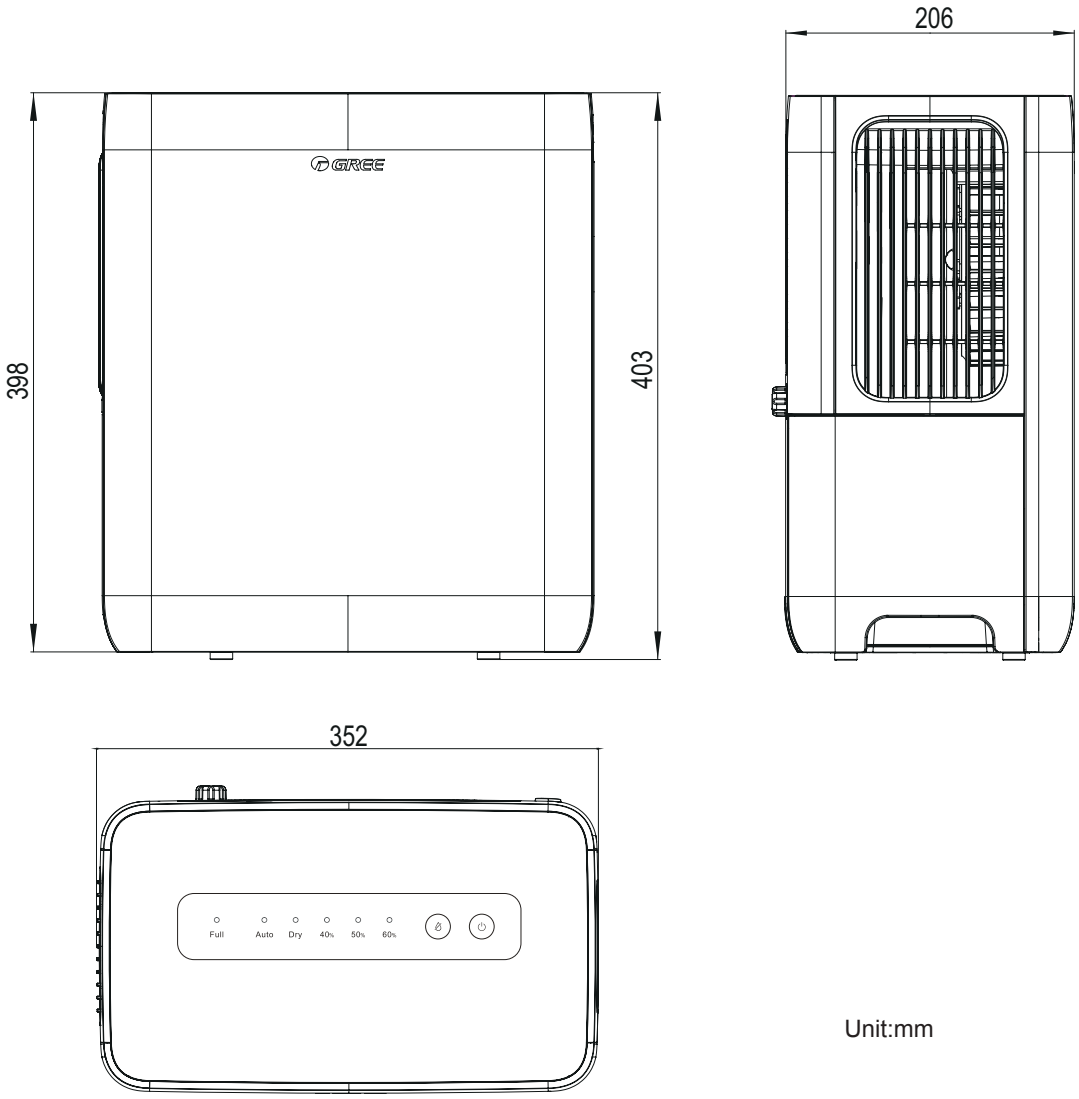
The above data is subject to change without notice; please refer to the nameplate of the unit.

Model			GDN12BF-K5EBA3A	GDN16BF-K5EBA3A
Product Code			CK051050700	CK051050600
Power Supply	Rated Voltage	V~	220-240	220-240
	Rated Frequency	Hz	50	50
	Phases		1	1
Rated Dehumidification Capacity		L/h	0.22	0.37
Power Input		W	180	330
Current Input		A	1.1	2.0
Set Humidity Range		%	30-80	30-80
Air Flow Volume		m^3/h	105	120
Fan Motor Speed		r/min	1130	1330
Fan Motor Power Output		W	6	6
Fan Motor RLA		A	0.09	0.11
Fan Motor Capacitor		μF	1.5	1
Fan Type			Centrifugal	Centrifugal
Fan Diameter Length(DXL)		mm	Φ176X62	Φ176X62
Throttling Method			Capillary	Capillary
Fuse Current		A	3.15	3.15
Sound Pressure Level		dB (A)	41/38	44/41
Sound Power Level		dB (A)	53/50	56/51
Climate Type			T1	T1
Isolation			I	I
Moisture Protection			IPX0	IPX0
Permissible Excessive Operating Pressure for the Discharge Side		MPa	3	3
Permissible Excessive Operating Pressure for the Suction Side		MPa	1.5	1.5
Dimension (WXHXD)		mm	352X398X206	352X398X206
Dimension of Carton Box(LXWXH)		mm	389X248X422	389X248X422
Dimension of Package(LXWXH)		mm	392X251X437	392X251X437
Application Area		m^2	16~22	22~28
Net Weight		kg	11.5	13
Gross Weight		kg	12.5	14
Refrigerant			R290	R290
Refrigerant Charge		kg	0.045	0.05
Bucket Capacity		L	1.5/1.8	1.5/1.8
Control Type			Electronic	Electronic
Evaporator	Evaporator Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Evaporator Pipe Diameter	mm	Φ7	Φ7
	Evaporator Row-fin Gap	mm	2-1.4	2-1.4
	Evaporator Coil Length (LXDXW)	mm	210X25.4X152.4	210X25.4X152.4
Condenser	Condenser Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Condenser Pipe Diameter	mm	Φ5	Φ5
	Condenser Rows-fin Gap	mm	2-1.4	2-1.4
	Condenser Coil Length (LXDXW)	mm	210X22.8X152.4	210X22.8X152.4
Compressor	Compressor Manufacturer		Sichuan Danfu Environment Technology Co., LTD.	Tatung Compressor<Zhongshan> CO., LTD.
	Compressor Model		DFR30HF	FX250M-E
	Compressor Type		Reciprocating	Reciprocating
	Compressor Power Input	W	185	315
	Compressor Overload Protector		HPA-008	HPA-108
	Compressor LRA.	A	5.65	7.1
	Compressor RLA	A	1.1	1.9

The above data is subject to change without notice; please refer to the nameplate of the unit.

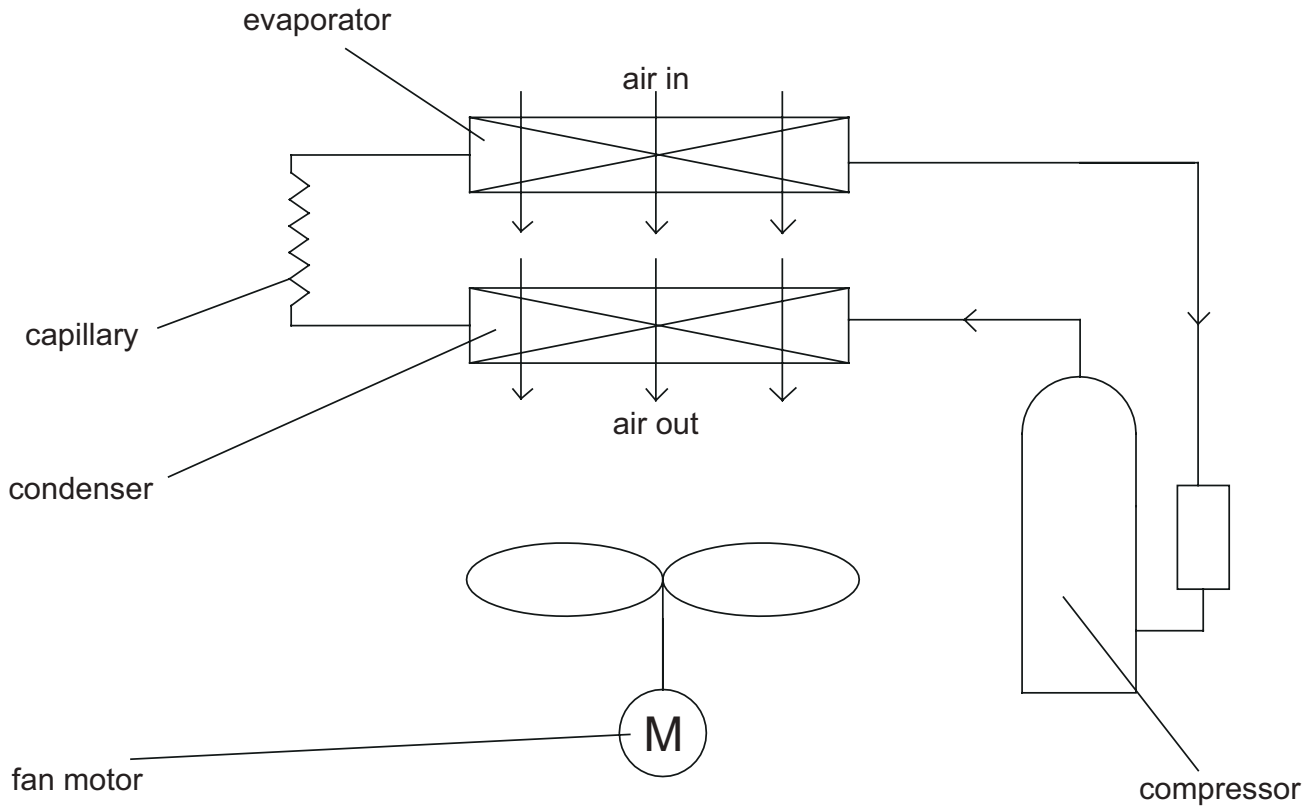
3. Outline Dimension Diagram

GDN10BF-K5EBA3A GDN10BF-K5EBA3B GDN12BF-K5EBA3A GDN16BF-K5EBA3A



Unit:mm

4. Refrigerant System Diagram



Dehumidifying principle of dehumidifier:

When temperature is decreased to the temperature point of dew, water vapor in humid air will condensate. Dehumidifier is dehumidifying the air by using this principle.

During operation of the system, air will pass through evaporator and condenser in turn and then be discharged due to centrifugal blade. When the air is passing through evaporator, refrigerant will absorb the heat in air to let its temperature decrease to the temperature point of dew, water vapor in air will condensate. Condensate water comes into water tank through water tray, or is discharged directly through drainage hose. The saturated low-temperature air passed through the evaporator will absorb the heat when flowing along the condenser, and then become the dry air. Under normal condition, the nearby air will become warm during operation of dehumidifier.

5. Electrical Part

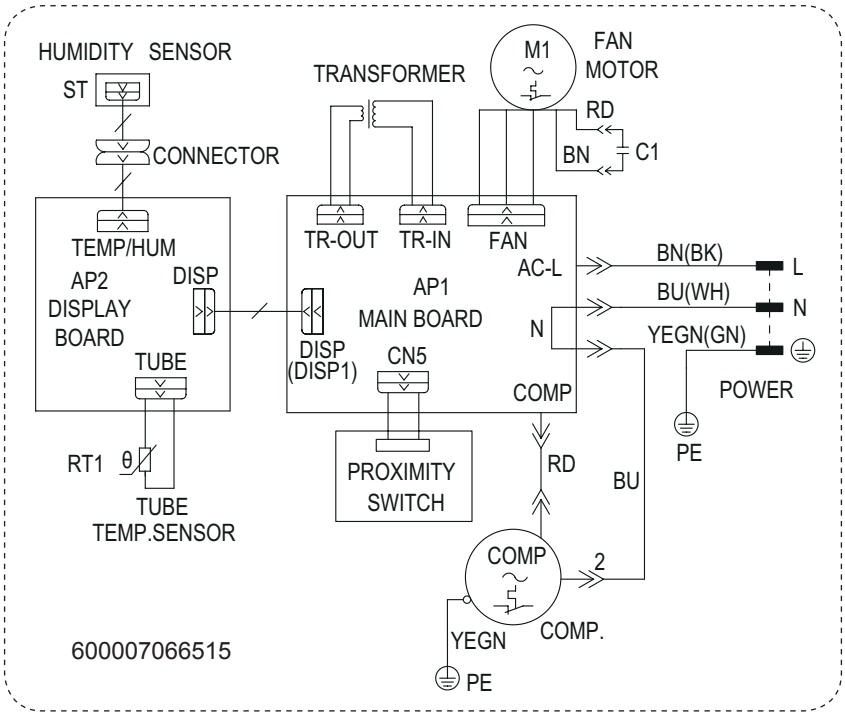
5.1 Wiring Diagram

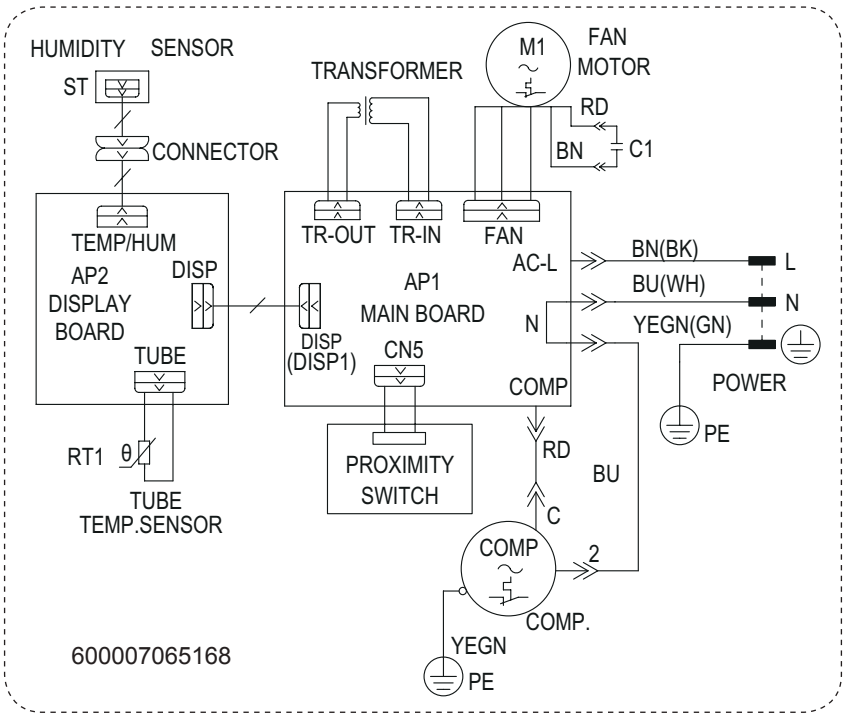
●Instruction

Symbol	Symbol Color	Symbol	Symbol Color	Symbol	Name
WH	White	GN	Green	COMP	Compressor
YE	Yellow	BN	Brown	⏚	Grounding wire
RD	Red	BU	Blue	/	/
YEGN	Yellow/Green	BK	Black	/	/
VT	Violet	OG	Orange	/	/

● Electric Diagram

GDN10BF-K5EBA3A

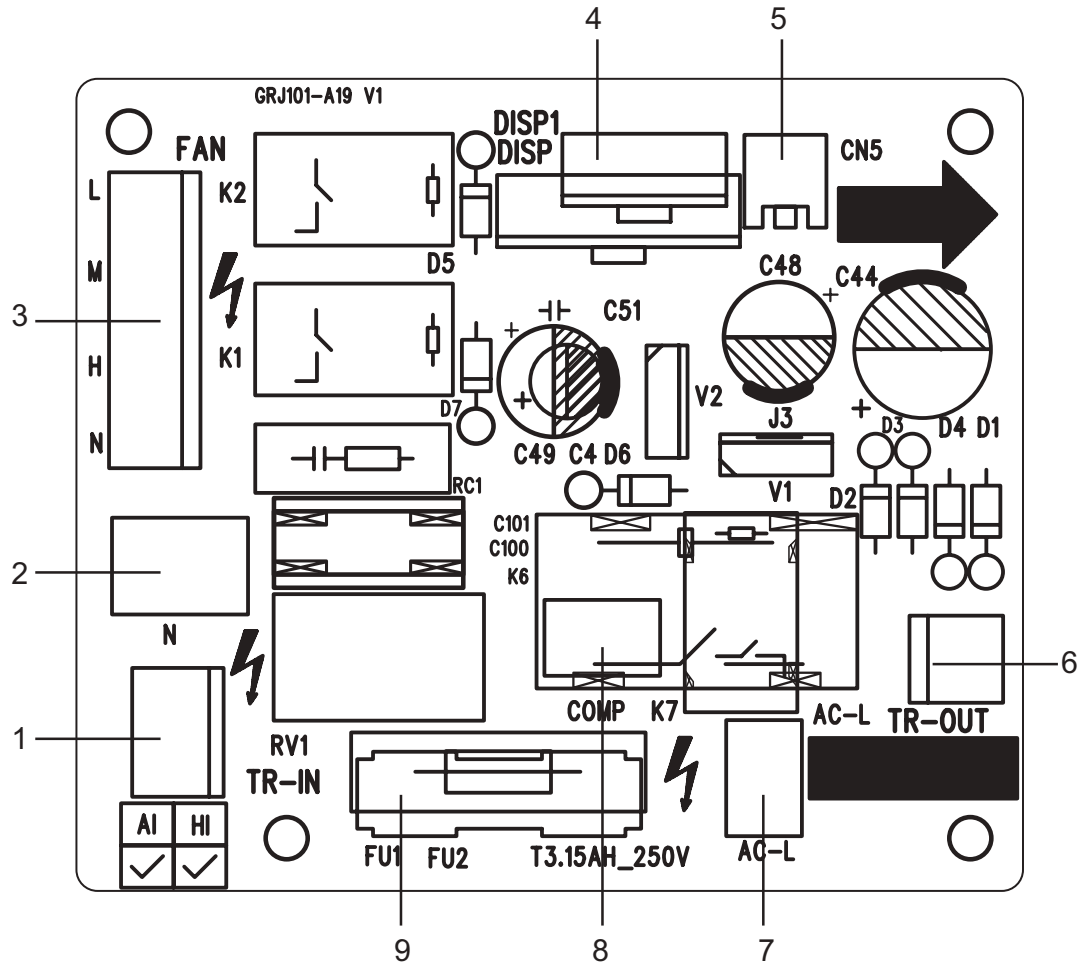




These wiring diagrams are subject to change without notice; please refer to the one supplied with the unit.

5.2 PCB Printed Diagram

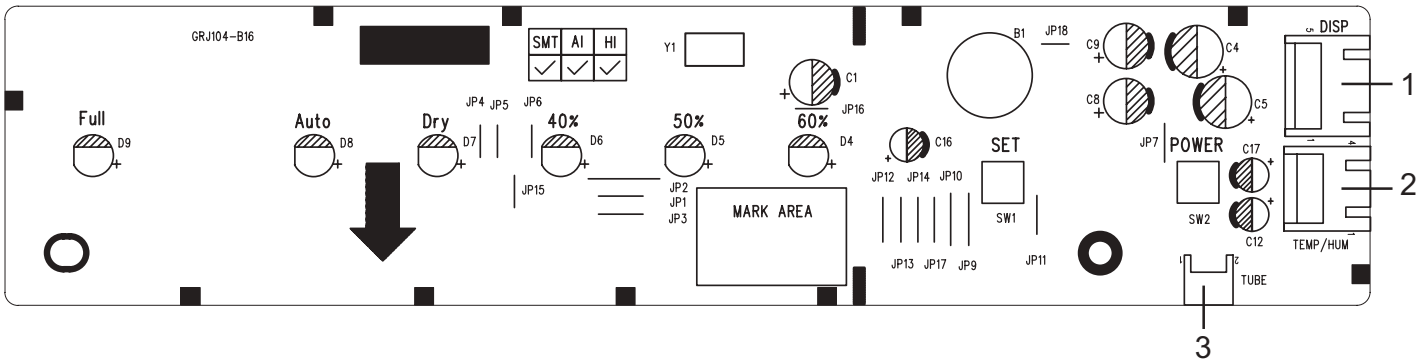
(1)Silk screen on main board



No.	Name
1	Interface of transformer input
2	Interface of neutral wire
3	Interface of fan motor
4	Interface of display board
5	Water level terminal

No.	Name
6	Interface of transformer output
7	Interface of live wire
8	Interface of compressor
9	Fuse

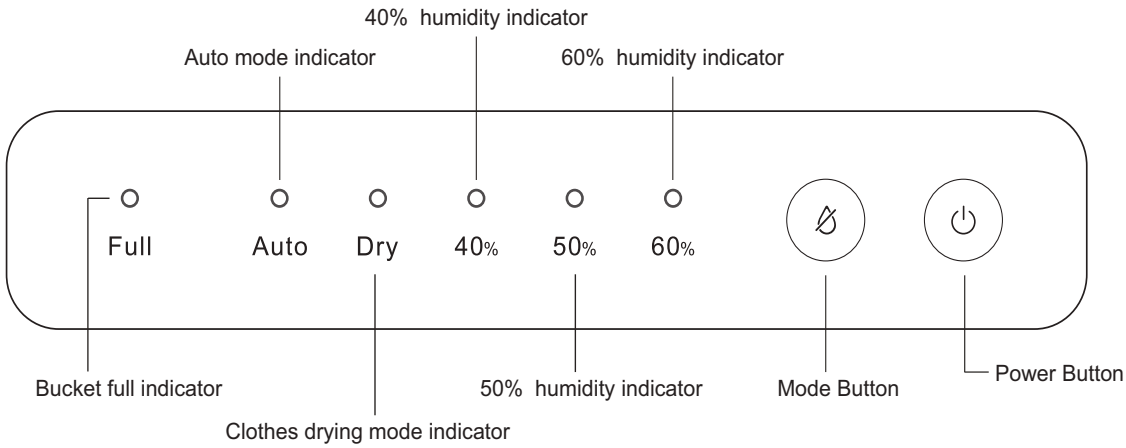
(2)Silk screen on display board



No.	Name
1	Interface of main board
2	Circuit interface of temperature/humidity inspection
3	Interface of tube temperature sensor

6. Function and Control

6.1 Introduction of control panel



Notes:

●Water bucket must be correctly installed for the dehumidifier to operate.
●Do not remove the bucket while unit is in operation.
●If you want to use drain hose to drain water away, please install the hose according to section "Drainage method".

Basic Functions of the Buttons

1 Power Button

Press this button to turn on/off dehumidifier.

2 Mode Button

Press the Mode button to select and display a running mode in the following order:

Auto → Dry → 40% → 50% → 60% → Auto

Other Instructions

1. Auto Stop
When the bucket is full, removed or not place correctly or the humidity is 5% lower than the set humidity, the unit automatically stops humidification.
2. Bucket full indicator
When it lights up, it means the bucket needs to be emptied or it is not properly placed.
3. Auto mode indicator
When it lights up, the unit will automatically set the comfortable humidity.
4. Clothes drying mode indicator
When it lights up, the unit is in clothes drying mode and will keep the room humidity in a certain range after clothes drying to prevent the clothes from getting molded.
5. 40% humidity indicator
When it lights up, the humidity will be set to 40%.
6. 50% humidity indicator
When it lights up, the humidity will be set to 50%.
7. 60% humidity indicator
When it lights up, the humidity will be set to 60%.

6.2 Introduction of Basic Mode Function

1. System Basic Function

User can set the humidity to 40%,50%,60%.

a. When HUMIDITYpreset ≤ HUMIDITYamb.-5%,compressor and fan will run.

b. When HUMIDITYpreset ≥ HUMIDITYamb.+5%,compressor stop to run and fan will stop operation after 3min.

c. When HUMIDITYamb.-5% ＜ HUMIDITYpreset ＜ HUMIDITYamb.+5%,when compressor is operation,it will run with condition a; when compressor stops,it will run with condition b; If under this condition when the unit is on,the compressor is off and fan will stop to run after 3min delay.

2. Protection Function

(1) Working temperature range

a. Detect the unit after energized, when 2℃ ≤Tamb. <37℃ , the unit is running normally; when Tamb. <2℃ or Tamb. ≥ 37℃ , the compressor stops, and fan will run with the detected temperature humidity;

b. During operation, when Tamb. <2℃ or Tamb.≥37℃ , the compressor stops, and fan will run with the detected temperature humidity; when 2℃ ≤Tamb. <37℃ , the compressor will be started up.

(2) Compressor protection

a. After energization, under any situaion and after compressor stops, it will restart 3min delay at least.

b. Under operation state except temperature sensor malfunction, on/off button, water-blow protection, after compressor starts up, it will stop after it runs for 3mins at least.

(3) Detection for temperature sensor malfunction

When there's malfunction for temperature sensor, compressor and fan stop operation. Multiple LED indicator will flashes at the same time. After the temperature is resumed normally, restart the unit.

(4) Water blow protection (off switch)

a. The water blow protection will be occurred when the water level of water tank is exceeded. After water blow protection, compressor stops and fan stops after 3mins. If water blow protection occurred for 3min, indicator of water blow will blinks and all the buttons are invalid except power button. When the water level or assembly of water tank resume to normal, signal of water blow protection will cancelled, indicator is off.

b. When the unit is off, water blow protection is occurred, water blow indicator blinks, compressor and fan stops, all the buttons are invalid except on/off buttons. When the unit is on, water blow indicator blinks, compressor and fan stops.

7. Notes for Installation and Maintenance

Safety Precautions: Important !

Please read the safety precautions carefully before installation and maintenance.

The following contents are very important for installation and maintenance.

Please follow the instructions below.

●The installation or maintenance must accord with the instructions.

●Comply with all national electrical codes and local electrical codes.

●Pay attention to the warnings and cautions in this manual.

●All installation and maintenance shall be performed by distributor or qualified person.

●All electric work must be performed by a licensed technician according to local regulations and the instructions given in this manual.

●Be caution during installation and maintenance. Prohibit incorrect operation to prevent electric shock, casualty and other accidents.

⚠ WARNINGS

Electrical Safety Precautions:

1. Cut off the power supply of air conditioner before checking and maintenance.

2. The air conditioner should be installed in suitable location and ensure the power plug is touchable.

3. Make sure each wiring terminal is connected firmly during installation and maintenance.

4. Have the unit adequately grounded. The grounding wire can't be used for other purposes.

5. Must apply protective accessories such as protective boards, cable-cross loop and wire clip.

6. The live wire, neutral wire and grounding wire of power supply must be corresponding to the live wire, neutral wire and grounding wire of the air conditioner.

7. The power cord and power connection wires can't be pressed by hard objects.

8. If power cord or connection wire is broken, it must be replaced by a qualified person.

9. For the air conditioner without plug, an air switch must be installed in the circuit. The air switch should be all-pole parting and the contact parting distance should be more than 3mm.

10. Check if there is electric leakage on the unit body. If yes, please eliminate the electric leakage.

11. Replace the fuse with a new one of the same specification if it is burnt down; don't replace it with a cooper wire or conducting wire.

12. If the unit is to be installed in a humid place, the circuit breaker must be installed.

Refrigerant Safety Precautions:

1. When refrigerant leaks or requires discharge during installation, maintenance, or disassembly, it should be handled by certified professionals or otherwise in compliance with local laws and regulations.

2. Avoid contact between refrigerant and fire as it generates poisonous gas. Recycle the refrigerant inside the unit completely before welding pipes.

3. Apply specified refrigerant only. Never have it mixed with any other refrigerant. Never have air remain in the refrigerant line as it may lead to rupture or other hazards.

4.If refrigerant is leaking seriously, it may cause suffocation or explosion. When using the combustible refrigerant, please put the unit at ventilated place.

5. Never touch the refrigerant piping or compressor without wearing glove to avoid scald or frostbite.

Improper installation may lead to fire hazard, explosion, electric shock or injury.

Appliance filled with flammable gas R290.

Before install and use the appliance, read the owner's manual first.

Before install the appliance, read the installation manual first.

Before repair the appliance, read the service manual first.

The Refrigerant

●To realize the function of the unit, a special refrigerant circulates in the system. The used refrigerant is the fluoride R290, which is specially cleaned. The refrigerant is flammable and inodorous. Furthermore, it can lead to explosion under certain conditions.

●Compared to common refrigerants, R290 is a nonpolluting refrigerant with no harm to the ozonosphere. The influence upon the greenhouse effect is also lower. R290 has got very good thermodynamic features which lead to a really high energy efficiency. The units therefore need a less filling.

⚠ WARNINGS

●Appliance filled with flammable gas R290.

●A ppliance shall be installed, operated and stored in a room with a floor area larger than 4 m^2 .

●The appliance shall be stored in a room without continuously operating ignition sources . (for example: open flames, an operating gas appliance or an operating electric heater.)

●The appliance shall be stored in a well-ventilated area where the room size correspond s to the room area as specified for operation.

●The appliance shall be stored so as to prevent mechanical damage from occurring.

●Ducts connected to an appliance shall not contain an ignition source.

●Keep any required ventilation openings clear of obstruction.

●Do not pierce or burn.

●Be aware that refrigerants may not contain an odour.

●Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.

●Servicing shall be performed only as recommended by the manufacturer.

●Should repair be necessary, contact your nearest authorized Service Centre.

●Any repairs carried out by unqualified personnel may be dangerous.

●Compliance with national gas regulations shall be observed.

●Read specialist's manual.

8. Operation and maintenance

8.1 Drainage Option

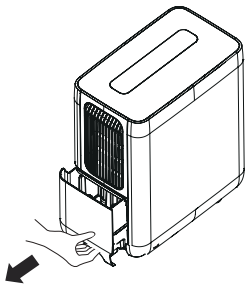
Option 1 Emptying Manually

Note:

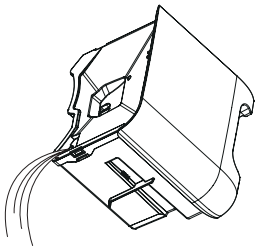
● Do not remove the bucket when unit is in operation or has just stopped.Otherwise it may cause some water to drip on the floor.

● Do not use the hose if using water bucket to collect water. When the hose is connected, water will be drained out through it instead of into the bucket.

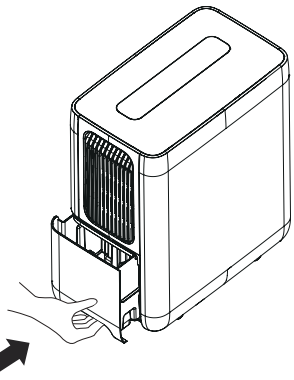
1. Hold the handles on both sides of the water bucket and pull it out following the arrow direction. (Attention: Pull out the bucket carefully in case the water may spill out from the bucket and onto the floor.)



2. Empty the bucket by grasping the handle on the top of bucket with one hand and grasping the bottom of bucket with the other hand.

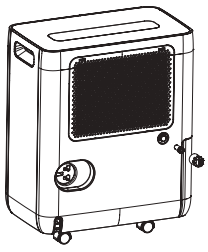


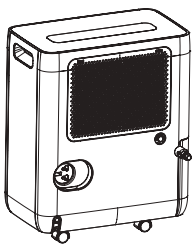
3. Replace bucket in the dehumidifier according to the arrow direction.



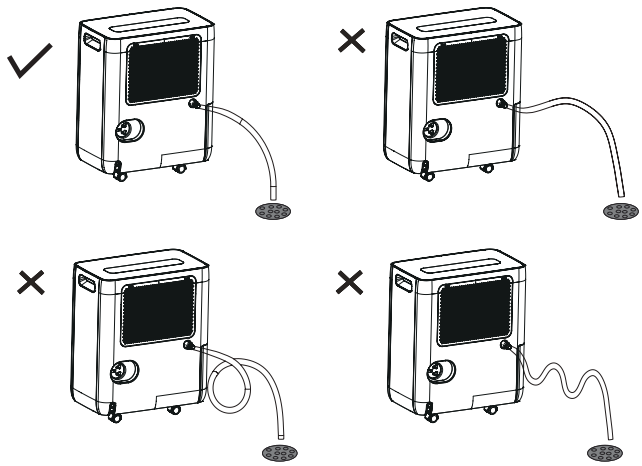
Option 2 Gravity Drain Hose

1. Hose is not provided, so user shall prepare it in advance. [Size: The hose should have an inner diameter of 14mm]
2. Unscrew the drain cover, and pull out the rubber plug from the unit as instructed.
3. Take out the adaptor and connect it firmly to the continuous drainage port.
4. Thread the drain hose onto the adaptor and make sure it's securely locked.

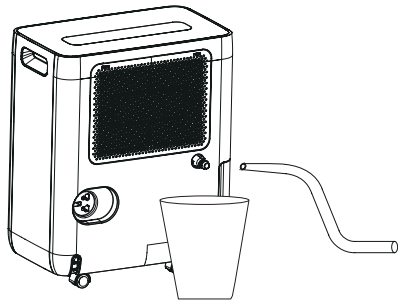




4. Replace the bucket. Make sure the drain hose goes through the buckets drain hole and is placed downward.Lead the hose to the floor drain and the cover the hole with a lid. Note that drain hose should not be pressed, otherwise water can not be drained out.



Note: When you want to take off the drain hose, prepare a receptacle to collect water from the nozzle.



8.2 Clean and Maintenance

Warning:

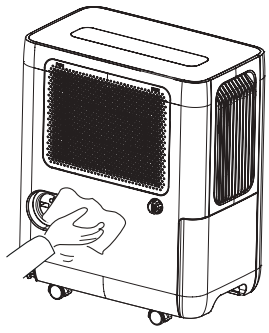
● Berore cleaning,turn off the dehumidifier and disconnect power. Otherwise it may lead to electric shock.

● Do not wash the dehumidifier with water,or it may lead to electric shock.

● Do not use volatile liquid(such as thinner or gasoline) to clean dehumidifier.Otherwise it will damage units appearance.

1. Grille and Case

To clean the case:When there is dust on the case, use soft towel to dust it off; When the case is very dirty(greasy),use mild detergent to clean it.To clean the grille:Use a dust catcher or brush.

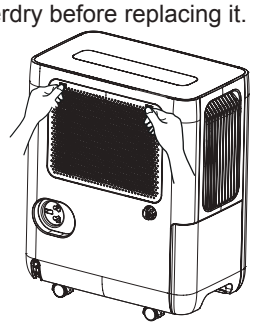


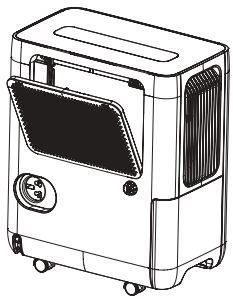
2. Air filter

The filter should be checked and cleaned at least every 250 hours of operation or more often if necessary.

To remove:Press the “PUSH” above the filter with two hands simultaneously, then the filter can be removed.

To clean:Clean the filter in warm,soapy water.Rinse it and let the filterdry before replacing it.





Warning:

● Do not operate the dehumidifier without a filter.Otherwise the evaporator will catch dust and affect units performance.

● Do not dry the air filter with fire or electric hair dryer.Otherwise the air filter may be unshaped or caught on fire.

● Dont use dust catcher or brush to clean the air filter.Otherwise the air filter may be destroyed.

8.3 Check Before Use-season

● Check whether air outlet is blocked.

● Check whether power plug and power socket are in good condition.

● Check whether air fillter is clean.

● Check whether drain hose is damaged.

8.4 Care After Use-season

● Disconnect power.

● Clean air filter and case.

● Clean dust and obstacle of the dehumidifier.

● Empty the water bucket.

8.5 Long-time Storage

If you won't use the dehumidifier for a long time ,we suggest that you follow the steps below in order to maintain the unit in good condition.

● Make sure the bucket is clear of water and drain hose is removed.

● Clean the unit and wrap it well to prevent the gathering of dust.

9. Maintenance

9.1 Safety Principle of Maintenance

1. The maintenance spot must have good ventilation. Do not close the door or the window.
2. Do not use naked flame, including welding, smoking. Do not use power tools.Do not use mobile phone. Tell the user not to cook with naked flame.
3. Take antistatic measures, including wearing pure cotton clothes and gloves etc.
4. If flammable refrigerant leakage is found during maintenance,it is a must to reinforce ventilation and take effective protective measures.
5. During maintenance, it is necessary to keep the spot safe when fetching the lacked spare parts.
6. It is necessary to keep the case of the air conditioner grounded during maintenance.
7.The maintenance irrelated to refrigerant vessel, inner refrigerant pipe and cooling component can be performed in the user's place, including cleaning the cooling system and sludging.
8. Ensure that the density tester is working during maintenance.
9. Ensure there is necessary safety precaution and emergency measures on the spot. Put suitable fire extinguishers(CO2 or dry powder) in the nearest area.
10. There must be natural ventilation in the maintenance spot.
11. The maintenance staff shall take safety actions.
12. Paste suitable signs such as "No Smoking" and "No Entry".

9.2 Preparation before Maintenance

1. Inspection of Environment

(1) Ensure that electric product with radiation is power off in the maintenance area. All the persons in the room shall turn off the mobile phone.

(2) Check if there is refrigerant leakage in the maintenance area. Ensure that all the leak testers are suitable for this air conditioner.

(3) Ensure that the room area reaches the requirement.

(4) Check if the maintenance area is ventilated. Keep the room ventilated.

2. Inspection of Air Conditioner

(1) Ensure that the air conditioner is reliably grounded.

(2) Ensure that the power supply of the air conditioner is cut off. Discharge the electricity of the capacitor. If power supply is necessary, perform leak test to prevent the potential danger.

3. Inspection of Maintenance Equipment

(1) Check if the maintenance equipment is suitable for the refrigerant. Only the special equipment recommended by the air conditioner supplier can be used.

(2) The set alarm density of the leak tester shall not be higher than 25% of the LEL. The tester must keep operating during maintenance.

4. Leak Test before Maintenance

(1) After cutting off the power supply, perform leak test with the recommended leak detector or density tester (pump suction type) (ensure the equipment is calibrated; leakage ratio of leak detector is 2g/year.)

Note: do not use resolvent with chlorine in case causing corrosion of the steel pipe.

(2) If leakage is found, remove all fire source ensure good ventilation of the area.

5. Check List

No.	Check information	Result	Yes/No
1	**Maintenance equipment is complete**		
2	**Persons in the maintenance area turn off the mobile phone.**		
3	**Power supply of tools is 2m away.**		
4	**Density tester can be used.**		
5	**Other tools are normal.**		
6	**Maintenance staffs are qualified.**		
7	**The spare parts are provided by the manufacturer and qualified.**		
8	**The air conditioner needed to be serviced is under safe state.**		
9	**The wire of power socket is reliably connected.**		
10	**There is natural ventilation in maintenance area.**		
11	**There is no operating electric appliance or naked flame within 2m of Maintenance area.**		

9.3 Maintenance Cautions

If it is necessary to replace components, all the components used shall be made by manufacturer. Otherwise, the supplier shall not bear the responsibility.

1.Maintenance of Electrical Parts

(1)Replace the power cord and connecting wire with that of the same specification.

(2)When inspecting the circuit with power on, check if there is electric leakage for the metal component such as evaporator or condenser. During inspection, do not touch the circuit so as to prevent electric shock.

(3)When inspecting the capacitor, ensure that the maintenance area is well ventilated. After conforming there is no refrigeration leakage, discharge electricity of capacitor.

(4)Before replacing the component, cut of the power supply of the air conditioner.

(5)Cut off the power before disconnecting and connecting the wire. Disconnect the live wire first and then ground wire.

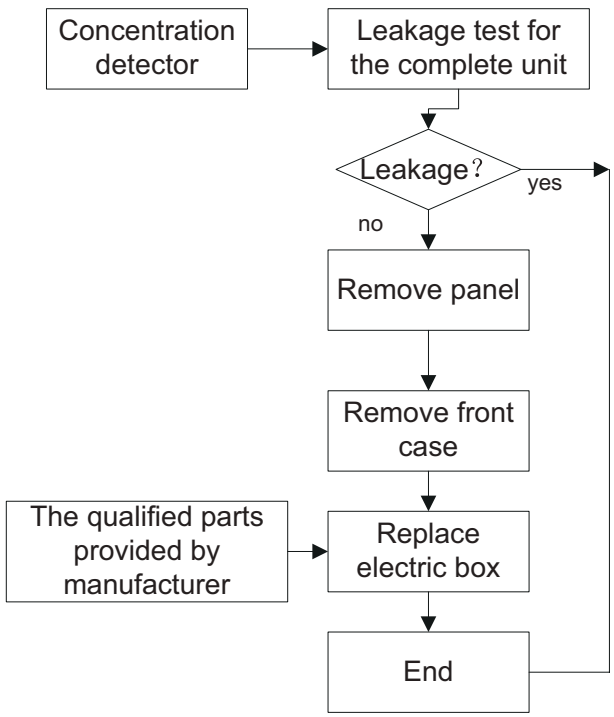
(6)During maintenance, do not remove the protective component. Use the component of same supplier and specification.

(7)When servicing the hermetic parts, cut of the power of the air conditioner before opening the sealing cover. If it is necessary to use power supply, perform leak test to prevent potential danger.

(8)Do not replace the case which may affect the protective grade.

(9)Ensure that the sealing material is not degraded and that it can prevent entry of flammable gas. The parts used for replacement must reach the requirement of the suppler.

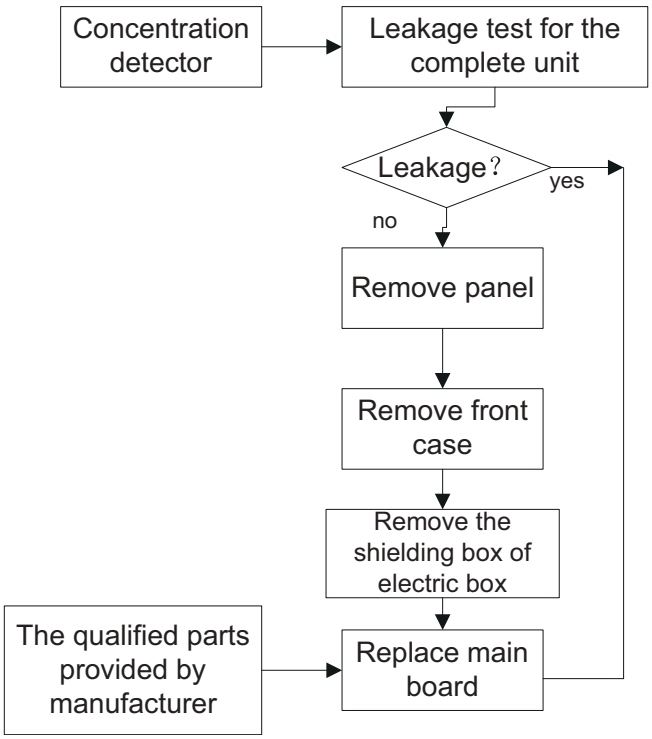
Replace electric box:



2.Maintenance of Refrigeration System

Before the maintenance, check whether there is any leakage or blockage in the refrigeration system. If yes, it is forbidden to conduct the maintenance. The unit should be recycled and disposed according to local regulations.

Replace main board:



9.4 Error Code List

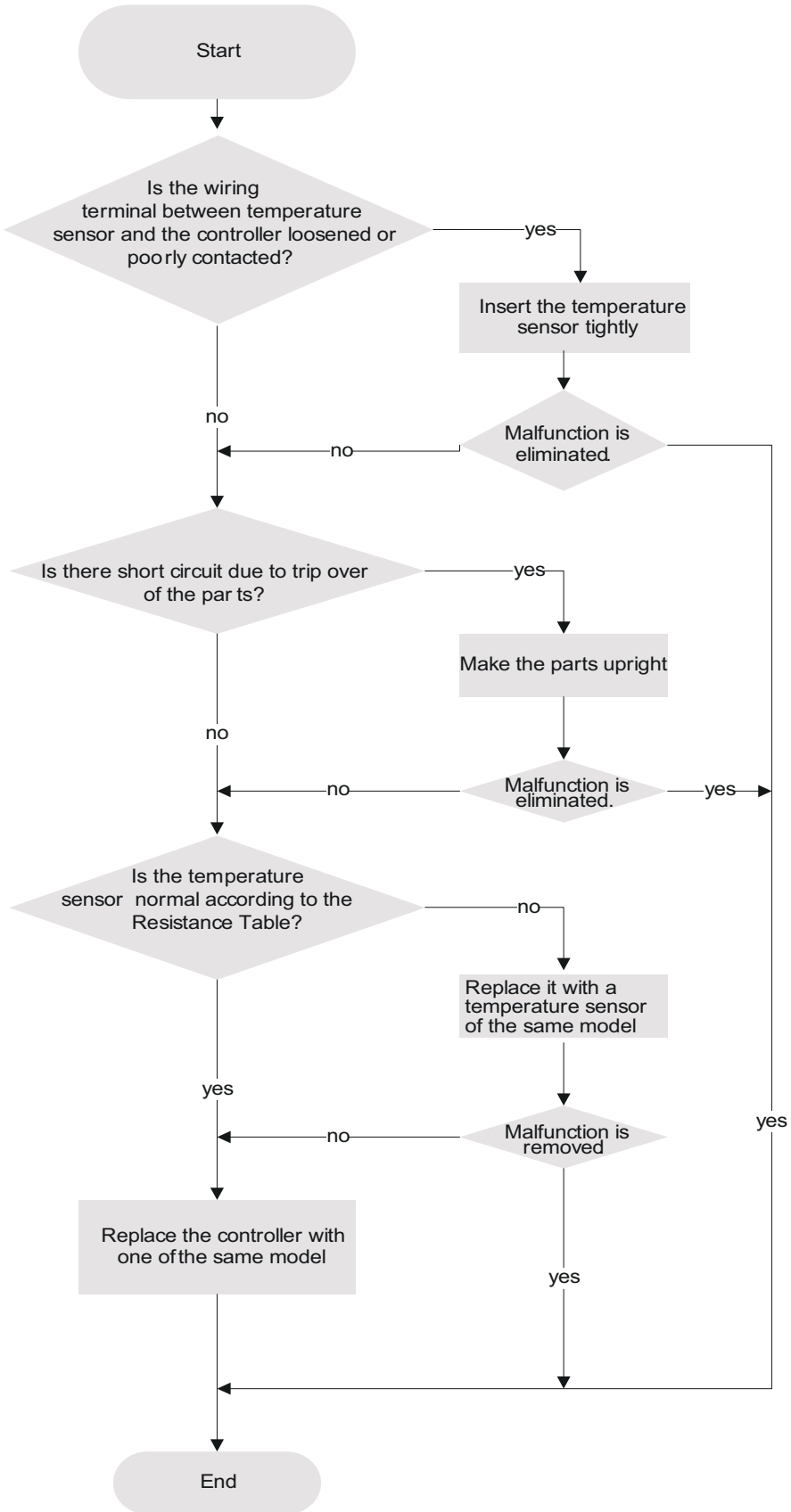
No.	Malfunction Name	Display Indicator	Unit's Condition	Possible Causes
1	Ambient Temperature Sensor Malfunction	40% humidity indicator and 50% humidity indicator flashes at the same time	Compressor and fan motor stop. Buttons are invalid.	● Ambient temperature sensor is loosen or is poorly connected with the terminal of display board. ● Some element of display board may have been put upside down and cause short circuit. ● Ambient temperature sensor is damaged(Please refer to Checking Table for Temperature Sensor Resistance). ● Display board is damaged.
2	TubeTemperature Sensor Malfunction	50% humidity indicator and 60% humidity indicator flashes at the same time	Compressor and fan motor stop. Buttons are invalid.	● Temperature sensor on the evaporator is loosen or is poorly connected with the terminal of display board. ● Some element of display board may have been put upside down and cause short circuit. ● Temperature sensor on the evaporator is damaged (Please refer to Checking Table for Temperature Sensor Resistance). ● Display board is damaged.
3	Humidity Sensor Malfunction	40% humidity indicator and 60% humidity indicator flashes at the same time		● Humidity sensor is short-circuited. ● Humidity sensor is damaged. ● Display board is damaged.
4	Insufficient Refrigerant protection	/	The compressor stops,the fan motor stop after 30s later.	● Refrigerant is leaking. ● System is blocked.
5	High-temperature overoad protection	/		● Ambient operation condition is bad. ● The evaporator and condenser are blocked with filth. ● The system is abnormal.

Note:

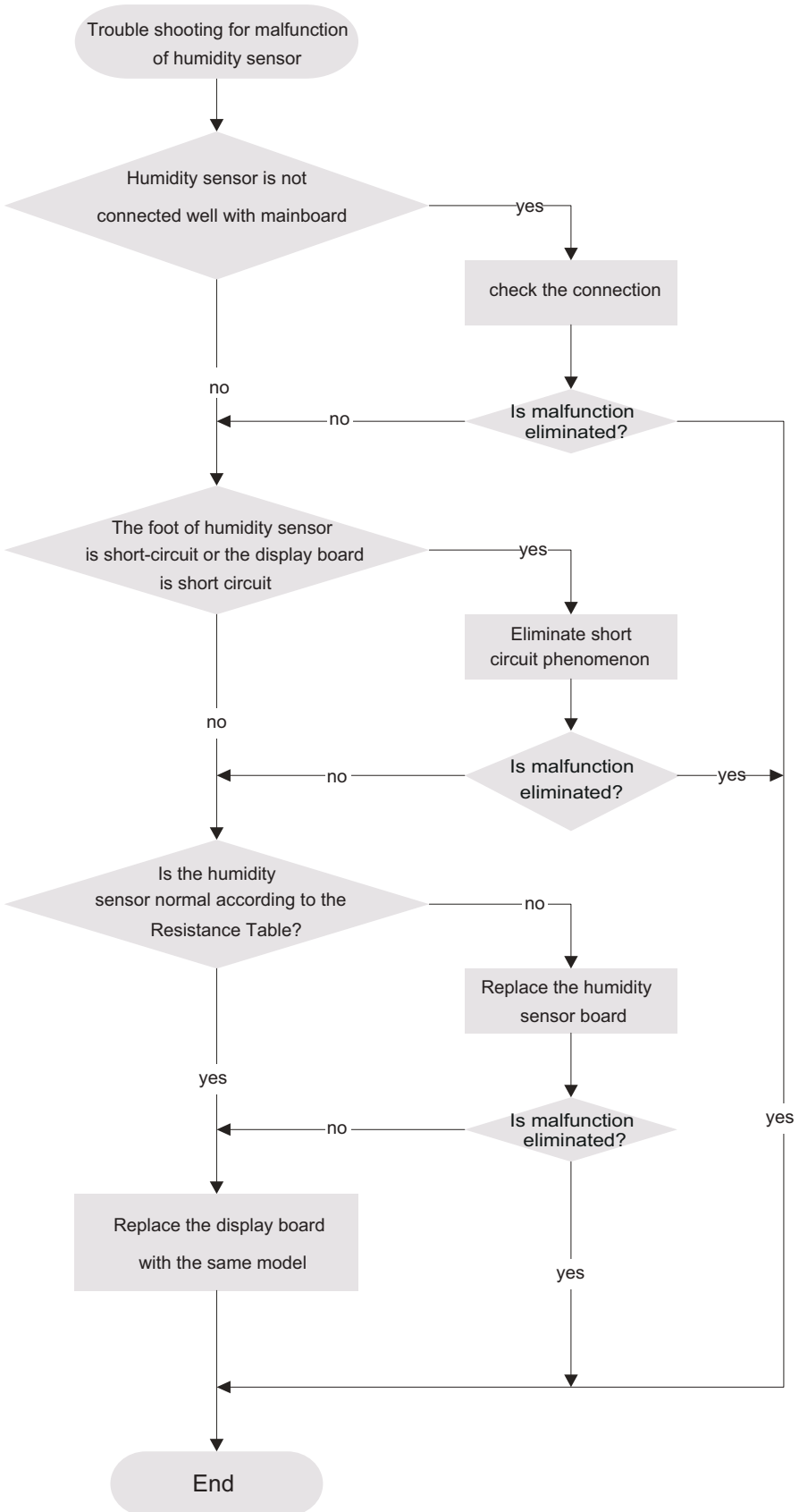
After more than one fault has been caused, alternately and continuously flash 3 times each as each fault is displayed.

9.5 Malfunction Detection Flowchart

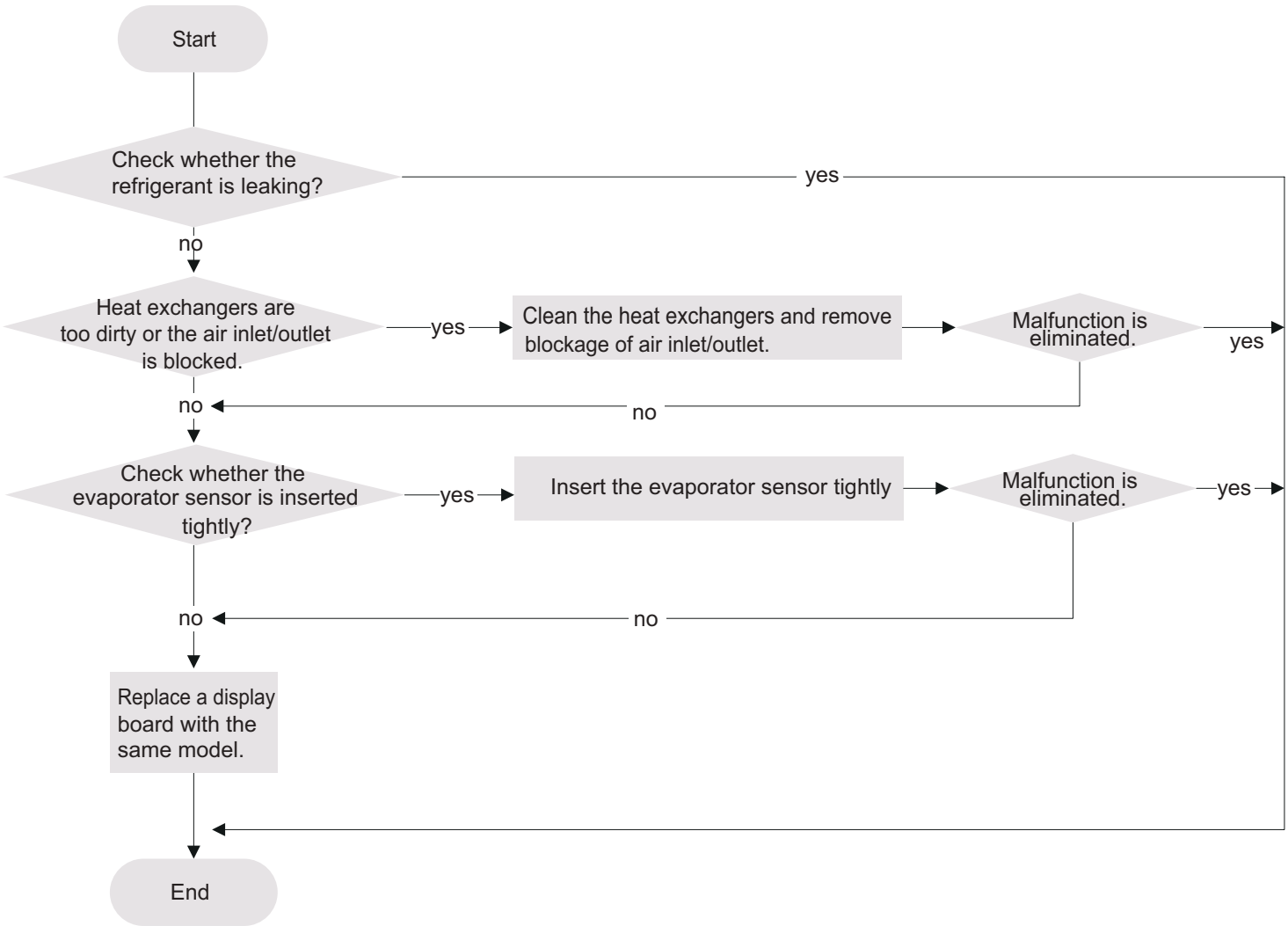
1. Malfunction of temperature sensor



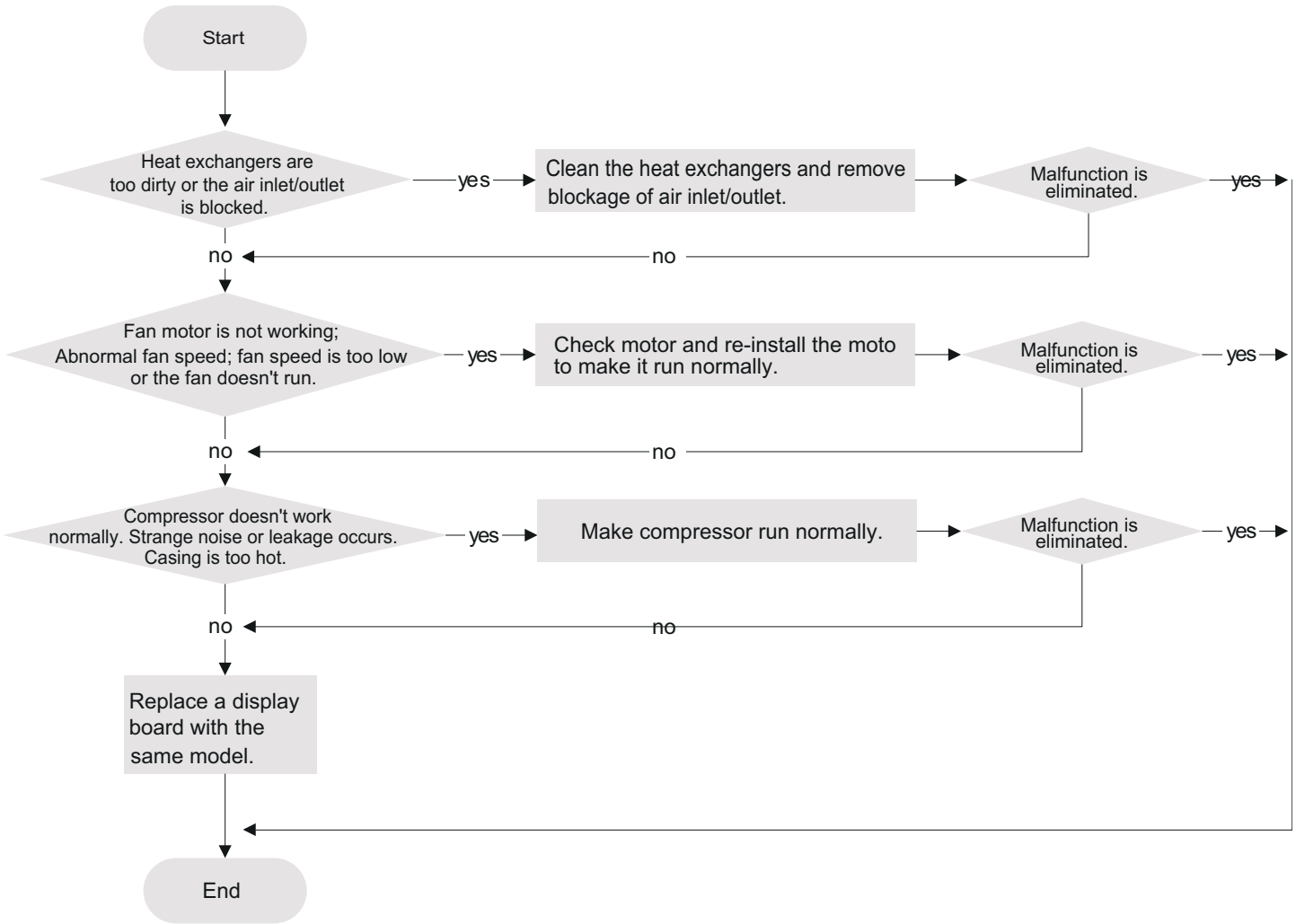
2.Malfunction of humidity sensor



3. Malfunction of Insufficient Refrigerant protection



4. High-temperature overload protection



9.6 Maintenance Method for Common Malfunction

1.The Unit Can't Start Up

Possible causes	Discriminating method (dehumidifier status)	Troubleshooting
No power supply, or poor connection for power plug	After energization, operation indicator isn't bright.	Confirm whether its due to power failure. If yes, wait for power recovery. If not, check power supply circuit and make sure the power plug is connected well.
Poor connection between wiring terminals	Power indicator is not on after the unit is energized	Check the circuit according to wiring diagram and connect wire properly; ensure each wiring terminal contact firmly
There is electric leakage in the unit	Circuit breaker jump off immediately after the unit is energized	Make sure the unit is properly grounded; Make sure the wiring is correct; Check if the insulating layer of wires inside the unit and power cord is in good condition; if the layer is broken, please replace it.
Placing position of water tank is not correct. Water is removed or the water is full.	Wall-full indicator flashes.	Make sure the water tank is placed correctly.

2. Poor Dehumidifying Effect

Possible causes	Discriminating method (dehumidifier status)	Troubleshooting
Filter is blocked	Check the filter to see it's blocked	Clean the filter
Placing position of water tank is improper.	Check whether therere obstacles around the dehumidifier blocked the air outlet.	Make sure therere no obstacles around the dehumidifiers.
Refrigerant is leaking	Air outlet temperature is lower than normal temperature during dehumidifying period.	Find out the cause of leakage and solve the problem; charge refrigerant
Malfunction of capillary	Air outlet temperature is lower than normal temperature during dehumidifying period. If the refrigerant isnt leaking, some parts of capillary is blocked.	Replace capillary
Malfunction of fan	Fan can't operate.	Refer to point 3 of maintenance method for details
Malfunction of compressor	Compressor can't operate	Refer to point 4 of maintenance method for details

3.Fan Can't Operate

Possible causes	Discriminating method (dehumidifier status)	Troubleshooting
Wrong wire connection, or poor connection	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly
Needle stand of connection wire between mainboard and display board is loosened	Check if the needle stand is loosened	Reinsert the needle stand firmly
Fan capacitor is broken	Test the voltage between two ends of fan capacitor with universal meter and the value is 0	Replace fan capacitor
Power supply voltage is too low or too high	Test the power supply voltage with universal meter and the value is too high or too low	Apply voltage regulator
Fan is broken	The above situation is normal but the fan does not operate	Repair or replace the fan

4. Compressor Can't Operate

Possible causes	Discriminating method (dehumidifier status)	Troubleshooting
Wrong wire connection, or poor connection	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly
Compressor relay on the mainboard is broken or the compressor needle stand is loosened	Check if the relay is sucked in cooling mode	Replace the mainboard with the same model
Power voltage is a little low or high	After turning on the unit, dehumidifying effect is poor or compressor is turned on or off frequently. Use universal meter to measure the power supply voltage directly	The fluctuation of voltage is 10% rated power. If the power is too low or too high, you are suggested to equip wit voltage regulator.

5. Water Leakage

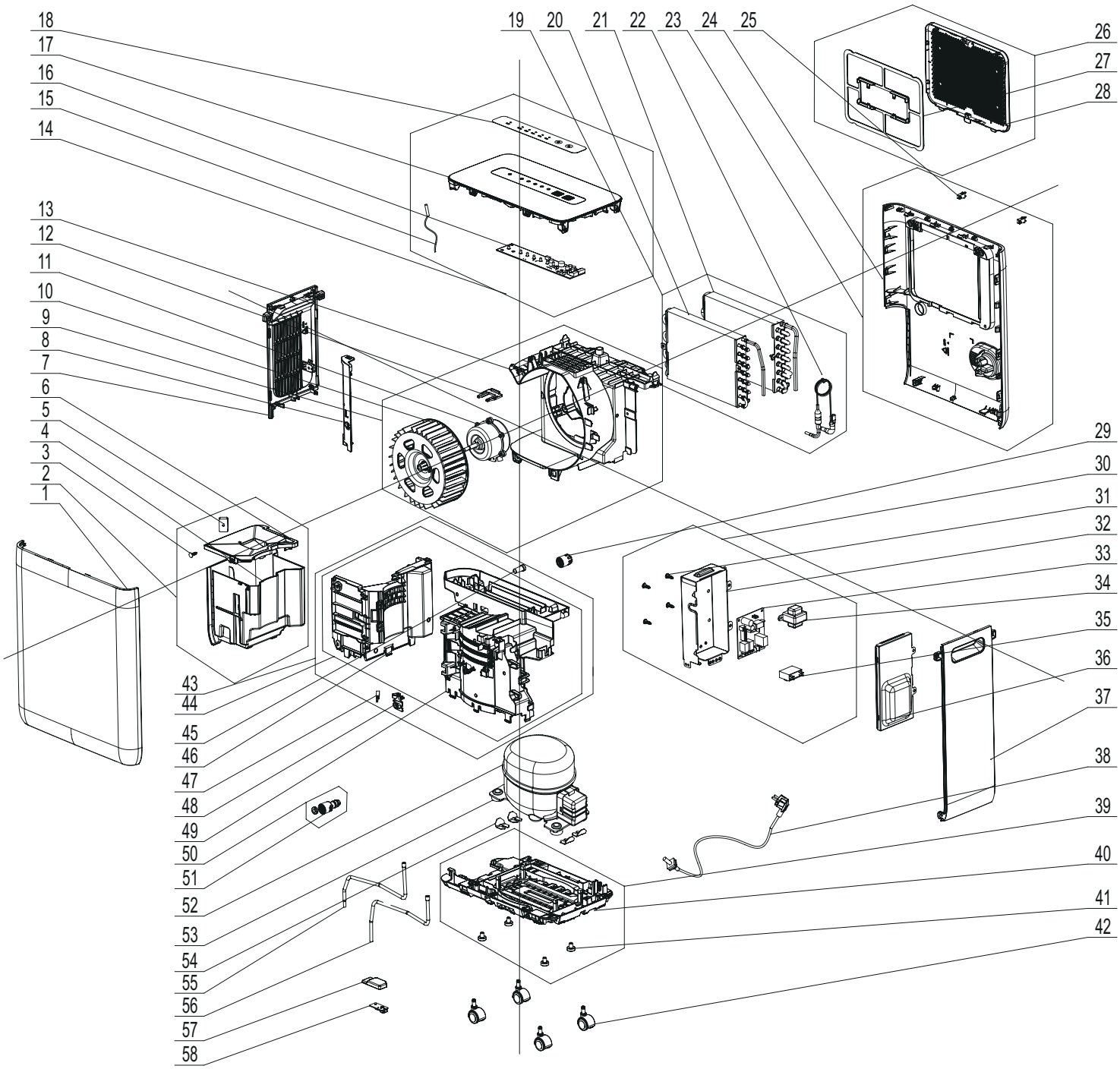
Possible causes	Discriminating method (dehumidifier status)	Troubleshooting
Drainage pipe hasnt been installed correctly.	Water is coming out from indoors.	Eliminate the blocking objects inside the drainage channel.

6. Abnormal Sounds and Vibration

Possible causes	Discriminating method (dehumidifier status)	Troubleshooting
There is abnormal sound in some parts when just turning on or turning off the unit	Theres the sound of "PAPA"	Normal phenomenon. Abnormal sound will disappear after a few minutes.
There is abnormal sound of refrigerant flowing when just turning on or turning off the unit	Water-running sound can be heard	Normal phenomenon. Abnormal sound will disappear after a few minutes.
There is touching sound of foreign objects or parts inside the unit	The unit gives out abnormal sound	Take out the foreign objects; adjust the position of each part inside the unit; tighten the connection screws; apply some damping gum on the touching parts
Abnormal shake of compressor	Outdoor unit gives out abnormal sound	Adjust the support foot mat of compressor, tighten the bolts
Abnormal sound inside the compressor	Abnormal sound inside the compressor	If add too much refrigerant during maintenance, please reduce refrigerant properly. Replace compressor for other circumstances.

10. Exploded View and Parts List

GDN10BF-K5EBA3A GDN10BF-K5EBA3B GDN12BF-K5EBA3A GDN16BF-K5EBA3A



The component picture is only for reference; please refer to the actual product.

NO.	Description
1	Front Panel
2	Water Tank Sub-Assy
3	Partition Pole (PC board)
4	Water Tank
5	Buoy (magnet)
6	Water Tank Cover
7	Left Side Plate
8	Baffle Plate
9	Air Flue Assy
10	Centrifugal Fan
11	Fan Motor
12	Wire Clamp
13	Diversion Circle
14	Top Cover Assy
15	Temperature Sensor
16	Display Board
17	Coping
18	Membrane
19	Heat-exchange Equipment
20	Condenser Sub-Assy
21	Evaporator Sub-Assy
22	Capillary Sub-assy
23	Rear Plate Sub-Assy
24	Rear Plate
25	Latch
26	Filter Assy
27	Filter Sub-Assy
28	Supporter
29	Cover of drainage hole

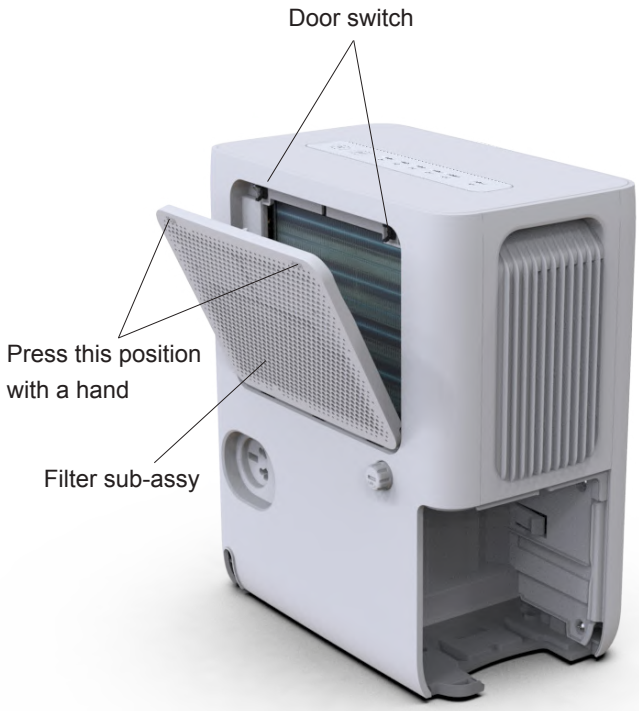
NO.	Description
30	Electric Box Assy
31	Partition Pole (PC board)
32	Electric Box
33	Main Board
34	Transformer
35	Capacitor CBB61
36	Electric Box Cover
37	Right Side Plate
38	Power Cord
39	Chassis Assy
40	Chassis Sub-assy
41	Rubber Plug
42	Castor
43	Water Tray Assy
44	Water Tray Sub-Assy
45	Rubber Plug
46	Water Tray 1
47	Proximity Switch
48	Supporting Strip
49	Water Tray 2
50	Adaptor sub-assy
51	Joint
52	Compressor and Fittings
53	Compressor Gasket
54	Fastener
55	Inhalation Tube
56	Discharge Tube
57	Sensor Cover
58	Detecting Plate

Some models may not contain some parts, please refer to the actual product.

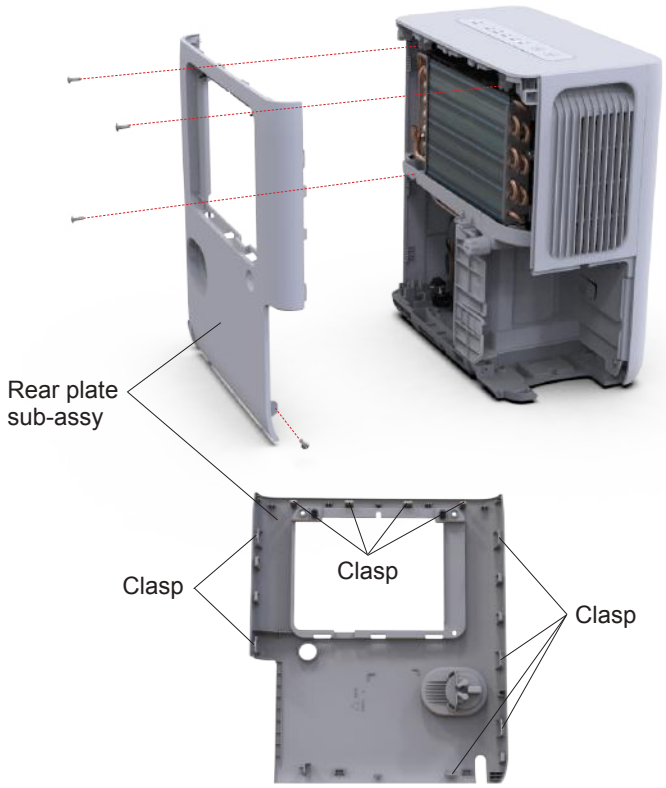
11. Removal Procedure

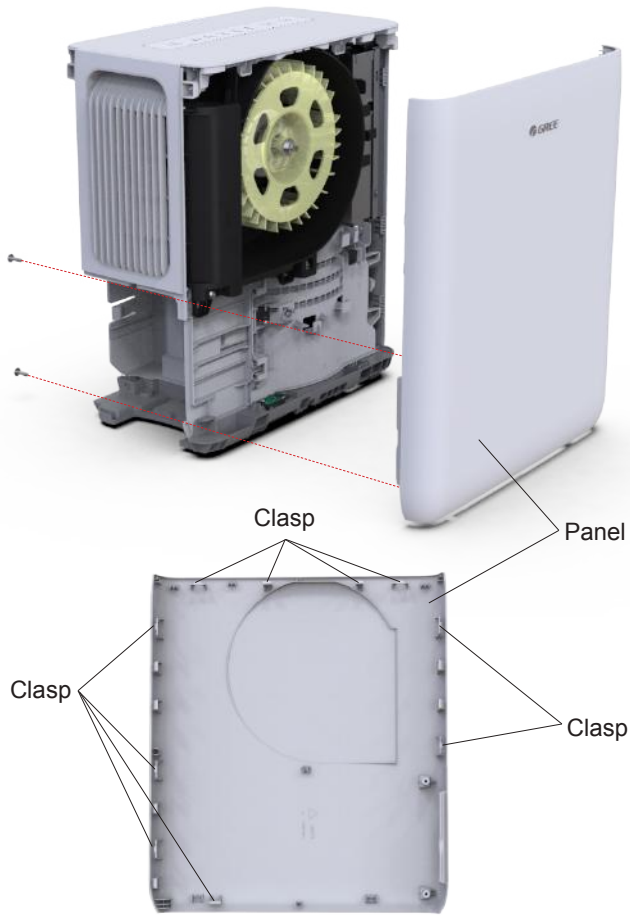
GDN10BF-K5EBA3A
GDN10BF-K5EBA3B
GDN12BF-K5EBA3A
GDN16BF-K5EBA3A

Warning: disconnect power supply before removal; Prohibit disassembling and maintaining the refrigeration system pipeline and parts (include evaporator, condenser, compressor,capillary, etc.)

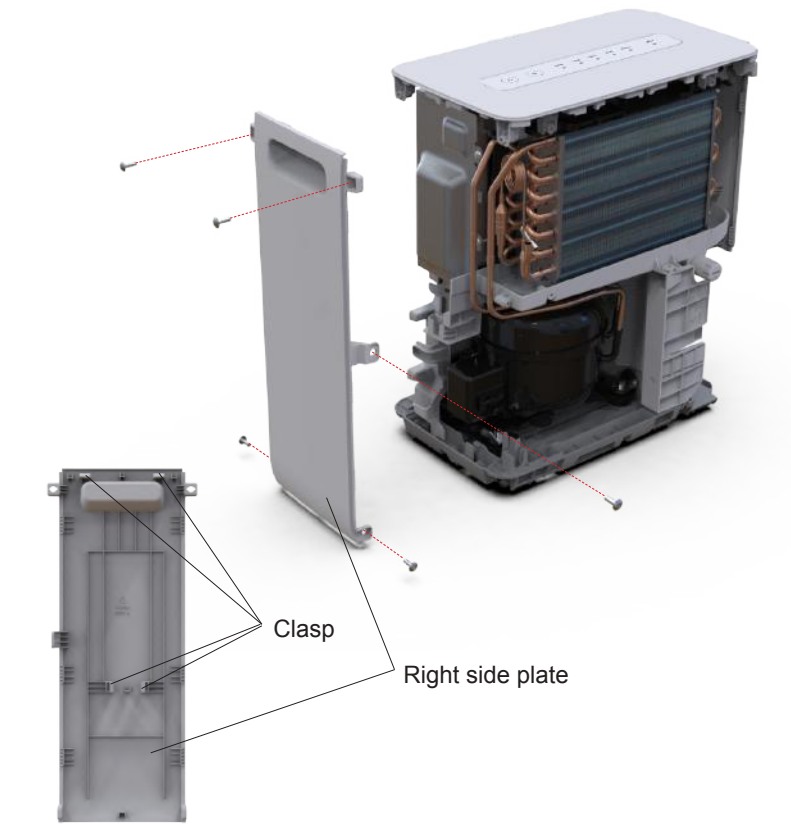
Step	Procedure
1. Remove water tank sub-assy	
Hold the hand-holding position at the bottom of the water tank, pull the water tank (along the arrow position) and then remove the water tank sub-assy.	
2. Remove filter sub-assy	
Press "PUSH" position with a hand to separate it from these 2 door switches on the rear plate, and then remove the filter sub-assy.	

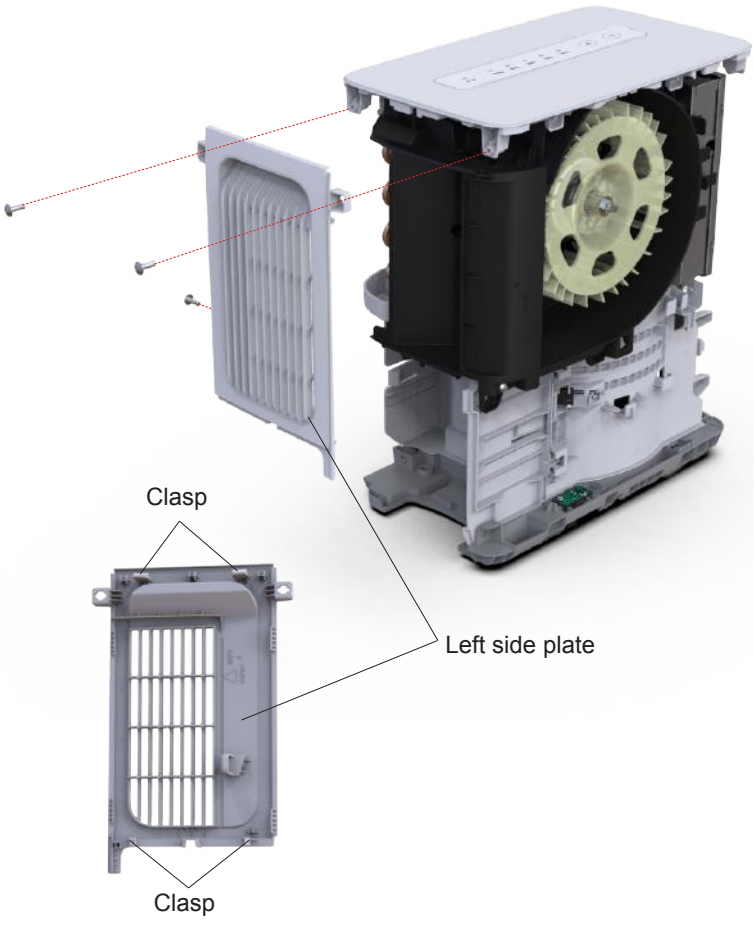
Step	Procedure
3. Remove rear plate sub-assy	
	Remove 3 screws on the back of the case and 1 screw under the water tank, pull it rear plate sub-assy outwards to separate it from all clasps and then the rear plate sub-assy can be removed.
4. Remove panel	
	Remove 2 screws under the water tank, pull the panel outwards to make it come out of all clasps and then remove the panel.

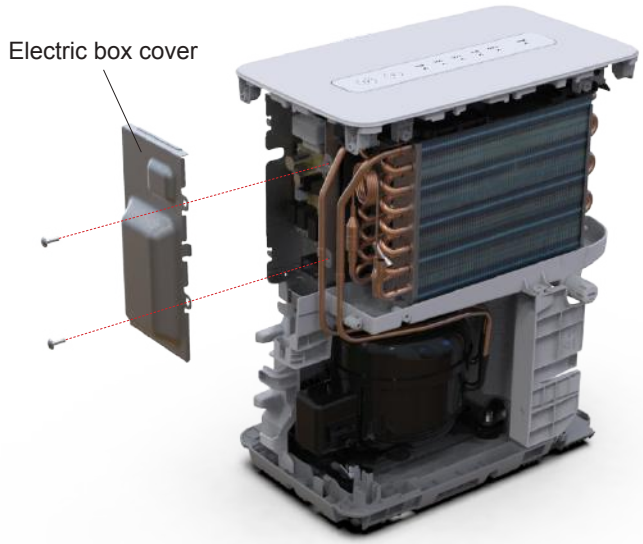
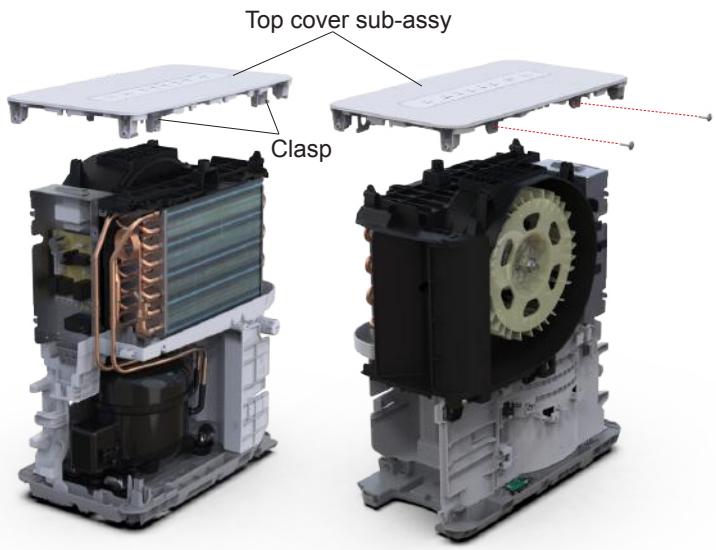
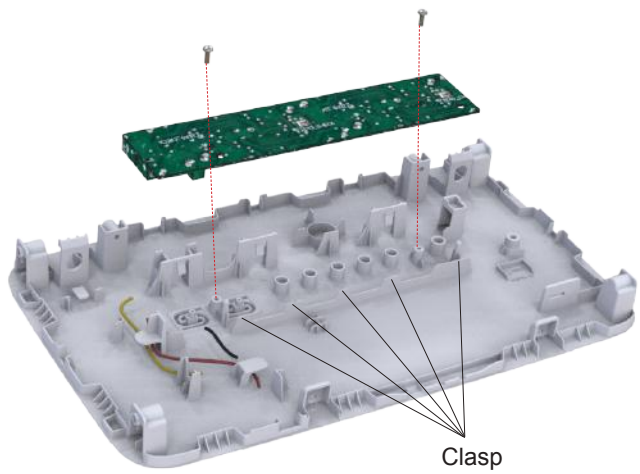


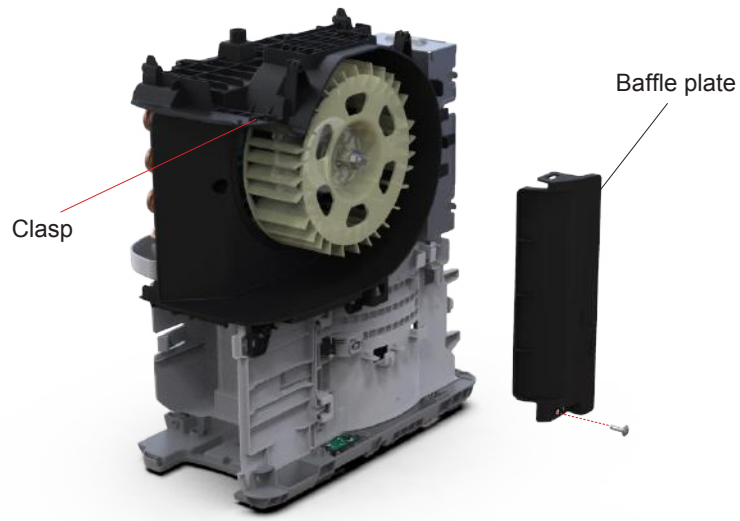
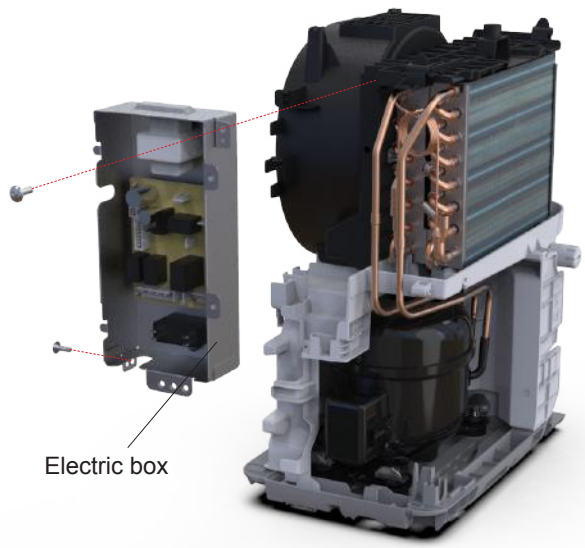
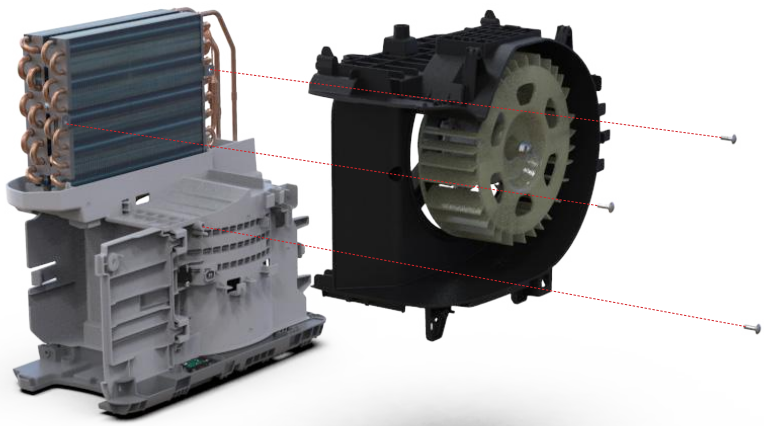


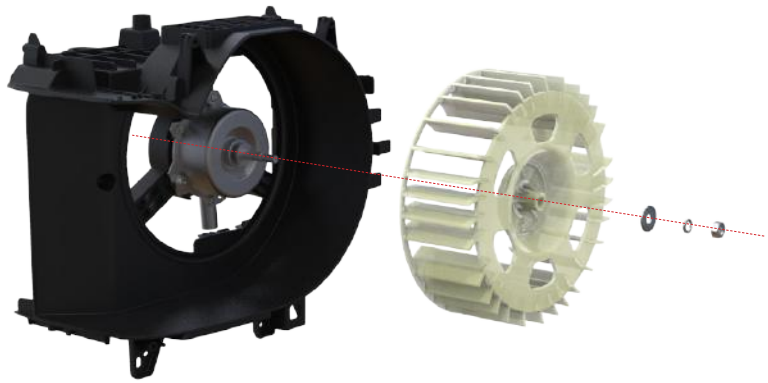
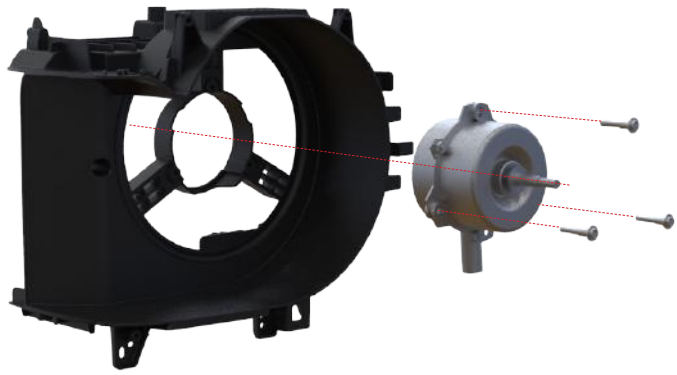
Step	Procedure
5. Remove right side plate	Remove 5 screws used for fixing the right side plate and then pull the right side plate outwards to separate it from 4 clasps in the middle, and then the right side plate can be removed.
6. Remove left side plate	Remove 3 screws used for fixing the left side plate and then pull the left side plate outwards to separate it from 4 clasps in the middle, and then the left side plate can be removed.





Step	Procedure
7. Remove electric box cover	
Remove 2 screws on the electric box cover and then remove the electric box cover.	
8. Remove top cover sub-assy	
Remove 2 screws used for fixing the top cover sub-assy, and take it outwards to separate these 2 clasps in front of the top cover sub-assy. Separate connection wires of discharge temperature sensor and display board to separate from all grooves, hold two sides of the top cover sub-assy, pull it upwards and then remove the top cover sub-assy.	
9. Remove display sub-assy	
Remove 2 screw used for fixing the display, separate the display sbu-assy from the clasps and then remove the display sub-assy.	

Step	Procedure
10. Remove Baffle Plate	
	Remove the screws under the baffle Plate, separate the baffle plate from the clasp and then remoe the baffle plate.
	
11. Remove electric box	
	Pull out all wires connected with all electric elements inside the electric box, remove 2 screws connected with the water tray inside the electric box, and then remove the electric box.
	
12. Remove air duct	
	Remove 1 screw used for fixing the water tray and 2 screws used for fixing the evaporator and the condenser, pull the air duct backwards and then remove the air duct.
	

Step	Procedure
13. Remove centrifugal blade	
	Remove nuts used for fixing the blades at the motor terminal and 2 washer; pull the blade along the motor shaft and then remove the blade sub-assy.
	
14. Remove motor	
	Pull out the wire-pressing plate, remove 3 screws used for fixing the motor and then remove the motor.
	

Appendix:

Appendix 1: Reference Sheet of Celsius and Fahrenheit

Conversion formula for Fahrenheit degree and Celsius degree: Tf=Tcx1.8+32

Set temperature

Fahrenheit display temperature（°F）	Fahrenheit（°F）	Celsius（℃）	Fahrenheit display temperature（°F）	Fahrenheit（°F）	Celsius（℃）	Fahrenheit display temperature（°F）	Fahrenheit（°F）	Celsius（℃）
61	60.8	16	69/70	69.8	21	78/79	78.8	26
62/63	62.6	17	71/72	71.6	22	80/81	80.6	27
64/65	64.4	18	73/74	73.4	23	82/83	82.4	28
66/67	66.2	19	75/76	75.2	24	84/85	84.2	29
68	68	20	77	77	25	86	86	30

Ambient temperature

Fahrenheit display temperature（°F）	Fahrenheit（°F）	Celsius（℃）	Fahrenheit display temperature（°F）	Fahrenheit（°F）	Celsius（℃）	Fahrenheit display temperature（°F）	Fahrenheit（°F）	Celsius（℃）
32/33	32	0	55/56	55.4	13	79/80	78.8	26
34/35	33.8	1	57/58	57.2	14	81	80.6	27
36	35.6	2	59/60	59	15	82/83	82.4	28
37/38	37.4	3	61/62	60.8	16	84/85	84.2	29
39/40	39.2	4	63	62.6	17	86/87	86	30
41/42	41	5	64/65	64.4	18	88/89	87.8	31
43/44	42.8	6	66/67	66.2	19	90	89.6	32
45	44.6	7	68/69	68	20	91/92	91.4	33
46/47	46.4	8	70/71	69.8	21	93/94	93.2	34
48/49	48.2	9	72	71.6	22	95/96	95	35
50/51	50	10	73/74	73.4	23	97/98	96.8	36
52/53	51.8	11	75/76	75.2	24	99	98.6	37
54	53.6	12	77/78	77	25			

Appendix 2: List of Resistance for Temperature Sensor

Resistance Table of Ambient Temperature Sensor for Indoor and Outdoor Units(15K)

Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)
-19	138.10	0	49.02	20	18.75	40	7.97
-18	128.60	2	44.31	22	17.14	42	7.35
-16	115.00	4	40.09	24	15.68	44	6.79
-14	102.90	6	36.32	26	14.36	46	6.28
-12	92.22	8	32.94	28	13.16	48	5.81
-10	82.75	10	29.90	30	12.07	50	5.38
-8	74.35	12	27.18	32	11.09	52	4.99
-6	66.88	14	24.73	34	10.20	54	4.63
-4	60.23	16	22.53	36	9.38	56	4.29
-2	54.31	18	20.54	38	8.64	58	3.99

Resistance Table of Tube Temperature Sensors for Indoor and Outdoor (20K)

Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)
-19	181.40	20	25.01	60	4.95	100	1.35
-15	145.00	25	20.00	65	4.14	105	1.16
-10	110.30	30	16.10	70	3.48	110	1.01
-5	84.61	35	13.04	75	2.94	115	0.88
0	65.37	40	10.62	80	2.50	120	0.77
5	50.87	45	8.71	85	2.13	125	0.67
10	39.87	50	7.17	90	1.82	130	0.59
15	31.47	55	5.94	95	1.56	135	0.52

Resistance Table of Discharge Temperature Sensor for Outdoor(50K)

Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)
-30	911.400	10	98	50	17.65	90	4.469
-25	660.8	15	77.35	55	14.62	95	3.841
-20	486.5	20	61.48	60	12.17	100	3.315
-15	362.9	25	49.19	65	10.18	105	2.872
-10	274	30	39.61	70	8.555	110	2.498
-5	209	35	32.09	75	7.224	115	2.182
0	161	40	26.15	80	6.129	120	1.912
5	125.1	45	21.43	85	5.222	125	1.682

Resistance table of ambient temperature sensor (100K)

Temp(°C)	Resistance(kΩ)
-20	926
-18	829.26
-16	743.64
-14	667.69
-12	600.20
-10	540.14
-8	486.60
-6	438.81
-4	396.11
-2	357.92

Temp(°C)	Resistance(kΩ)
0	323.72
2	293.06
4	265.56
6	240.87
8	218.68
10	198.73
12	180.77
14	164.59
16	150.01
18	136.85

Temp(°C)	Resistance(kΩ)
20	124.96
22	114.22
24	104.51
26	95.71
28	87.74
30	80.52
32	73.95
34	67.99
36	62.57
38	57.64

Temp(°C)	Resistance(kΩ)
40	53.14
42	49.04
44	45.30
46	41.88
48	38.75
50	35.88
52	33.26
54	30.85
56	28.64
58	26.61

Appendix 3: Resistance Value Table of Humidity Sensor

HIS-06 temperature and humidity characteristic5℃～ 14℃

Unit:KΩ

Relative humidity	Temperature(°C)									
%RH	5℃	6℃	7℃	8℃	9℃	10℃	11℃	12℃	13℃	14℃
90	5.35	4.92	4.55	4.23	3.95	3.70	3.47	3.25	3.05	2.87
89	5.80	5.33	4.93	4.58	4.27	4.00	3.74	3.51	3.29	3.09
88	6.29	5.77	5.33	4.95	4.62	4.32	4.03	3.78	3.54	3.32
87	6.82	6.25	5.77	5.36	4.99	4.66	4.35	4.08	3.82	3.58
86	7.40	6.78	6.25	5.80	5.40	5.04	4.70	4.40	4.11	3.85
85	8.03	7.35	6.78	6.28	5.84	5.45	5.09	4.75	4.45	4.16
84	8.71	7.97	7.35	6.81	6.33	5.91	5.50	5.14	4.80	4.49
83	9.44	8.65	7.97	7.39	6.87	6.41	5.96	5.56	5.19	4.84
82	10.25	9.39	8.65	8.02	7.46	6.96	6.47	6.03	5.62	5.24
81	11.13	10.19	9.40	8.71	8.10	7.56	7.03	6.54	6.09	5.68
80	12.09	11.07	10.21	9.46	8.80	8.21	7.62	7.08	6.59	6.13
79	13.14	12.03	11.09	10.28	9.57	8.93	8.28	7.70	7.16	6.66
78	14.27	13.07	12.05	11.17	10.40	9.70	8.99	8.35	7.75	7.20
77	15.50	14.20	13.10	12.14	11.30	10.55	9.78	9.07	8.43	7.83
76	16.84	15.43	14.24	13.21	12.30	11.48	10.64	9.87	9.16	8.51
75	18.31	16.78	15.49	14.37	13.38	12.50	11.58	10.75	9.98	9.26
74	19.91	18.25	16.85	15.64	14.57	13.62	12.62	11.72	10.89	10.12
73	21.67	19.87	18.35	17.04	15.88	14.84	13.71	12.67	11.72	10.84
72	23.61	21.66	20.00	18.57	17.31	16.18	14.98	13.90	12.89	11.96
71	25.78	23.64	21.84	20.27	18.89	17.66	16.35	15.16	14.06	13.05
70	28.15	25.82	23.85	22.15	20.65	19.30	17.91	16.63	15.46	14.37
69	30.78	28.24	26.10	24.24	22.60	21.13	19.60	18.19	16.91	15.71
68	33.69	30.92	28.58	26.55	24.76	23.16	21.48	19.94	18.53	17.22
67	36.90	33.88	31.33	29.11	27.16	25.42	23.56	21.86	20.29	18.85
66	40.45	37.16	34.37	31.96	29.84	27.93	25.83	23.92	22.15	20.52
65	44.38	40.78	37.74	35.11	32.78	30.70	28.42	26.34	24.42	22.65
64	48.75	44.81	41.48	38.59	36.05	33.77	31.24	28.93	26.80	24.83
63	53.64	49.31	45.65	42.48	39.68	37.17	34.34	31.74	29.36	27.15
62	59.14	54.36	50.32	46.82	43.73	40.97	37.83	34.96	32.32	29.87
61	65.31	60.02	55.55	51.68	48.26	45.20	41.70	38.51	35.58	32.86
60	72.27	66.40	61.43	57.13	53.33	49.94	46.07	42.53	39.28	36.27
59	80.13	73.58	68.04	63.25	59.01	55.23	50.94	47.03	43.43	40.10
58	88.92	81.61	75.43	70.08	65.36	61.14	56.40	52.08	48.11	44.43
57	98.86	90.68	83.77	77.78	72.50	67.78	62.49	57.67	53.23	49.12
56	112.59	102.79	94.50	87.33	81.00	75.33	69.42	64.03	59.07	54.48
55	122.69	112.51	103.91	96.45	89.88	84.00	77.42	71.41	65.88	60.76
54	137.09	125.76	116.19	107.89	100.57	94.03	86.69	79.99	73.82	68.11
53	153.46	140.88	130.25	121.03	112.91	105.64	97.26	89.61	82.58	76.06
52	172.19	158.19	146.35	136.10	127.05	118.96	109.52	100.90	92.97	85.63
51	193.69	178.04	164.81	153.36	143.25	134.21	123.35	113.43	104.31	95.86
50	218.48	200.85	185.94	173.02	161.63	151.44	139.14	127.90	117.57	108.01
49	247.23	227.16	210.19	195.49	182.52	170.92	156.84	143.98	132.15	121.20
48	278.74	256.20	237.15	220.64	206.08	193.06	177.34	163.00	149.80	137.58
47	315.50	289.95	268.35	249.64	233.14	218.37	200.56	184.30	169.34	155.49
46	357.93	328.94	304.43	283.20	264.47	247.72	227.57	209.18	192.25	176.59
45	406.44	373.72	346.05	322.08	300.94	282.03	259.22	238.40	219.24	201.51
44	463.66	426.44	394.96	367.70	343.66	322.14	296.25	272.62	250.87	230.74
43	531.25	488.59	452.53	421.28	393.73	369.08	339.44	312.38	287.50	264.45
42	611.22	562.01	520.40	484.35	452.55	424.11	390.24	359.31	330.86	304.52
41	707.78	650.29	601.68	559.58	522.44	489.21	450.38	414.92	382.31	352.11
40	823.98	756.22	698.93	649.30	605.53	566.37	521.46	480.46	442.74	407.81
39	962.72	882.62	814.90	756.23	704.48	658.19	604.79	556.03	511.18	469.66

38	1128.50	1033.61	953.39	883.90	822.61	767.78	704.83	647.37	594.51	545.56
37	1325.87	1213.40	1118.31	1035.94	963.29	898.30	823.48	755.17	692.34	634.16
36	1563.51	1430.14	1317.38	1219.71	1133.55	1056.48	967.04	885.39	810.28	740.74
35	1855.67	1695.83	1560.69	1443.63	1340.37	1248.00	1140.34	1042.06	951.64	867.93
34	2213.60	2020.33	1856.92	1715.37	1590.51	1478.82	1349.81	1232.04	1123.70	1023.39
33	2665.63	2426.92	2225.10	2050.27	1896.06	1758.12	1605.77	1466.69	1338.74	1220.28
32	3230.73	2933.36	2681.95	2464.17	2272.06	2100.23	1916.82	1749.39	1595.37	1452.76
31	3962.78	3585.59	3266.69	2990.44	2746.77	2528.80	2308.12	2106.66	1921.33	1749.74
30	4915.40	4431.65	4022.65	3668.35	3355.84	3076.30	2801.20	2550.06	2319.03	2105.13
29	6180.16	5548.66	5014.73	4552.22	4144.26	3779.32	3431.59	3114.13	2822.10	2551.72
28	7874.08	7035.10	6325.74	5711.27	5169.27	4684.43	4243.82	3841.57	3471.54	3128.95
27	10162.49	9029.08	8070.80	7240.70	6508.50	5853.53	5293.25	4781.75	4311.22	3875.57
26	13243.42	11702.63	10399.92	9271.46	8276.08	7385.69	6658.01	5993.68	5382.56	4816.75
25	17366.01	15270.67	13499.09	11964.48	10610.86	9400.00	8447.52	7577.98	6778.07	6037.48
24	22845.46	20023.30	17637.20	15570.26	13747.10	12116.22	10866.57	9725.72	8676.25	7704.59
23	30130.06	26367.98	23187.18	20431.85	18001.48	15827.43	14156.73	12631.50	11228.43	9929.38
22	39673.45	34712.87	30518.76	26885.65	23681.03	20814.39	18624.92	16626.08	14787.33	13084.91
21	51880.00	45447.42	40008.75	35297.56	31142.00	27424.72	24504.12	21837.82	19385.06	17114.16
20	68057.37	59623.21	52492.24	46315.10	40866.49	35992.53	32084.71	28517.14	25235.30	22196.79

HIS-06 temperature and humidity characteristic 15℃ ~24℃

Unit:KΩ

Relative humidity	Temperature(°C)									
%RH	15℃	16℃	17℃	18℃	19℃	20℃	21℃	22℃	23℃	24℃
90	2.70	2.56	2.43	2.31	2.19	2.08	1.99	1.91	1.83	1.75
89	2.91	2.76	2.61	2.48	2.35	2.23	2.13	2.04	1.95	1.86
88	3.12	2.96	2.80	2.66	2.52	2.39	2.28	2.18	2.08	1.98
87	3.36	3.18	3.01	2.85	2.70	2.56	2.44	2.33	2.22	2.12
86	3.61	3.42	3.23	3.06	2.90	2.75	2.62	2.50	2.38	2.27
85	3.90	3.69	3.49	3.30	3.12	2.95	2.81	2.67	2.54	2.42
84	4.20	3.97	3.76	3.55	3.36	3.18	3.03	2.88	2.74	2.61
83	4.52	4.28	4.05	3.83	3.63	3.43	3.26	3.10	2.94	2.79
82	4.89	4.63	4.38	4.14	3.92	3.71	3.52	3.33	3.16	2.99
81	5.29	5.00	4.73	4.48	4.24	4.01	3.80	3.60	3.42	3.23
80	5.70	5.39	5.10	4.83	4.57	4.33	4.10	3.88	3.68	3.48
79	6.19	5.85	5.53	5.22	4.94	4.67	4.41	4.17	3.94	3.72
78	6.69	6.32	5.96	5.63	5.32	5.02	4.75	4.49	4.24	4.01
77	7.27	6.85	6.46	6.09	5.74	5.41	5.11	4.83	4.56	4.31
76	7.90	7.44	7.00	6.59	6.20	5.83	5.51	5.21	4.92	4.65
75	8.60	8.08	7.60	7.14	6.71	6.30	5.95	5.62	5.30	4.99
74	9.40	8.82	8.28	7.77	7.29	6.83	6.45	6.09	5.74	5.41
73	10.02	9.44	8.89	8.38	7.89	7.43	7.01	6.60	6.21	5.84
72	11.10	10.43	9.79	9.19	8.63	8.09	7.62	7.17	6.74	6.33
71	12.10	11.36	10.67	10.02	9.40	8.82	8.31	7.82	7.36	6.92
70	13.36	12.52	11.72	10.98	10.27	9.60	9.03	8.49	7.97	7.48
69	14.60	13.67	12.79	11.97	11.19	10.45	9.82	9.23	8.66	8.11
68	16.00	14.96	13.99	13.07	12.20	11.37	10.68	10.02	9.39	8.78
67	17.50	16.35	15.27	14.26	13.30	12.39	11.61	10.86	10.15	9.47
66	19.00	17.76	16.60	15.51	14.47	13.49	12.64	11.83	11.05	10.31
65	21.00	19.59	18.26	17.01	15.82	14.70	13.76	12.86	12.01	11.19
64	23.00	21.43	19.96	18.57	17.25	16.00	14.98	14.00	13.06	12.16
63	25.10	23.38	21.77	20.24	18.80	17.44	16.31	15.24	14.22	13.24
62	27.60	25.66	23.84	22.13	20.51	18.97	17.73	16.55	15.42	14.34
61	30.33	28.17	26.14	24.23	22.42	20.71	19.37	18.10	16.88	15.72
60	33.47	31.05	28.78	26.64	24.62	22.70	21.24	19.84	18.50	17.23
59	37.00	34.31	31.77	29.39	27.13	24.99	23.37	21.83	20.36	18.95
58	41.00	38.00	35.18	32.52	30.00	27.61	25.82	24.11	22.47	20.90
57	45.30	41.99	38.88	35.95	33.18	30.54	28.59	26.72	24.94	23.24

56	50.20	46.55	43.12	39.89	36.83	33.93	31.76	29.69	27.71	25.82
55	56.00	51.92	48.08	44.47	41.05	37.80	35.35	33.02	30.79	28.65
54	62.80	58.20	53.88	49.80	45.95	42.29	39.51	36.87	34.34	31.92
53	70.00	64.95	60.21	55.74	51.51	47.50	44.33	41.31	38.42	35.65
52	78.80	73.12	67.79	62.76	58.00	53.49	49.86	46.40	43.10	39.94
51	88.00	81.79	75.97	70.47	65.27	60.34	56.11	52.08	48.23	44.54
50	99.10	92.12	85.57	79.39	73.55	68.00	63.15	58.52	54.10	49.86
49	111.00	103.28	96.04	89.20	82.74	76.61	70.94	65.54	60.38	55.44
48	126.20	117.27	108.88	100.97	93.48	86.38	79.89	73.71	67.79	62.13
47	142.60	132.48	122.97	114.00	105.52	97.48	90.16	83.18	76.51	70.12
46	162.00	150.38	139.46	129.16	119.43	110.19	101.62	93.45	85.64	78.17
45	185.00	171.49	158.81	146.85	135.53	124.80	115.00	105.66	96.74	88.20
44	212.00	196.23	181.41	167.45	154.23	141.70	130.18	119.19	108.69	98.64
43	243.00	224.65	207.41	191.15	175.78	161.19	148.03	135.48	123.49	112.01
42	280.00	258.38	238.08	218.93	200.82	183.64	168.64	154.32	140.65	127.56
41	324.00	298.37	274.29	251.59	230.12	209.75	192.53	176.11	160.43	145.41
40	375.30	344.95	316.43	289.55	264.12	240.00	220.30	201.52	183.57	166.39
39	431.00	395.97	363.07	332.05	302.71	274.87	251.94	230.08	209.19	189.19
38	500.00	458.51	419.54	382.80	348.04	315.07	289.04	264.21	240.49	217.78
37	580.00	531.11	485.18	441.88	400.92	362.06	332.09	303.52	276.21	250.07
36	676.00	618.14	563.79	512.55	464.08	418.09	383.52	350.57	319.07	288.92
35	790.00	721.80	657.74	597.34	540.20	486.00	445.77	407.41	370.75	335.66
34	930.00	848.96	772.84	701.08	633.19	568.78	521.38	476.19	433.01	391.66
33	1110.00	1011.10	918.19	830.60	747.75	669.14	613.58	560.59	509.97	461.49
32	1320.00	1201.45	1090.09	985.09	885.78	791.56	725.62	662.75	602.68	545.17
31	1590.00	1444.80	1308.40	1179.80	1058.15	942.75	863.43	787.81	715.55	646.36
30	1906.00	1731.91	1568.38	1414.20	1268.36	1130.00	1034.60	943.64	856.73	773.51
29	2300.00	2089.81	1892.37	1706.22	1530.13	1363.08	1244.55	1131.54	1023.56	920.17
28	2810.00	2550.31	2306.37	2076.38	1858.82	1652.43	1505.84	1366.07	1232.52	1104.65
27	3470.00	3144.23	2838.22	2549.70	2276.79	2017.87	1836.86	1664.27	1499.35	1341.45
26	4290.00	3885.50	3505.53	3147.28	2808.41	2486.92	2253.64	2031.21	1818.67	1615.18
25	5348.00	4843.01	4368.65	3921.40	3498.35	3097.00	2802.48	2521.66	2253.33	1996.42
24	6800.00	6152.28	5543.84	4970.19	4427.56	3912.77	3538.27	3181.20	2840.01	2513.33
23	8720.00	7888.61	7107.64	6371.32	5674.82	5014.05	4529.95	4068.38	3627.32	3205.04
22	11500.00	10371.38	9311.21	8311.65	7366.14	6469.15	5839.63	5239.39	4665.85	4116.71
21	15000.00	13512.80	12115.79	10798.65	9552.74	8370.76	7546.29	6760.17	6009.01	5289.82
20	19368.00	17441.37	15631.58	13925.26	12311.23	10780.00	9716.41	8702.31	7733.29	6805.52

HIS-06 temperature and humidity characteristic 25℃～34℃

Unit:KΩ

Relative humidity	Temperature(°C)									
%RH	25℃	26℃	27℃	28℃	29℃	30℃	31℃	32℃	33℃	34℃
90	1.68	1.62	1.57	1.52	1.47	1.42	1.37	1.33	1.28	1.24
89	1.78	1.72	1.66	1.61	1.55	1.50	1.45	1.40	1.36	1.31
88	1.89	1.83	1.76	1.70	1.65	1.59	1.54	1.49	1.44	1.39
87	2.02	1.95	1.88	1.81	1.74	1.68	1.63	1.57	1.52	1.47
86	2.16	2.08	2.00	1.93	1.85	1.78	1.72	1.66	1.61	1.55
85	2.30	2.21	2.13	2.05	1.97	1.89	1.82	1.76	1.70	1.64
84	2.48	2.38	2.28	2.19	2.10	2.01	1.94	1.87	1.80	1.73
83	2.65	2.54	2.43	2.33	2.24	2.14	2.06	1.98	1.91	1.83
82	2.83	2.71	2.60	2.49	2.38	2.28	2.19	2.11	2.02	1.94
81	3.06	2.93	2.80	2.67	2.55	2.44	2.34	2.24	2.15	2.06
80	3.28	3.14	3.00	2.86	2.73	2.60	2.49	2.38	2.28	2.18
79	3.51	3.35	3.20	3.05	2.91	2.78	2.65	2.54	2.42	2.31
78	3.78	3.61	3.44	3.28	3.12	2.97	2.83	2.70	2.57	2.45
77	4.06	3.87	3.69	3.51	3.34	3.17	3.03	2.88	2.74	2.61
76	4.38	4.17	3.97	3.77	3.58	3.40	3.23	3.07	2.92	2.77
75	4.70	4.47	4.25	4.04	3.84	3.64	3.46	3.28	3.11	2.94
74	5.09	4.83	4.59	4.35	4.12	3.90	3.70	3.51	3.32	3.14

73	5.49	5.21	4.94	4.68	4.43	4.19	3.97	3.75	3.54	3.34
72	5.93	5.62	5.33	5.04	4.77	4.50	4.26	4.02	3.80	3.57
71	6.49	6.13	5.79	5.46	5.14	4.84	4.57	4.32	4.07	3.83
70	7.00	6.61	6.24	5.88	5.53	5.20	4.91	4.63	4.35	4.09
69	7.59	7.16	6.75	6.35	5.96	5.59	5.27	4.97	4.67	4.38
68	8.20	7.73	7.28	6.84	6.42	6.01	5.67	5.34	5.01	4.70
67	8.82	8.32	7.83	7.36	6.91	6.47	6.10	5.74	5.38	5.04
66	9.60	9.03	8.49	7.96	7.46	6.97	6.57	6.18	5.80	5.43
65	10.40	9.78	9.18	8.61	8.06	7.52	7.08	6.65	6.24	5.84
64	11.30	10.62	9.96	9.33	8.72	8.13	7.65	7.19	6.74	6.30
63	12.30	11.55	10.82	10.12	9.45	8.80	8.27	7.75	7.26	6.78
62	13.30	12.49	11.71	10.96	10.23	9.53	8.96	8.41	7.87	7.35
61	14.60	13.69	12.81	11.97	11.15	10.36	9.73	9.12	8.53	7.96
60	16.00	14.99	14.02	13.08	12.17	11.30	10.61	9.94	9.29	8.66
59	17.60	16.48	15.40	14.35	13.35	12.38	11.61	10.87	10.15	9.46
58	19.40	18.15	16.95	15.79	14.68	13.60	12.75	11.93	11.13	10.36
57	21.60	20.18	18.81	17.49	16.22	14.99	14.05	13.14	12.26	11.41
56	24.00	22.40	20.86	19.37	17.94	16.55	15.50	14.48	13.50	12.54
55	26.60	24.81	23.10	21.44	19.84	18.30	17.13	16.00	14.90	13.83
54	29.60	27.59	25.66	23.81	22.01	20.28	18.96	17.69	16.46	15.26
53	33.00	30.74	28.57	26.48	24.46	22.52	21.04	19.62	18.24	16.90
52	36.90	34.35	31.90	29.53	27.25	25.05	23.38	21.77	20.21	18.69
51	41.00	38.18	35.47	32.86	30.34	27.90	26.03	24.22	22.46	20.76
50	45.80	42.62	39.55	36.60	33.75	31.00	28.91	26.89	24.93	23.03
49	50.70	47.20	43.83	40.59	37.45	34.43	32.08	29.81	27.61	25.47
48	56.70	52.72	48.90	45.21	41.66	38.22	35.62	33.10	30.67	28.30
47	64.00	59.37	54.91	50.61	46.46	42.46	39.57	36.78	34.07	31.45
46	71.00	65.89	60.97	56.22	51.65	47.23	43.99	40.85	37.81	34.86
45	80.00	74.13	68.48	63.03	57.78	52.70	49.02	45.46	42.00	38.65
44	89.00	82.54	76.32	70.33	64.54	58.96	54.75	50.69	46.74	42.92
43	101.00	93.48	86.25	79.28	72.55	66.06	61.28	56.65	52.17	47.82
42	115.00	106.23	97.79	89.66	81.81	74.23	68.69	63.33	58.14	53.10
41	131.00	120.81	111.01	101.56	92.44	83.64	77.33	71.23	65.31	59.57
40	149.90	138.01	126.56	115.53	104.88	94.60	87.37	80.37	73.58	66.99
39	170.00	156.52	143.54	131.04	118.97	107.32	99.08	91.11	83.38	75.88
38	196.00	180.09	164.79	150.04	135.81	122.06	112.71	103.65	94.88	86.37
37	225.00	206.61	188.92	171.87	155.41	139.52	128.86	118.54	108.53	98.82
36	260.00	238.50	217.80	197.86	178.62	160.04	147.90	136.16	124.77	113.73
35	302.00	276.83	252.61	229.27	206.76	185.00	170.96	157.37	144.19	131.41
34	352.00	322.66	294.42	267.21	240.96	215.59	199.30	183.53	168.24	153.40
33	415.00	380.13	346.58	314.24	283.04	252.90	233.57	214.84	196.70	179.09
32	490.00	448.82	409.19	371.01	334.16	298.57	275.69	253.53	232.06	211.23
31	580.00	531.32	484.48	439.35	395.79	353.72	326.76	300.66	275.37	250.83
30	693.69	634.81	578.16	523.57	470.89	420.00	387.67	356.36	326.02	296.58
29	821.00	751.60	684.82	620.48	558.38	498.40	459.39	421.61	385.00	349.49
28	982.00	898.01	817.20	739.32	664.18	591.58	544.87	499.65	455.82	413.29
27	1190.00	1085.85	985.63	889.06	795.87	705.85	649.51	594.96	542.09	490.80
26	1420.00	1297.43	1179.49	1065.83	956.17	850.22	781.68	715.32	651.00	588.59
25	1750.00	1597.27	1450.30	1308.67	1172.02	1040.00	954.91	872.53	792.68	715.22
24	2200.00	2005.83	1818.99	1638.94	1465.21	1297.38	1189.66	1085.37	984.29	886.22
23	2800.00	2551.47	2312.32	2081.87	1859.50	1644.68	1506.06	1371.84	1241.75	1115.55
22	3590.00	3270.74	2963.54	2667.51	2381.86	2105.90	1925.97	1751.75	1582.89	1419.07
21	4600.00	4191.56	3798.54	3419.81	3054.38	2701.33	2467.06	2240.24	2020.39	1807.10
20	5915.63	5385.23	4874.84	4383.03	3908.47	3450.00	3152.84	2865.12	2586.25	2315.70

HIS-06 Characteristic of temperature and humidity 35℃ ~ 45℃

Unit:KΩ

Relative humidity	Temperature(°C)										
%RH	35℃	36℃	37℃	38℃	39℃	40℃	41℃	42℃	43℃	44℃	45℃
90	1.20	1.17	1.14	1.11	1.08	1.05	1.02	1.00	0.98	0.95	0.93
89	1.27	1.23	1.20	1.16	1.13	1.10	1.07	1.05	1.02	1.00	0.97
88	1.34	1.30	1.26	1.22	1.19	1.15	1.12	1.09	1.07	1.04	1.02
87	1.42	1.37	1.33	1.29	1.25	1.21	1.18	1.15	1.12	1.09	1.06
86	1.50	1.45	1.40	1.36	1.31	1.27	1.24	1.20	1.17	1.14	1.11
85	1.58	1.53	1.48	1.43	1.38	1.33	1.29	1.26	1.23	1.19	1.16
84	1.67	1.61	1.56	1.50	1.45	1.40	1.36	1.32	1.29	1.25	1.21
83	1.76	1.70	1.64	1.58	1.52	1.47	1.43	1.39	1.35	1.31	1.27
82	1.86	1.79	1.73	1.66	1.60	1.54	1.50	1.45	1.41	1.37	1.33
81	1.97	1.90	1.82	1.75	1.69	1.62	1.57	1.53	1.48	1.44	1.40
80	2.08	2.00	1.93	1.85	1.78	1.71	1.66	1.61	1.56	1.51	1.46
79	2.20	2.12	2.03	1.95	1.88	1.80	1.74	1.69	1.64	1.59	1.54
78	2.33	2.24	2.15	2.07	1.98	1.90	1.84	1.78	1.72	1.67	1.61
77	2.48	2.38	2.28	2.18	2.09	2.00	1.94	1.87	1.81	1.75	1.69
76	2.62	2.51	2.41	2.31	2.21	2.12	2.05	1.98	1.91	1.84	1.78
75	2.78	2.67	2.56	2.45	2.34	2.24	2.16	2.09	2.01	1.94	1.87
74	2.96	2.84	2.71	2.60	2.48	2.37	2.29	2.20	2.12	2.04	1.97
73	3.14	3.01	2.88	2.75	2.63	2.51	2.42	2.33	2.24	2.15	2.07
72	3.36	3.21	3.06	2.92	2.78	2.65	2.55	2.46	2.36	2.27	2.18
71	3.60	3.44	3.28	3.12	2.97	2.82	2.71	2.61	2.50	2.40	2.30
70	3.83	3.65	3.48	3.32	3.16	3.00	2.88	2.77	2.65	2.54	2.43
69	4.10	3.91	3.73	3.55	3.37	3.20	3.07	2.94	2.82	2.70	2.58
68	4.40	4.19	3.99	3.79	3.60	3.41	3.27	3.13	2.99	2.86	2.73
67	4.71	4.49	4.27	4.06	3.85	3.65	3.49	3.34	3.19	3.05	2.90
66	5.08	4.83	4.59	4.36	4.13	3.91	3.74	3.57	3.41	3.25	3.09
65	5.45	5.19	4.93	4.68	4.44	4.20	4.01	3.83	3.65	3.47	3.30
64	5.88	5.59	5.31	5.04	4.78	4.52	4.31	4.11	3.91	3.72	3.53
63	6.31	6.00	5.70	5.41	5.13	4.85	4.63	4.41	4.20	4.00	3.80
62	6.84	6.50	6.17	5.84	5.53	5.22	4.98	4.75	4.52	4.30	4.09
61	7.40	7.03	6.66	6.31	5.97	5.63	5.37	5.12	4.88	4.64	4.41
60	8.05	7.64	7.24	6.86	6.48	6.11	5.83	5.55	5.28	5.01	4.76
59	8.78	8.33	7.89	7.46	7.05	6.64	6.33	6.02	5.72	5.43	5.14
58	9.61	9.10	8.61	8.13	7.66	7.20	6.86	6.52	6.19	5.87	5.56
57	10.58	10.00	9.43	8.88	8.34	7.82	7.44	7.08	6.72	6.36	6.02
56	11.61	10.96	10.33	9.71	9.11	8.53	8.11	7.70	7.30	6.91	6.53
55	12.80	12.07	11.36	10.68	10.00	9.35	8.88	8.42	7.97	7.53	7.10
54	14.10	13.29	12.50	11.73	10.98	10.25	9.72	9.21	8.70	8.21	7.73
53	15.60	14.68	13.78	12.90	12.05	11.22	10.63	10.06	9.50	8.96	8.42
52	17.22	16.18	15.18	14.20	13.24	12.31	11.66	11.02	10.40	9.79	9.19
51	19.10	17.93	16.79	15.68	14.59	13.54	12.81	12.10	11.40	10.72	10.05
50	21.18	19.87	18.60	17.36	16.15	14.97	14.14	13.33	12.54	11.77	11.01
49	23.40	21.97	20.57	19.21	17.89	16.60	15.65	14.73	13.82	12.94	12.08
48	26.00	24.35	22.75	21.20	19.68	18.20	17.17	16.16	15.18	14.21	13.27
47	28.90	27.06	25.28	23.54	21.85	20.20	19.03	17.88	16.77	15.68	14.61
46	32.00	29.95	27.96	26.03	24.14	22.30	21.00	19.74	18.50	17.29	16.11
45	35.40	33.16	30.99	28.87	26.81	24.80	23.33	21.90	20.50	19.14	17.80
44	39.20	36.71	34.29	31.93	29.64	27.40	25.79	24.21	22.67	21.17	19.70
43	43.60	40.77	38.02	35.35	32.74	30.20	28.45	26.73	25.06	23.43	21.83
42	48.20	45.06	42.00	39.02	36.13	33.30	31.40	29.55	27.74	25.97	24.25
41	54.00	50.43	46.97	43.59	40.30	37.10	34.98	32.92	30.90	28.93	27.00
40	60.60	56.63	52.78	49.02	45.36	41.80	39.36	36.98	34.66	32.39	30.17
39	68.60	64.04	59.61	55.30	51.10	47.00	44.23	41.53	38.89	36.31	33.78
38	78.10	72.70	67.45	62.33	57.35	52.50	49.44	46.45	43.54	40.69	37.90
37	89.40	82.99	76.75	70.68	64.76	59.00	55.58	52.24	48.98	45.80	42.68

36	103.00	95.43	88.06	80.89	73.91	67.10	63.17	59.33	55.59	51.93	48.35
35	119.00	110.35	101.94	93.75	85.77	78.00	73.18	68.47	63.88	59.39	55.00
34	139.00	129.32	119.90	110.73	101.80	93.10	86.80	80.66	74.66	68.80	63.07
33	162.00	149.97	138.28	126.90	115.81	105.00	98.24	91.63	85.19	78.89	72.73
32	191.00	176.44	162.29	148.50	135.08	122.00	114.10	106.40	98.87	91.52	84.34
31	227.00	209.28	192.04	175.27	158.93	143.00	133.62	124.46	115.52	106.79	98.25
30	268.00	247.75	228.05	208.88	190.20	172.00	160.04	148.37	136.97	125.83	114.95
29	315.00	291.16	267.97	245.41	223.43	202.00	187.96	174.26	160.88	147.81	135.03
28	372.00	342.25	313.32	285.16	257.73	231.00	215.94	201.25	186.90	172.88	159.17
27	441.00	404.50	369.01	334.45	300.80	268.00	251.39	235.18	219.35	203.88	188.76
26	528.00	484.54	442.27	401.13	361.06	322.00	301.66	281.81	262.43	243.49	224.98
25	640.00	590.21	541.79	494.65	448.75	404.00	375.91	348.49	321.72	295.57	270.00
24	791.00	735.73	681.97	629.64	578.68	529.00	486.67	445.36	405.02	365.60	327.08
23	993.00	926.97	862.74	800.23	739.35	680.00	621.22	563.85	507.84	453.11	399.61
22	1260.00	1171.18	1084.80	1000.72	918.82	839.00	766.05	694.86	625.34	557.42	491.03
21	1600.00	1476.79	1356.97	1240.33	1126.73	1016.00	929.53	845.14	762.74	682.23	603.53
20	2053.00	1880.43	1712.58	1549.22	1390.09	1235.00	1131.26	1030.03	931.17	834.59	740.18

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