

TECHNICAL&SERVICE MANUAL V2.0

—MULTI-SPLIT TYPE AIR CONDITIONERS

Models:

<Outdoor Unit>

AMW2-14U4RRA	2AMW-42U4RRA
AMW2-18U4RXA	2AMW-50URXA
AMW3-24U4RAA	3AMW-70U4RAA
AMW4-27U4RAA	4AMW-81U4RAA
AMW4-36U4RAA	4AMW-105U4RAA

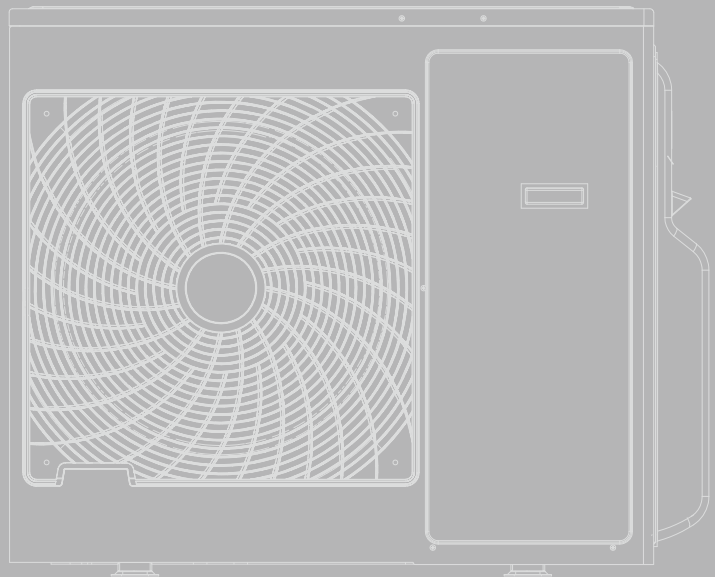
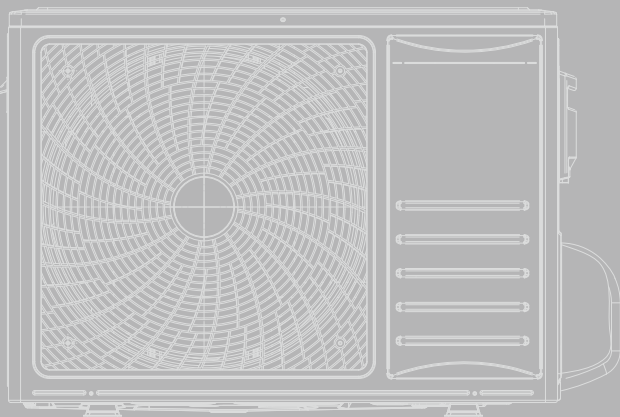


Table of Contents

1. General.....	1
1.1 Features	1
1.2 Product lineup	2
1.3 Model identification	3
1.4 Working range	4
1.5 Product picture	4
2. Specifications	6
3. Outlines and dimensions.....	8
4. Electrical data.....	13
5. Capacities and selection data	14
5.1 Capacity characteristic charts.....	14
5.2 Piping length correction factor	18
5.3 Correction factors according to defrosting operation	19
6. Sound pressure data.....	20
7. Refrigerant cycle	21
8. Wiring diagram	22
8.1 Electrical wiring diagrams	22
8.2 Electric control board	25
8.3 Running Parameter Query.....	27
8.4 Common Wiring	29
8.5 Sensor parameter	31
9. Piping work and refrigerant charge.....	40
9.1 MAX. length allowed	40
9.2 Oil trap.....	40
9.3 Additional refrigerant charge.....	41
10. Control mode.....	42
11. Trouble shooting	45
11.1 The method of identify fault codes	45
11.2 Fult codes.....	48
12. Checking components.....	58
12.1 Check refrigerant system.....	58
12.2 Check parts unit	60

1. GENERAL

1.General

1.1 Features

➤ **Twin Rotary DC Inverter Compressor**

The twin rotary inverter compressor design reduces friction during operation for smoother rotation with less vibration, while also preventing leakage of refrigerant gas during compression. The result is a far quieter and more efficient air conditioner.



➤ **3-DC Inverter Technology**

3-DC Inverter technology allows for extremely accurate control of compressor rotation speed, saving roughly 50% more energy than traditional air conditioners. Moreover, it guarantees and fan motor greatly reduce the loss owed to the typical owing dispersion of AC motors and more efficiently reaches the set temperature.

➤ **Electronic Expansion Valve**

Inside the outdoor unit is the electronic expansion valve, which regulates and optimizes the refrigerant quantity to all running indoor units.

➤ **Self Recovery of Power Break**

When the power supply is recovered after break, all preset are still effective and the air-conditioner can run according to the original setting.



1. GENERAL

➤ Comfortable temperature control

DC inverter power control uses its full capacity at startup to cool/warm quickly. As soon as the set temperature is reached, it carefully adjusts current frequency to prevent temperature fluctuation and energy loss.



➤ Long piping lengths for installation flexibility

The ample maximum piping length of 60 m permits more freedom in the placement of air conditioner units and enables you to optimise interior space.

➤ Variety Indoor & Outdoor Unit Type

The new line-up expands the range of layout options both indoors and outdoors.

More methods, more conveniently.

➤ Option Remote Controller

A variety of convenient controller systems permit individual control of settings such as temperature, airflow volume, and operation duration.

1. GENERAL

1.2 Product lineup

Outdoor Unit

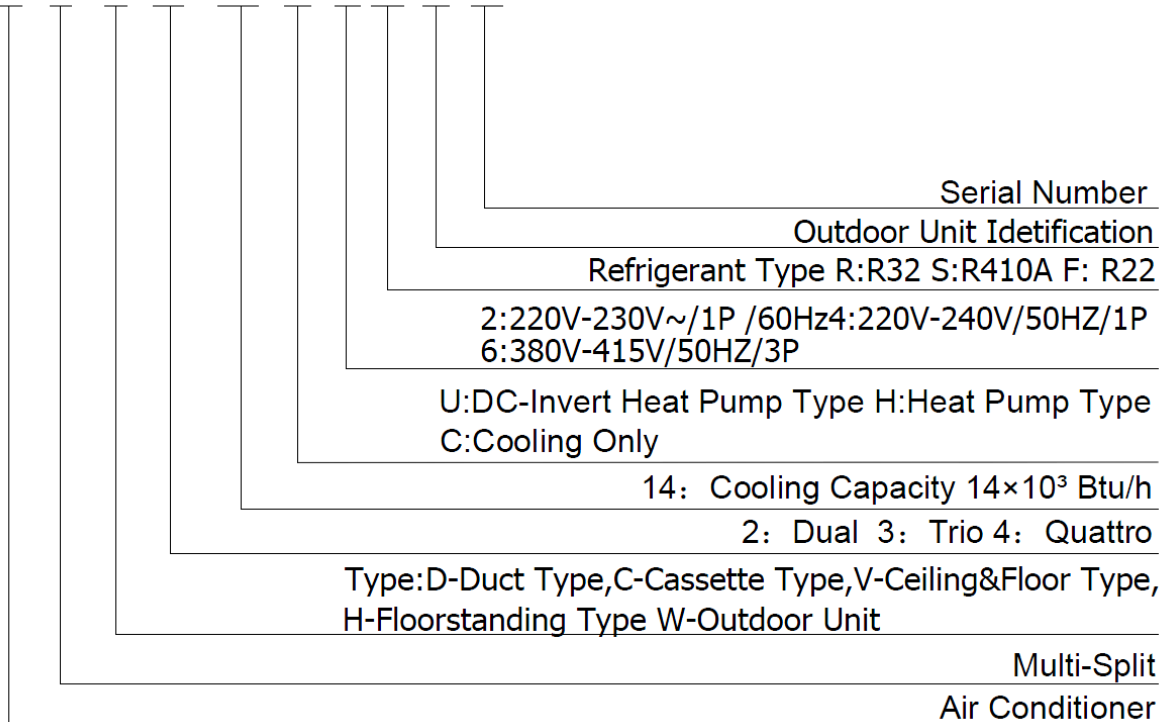
Type	Model	14	18	24	27	36
Dual	AMW2-	●	●			
Trio	AMW3-			●		
Quattro	AMW4-				●	●

● --- available model

1. GENERAL

1.3 Model identification

A M W 2 -14 U 4 R R A



1.4 Working range

Power Supply

Working Voltage	220-240V ~, 50Hz
Voltage Imbalance	Within a 3% deviation from each voltage at the main terminal of outdoor unit
Starting Voltage	Higher than 85% of the Rated Voltage

Operating temperature range






This heat pump air conditioner has been designed for the following outdoor operating temperatures.

Type	Mode	Outdoor operating temperature range(°C)	
		maximum	minimum
Multi-split type air conditioner (Heat pump type)	Cooling Operation	48	-15
	Heating Operation	24	-15

1. GENERAL

1.5 Product picture

Outdoor Unit

Type	Capacity(KBtu/h)	View
Dual	14	
	18	
Trio	24	
Quattro	27	
	36	

2. SPECIFICATIONS

2. Specifications

OUTDOOR

DC FAN MOTER TYPES

Type(Free Match)			up to 2 indoor units	up to 2 indoor units	up to 3 indoor units	up to 4 indoor units	up to 4 indoor units
Model Name			AMW2-14U4RRA	AMW2-18U4RXA	AMW3-24U4RAA	AMW4-27U4RAA	AMW4-36U4RAA
Gas			R32	R32	R32	R32	R32
Performance							
Capacity	Pdesign Cooling	kW	4.1	5.2	7.0	8.0	10.0
	Pdesign Heating	kW	4.2	5.5	7.5	8.0	8.0
	Cooling	kW	4.1(1.4~5.5)	5.2(1.8~6.6)	7.0(3.0~10.0)	8.0 (2.6~11.5)	10.0 (2.6~11.5)
		Btu/h	13990(4780~18766)	17740(6142~22519)	23890(10240~34130)	27300(8870~39250)	27300(8870~39250)
	Heating	kW	4.5(0.9~5.6)	6.0(1.4~7.2)	8.0(2.3~10.0)	9.0(2.2~12.0)	11.0(2.2~12.0)
		Btu/h	15354(3070~19100)	20472(4777~24566)	27300(7850~34130)	30720(7510~40950)	30720(7510~40950)
Air flow		m ³ /h	2200	2800	4000	4000	4000
EER		W/W	4.10	3.77	3.89	3.56	3.23
COP		W/W	4.5	4.20	3.81	4.00	3.93
SEER			6.61	7.21	6.11	7.01	6.50
SCOP			4.1	4.1	4.01	4.05	4.01
EEL Rank		Cooling	A++	A++	A++	A++	A++
		Heating	A+	A+	A+	A+	A+
Noise Level/sound power (Max)		dB(A) (Max)	47/53 62	48/55 64	53/59 68	54/60 68	54/60 68
Guaranteed	Cooling	℃	-15~48	-15~48	-15~48	-15~48	-15~48
Operating Range	Heating	℃	-15~24	-15~24	-15~24	-15~24	-15~24
Compressor model	Model		GSD113RKRA8 JV6	KTN150D42UFZ	KTF235D22UMT	KTF235D22UMT	KTF235D22UMT
	Brand		HITACHI	GMCC	GMCC	GMCC	GMCC
Electrical Data							
Power		V/Hz/f	220~240/50/1	220~240/50/1	220~240/50/1	220~240/50/1	220~240/50/1
Power input	Cooling	W	1000 (330~1900)	1380 (390~2200)	1800 (650~3100)	2250 (580~4000)	3100 (580~4000)
	Heating	W	1000 (200~1600)	1430 (290~2300)	2100(520~3100)	2250 (460~4000)	2800 (460~4000)

2. SPECIFICATIONS

Type(Free Match)			up to 2 indoor units	up to 2 indoor units	up to 3 indoor units	up to 4 indoor units	up to 4 indoor units
Model Name			AMW2-14U4RRA	AMW2-18U4RXA	AMW3-24U4RAA	AMW4-27U4RAA	AMW4-36U4RAA
Rated current	Cooling	A	4.35	6.2	8.0	10.0	13.8
	Heating	A	4.35	6.4	9.3	10.0	12.4
Anti electric shock			Class I	Class I	Class I	Class I	Class I
Degrees of protection			IPX4	IPX4	IPX4	IPX4	IPX4
Dimension & Weight							
Net Dimension (WxHxD)	mm		730×536×260	810×580×280	950×840×340	950×840×340	950×840×340
Net Weight	kg		34	37	66	67	67
Package Dimension (WxHxD)	mm		860×600×400	940×630×385	1110×920×460	1110×920×460	1110×920×460
Gross Weight	kg		36	39.5	71	72	72
Technical Information							
Piping	Diameter(Liquid)	mm	6.35×2	6.35×2	6.35×3	6.35×4	6.35×4
	Diameter(Gas)	mm	9.52×2	9.52×2	9.52×3	9.52×4	9.52×4
	Max Length(Each)	m	15	15	20	20	20
	Max Length(Total)	m	30	30	45	60	60
	Max Height	m	15	15	15	15	15
Upload refrigerant	g		950	1070	1800	2200	2200
Upload additional refrigerant	g/m		12g/m over 15m	12g/m over 15m	12g/m over 15m	12g/m over 20m	12g/m over 20m

Test conditions:

Cooling : Indoor: DB27°C/ WB19°C Outdoor: DB35°C/ WB24°C

Heating: Indoor: DB20°C/ WB15°C Outdoor: DB7°C/ WB 6°C

Remarks:

1. The above design and specifications are subject to change without prior notice for product improvement.
2. The values given in the table for noise level reflect the levels in anechoic chamber. Storage condition: Temperature -20~65°C

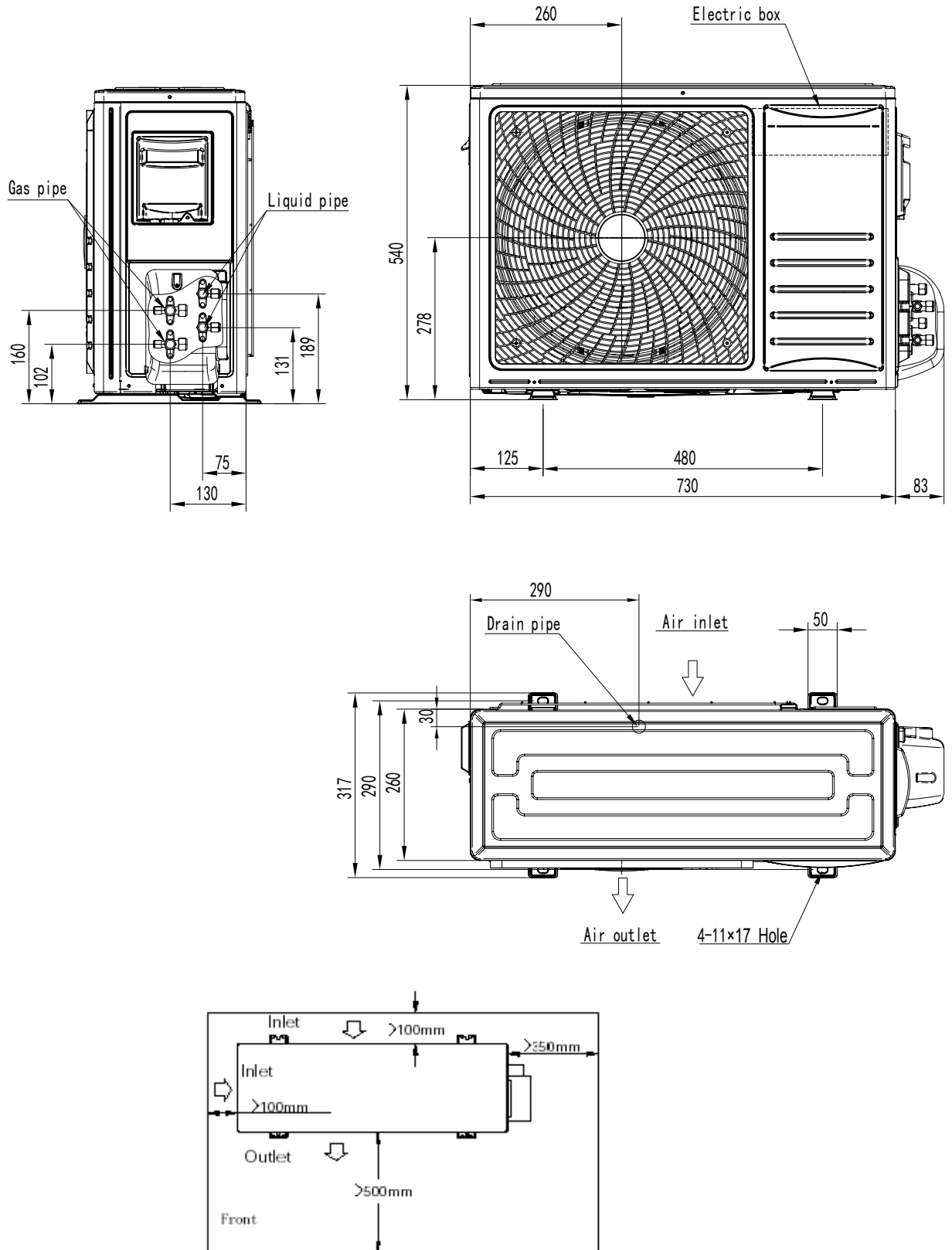
Humidity 30%~80%

3. OUTLINES AND DIMENSIONS

3. Outlines and dimensions

14K

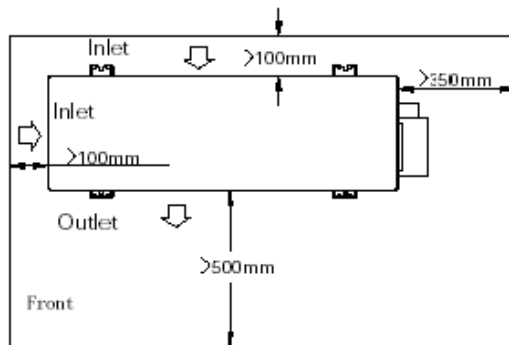
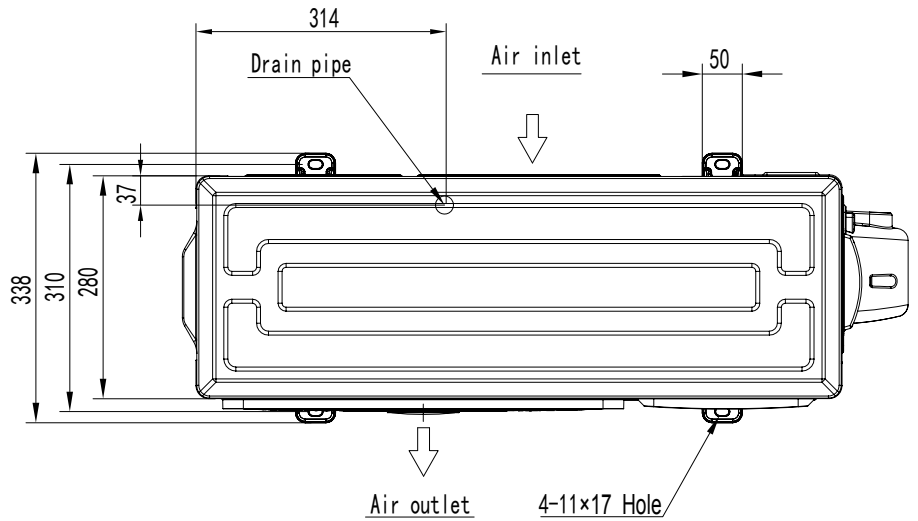
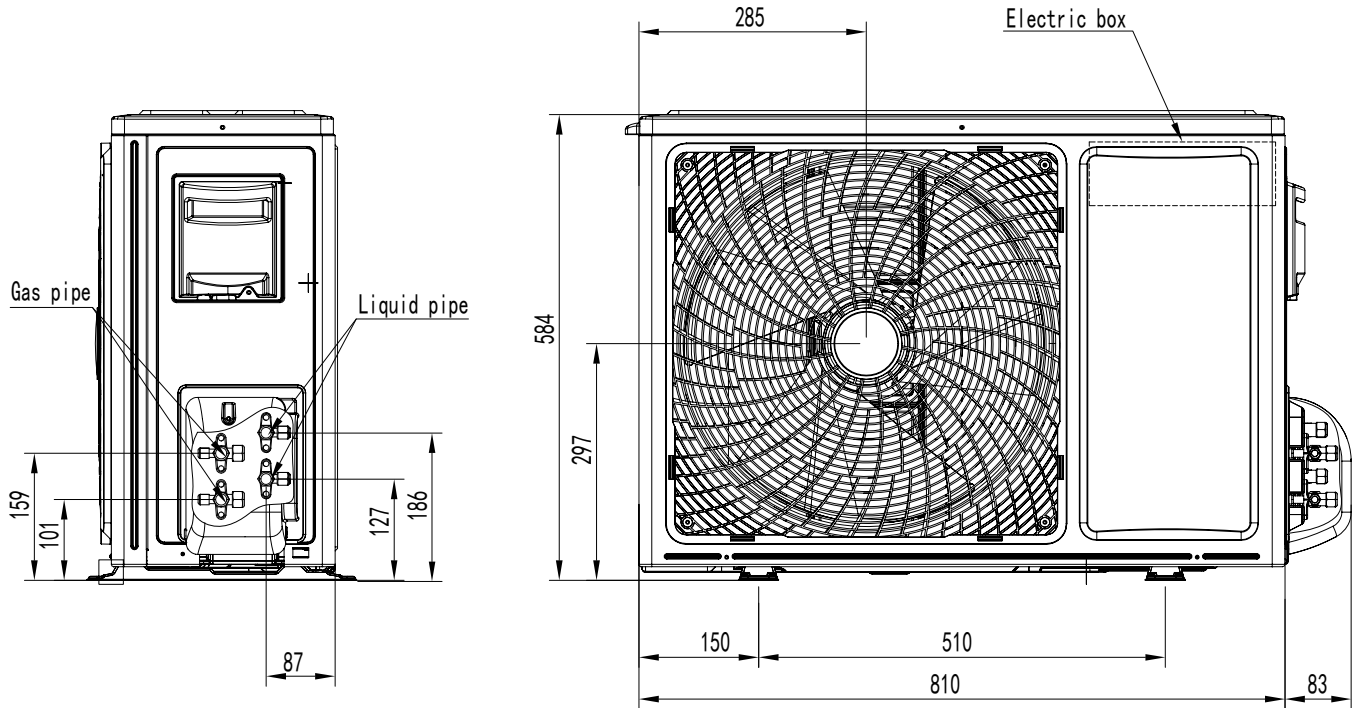
(UNIT:mm)



3. OUTLINES AND DIMENSIONS

18K

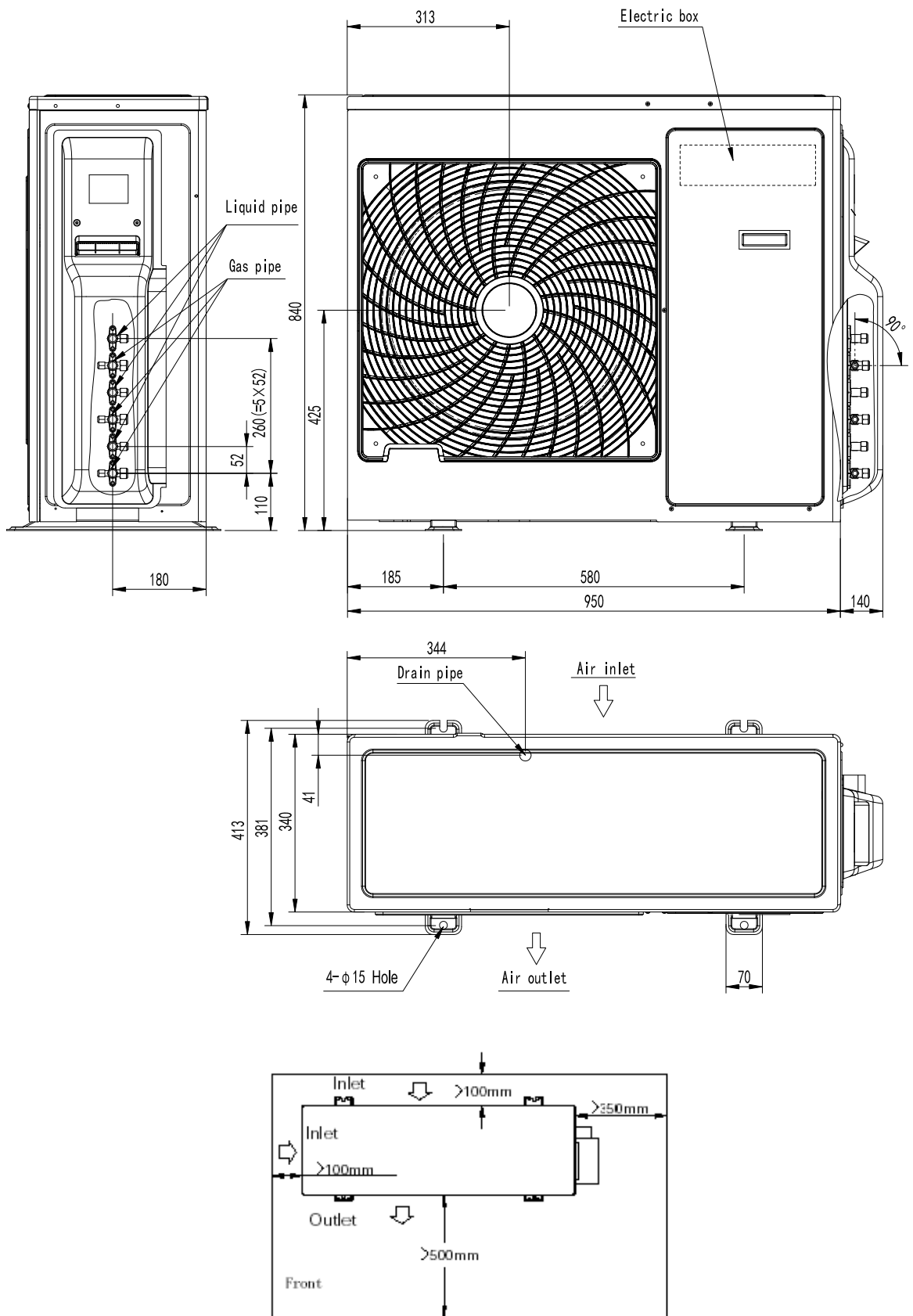
(UNIT:mm)



3. OUTLINES AND DIMENSIONS

24K

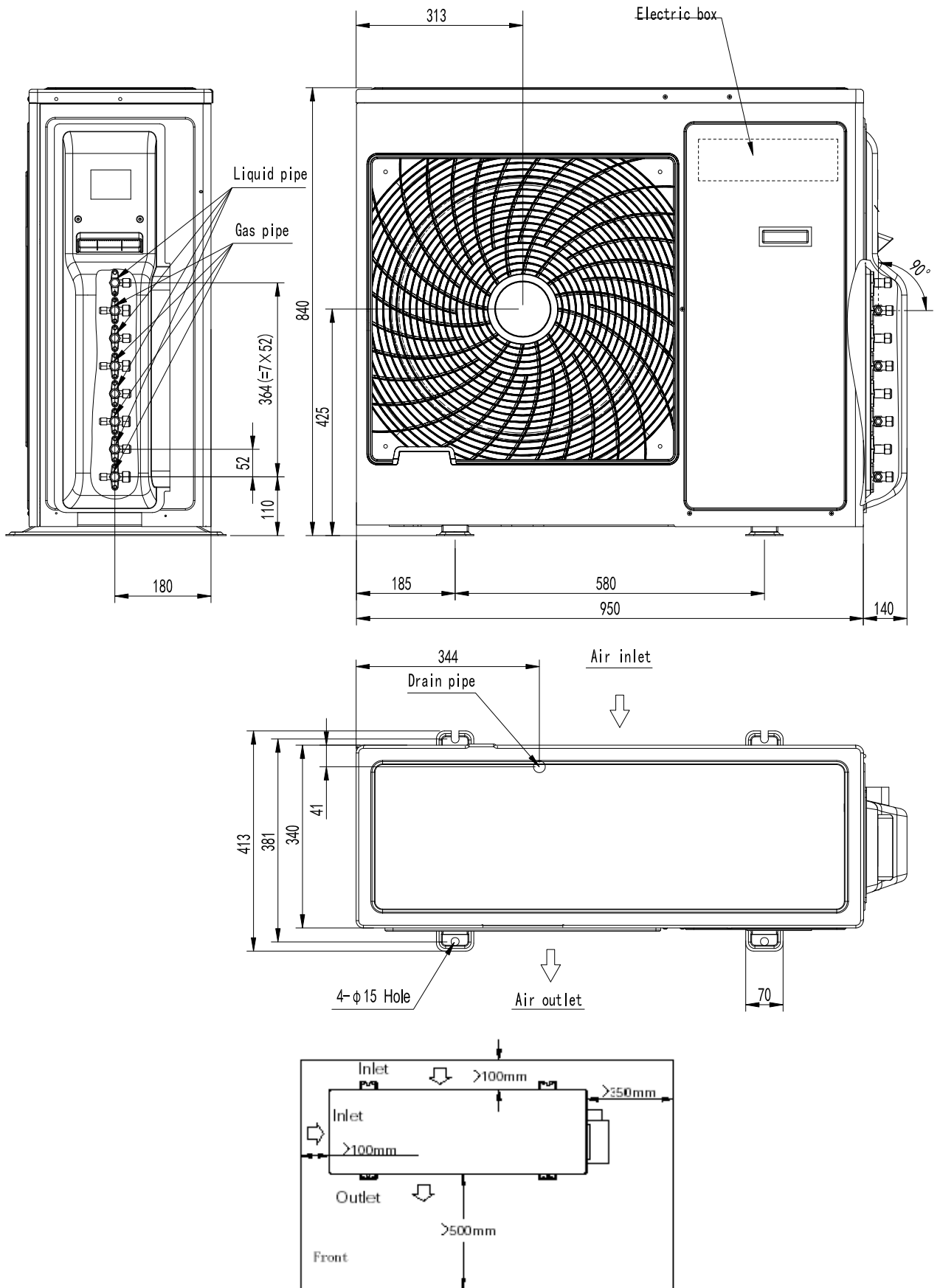
(UNIT:mm)



3. OUTLINES AND DIMENSIONS

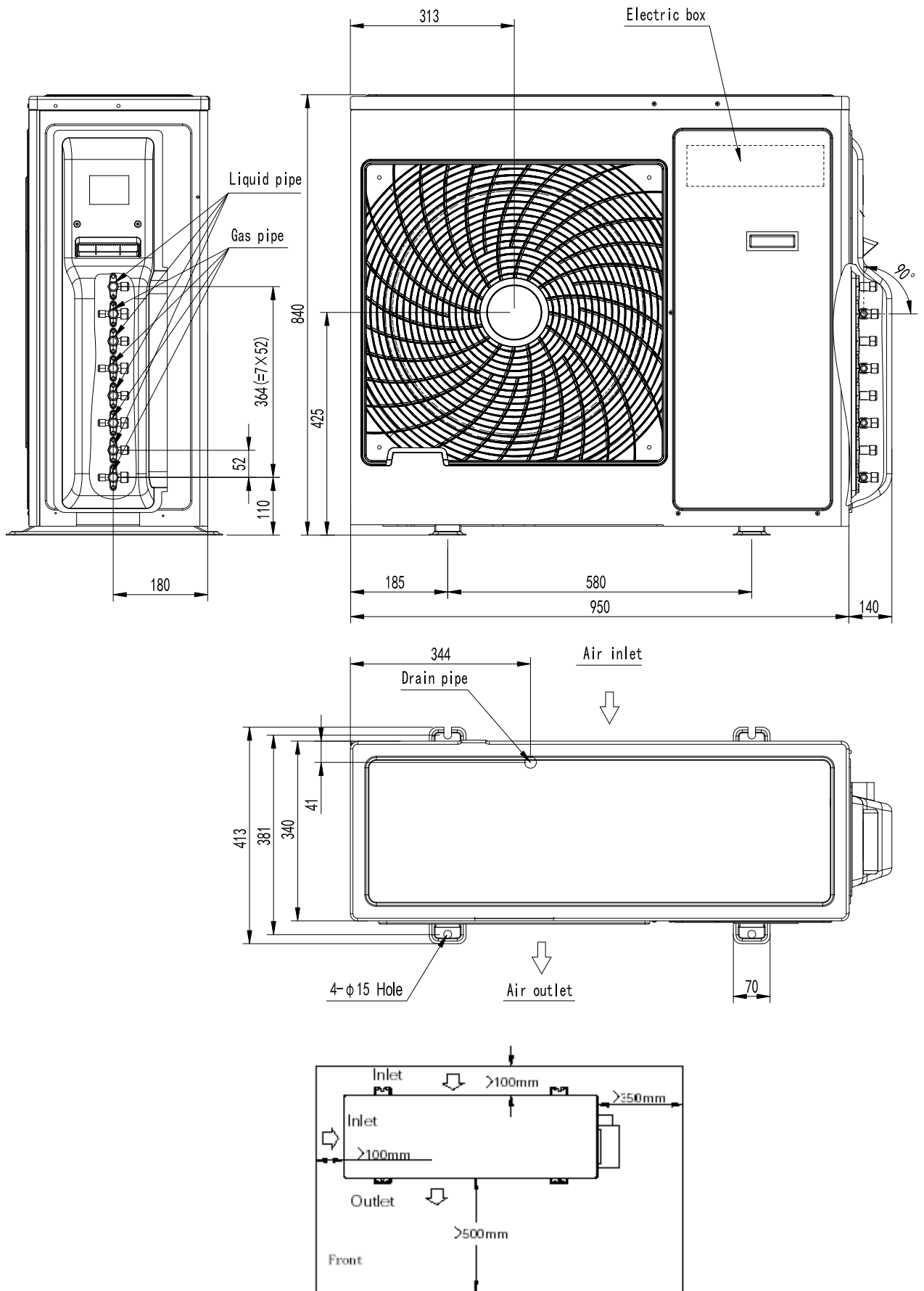
27K

(UNIT:mm)



3. OUTLINES AND DIMENSIONS

36K



4.ELECTRICAL DATA

4.Electrical data

Outdoor unit	Power supply			Applicable voltage		ELB	
	Voltage(V)	PH	Frequency	Umin (V)	Umax(V) I	Nominal Current(A)	Nominal Sensitive Current(mA)
14K	220-240	1	50	176	253	40	30
18K	220-240	1	50	176	253	40	30
24K	220-240	1	50	176	253	40	30
27K	220-240	1	50	176	253	40	30
36K	220-240	1	50	176	253	40	30

NOTE:

1. The above compressor data is based on 100% capacity combination of indoor units at the rated operating frequency
2. This data is based on the same conditions as the nominal heating and cooling capacities.

5. CAPACITIES AND SELECTION DATA

5.1 Capacity characteristic charts

The following charts show the characteristics of outdoor unit capacity, which corresponds with the operating ambient temperature of outdoor unit.

Conditions:

- ① Pipe length / height difference : 5m / 0m ② Compressor at rated inverter frequency
 ③ Indoor fan speed at high fan speed ④ Capacity loss due to white frost and defrost operation is not included.

14K

COOLING CAPACITY(kW)

Indoor temperature		Outdoot air intake temp °CDB						
(°CWB)	(°CDB)	15	20	25	30	35	40	45
16	22	3.36	3.36	3.36	3.40	3.49	3.20	3.08
19	27	3.98	3.98	4.02	4.06	4.10	3.73	3.28
22	30	4.35	4.39	4.43	4.47	4.59	3.90	3.49

(°C DB) : Dry Bulb Temperature (°C)

(°C WB) : Wet Bulb Temperature (°C)

HEATING CAPACITY(kW)

Indoor temperature		Outdoot air intake temp °CWB						
(°CDB)		-10	-5	0	5	10	15	20
16		3.60	3.96	4.14	4.55	4.64	4.86	4.50
20		3.69	4.05	4.28	4.59	4.73	4.95	4.59
24		3.38	3.51	3.69	4.01	4.28	4.05	3.83

(°C DB) : Dry Bulb Temperature (°C)

(°C WB) : Wet Bulb Temperature (°C)

5. CAPACITIES AND SELECTION DATA

18K
COOLING CAPACITY(kW)

Indoor temperature		Outdoot air intake temp °CDB						
(°CWB)	(°CDB)	15	20	25	30	35	40	45
16	22	4.26	4.26	4.26	4.32	4.42	4.06	3.90
19	27	5.04	5.04	5.10	5.15	5.20	4.73	4.16
22	30	5.51	5.56	5.62	5.67	5.82	4.94	4.42

(°C DB) : Dry Bulb Temperature (°C)
(°C WB) : Wet Bulb Temperature (°C)

HEATING CAPACITY(kW)

Indoor temperature		Outdoot air intake temp °CWB						
(°CDB)		-10	-5	0	5	10	15	20
16		4.80	5.28	5.52	6.06	6.18	6.48	6.00
20		4.92	5.40	5.70	6.12	6.30	6.60	6.12
24		4.50	4.68	4.92	5.34	5.70	5.40	5.10

(°C DB) : Dry Bulb Temperature (°C)
(°C WB) : Wet Bulb Temperature (°C)

24K
COOLING CAPACITY(kW)

Indoor temperature		Outdoot air intake temp °CDB						
(°CWB)	(°CDB)	15	20	25	30	35	40	45
16	22	5.74	5.74	5.74	5.81	5.95	5.46	5.25
19	27	6.79	6.79	6.86	6.93	7.00	6.37	5.60
22	30	7.42	7.49	7.56	7.63	7.84	6.65	5.95

(°C DB) : Dry Bulb Temperature (°C)
(°C WB) : Wet Bulb Temperature (°C)

5. CAPACITIES AND SELECTION DATA

HEATING CAPACITY(kW)

Indoor temperature	Outdoot air intake temp °CWB						
(°CDB)	-10	-5	0	5	10	15	20
16	6.40	7.04	7.36	8.08	8.24	8.64	8.00
20	6.56	7.20	7.60	8.16	8.40	8.80	8.16
24	6.00	6.24	6.56	7.12	7.60	7.20	6.80

(°C DB) : Dry Bulb Temperature (°C)

(°C WB) : Wet Bulb Temperature (°C)

27K

COOLING CAPACITY(kW)

Indoor temperature		Outdoot air intake temp °CDB						
(°CWB)	(°CDB)	15	20	25	30	35	40	45
16	22	6.56	6.56	6.56	6.64	6.80	6.24	6.00
19	27	7.76	7.76	7.84	7.92	8.00	7.28	6.40
22	30	8.48	8.56	8.64	8.72	8.96	7.60	6.80

(°C DB) : Dry Bulb Temperature (°C)

(°C WB) : Wet Bulb Temperature (°C)

HEATING CAPACITY(kW)

Indoor temperature	Outdoot air intake temp °CWB						
(°CDB)	-10	-5	0	5	10	15	20
16	7.20	7.92	8.28	9.09	9.27	9.72	9.00
20	7.38	8.10	8.55	9.18	9.45	9.90	9.18
24	6.75	7.02	7.38	8.01	8.55	8.10	7.65

(°C DB) : Dry Bulb Temperature (°C)

(°C WB) : Wet Bulb Temperature (°C)

5. CAPACITIES AND SELECTION DATA

36K
COOLING CAPACITY(kW)

Indoor temperature		Outdoot air intake temp °CDB						
(°CWB)	(°CDB)	15	20	25	30	35	40	45
16	22	8.20	8.20	8.20	8.30	8.50	7.80	7.50
19	27	9.70	9.70	9.80	9.90	10.00	9.10	8.00
22	30	10.60	10.70	10.80	10.90	11.20	9.50	8.50

(°C DB) : Dry Bulb Temperature (°C)

(°C WB) : Wet Bulb Temperature (°C)

HEATING CAPACITY(kW)

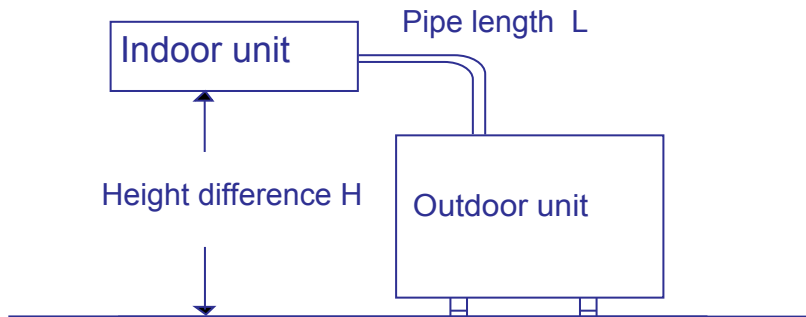
Indoor temperature		Outdoot air intake temp °CWB						
(°CDB)		-10	-5	0	5	10	15	20
16		8.80	9.68	10.12	11.11	11.33	11.88	11.00
20		9.02	9.90	10.45	11.22	11.55	12.10	11.22
24		8.25	8.58	9.02	9.79	10.45	9.90	9.35

(°C DB) : Dry Bulb Temperature (°C)

(°C WB) : Wet Bulb Temperature (°C)

5. CAPACITIES AND SELECTION DATA

5.2 Piping length correction factor



The correction factor is based on the equivalent piping length in meters (EL) and the height between outdoor and indoor units in meters (H).

H:

Height between indoor unit and outdoor unit (m).

- $H > 0$: Position of outdoor unit is higher than position of indoor unit (m).
- $H < 0$: Position of outdoor unit is lower than position of indoor unit (m).

L:

Actual one-way piping length between indoor unit and outdoor unit (m).

EL:

Equivalent one-way piping length between indoor unit and outdoor unit (m).

Gas Diameter (mm/inch)	9.52 (3/8')	12.7 (1/2')	15.88 (5/8')	19.05 (3/4')
90° Elbow	0.15	0.2	0.25	0.35

Cooling :

EL	5m	10m	15m	20m
14K	1.0	0.95	0.9	
18K	1.0	0.95	0.9	
24K	1.0	0.95	0.9	0.85
27K	1.0	0.95	0.9	0.85
36K	1.0	0.95	0.9	0.85

Heating :

EL	5m	10m	15m	20m
14K	1.0	0.95	0.9	
18K	1.0	0.95	0.9	
24K	1.0	0.95	0.9	0.85
27K	1.0	0.95	0.9	0.85
36K	1.0	0.95	0.9	0.85

5. CAPACITIES AND SELECTION DATA

The correction factor of height between indoor unit and outdoor unit

Height difference	5m	10m	15m	20m	25m	30m
Factor	1.0	0.95	0.88	0.8	0.75	0.7

In order to ensure correct unit selection, consider the farthest indoor unit.

NOTE

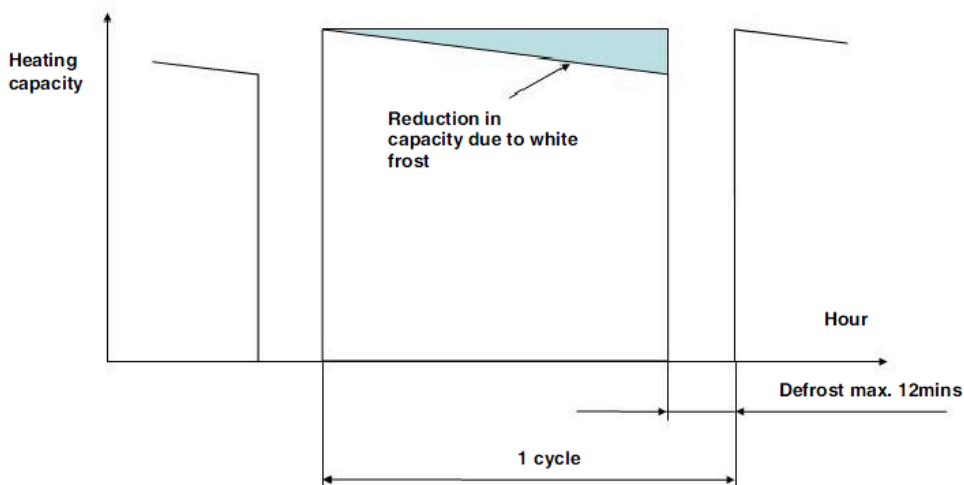
1. Data above is assuming a height difference between indoor and outdoor of 0m.
 2. Be sure to minimize length of connection pipes in order to optimize performance.
- In the case that the outdoor unit is installed higher or lower than the indoor unit, it is necessary to apply height correction factor additionally to length correction factor to calculate cooling/heating. If outdoor unit is higher, correction should be applied to cooling capacity, if outdoor unit is lower, correction should be applied to heating capacity.

5.3 Correction factors according to defrosting operation

The heating capacity in the preceding paragraph, excludes the condition of the defrosting operation period. In consideration of the defrosting operation, the heating capacity is corrected by the equation below. Corrected heating capacity = Defrost Correction factor x unit capacity

OUTDOOR TEMPERATURE(°CDB)	-15	-10	-5	0	7	10	15
Correctionfactor (humidityrate85%RH)	0.95	0.95	0.91	0.81	1.0	1.0	1.0

Correction Factor

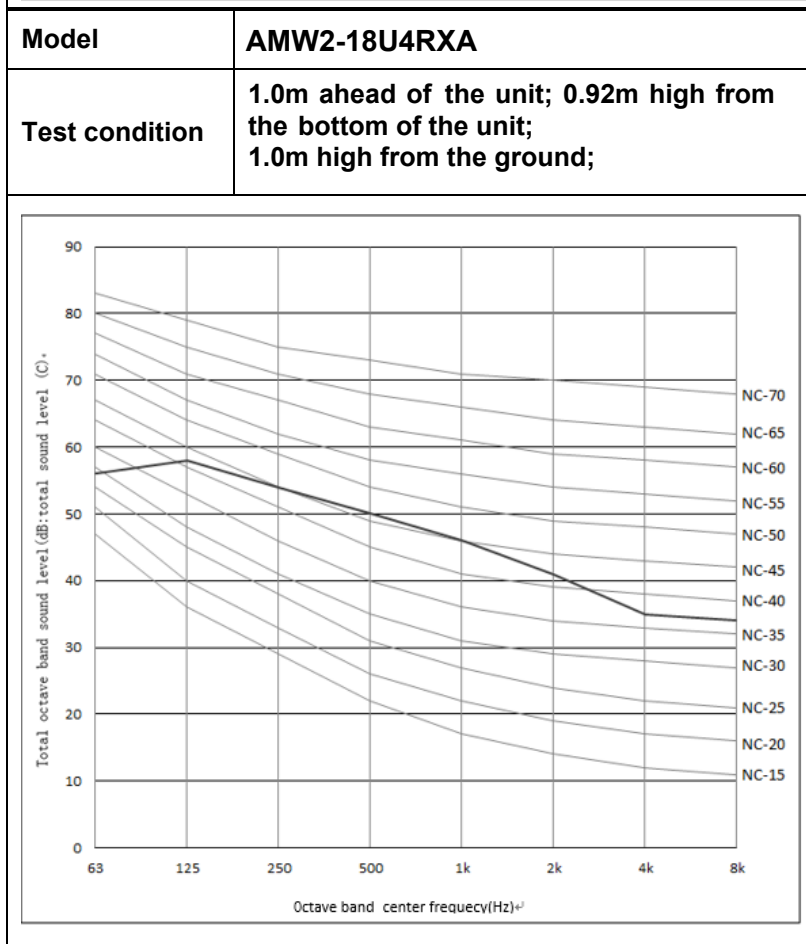
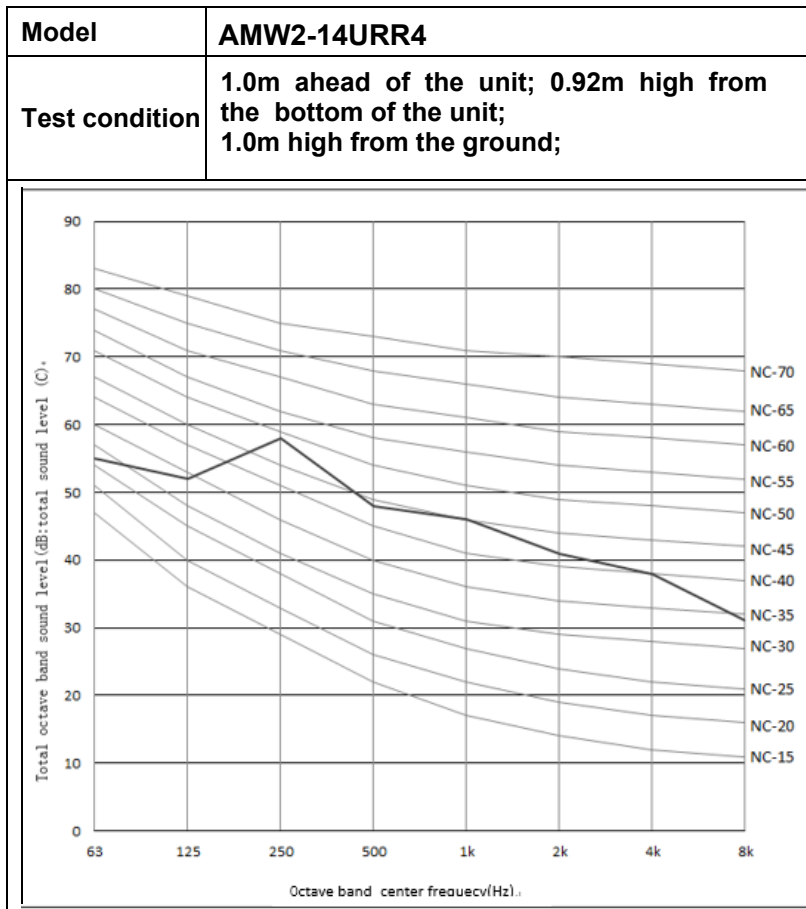


NOTE:

The correction factor is not valid for special conditions such as snowfall or operation in a transitional period.

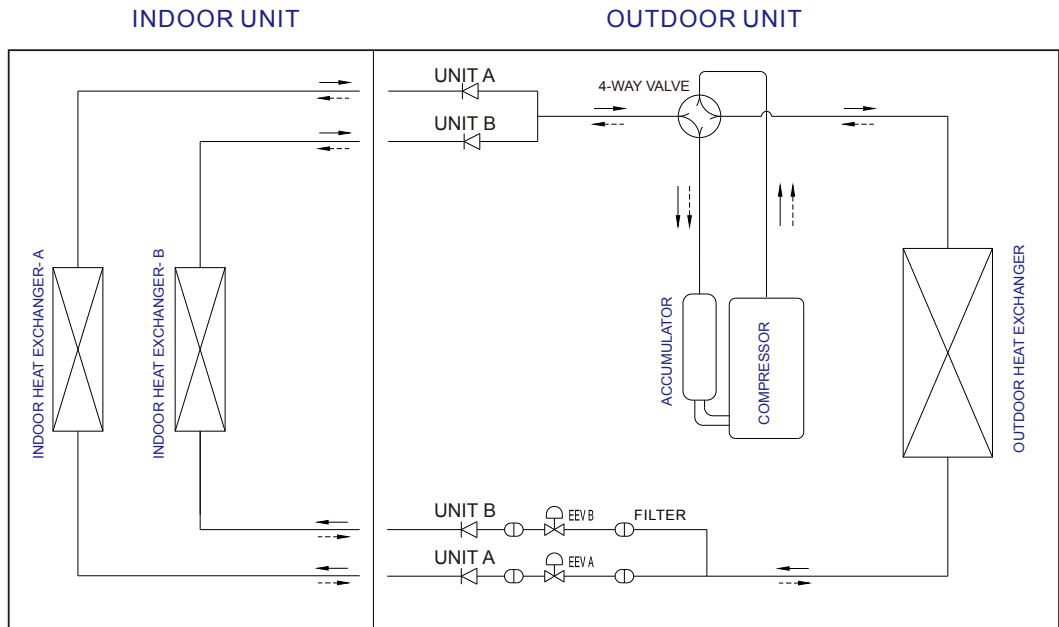
6. SOUND PRESSURE DATA

6. Sound pressure data .



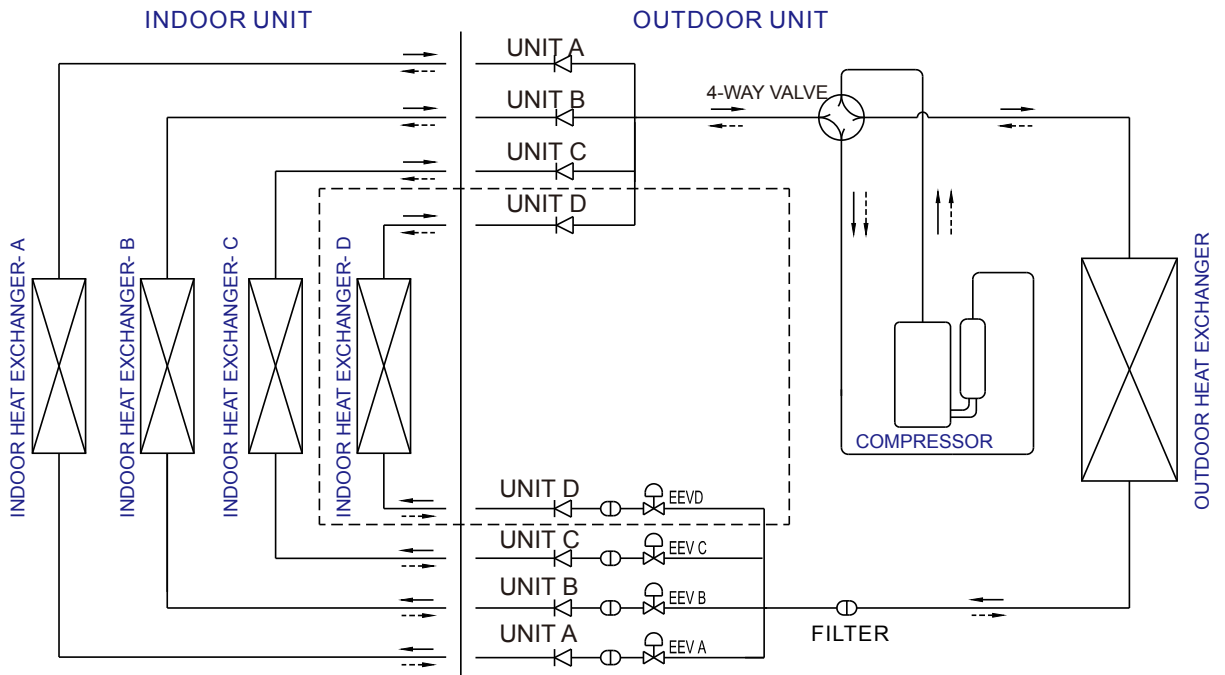
7. REFRIGERANT CYCLE

7. Refrigerant cycle



- ← Cooling cycle
- ← Heating cycle

14K/18K



- ← Cooling cycle
- ← Heating cycle

24K/27K/36K

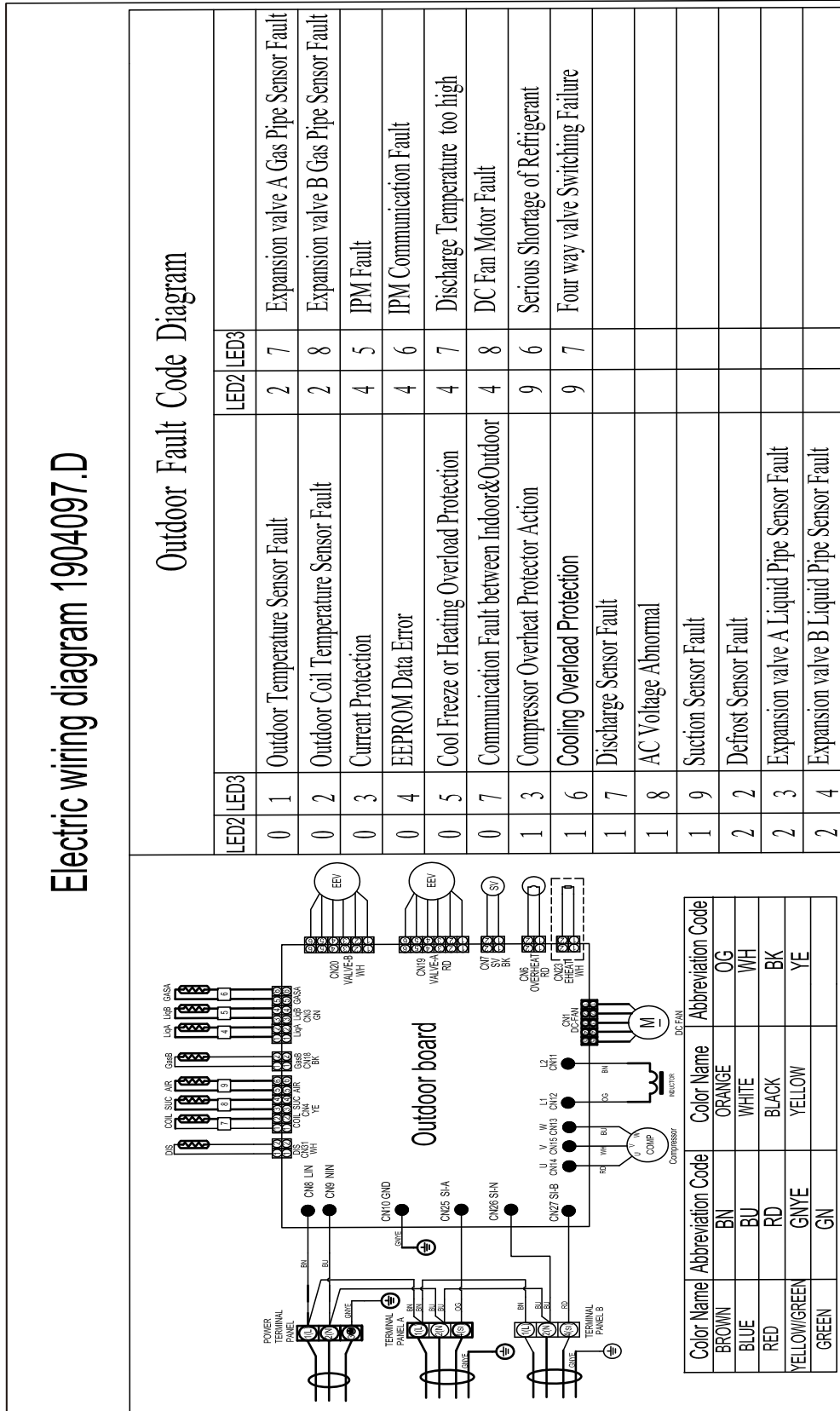
The UNIT D is only for 27/36k model.

8. WIRING DIAGRAM

8. Wiring diagram

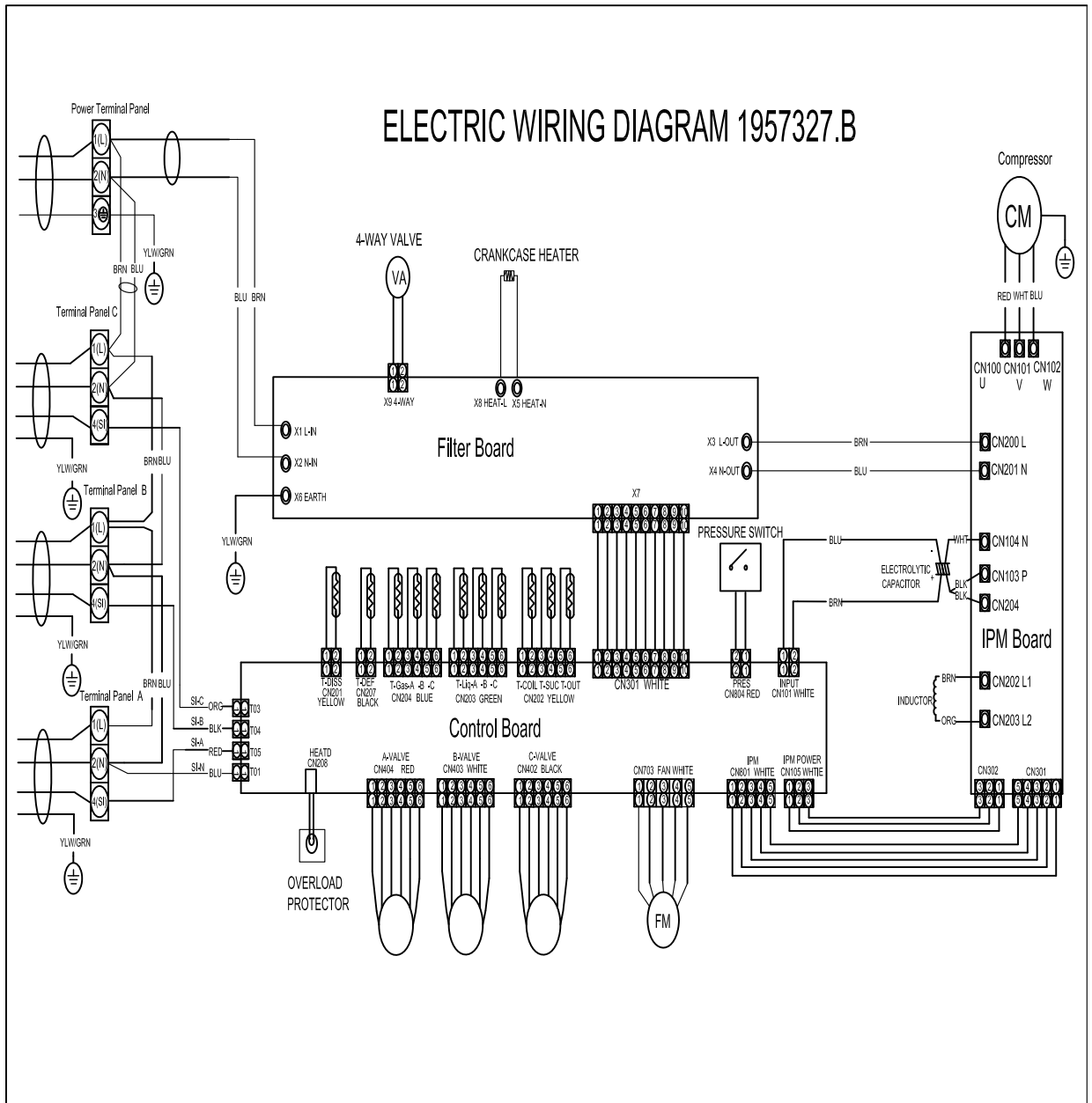
8.1 Electrical wiring diagrams

14K/18K



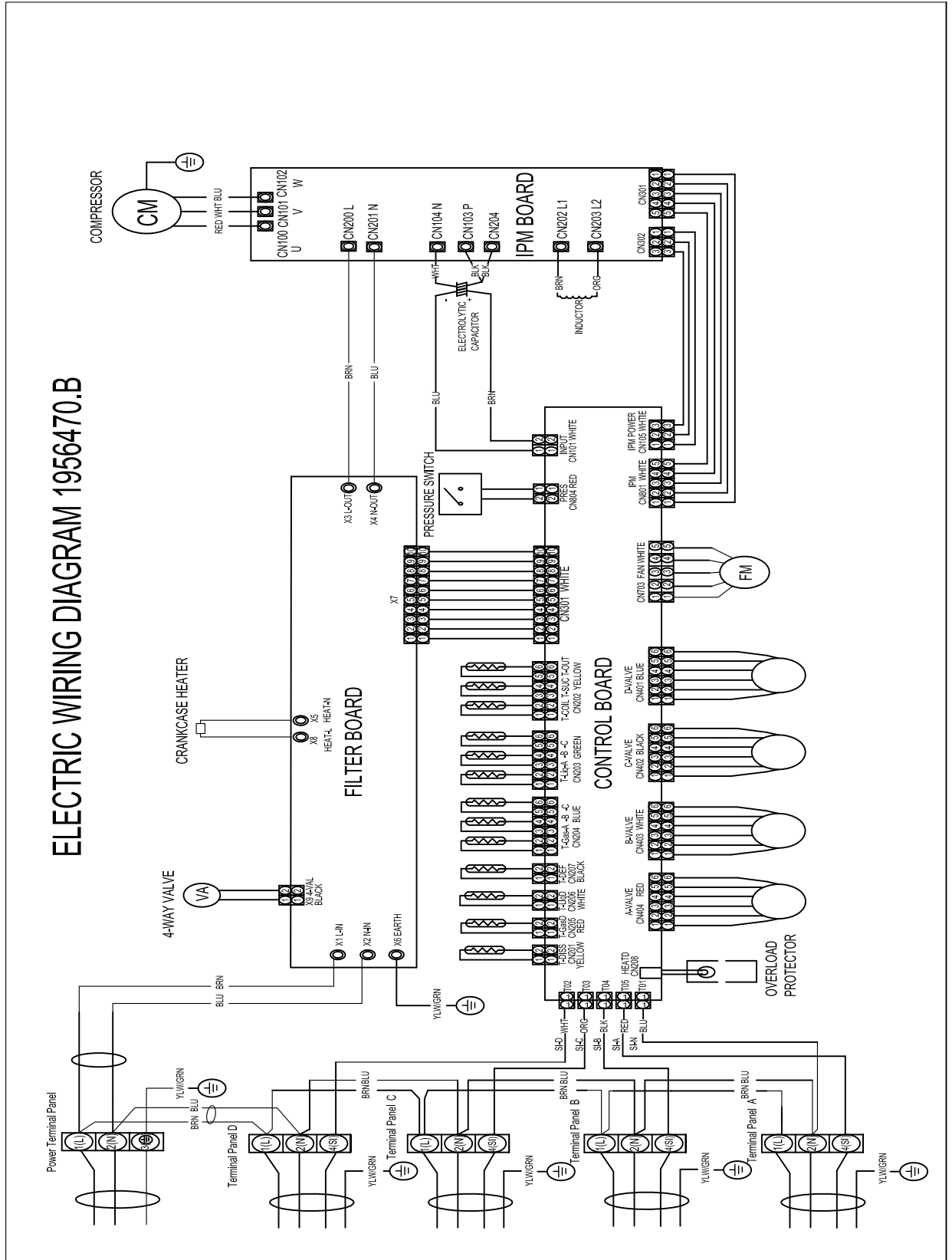
8. WIRING DIAGRAM

24K



8. WIRING DIAGRAM

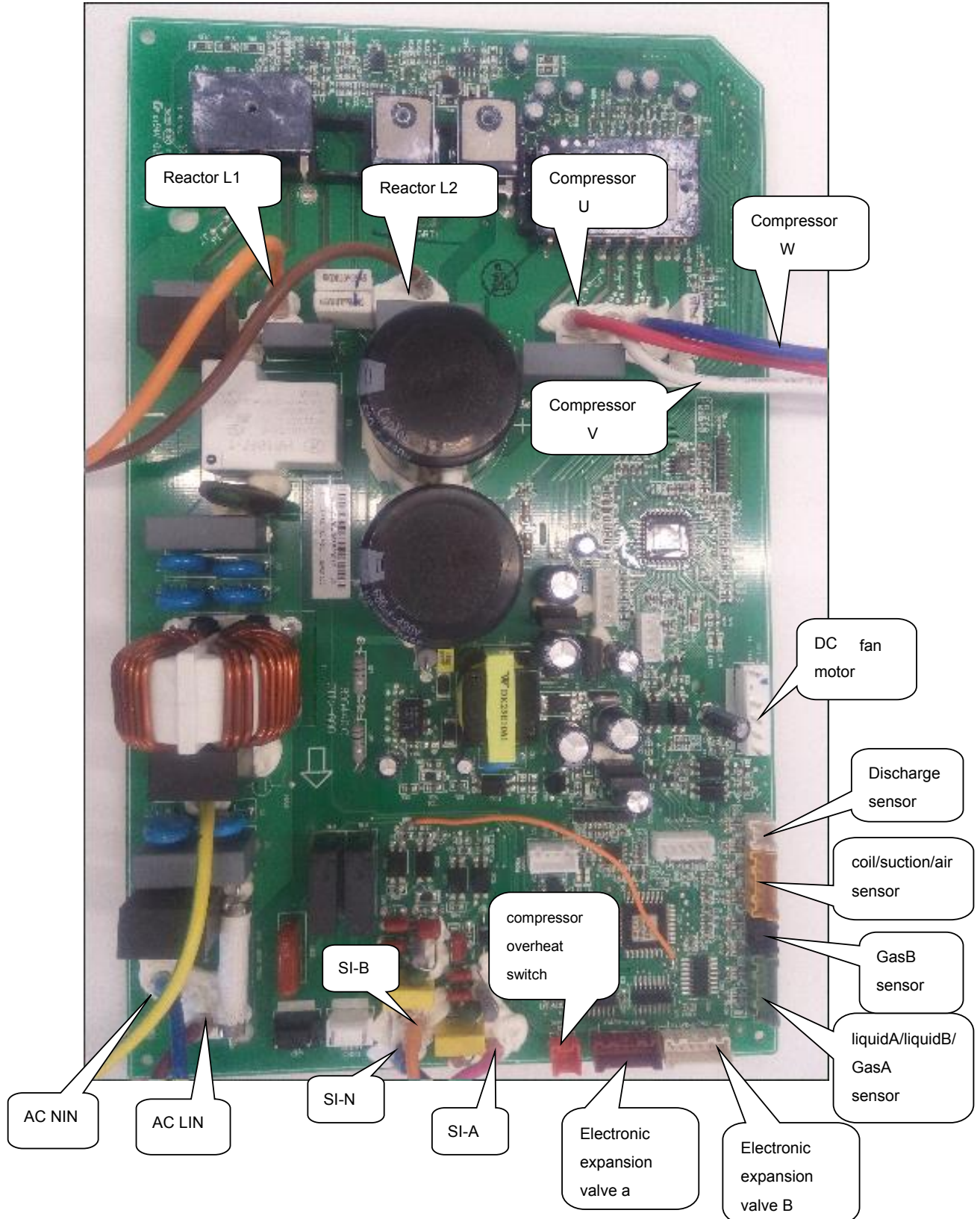
27K/36K



8. WIRING DIAGRAM

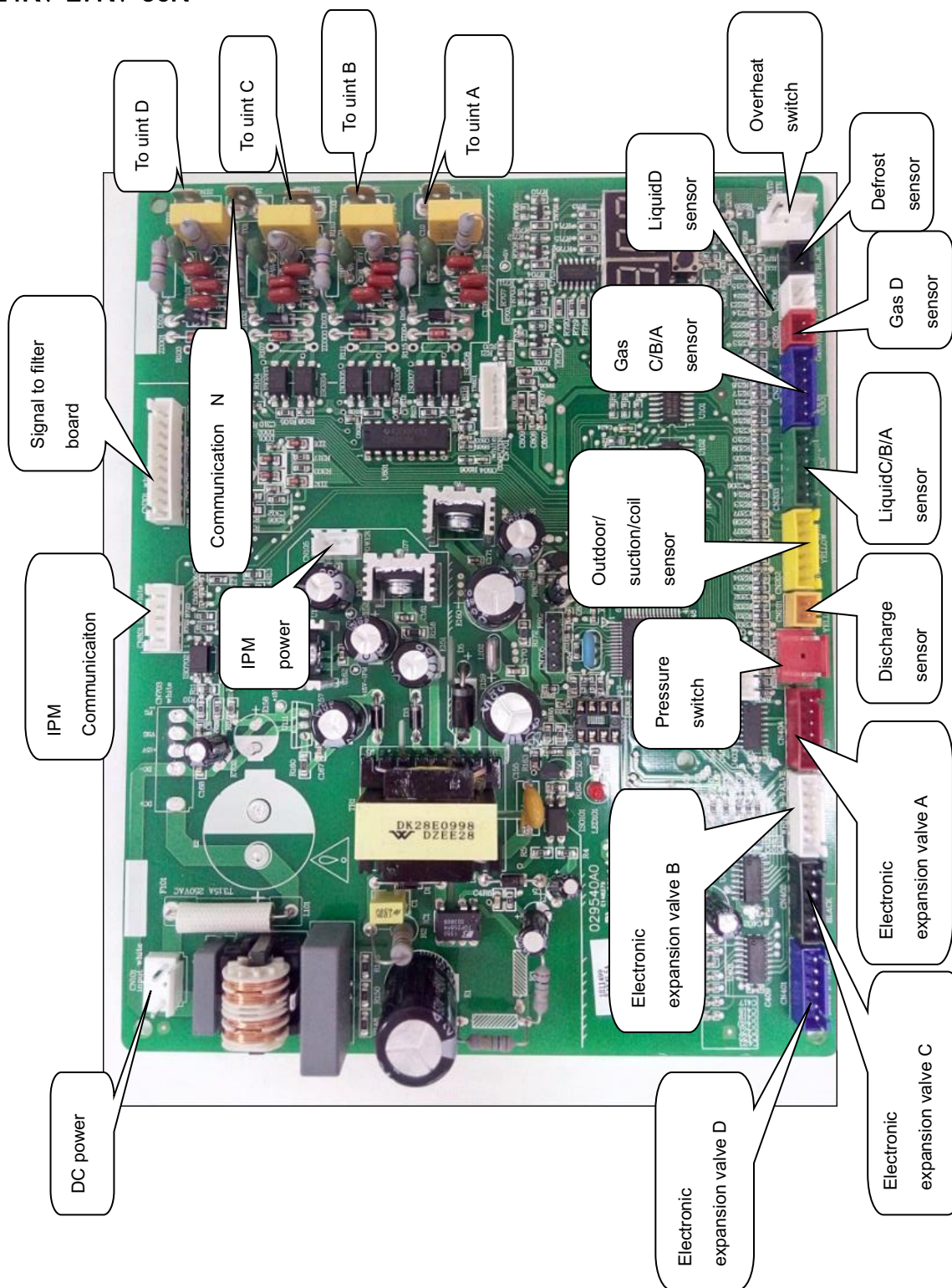
8.2 Electric control board

14K/18K



8.WIRING DIAGRAM

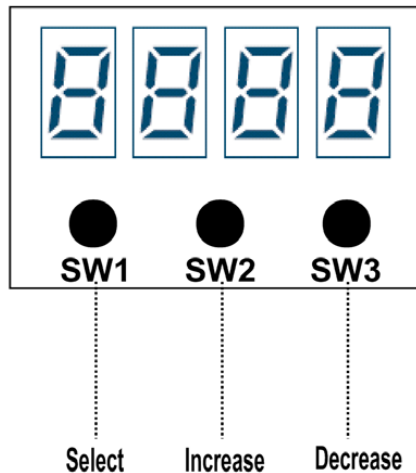
24K、27K、36K



8.WIRING DIAGRAM

8.3 RunningParameterQuery

It can be used to check outdoor running parameters.



There are 3 buttons on the digital display board :

- 1) Select button : Select the corresponding parameters of the serial number when it is pressed.
- 2) INCREASE button : Each time it is pressed, the number rises by 1.
- 3) DECREASE button : Each time it is pressed, the number lowers by 1.

Hold down both SW1 and SW2, the number will rise, and the parameter will be displayed when released.

Hold down both SW1 and SW3, the number will decrease, and the parameter will be displayed when released.

Parameters can be checked as following table below.

Note:

- (1) ●:Valid; ○:Invalid; ◆: Set Parameter; ◇: Parameter Query Only.
- (2): The right is therefore reserved to EE changing without notice.

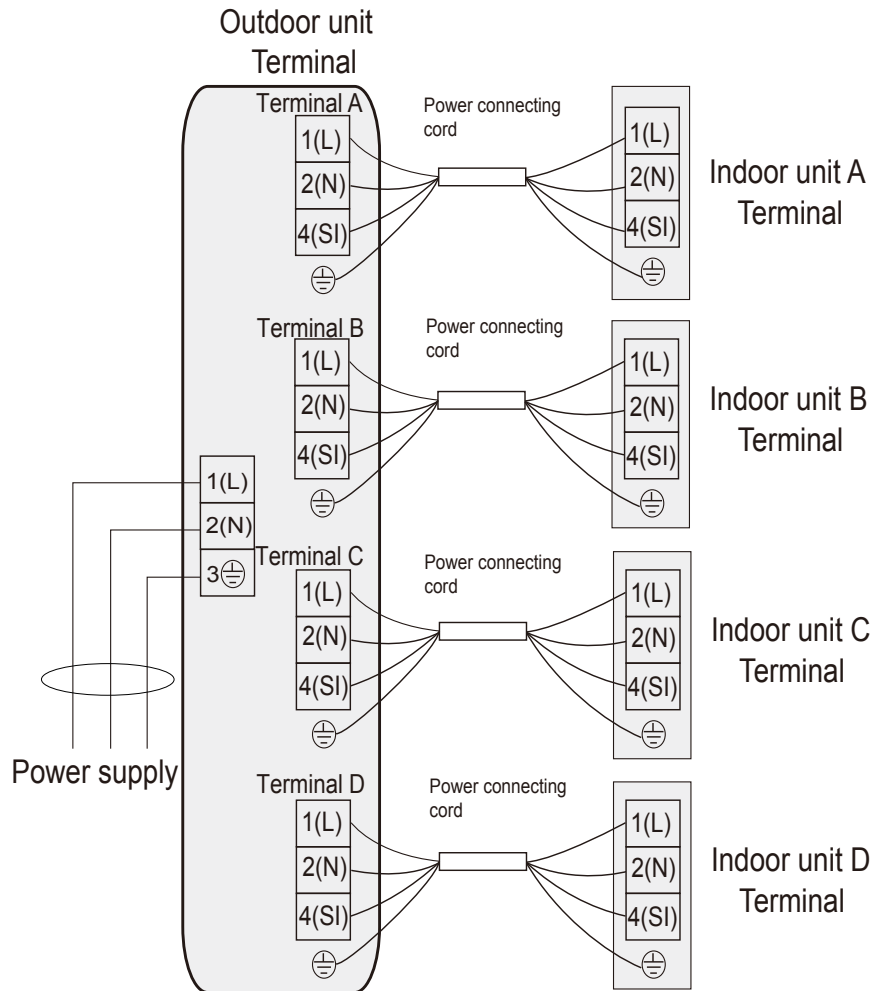
Parameter code	Descriptions	Dual	Trio	Quattro	Parameter Query	Note
0	Display limit Frequency or Frequency reduction when Compressor running; Display error code when stops.	●	●	●	◇	
1	Compres or Frequency	●	●	●	◇	
2	Current: actual value=display value /10	●	●	●	◇	
3	AC Input Voltage	●	●	●	◇	
4	Electronic expansion valve Opening(A)	●	●	●	◇	

8.WIRING DIAGRAM

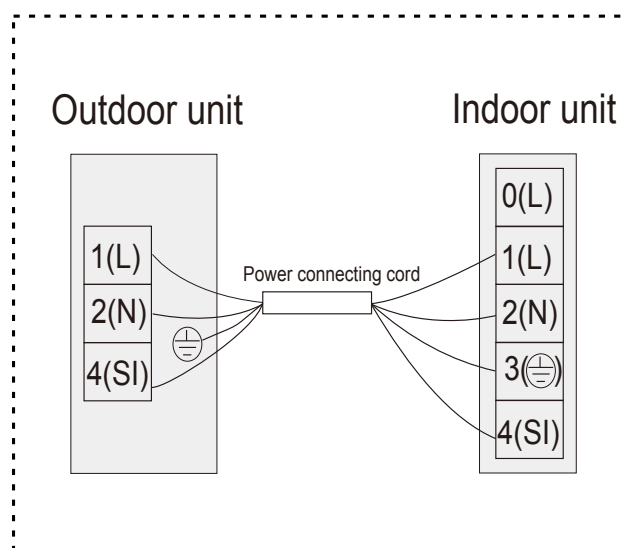
Parameter code	Descriptions	Dual	Trio	Quattro	Parameter Query	Note
5	Electronic expansion valve Opening(B)	○	●	●	◇	
6	Electronic expansion valve Opening(C)	○	●	●	◇	
7	Electronic expansion valve Opening(D)	○	○	●	◇	
8	DC Motor Set Speed	●	●	●	◆	
9	AC Motor Profile Speed	●	●	●	◆	
10	Target Frequency	●	●	●	◆	
11	A Target Overheat	●	●	●	◆	
12	B Target Overheat	●	●	●	◆	
13	C Target Overheat	○	●	●	◆	
14	D Target Overheat	○	○	●	◆	
15	Target Limit Current	●	●	●	◆	
16	Indoor A Speed	●	●	●	◇	
17	Indoor B Speed	●	●	●	◇	
18	Indoor C Speed	○	●	●	◇	
19	Indoor D Speed	○	○	●	◇	
24	IPM Error Code 1	●	●	●	◇	
25	IPM Error Code 2	●	○	○	◇	
26	IPM Error Code 3	●	○	○	◇	
27	IPM Error Code 4	●	○	○	◇	
40	Discharge Temperature	●	●	●	◇	
41	Ambient Temperature(Outdoor)	●	●	●	◇	
42	Suction Temperature	●	●	●	◇	
43	Outdoor Coil Temperature	●	●	●	◇	
44	Indoor Unit A Liquid Tube Temperature	●	●	●	◇	
45	Indoor Unit B Liquid Tube Temperature	●	●	●	◇	
46	Indoor Unit C Liquid Tube Temperature	○	●	●	◇	
47	Indoor Unit D Liquid Tube Temperature	○	○	●	◇	
48	Indoor Unit A Gas Tube Temperature	●	●	●	◇	
49	Indoor Unit B Gas Tube Temperature	●	●	●	◇	
50	Indoor Unit C Gas Tube Temperature	○	●	●	◇	
51	Indoor Unit D Gas Tube Temperature	○	○	●	◇	
52	Defrosting temperature	○	●	●	◇	
53	Room A Ambient Temperature	●	●	●	◇	
54	Room B Ambient Temperature	●	●	●	◇	
55	Room C Ambient Temperature	○	●	●	◇	
56	Room D Ambient Temperature	○	○	●	◇	
57	Room A Coil Temperature	●	●	●	◇	
58	Room B Coil Temperature	●	●	●	◇	
59	Room C Coil Temperature	○	●	●	◇	
60	Room D Coil Temperature	○	○	●	◇	
61	Room A Set Temperature	●	●	●	◇	
62	Room B Set Temperature	●	●	●	◇	
63	Room C Set Temperature	○	●	●	◇	
64	Room D Set Temperature	○	○	●	◇	
238	Outdoor DC Motor Speed Regulation Sign Manually	●	●	●	◆	1Valid
239	Manually Set The Running Current	●	●	●	◆	
244	Outdoor AC Motor Speed Regulation Sign Manually	●	●	●	◆	1Valid
245	Set Frequency Manually	●	●	●	◆	1Valid
255	Target Frequency	●	●	●	◇	1Valid

8. WIRING DIAGRAM

8.4 Common Wiring



Note: For some indoor units



NOTE:

1. For 14K and 18K model, there is no INDOOR UNIT C and D.
2. For 24K model, there is no INDOOR UNIT D.

8.WIRING DIAGRAM

Electrical Data

Model	Power Supply	ELB		Power Source Cable Size	Transmitting Cable Size
		Rated Current(A)	Nominal Sensitive	EN60335-1*1	EN60335-1*1
14K/18K	220-240V	40	30	3×1.5mm ²	4×1.5mm ²
24K/27K/36K	220-240V	40	30	3×2.5mm ²	4×1.5mm ²

Max. Running Current(A):REFER TO NAMEPLATE

Note:

- (1)Follow local codes and regulations when select field wires ,and all the above are the minimum wire size.
- (2)Use the wires which are not lighter than the ordinary polychloroprene sheathed flexible cord.(Cord designation H07RN-F).
- (3)The wire sizes marked with *1 in the above table are selected at the maximum current of the unit according to the

European Standard,EN60335-1.

- (4)Install main switch and ELB for each system separately. Select the high response type ELB that is acted within 0.1second. Recommended capacity to see outdoor machine switch capacity.

In the case that power cables are connected in series, add each unit maximum current and select wires below.

Selection According to EN60 335-1

Current i (A)	Wire Size (mm ²)
$i \leq 6$	0.75
$6 < i \leq 10$	1
$10 < i \leq 16$	1.5
$16 < i \leq 25$	2.5
$25 < i \leq 32$	4
$32 < i \leq 40$	6
$40 < i \leq 63$	10
$63 < i$	*3

*in the case that current exceeds 63A, do not connect cables in series.

8.WIRING DIAGRAM

8.5 Sensorparameter

1. THE PARAMETER OF OUTDOOR COMPRESSOR DISCHARGE TEMPERATURE SENSOR:

($R_0=187.25K \pm 6.3\%$; $R_{100}=3.77K \pm 2.5K$; $B0/100=3979K \pm 1\%$)

T [°C]	Rmin [KΩ]	Rnom [KΩ]	Rmax [KΩ]	DR(MIN)%	DR(MAX)%
-30	908.2603	985.5274	1065.1210	-7.84	7.47
-29	855.3955	927.6043	1001.9150	-7.78	7.42
-28	805.9244	873.4324	924.8368	-7.73	5.56
-27	759.6097	822.7471	887.5944	-7.67	7.31
-26	716.2320	775.3041	835.9165	-7.62	7.25
-25	675.5881	730.8775	787.5529	-7.56	7.20
-24	637.4902	689.2583	742.2720	-7.51	7.14
-23	601.7645	650.2533	699.8601	-7.46	7.09
-22	568.2499	613.6835	660.1191	-7.40	7.03
-21	536.7970	579.3832	622.8658	-7.35	6.98
-20	507.2676	547.1989	587.9307	-7.30	6.93
-19	497.5332	516.9882	555.1565	-3.76	6.88
-18	453.4748	488.6192	524.3977	-7.19	6.82
-17	428.9819	461.9693	495.5191	-7.14	6.77
-16	405.9517	436.9251	486.3954	-7.09	10.17
-15	384.2888	413.3808	442.9105	-7.04	6.67
-14	363.9047	391.2386	418.9563	-6.99	6.62
-13	344.7169	370.4072	396.4325	-6.94	6.56
-12	326.6497	350.8019	375.2461	-6.88	6.51
-11	309.6286	332.3441	355.3104	-6.83	6.46
-10	293.5903	314.9620	336.5448	-6.79	6.41
-9	278.4719	298.5822	318.3744	-6.74	6.22
-8	264.2156	283.1464	302.2294	-6.69	6.31
-7	250.7678	268.5936	286.5448	-6.64	6.26
-6	238.0783	254.8686	271.7603	-6.59	6.22
-5	226.1003	241.9200	257.8193	-6.54	6.17
-4	214.7903	229.6997	244.6593	-6.49	6.11
-3	204.1073	218.1630	232.2612	-6.44	6.07
-2	194.0135	207.2681	220.5495	-6.39	6.02
-1	184.4732	196.9759	209.4913	-6.35	5.97
0	175.4533	187.2500	199.0468	-6.30	5.93
1	166.8952	178.0255	189.1529	-6.25	5.88
2	158.8023	169.3067	179.8058	-6.20	5.84
3	151.1467	161.0633	170.9724	-6.16	5.80
4	143.9026	153.2667	162.6216	-6.11	5.75

8.WIRING DIAGRAM

T [°C]	Rmin [KΩ]	Rnom [KΩ]	Rmax [KΩ]	DR(MIN)%	DR(MAX)%
5	137.0455	145.8905	154.7246	-6.0	5.71
6	130.5528	138.9097	147.2544	-6.0	5.67
7	124.4033	132.3011	140.1856	-5.9	5.62
8	118.5769	126.0429	133.4946	-5.9	5.58
9	113.0550	120.1146	127.1591	-5.8	5.54
10	107.8202	114.4973	121.1586	-5.8	5.50
11	102.8560	109.1728	115.4734	-5.7	5.46
12	98.1470	104.1246	110.0855	-5.7	5.41
13	93.6787	99.3367	104.9778	-5.7	5.37
14	89.4378	94.7946	100.1342	-5.6	5.33
15	85.4114	90.4842	95.5398	-5.6	5.29
16	81.5875	86.3926	91.1805	-5.5	5.25
17	77.9551	82.5076	87.0430	-5.5	5.21
18	74.5034	78.8177	83.1150	-5.4	5.17
19	71.2227	75.3122	79.3848	-5.4	5.13
20	68.1036	71.9808	75.8414	-5.3	5.09
21	65.1373	68.8141	72.4746	-5.3	5.05
22	62.3155	65.8032	69.2746	-5.3	5.01
23	59.6306	62.9395	66.2324	-5.2	4.97
24	57.0752	60.2152	63.3395	-5.2	4.93
25	54.6424	57.6227	60.5877	-5.1	4.89
26	52.3258	55.1551	57.9695	-5.1	4.85
27	50.1192	52.8058	55.4778	-5.0	4.82
28	48.0168	50.5684	53.1058	-5.0	4.78
29	46.0133	48.4371	50.8472	-5.0	4.74
30	44.1034	46.4046	48.6960	-4.9	4.71
31	42.2825	44.4711	46.6466	-4.9	4.66
32	40.5458	42.6261	44.6937	-4.8	4.63
33	38.8891	40.8668	42.8323	-4.8	4.59
34	37.3084	39.1890	41.0576	-4.8	4.55
35	35.7998	37.5883	39.3653	-4.7	4.51
36	34.3596	36.0609	37.7511	-4.7	4.48
37	32.9844	34.6030	36.2109	-4.6	4.44
38	31.6710	33.2113	34.7412	-4.6	4.40
39	30.4164	31.8823	33.3383	-4.6	4.37
40	29.2176	30.6130	31.9988	-4.5	4.33
41	28.0718	29.4004	30.7197	-4.5	4.29
42	26.9765	28.2417	29.4979	-4.4	4.26
43	25.9293	27.1342	28.3306	-4.4	4.22
44	24.9277	26.0755	27.2150	-4.4	4.19
45	23.9697	25.0632	26.1488	-4.3	4.15

8.WIRING DIAGRAM

T [°C]	Rmin [KΩ]	Rnom [KΩ]	Rmax [KΩ]	DR(MIN)%	DR(MAX)%
46	23.0530	24.0950	25.1293	-4.3	4.12
47	22.1757	23.1688	24.1545	-4.2	4.08
48	21.3360	22.2826	23.2221	-4.2	4.05
49	20.5321	21.4345	22.3301	-4.2	4.01
50	19.7623	20.6226	21.4766	-4.1	3.98
51	19.0261	19.8468	20.6612	-4.1	3.94
52	18.3211	19.1040	19.8808	-4.1	3.91
53	17.6458	18.3926	19.1338	-4.0	3.87
54	16.9986	17.7113	18.4185	-4.0	3.84
55	16.3784	17.0537	17.7335	-3.9	3.83
56	15.7839	16.4332	17.0774	-3.9	3.77
57	15.2139	15.8338	16.4488	-3.9	3.74
58	14.6673	15.2592	15.8464	-3.8	3.71
59	14.1430	14.7083	15.2690	-3.8	3.67
60	13.6400	14.1799	14.7154	-3.8	3.64
61	13.1573	13.6730	14.1846	-3.7	3.61
62	12.6941	13.1868	13.6756	-3.7	3.57
63	12.2494	12.7202	13.1872	-3.7	3.54
64	11.8224	12.2723	12.7186	-3.6	3.51
65	11.4124	11.8424	12.2690	-3.6	3.48
66	11.0185	11.4295	11.8373	-3.6	3.45
67	10.6401	11.0331	11.4230	-3.5	3.41
68	10.2765	10.6522	11.0251	-3.5	3.38
69	9.9271	10.2863	10.6429	-3.4	3.35
70	9.5912	9.9348	10.2756	-3.4	3.32
71	9.2682	9.5968	9.9231	-3.4	3.29
72	8.9576	9.2720	9.5841	-3.3	3.26
73	8.6589	8.9597	9.2583	-3.3	3.23
74	8.3716	8.6594	8.9451	-3.3	3.19
75	8.0951	8.3705	8.6440	-3.2	3.16
76	7.8290	8.0926	8.3544	-3.2	3.13
77	7.5730	7.8252	8.0758	-3.2	3.10
78	7.3264	7.5679	7.8078	-3.1	3.07
79	7.0891	7.3202	7.5499	-3.1	3.04
80	6.8605	7.0818	7.3018	-3.1	3.01
81	6.6403	6.8522	7.0629	-3.0	2.98
82	6.4282	6.6311	6.8329	-3.0	2.95
83	6.2239	6.4182	6.6115	-3.0	2.92
84	6.0269	6.2131	6.3982	-3.0	2.89
85	5.8371	6.0154	6.1928	-2.9	2.86
86	5.6542	5.8249	5.9949	-2.9	2.84

8.WIRING DIAGRAM

T [°C]	Rmin [KΩ]	Rnom [KΩ]	Rmax [KΩ]	DR(MIN)%	DR(MAX)%
87	5.4777	5.6413	5.8042	-2.9	2.81
88	5.3076	5.4644	5.6205	-2.8	2.78
89	5.1435	5.2937	5.4433	-2.8	2.75
90	4.9853	5.1292	5.2726	-2.8	2.72
91	4.8326	4.9705	5.1079	-2.7	2.69
92	4.6852	4.8174	4.9492	-2.7	2.66
93	4.5430	4.6697	4.7960	-2.7	2.63
94	4.4058	4.5272	4.6483	-2.6	2.61
95	4.2733	4.3896	4.5058	-2.6	2.58
96	4.1453	4.2568	4.3683	-2.6	2.55
97	4.0218	4.1287	4.2355	-2.5	2.52
98	3.9024	4.0049	4.1074	-2.5	2.50
99	3.7872	3.8854	3.9837	-2.5	2.47
100	3.6758	3.7700	3.8643	-2.5	2.44
101	3.5661	3.6585	3.7512	-2.5	2.47
102	3.4601	3.5509	3.6419	-2.5	2.50
103	3.3577	3.4468	3.5362	-2.5	2.53
104	3.2588	3.3463	3.4341	-2.6	2.56
105	3.1632	3.2491	3.3353	-2.6	2.58
106	3.0708	3.1551	3.2398	-2.6	2.61
107	2.9816	3.0643	3.1475	-2.7	2.64
108	2.8953	2.9765	3.0582	-2.7	2.67
109	2.8118	2.8915	2.9717	-2.7	2.70
110	2.7311	2.8093	2.8881	-2.7	2.73
111	2.6531	2.7299	2.8072	-2.8	2.75
112	2.5776	2.6530	2.7289	-2.8	2.78
113	2.5046	2.5785	2.6531	-2.8	2.81
114	2.4340	2.5065	2.5798	-2.8	2.84
115	2.3656	2.4368	2.5087	-2.9	2.87
116	2.2995	2.3693	2.4400	-2.9	2.90
117	2.2354	2.3040	2.3733	-2.9	2.92
118	2.1734	2.2407	2.3088	-3.0	2.95
119	2.1134	2.1795	2.2463	-3.0	2.97
120	2.0553	2.1201	2.1858	-3.0	3.01
121	1.9991	2.0626	2.1271	-3.0	3.03
122	1.9446	2.0070	2.0702	-3.1	3.05
123	1.8918	1.9530	2.0151	-3.1	3.08
124	1.8406	1.9007	1.9617	-3.1	3.11
125	1.7911	1.8500	1.9099	-3.1	3.14
126	1.7430	1.8009	1.8597	-3.2	3.16
127	1.6965	1.7533	1.8110	-3.2	3.19

8.WIRING DIAGRAM

T [°C]	Rmin [KΩ]	Rnom [KΩ]	Rmax [KΩ]	DR(MIN)%	DR(MAX)%
128	1.6514	1.7071	1.7638	-3.2	3.21
129	1.6076	1.6623	1.7180	-3.2	3.24
130	1.5652	1.6189	1.6736	-3.3	3.27

8.WIRING DIAGRAM

2. THE PARAMETER OF THE OTHER SENSOR IN INDOOR AND OUTDOOR UNIT: ($R_0=15K \pm 2\%$; $B0/100=3450K \pm 2\%$)

T [°C]	Rmin [KΩ]	Rnom [KΩ]	Rmax [KΩ]	DR(MIN)%	DR(MAX)%
-30	60.78	64.77	68.99	-6.16	6.12
-29	57.75	61.36	65.16	-5.88	5.83
-28	54.89	58.15	61.58	-5.61	5.57
-27	52.19	55.14	58.23	-5.35	5.31
-26	49.63	52.30	55.08	-5.11	5.05
-25	47.21	49.62	52.13	-4.86	4.81
-24	44.92	47.10	49.37	-4.63	4.60
-23	42.76	44.73	46.78	-4.40	4.38
-22	40.71	42.49	44.34	-4.19	4.17
-21	38.77	40.38	42.05	-3.99	3.97
-20	36.93	38.39	39.90	-3.80	3.78
-19	35.18	36.51	37.87	-3.64	3.59
-18	33.53	34.74	35.97	-3.48	3.42
-17	31.96	33.06	34.17	-3.33	3.25
-16	30.48	31.47	32.49	-3.15	3.14
-15	29.07	29.97	30.89	-3.00	2.98
-14	27.73	28.56	29.39	-2.91	2.82
-13	26.46	27.22	27.98	-2.79	2.72
-12	25.26	25.95	26.64	-2.66	2.59
-11	24.11	24.75	25.38	-2.59	2.48
-10	23.03	23.61	24.19	-2.46	2.40
-9	21.99	22.53	23.06	-2.40	2.30
-8	21.01	21.51	22.00	-2.32	2.23
-7	20.08	20.54	20.99	-2.24	2.14
-6	19.19	19.62	20.04	-2.19	2.10
-5	18.35	18.74	19.14	-2.08	2.09
-4	17.55	17.92	18.29	-2.06	2.02
-3	16.78	17.13	17.48	-2.04	2.00
-2	16.06	16.38	16.71	-1.95	1.97
-1	15.36	15.67	15.98	-1.98	1.94
0	14.70	15.00	15.29	-2.00	1.90
1	14.08	14.36	14.64	-1.95	1.91
2	13.48	13.75	14.02	-1.96	1.93
3	12.91	13.17	13.43	-1.97	1.94
4	12.36	12.62	12.87	-2.06	1.94
5	11.85	12.09	12.34	-1.99	2.03
6	11.35	11.59	11.83	-2.07	2.03
7	10.88	11.11	11.35	-2.07	2.11
8	10.43	10.66	10.89	-2.16	2.11

8.WIRING DIAGRAM

T [°C]	Rmin [KΩ]	Rnom [KΩ]	Rmax [KΩ]	DR(MIN)%	DR(MAX)%
9	9.999	10.230	10.450	-2.26	2.11
10	9.590	9.816	10.040	-2.30	2.23
11	9.199	9.422	9.647	-2.37	2.33
12	8.826	9.047	9.269	-2.44	2.40
13	8.470	8.689	8.910	-2.52	2.48
14	8.129	8.347	8.567	-2.61	2.57
15	7.804	8.021	8.240	-2.71	2.66
16	7.493	7.709	7.928	-2.80	2.76
17	7.196	7.412	7.630	-2.91	2.86
18	6.912	7.127	7.346	-3.02	2.98
19	6.640	6.855	7.074	-3.14	3.10
20	6.381	6.595	6.815	-3.24	3.23
21	6.132	6.347	6.567	-3.39	3.35
22	5.894	6.109	6.330	-3.52	3.49
23	5.667	5.882	6.103	-3.66	3.62
24	5.449	5.664	5.886	-3.80	3.77
25	5.240	5.456	5.678	-3.96	3.91
26	5.048	5.260	5.478	-4.03	3.98
27	4.864	5.072	5.286	-4.10	4.05
28	4.687	4.891	5.101	-4.17	4.12
29	4.517	4.717	4.924	-4.24	4.20
30	4.355	4.550	4.753	-4.29	4.27
31	4.198	4.390	4.589	-4.37	4.34
32	4.048	4.236	4.431	-4.44	4.40
33	3.904	4.089	4.280	-4.52	4.46
34	3.766	3.946	4.134	-4.56	4.55
35	3.663	3.810	3.994	-3.86	4.61
36	3.506	3.679	3.859	-4.70	4.66
37	3.383	3.552	3.729	-4.76	4.75
38	3.265	3.431	3.604	-4.84	4.80
39	3.152	3.314	3.484	-4.89	4.88
40	3.043	3.202	3.368	-4.97	4.93
41	2.938	3.094	3.257	-5.04	5.00
42	2.838	2.990	3.149	-5.08	5.05
43	2.741	2.890	3.046	-5.16	5.12
44	2.648	2.793	2.946	-5.19	5.19
45	2.558	2.701	2.850	-5.29	5.23
46	2.472	2.611	2.758	-5.32	5.33
47	2.389	2.525	2.669	-5.39	5.40
48	2.309	2.443	2.583	-5.49	5.42
49	2.232	2.363	2.500	-5.54	5.48

8.WIRING DIAGRAM

T [°C]	Rmin [KΩ]	Rnom [KΩ]	Rmax [KΩ]	DR(MIN)%	DR(MAX)%
50	2.158	2.286	2.421	-5.60	5.58
51	2.087	2.212	2.344	-5.65	5.63
52	2.018	2.140	2.269	-5.70	5.69
53	1.952	2.072	2.198	-5.79	5.73
54	1.888	2.005	2.129	-5.84	5.82
55	1.827	1.941	2.062	-5.87	5.87
56	1.767	1.880	1.998	-6.01	5.91
57	1.710	1.820	1.936	-6.04	5.99
58	1.655	1.763	1.876	-6.13	6.02
59	1.602	1.707	1.818	-6.15	6.11
60	1.551	1.654	1.762	-6.23	6.13
61	1.502	1.602	1.709	-6.24	6.26
62	1.452	1.553	1.657	-6.50	6.28
63	1.409	1.505	1.606	-6.38	6.29
64	1.364	1.458	1.558	-6.45	6.42
65	1.322	1.413	1.511	-6.44	6.49
66	1.280	1.370	1.466	-6.57	6.55
67	1.241	1.328	1.422	-6.55	6.61
68	1.202	1.288	1.379	-6.68	6.60
69	1.165	1.249	1.339	-6.73	6.72
70	1.129	1.211	1.299	-6.77	6.77
71	1.095	1.175	1.261	-6.81	6.82
72	1.061	1.140	1.224	-6.93	6.86
73	1.029	1.106	1.188	-6.96	6.90
74	0.9977	1.073	1.153	-7.02	6.94
75	0.9676	1.041	1.120	-7.05	7.05
76	0.9385	1.011	1.088	-7.17	7.08
77	0.9104	0.9810	1.056	-7.20	7.10
78	0.8833	0.9523	1.026	-7.25	7.18
79	0.8570	0.9246	0.9971	-7.31	7.27
80	0.8316	0.8977	0.9687	-7.36	7.33
81	0.8071	0.8717	0.9412	-7.41	7.38
82	0.7834	0.8466	0.9146	-7.47	7.43
83	0.7604	0.8223	0.8888	-7.53	7.48
84	0.7382	0.7987	0.8639	-7.57	7.55
85	0.7167	0.7759	0.8397	-7.63	7.60
86	0.6958	0.7537	0.8161	-7.68	7.65
87	0.6755	0.7322	0.7933	-7.74	7.70
88	0.6560	0.7114	0.7712	-7.79	7.75
89	0.6371	0.6913	0.7498	-7.84	7.80
90	0.6188	0.6718	0.7291	-7.89	7.86

8.WIRING DIAGRAM

T [°C]	Rmin [KΩ]	Rnom [KΩ]	Rmax [KΩ]	DR(MIN)%	DR(MAX)%
91	0.6011	0.6530	0.7051	-7.95	7.39
92	0.5840	0.6348	0.6897	-8.00	7.96
93	0.5674	0.6171	0.6709	-8.05	8.02
94	0.5514	0.6000	0.6527	-8.10	8.07
95	0.5359	0.5835	0.6350	-8.16	8.11
96	0.5209	0.5675	0.6179	-8.21	8.16
97	0.5064	0.5519	0.6014	-8.24	8.23
98	0.4923	0.5369	0.5853	-8.31	8.27
99	0.4787	0.5224	0.5698	-8.37	8.32
100	0.4655	0.5083	0.5547	-8.42	8.36
101	0.4528	0.4946	0.5401	-8.45	8.42
102	0.4404	0.4814	0.5259	-8.52	8.46
103	0.4284	0.4685	0.5121	-8.56	8.51
104	0.4168	0.4561	0.4988	-8.62	8.56
105	0.4056	0.4440	0.4859	-8.65	8.62
106	0.3947	0.4323	0.4733	-8.70	8.66
107	0.3841	0.4210	0.4611	-8.76	8.70
108	0.3739	0.4100	0.4493	-8.80	8.75
109	0.3640	0.3993	0.4379	-8.84	8.81
110	0.3544	0.3890	0.4267	-8.89	8.84
111	0.3450	0.3789	0.4159	-8.95	8.90
112	0.3360	0.3692	0.4055	-8.99	8.95
113	0.3272	0.3597	0.3953	-9.04	9.01
114	0.3187	0.3505	0.3854	-9.07	9.06
115	0.3104	0.3416	0.3758	-9.13	9.10
116	0.3024	0.3330	0.3665	-9.19	9.14
117	0.2947	0.3246	0.3574	-9.21	9.18
118	0.2871	0.3164	0.3468	-9.26	8.77
119	0.2798	0.3085	0.3401	-9.30	9.29
120	0.2727	0.3008	0.33	-9.34	9.34

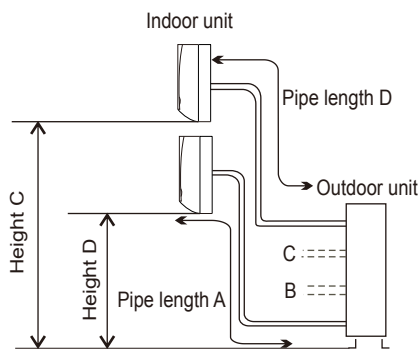
9. PIPING WORK AND REFRIGERANT CHARGE

9.1 MAX. Refrigerant pipe length and height difference

1. Piping Requirement

Model	Outer Diameter of Pipe (mm)	
	Gas	Liquid
14K/18K/24K/27K/36K	9.52	6.35

Refrigerant piping is short, the better. So the connecting pipe should be as short as possible.



Model		14K/18K	24K	27K/36K
Max Length Between Indoor Unit and Outdoor Unit	m	A≤15 B≤15	A≤20 B≤20	A≤20 B≤20
Max Length Between Indoor Unit and Outdoor Unit (Total)	m	A+B≤30	A+B+C≤45	A+B+C+D≤60
Max Height Between Indoor Unit and Outdoor Unit	m	C≤15	C≤15	C≤15
Max Height Between Indoor Unit A and Indoor Unit B	m	D≤7.5	D≤7.5	D≤7.5

Refrigerant Additional Charge

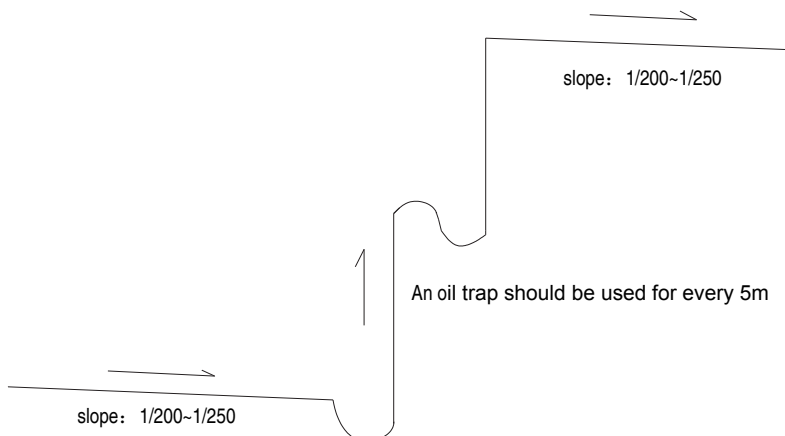
The unit has been filled with refrigerant, but if L (total pipe length) exceeds 15m, additional refrigerant (R32) charge is required. Additional refrigerant charge = $(L-15) \times 12g/m$

2. Piping Requirement

- (1) Prepare locally-supplied copper pipes.
- (2) Select clean copper pipes. Make sure there is no dust and moisture inside of the pipes. Blow the inside of the pipes with nitrogen or dry air, to remove any dust or foreign materials before connecting pipes.

9.2 Oil trap

When the indoor unit is lower than outdoor unit and height is larger than 5m, an oil trap should be used for every 5m.



9. PIPING WORK AND REFRIGERANT CHARGE

NOTE:

1. When the indoor unit is lower than outdoor unit for more than 5m, an oil trap should be used on suction piping.

To avoid storing too much oil in the oil trap, the oil trap should be as short as possible.

2. The horizontal piping should be slope down along the refrigerant flow direction, to bring the oil back to compressor, the slope is about 1/200 to 1/250.

In order to ensure cooling/heating performance better, the refrigerant piping should be as short and straight as possible.

9.3 Additional refrigerant charge

Although refrigerant has been charged into this unit, additional refrigerant charge is required according to piping length.

- The additional refrigerant precharge quantity should be determined and charged into the system according to the following procedure.
- Record the additional refrigerant quantity in order to facilitate maintenance and servicing activities.

Refrigerant charge before shipment (W0 (kg))

W0 is the outdoor unit refrigerant charge before shipment ;

Xg is additional refrigerant outdoor unit needed to charge according to piping length during installation .

Model	Refrigerant precharged before shipment(W0(g))	Total refrigerant pipe length	
		0-15m	over 15m
14K	950g	0g	$Xg = 12g / m \times (\text{Total pipe length(m)} - 15)$
18K	1070g	0g	
24K	1800g	0g	

Model	Refrigerant precharged before shipment(W0(g))	Total refrigerant pipe length	
		0-20m	over 20m
27K	2200g	0g	$Xg = 12g / m \times (\text{Total pipe length(m)} - 20)$
36K	2200g	0g	

10.CONTROL MODE

10. Control mode

Cooling Anti-freeze Protection

To prevent freezing caused by too low temperature of indoor evaporator, the air conditioner will implement real-time detection over the indoor coil temperature. If the indoor coil temperature is too low, the compressor will be prohibited from increasing the frequency or decrease the frequency even shut down automatically

Heating Overload Protection

To prevent system overload caused by excessive pressure in heating operation, the machine will implement real-time detection over the indoor fan-coil temperature:

If the indoor coil temperature grows higher, the compressor will be prohibited from increasing the frequency; If the temperature continues to rise, the compressor will decrease the frequency; If the indoor coil temperature is too high, the compressor will stop working immediately. The compressor then will reboot after the indoor coil temperature reduces.

Cooling Overload Protection

To prevent system overload due to excessive pressure during cooling operation, the machine will implement real-time detection over the outdoor condenser coil temperature:

If the outdoor coil temperature grows higher, the compressor will be prohibited from increasing the frequency; If the temperature continues to rise, the compressor will decrease the frequency; If the outdoor fan-coil temperature is too high, then the compressor will stop working immediately. The compressor will reboot after the outdoor coil temperature reduces.

Discharge Temperature Protection

10. CONTROL MODE

To prevent working conditions of compressor from deteriorating due to high discharge temperature, the machine will implement real-time detection over the discharge temperature.

If the discharge temperature grows higher, the compressor will be prohibited from increasing the frequency; if the temperature continues to rise, the compressor will decrease the frequency automatically; if the discharge temperature is too high, the compressor will stop working immediately. The compressor will then reboot when the discharge temperature returns to normal condition.

Oil-return Control

When the compressor continues to operate at low frequency, there will be an oil return. The compressor increases the frequency, and thus to return the oil in refrigerate system to the compressor.

Operation Mode

1 Mode Categories

Air conditioning mode is the operation mode set by users through remote controller, four modes are available: cooling, heating, dehumidification, as well as fan mode.

2 Mode conflict

The operating mode of outdoor unit is decided by the operating mode of the indoor unit firstly booted. Indoor unit subsequently booted will firstly determine whether it's own mode is conflict with the outdoor mode. If so, the indoor unit will automatically shut down after three beeps; If there is no conflict, the indoor unit will boot normally. The relationship of mode conflict is as follows:

Driven choice Active mode	Cooling	Dehumidification	Heating	fan
Cooling	√	√	×	√
Dehumidification	√	√	×	√
Heating	×	×	√	×
fan	√	√	×	√

10 CONTROL MODE

√———Mode conflict will not happen

×———Mode conflict will happen

Outdoor four-way Valve Control

Four-way valve of the outdoor machine shuts down when cooling but starts when heating. The operation of heating defrosting refers to defrosting operation and, when the heating remote shutdown, the four-way valve disconnects in 50s when the compressor stops working.

Start-up Protection:

To prevent compressor from restart frequently in the condition that system pressure has not been completely balanced, it can't be restarted within 3 minutes.

Pressure Protection:

Pressure switch is normally kept open. When the pressure grows too high, the pressure switch will close and soft will enter pressure protection control. soft will automatically decrease the frequency. If the pressure is still unable to return to normal condition after decreasing frequency, compressor will stop and report the fault code of pressure protection.

11. TROUBLE SHOOTING

11. Trouble shooting

11.1 The method of identify fault codes

When the air conditioner failure occurs, the fault code will displays on control board.

HOW TO CHECK FAULT CODES

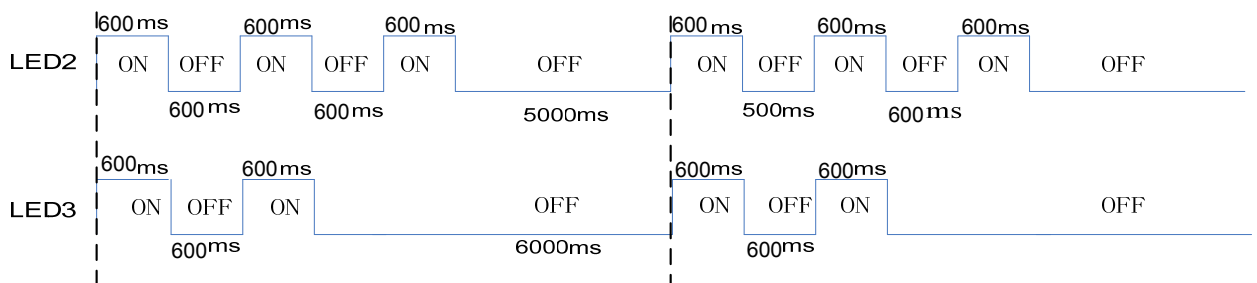
There are 4 LED lamps on control board, LED2,LED3,LED4 and LED7.

LED2 and LED3 indicate outdoor main control fault ,LED 4 and LED7 indicate drive fault. Main control failure:

Lamp LED2 display fault code ten digit number, LED3 display fault code single digit number. Drive failure:

Lamp LED4 display fault code ten digit number, LED7 display fault code single digit number. Failures display with 5s interval .It means LED will off 5s to report next failure code . System protect codes display is the same with main control , and LED lamps will off when There is no failure ,protect or preheating.

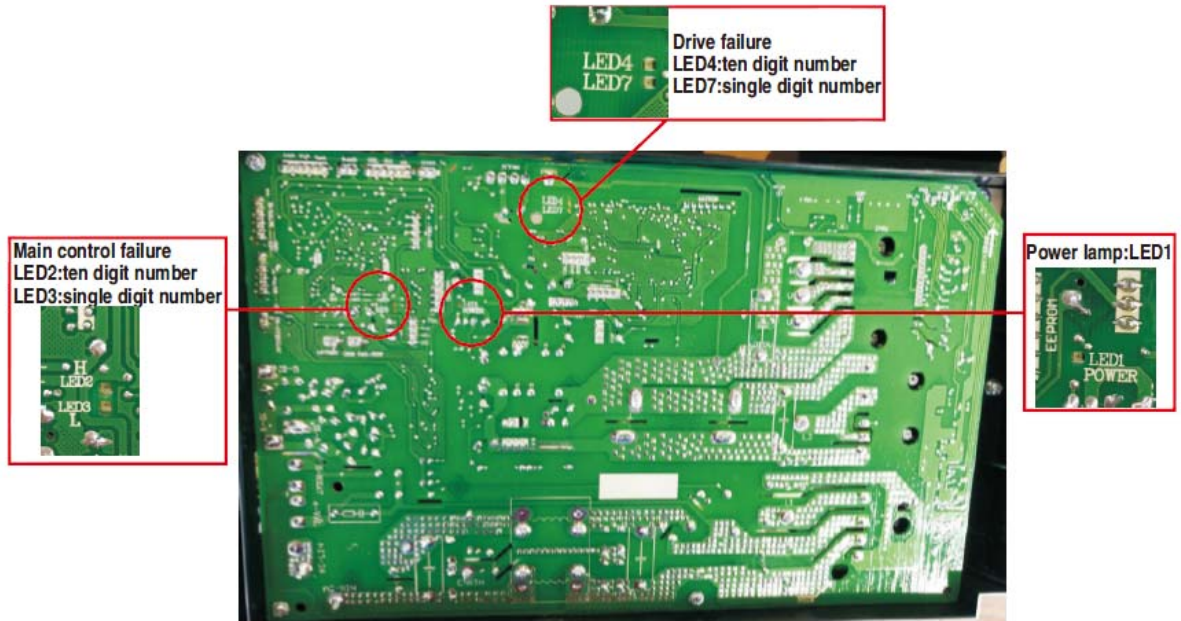
For example, outdoor main control fault 32:



11. TROUBLE SHOOTING

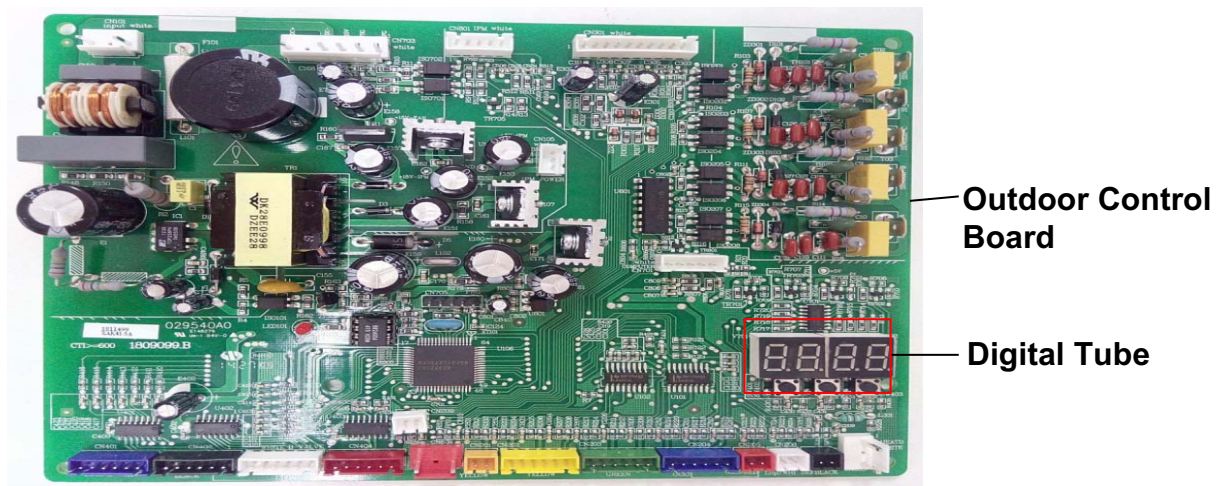
Outdoor control board

14K、18K



24K、27K、36K

Fault code will display on digital tube board



E shows failure occur Display ERROR Code

11. TROUBLE SHOOTING

11.2 Fault codes

The following is the fault code table of outdoor.

Sheet 1 Outdoor Fault code

Fault code	Fault Description	Possible Reason of Abnormality	How to Deal With	Remarks
1	Outdoor ambient temperature sensor fault	<ol style="list-style-type: none"> 1.The outdoor ambient temperature sensor connect loose; 2.The outdoor ambient temperature sensor is failure; 3.The sampling circuit is failure 	<ol style="list-style-type: none"> 1.Reconnect the outdoor ambient temperature sensor; 2.Replace the outdoor ambient temperature sensor omponents; 3.Replace the outdoor control board components. 	
2	Outdoor coil temperature sensor fault	<ol style="list-style-type: none"> 1.The outdoor coil temperature sensor connect loose; 2.The outdoor coil temperature sensor is failure; 3.The sampling circuit is failure 	<ol style="list-style-type: none"> 1.Reconnect the outdoor coil temperature sensor; 2.Replace the outdoor coil temperature sensor components; 3.Replace the outdoor control board components. 	
3	The unit over-current turn off fault	<ol style="list-style-type: none"> 1.Control board current sampling circuit is failure; 2.The current is over high because of the supply voltage is too low; 3.The compressor is blocked; 4.Overload in cooling mode; 5.Overload in heating mode. 	<ol style="list-style-type: none"> 1. Replace the electrical control board components; 2. Normally protection; 3. Replace the compressor; 4. Please see the Note 3; 5. Please see the Note 4. 	
4	EEprom Data error	<ol style="list-style-type: none"> 1.EE components is failure; 2.EE components control circuit failure; 3.EE components insert incorrect 	<ol style="list-style-type: none"> 1.Replace the EE components; 2.Replace the outdoor control board components; 3.Reassembly the EE components. 	
5	Cooling freezing protection(the indoor coil temperature is too low) or heating overload(indoor coil temperature is too high)	<ol style="list-style-type: none"> 1.The indoor unit can not blow air normally; 2.The room temperature is too low in cooling mode or the room temperature is too high in heating; 3.The filter is dirty; 4.The duct resistance is too high to result in low air flow; 5.The setting fan speed is too low; 6.The indoor unit is not standard installed, air inlet is too near with air outlet . 	<ol style="list-style-type: none"> 1.Check the indoor fan, indoor fan motor and evaporator whether normally; 2.Normally protection; 3.Clean the filter; 4.Check the volume control valve,duct length etc; 5.Set the speed with high speed; 6.Reinstall the indoor unit refer to the user manual to change the distance between the indoor unit and the wall or ceiling. 	

11. TROUBLE SHOOTING

Fault code	Fault Description	Possible Reason of Abnormality	How to Deal With	Remarks
7	The communication fault between the indoor unit and outdoor unit	<ol style="list-style-type: none"> 1.The connection cable connect wrong between the indoor unit and outdoor unit; 2.The communication cable connect loose; 3.The communication cable is fault; 4.The indoor control board is fault; 5.The outdoor control board is fault; 6.Communication circuit fuse open; 7.The specification of communication cable is incorrect. 	<ol style="list-style-type: none"> 1.Reconnect the connection cable refer to the wiring diagram; 2.Reconnect the communication cable; 3.Replace the communication cable; 4.Replace the indoor control board; 5.Replace the outdoor control board; 6.Check the communication circuit, adjust the DIP switch and the short-circuit fuse. 7.Choose suitable communication cable refer to the user manual 	
12	voltage absent phase	<ol style="list-style-type: none"> 1.Three-phase power is abnormal; 2.The outdoor wiring connect wrong; 3.The outdoor control board is failure. 	<ol style="list-style-type: none"> 1. Normally protection 2. Check the wiring connection refer to the wiring diagram; 3. Replace the outdoor control board 	Application of three-phase power supply models
13	Compressor overheat protector device	<ol style="list-style-type: none"> 1.The wiring of the overload protector connect loose. 2.The overload protector is failure . 3.The refrigerant is not enough; 4.The installation pipe is too long than normal, but not add the enough refrigerant; 5.The expansion valve is failure; 6.The outdoor control board is failure 	<ol style="list-style-type: none"> 1. Reconnect the wiring of the overload protector; 2. Replace the overload protector; 3. Check the welding point of the unit to confirm whether it is leakage, and then recharge the refrigerant; 4. Add the refrigerant; 5. Replace expansion valve; 6. Replace the outdoor control board. 	
14	the high pressure switch operate or the unit turn off for high pressure protection	<ol style="list-style-type: none"> 1.The wiring of the high pressure protector connect loose; 2.The high pressure protector is failure; 3.The outdoor control board is abnormal; 4.Overload in cooling; 5.Overload in heating. 	<ol style="list-style-type: none"> 1.Reconnect the wiring the high pressure protector; 2.Replace the high pressure protector; 3.Replace the outdoor control board; 4.Please refer to the Note 3; 5.Please refer to the Note 4. 	Applied to models with high pressure switch or pressure sensor
15	the low pressure switch protection or the unit turn off for low pressure protection	<ol style="list-style-type: none"> 1.The wiring of the low pressure switch connect loose ; 2.The low pressure switch is failure; 3.The refrigerant is not enough; 4.The expansion valve failure in heating mode; 5.The outdoor control board is abnormal. 	<ol style="list-style-type: none"> 1. Reconnect the wiring of the low pressure switch; 2. Replace the low pressure switch; 3. Check the welding point to confirm whether the unit is leakage, and then add some refrigerant; 4. Replace the expansion valve; 5. Replace the outdoor control board. 	Applied to models with low pressure switch or pressure sensor
16	overload protection in cooling mode	System overload	Please refer to the Note 3.	
17	Discharge temperature sensor fault	<ol style="list-style-type: none"> 1.The wiring of the discharge temperature sensor connect loose; 2.The discharge temperature sensor is failure; 3.The sampling circuit is abnormal. 	<ol style="list-style-type: none"> 1.Reconnect the wiring of the discharge temperature sensor; 2.Replace the discharge temperature sensor; 3.Replace the outdoor control board. 	

11. TROUBLE SHOOTING

Fault code	Fault Description	Possible Reason of Abnormality	How to Deal With	Remarks
18	AC voltage is abnormal	<ol style="list-style-type: none"> 1.The AC voltage>275V or <160V. 2.The AC voltage of sampling circuit on the driver board is abnormally 	<ol style="list-style-type: none"> 1. Normally protection, please check the supply power; 2. Replace the driver board. 	
19	Suction temperature sensor fault	<ol style="list-style-type: none"> 1.The wiring of the suction temperature sensor connect loose; 2.The suction temperature sensor is failure; 3.The sampling circuit is abnormally. 	<ol style="list-style-type: none"> 1.Reconnect the wiring of the suction temperature sensor; 2.Replace the suction temperature sensor; 3.Replace the outdoor control board. 	
22	The defrosting sensor fault	<ol style="list-style-type: none"> 1.The wiring of the defrosting sensor connect loose; 2.The defrosting sensor is failure; 3.The sampling circuit is abnormally 	<ol style="list-style-type: none"> 1. Reconnect the wiring of the defrosting sensor; 2. Replace the defrosting sensor; 3. Replace the outdoor control board. 	
45	IPM fault	There are many reasons for this failure, If you need further analysis, fault code of the driver board is needed by watching the driver board fault led. Analysis can be further to know why and how to operate. Specific see table 5, table 6.	See attached "analysis of the driving board fault".	
46	IPM and control board communication fault	<ol style="list-style-type: none"> 1.The cable between the control board and the driver board connect loose; 2.The cable between the control board and the driver board is failure; 3.The driver board is failure 4.The control board is failure 	<ol style="list-style-type: none"> 1.Reconnect the cable between the control board and the driver board; 2.Replace the communication cable between the control board and the driver board; 3.Replace the driver board; 4.Replace the control board. 	
47	Discharge temperature too high fault	<ol style="list-style-type: none"> 1. The refrigerant of the unit is not enough; 2. The refrigerant of the unit is not enough due to add the length of the installation pipe 3. Throttling service is failure; 4. The outdoor ambient temperature is too high. 	<ol style="list-style-type: none"> 1.Check the welding point to confirm whether the unit has exist leakage point, and then add some refrigerant. 2.Add some refrigerant refer to the installation user manual; 3.Replace the throttling service(such as capillary, expansion valve) 4.Normally protection. 	
48	the outdoor DC fan motor fault (upper fan motor)	<ol style="list-style-type: none"> 1.The wiring of the up DC fan motor connect loose; 2.The cord of the up DC fan motor is failure; 3.The up DC fan motor is failure; 4.The drive circuit of the up DC fan motor is failure; 5.The outdoor fan has been blocked. 	<ol style="list-style-type: none"> 1.Reconnect the wiring of the up DC fan motor; 2.Replace the up DC fan motor; 3.Replace the up DC fan motor; 4.Replace the driver board of the fan motor; 5.Check the outdoor fan and ensure the outdoor fan can run normally. 	
49	the outdoor DC fan motor fault (down fan motor)	<ol style="list-style-type: none"> 1.The wiring of the down DC fan motor connect loose; 2.The cord of the down DC fan motor is failure; 3.The down DC fan motor is failure; 4.The drive circuit of the down DC fan motor is failure; 5.The outdoor fan has been blocked. 	<ol style="list-style-type: none"> 1. Reconnect the wiring of the down DC fan motor; 2. Replace the down DC fan motor; 3. Replace the down DC fan motor; 4. Replace the driver board of the fan motor; 5. Check the outdoor fan and ensure the outdoor fan can run normally. 	
91	The unit turn off due to the IPM board over heating fault	<ol style="list-style-type: none"> 1.The outdoor ambient is too high; 2.The speed of the out fan motor is too low if the fan motor is AC fan motor; 3.The outdoor unit has been installed without standard; 4.The supply power is too low. 	<ol style="list-style-type: none"> 1. Normally protection; 2. Check the fan capacitor, and replace the fan capacitor if it is failure; 3. Reinstalled the outdoor unit refer to the installation user manual; 4. Normally protection. 	

11. TROUBLE SHOOTING

Fault code	Fault Description	Possible Reason of Abnormality	How to Deal With	Remarks
96	the refrigerant of the unit is not enough fault	The refrigerant of the unit is not enough	Discharge the refrigerant and charge the refrigerant refer to the rating label	
97	4-way valve commutation failure fault	<ol style="list-style-type: none">1.The wiring of the 4-way valve coil connect loose;2.The 4-way valve coil is failure;3.The 4-way valve is failure;4.The driver board of the 4-way valve is failure	<ol style="list-style-type: none">1. Reconnect the wiring of the 4-way valve;2. Replace the 4-way valve coil;3. Replace the 4-way valve;4. Replace the driver board of the 4-way valve.	

11. TROUBLE SHOOTING

The following is the fault code table of indoor.

Sheet 2 Indoor fault code

Fault code	Fault Description	Possible Reason of Abnormality	How to Deal With	Remarks
51	Drainage protection	<ol style="list-style-type: none"> 1. The water level of the drain pan exceed safe level; 2. The cable of the water level switch connect loose; 3. The water level switch is failure; 4. The control board is failure. 	<ol style="list-style-type: none"> 1.1 Check whether there are something to block the drain hose or the height of the drain hose is too high; 1.2 Check the water pump and replace the water pump if the water pump is failure; 2. Reconnect the cable of the water level switch refer to the wiring diagram; 3. Replace the water level switch; 4. Replace the control board. 	
64	Communication between Indoor & Outdoor unit Fault	<ol style="list-style-type: none"> 1. The connection cable between the indoor unit and the outdoor unit connect wrong; 2. The communication cable connect loose; 3. The communication cable between the indoor unit and the outdoor unit is failure or the cable between the indoor control board to terminal is failure or the cable between the outdoor control board to the terminal is failure; 4. The indoor control board is failure; 5. The outdoor control board is failure. 	<ol style="list-style-type: none"> 1. Reconnect the connection cable refer to the indoor and outdoor wiring diagram; 2. Reconnect the communication cable refer to the indoor and outdoor wiring diagram; 3. Replace the communication cable refer to the indoor and outdoor wiring diagram; 4. Replace the indoor control board; 5. Replace the outdoor control board. 	
72	Indoor fan motor fault	<ol style="list-style-type: none"> 1. The cable of the indoor fan motor connect loose; 2. The cable of the indoor fan motor is failure; 3. The indoor fan motor is failure; 4. The indoor control board is failure. 	<ol style="list-style-type: none"> 1. Reconnect the cable of the fan motor; 2. Replace the cable of the fan motor; 3. Replace the fan motor; 4. Replace the indoor control board; 5. Check the indoor fan and ensure the indoor fan can run normally. 	
73	Indoor EEPROM Data 1 fault	<ol style="list-style-type: none"> 1.Indoor EE components is failure; 2.The control circuit of the EE components is failure; 2.The EE components has been inserted with opposite direction. 	<ol style="list-style-type: none"> 1. Replace the EE components; 2. Replace the indoor control board; 3. Reassembly the EE components of the indoor control board. 	
74	Indoor EEPROM Data 2 error	EE in MCU is failure,the unit can run ,but the function user has set is ineffective.	Replace EE data in MCU.	
81	Indoor ambient Temperature Sensor Fault	<ol style="list-style-type: none"> 1. The cable of the room temperature sensor connect loose; 2. The room temperature sensor is failure; 3. The sampling circuit is abnormally. 	<ol style="list-style-type: none"> 1.Reconnect the cable of the room temperature sensor; 2.Replace the room temperature sensor; 3.Replace the indoor control board. 	

11. TROUBLE SHOOTING

Fault code	Fault Description	Possible Reason of Abnormality	How to Deal With	Remarks
83	Evaporator Middle Temperature Sensor Fault	<ol style="list-style-type: none"> 1.The cable of the coil temperature sensor of the evaporator is failure; 2.The coil temperature sensor of the evaporator is failure; 3.The sampling circuit is abnormally 	<ol style="list-style-type: none"> 1. Reconnect the cable of the coil temperature sensor of the evaporator; 2. Replace the coil temperature sensor of the evaporator; 3. Replace the indoor control board. 	
FE (254)	Communication between main control board &Wiring remote controller Fault (display on wiring remote controller)	<ol style="list-style-type: none"> 1. The wiring between the wiring controller to the indoor control board connect loose; 2. The sequence of the wiring between the wiring controller to the indoor control board is wrong; 3. The wiring between the wiring controller to the indoor control board is failure; 4. The wiring controller is failure; 5. The indoor control board is abnormally 	<ol style="list-style-type: none"> 1.Reconnect the wiring between the wiring controller to the indoor control board; 2.Replace the wiring between the wiring controller to the indoor control board; 3.Replace the wiring between the wiring controller to the indoor control board; 4.Replace the wiring controller; 5.Replace the indoor control board 	
ER	Communication between main control board &display board Fault (displays on display board)	<ol style="list-style-type: none"> 1.The wiring between the display board to the indoor control board connect loose; 2.The sequence of the wiring between the display board to the indoor control board is wrong; 3.The wiring between the display board to the indoor control board is failure; 4.The display board is failure; 5.The indoor control board is failure. 	<ol style="list-style-type: none"> 1. Reconnect the between the display board to the indoor control board; 2. Replace the wiring between the display board to the indoor control board; 3. Replace the wiring between the display board to the indoor control board; 4. Replace the display board; 5. Replace the indoor control board. 	

NOTE 1:

If the indoor unit can not turn on or the indoor unit turn off itself after 30s, at the same time the unit do not display the fault code, please check the fire and the socket of the control board.

NOTE 2:

If the indoor unit display the 75,76,77,78 fault code after you turn on the unit, please check the TEST seat of the indoor control board or the TEST detection circuit whether exists short circuit.

11. TROUBLE SHOOTING

Note 3:Overload in cooling mode

Sheet 3 Overload in cooling mode

overload in cooling mode		
sr.	The root cause	Corrective measure
1	The refrigerant is excessive	Discharge the refrigerant, and recharge the refrigerant refer to the rating label
2	The outdoor ambient temperature is too high	Please use within allowable temperature range
3	The air outlet and air inlet of the outdoor unit is short-circuit	Adjust the installation of the outdoor unit refer to the user manual
4	The outdoor heat exchanger is dirty, such as condenser	Clean the heat exchanger of the outdoor unit, such as condenser
5	The speed of the outdoor fan motor is too low	Check the outdoor fan motor and fan capacitor
6	The outdoor fan is broken or the outdoor fan is blocked	Check the outdoor fan
7	The air inlet and outlet has been blocked	Remove the blocked thing
8	The expansion valve or the capillary is failure	Replace the expansion valve or the capillary

Note 4:Over load in heating mode

Sheet 4 Overload in heating mode

Overload in heating mode		
sr.	The root cause	Corrective measure
1	The refrigerant is excessive	Discharge the refrigerant, and recharge the refrigerant refer to the rating label
2	The indoor ambient temperature is too high	Please use within allowable temperature range
3	The air outlet and air inlet of the indoor unit is short-circuit	Adjust the installation of the indoor unit refer to the user manual
4	The indoor filter is dirty	Clean the indoor filter
5	The speed of the indoor fan motor is too low	Check the indoor fan motor and fan capacitor
6	The indoor fan is broken or the outdoor fan is blocked	Check the indoor fan
7	The air inlet and outlet has been blocked	Remove the blocked thing
8	The expansion valve or the capillary is failure	Replace the expansion valve or the capillary

11. TROUBLE SHOOTING

Sheet 5 DriveFault code(14K/18K)

Fault code	Fault Description	Possible Reason of Abnormality	How to Deal With
1	Inverter DC voltage overload fault	1.Power supply input too high or too low; 2.Driver board fault.	1.Check power supply 2.Change driver board.
2	Inverter DC low voltage fault		
3	Inverter AC current overload fault		
4	Out-of-step detection	1.Compressor phase lost ; 2.Bad driver board components ; 3.The compressor insulation fault	1.Check compressor wire connect ; 2.Change driver board ; 3.Change compressor.
5	Loss phase detection fault (speed pulsation)		
6	Loss phase detection fault (current imbalance)		
7	Inverter IPM fault (edge)	1.System overload or current overload; 2.Driver board fault. 3.Compressor oil shortage, serious wear of crankshaft ; 4.The compressor insulation fault	1.Check the system . 2.Change driver board; 3.Change the compressor; 4.Change the compressor.
8	Inverter IPM fault (level)		
9	PFC_IPM IPM fault (edge)		
10	PFC_IPM IPM fault (level)		
11	PFC power detection of failure	1.The power supply is not stable ; 2.The instantaneous power failure ; 3.Driver board failure.	1.Check the power supply. 2.Not abnormal. 3.Change the driver board.
12	PFC overload current detection of failure.	1.System overload, current too high; 2.Driver board failure ; 3.PFC failure ;	1.Check the system; 2.Change the driver board; 3.Change the PFC.
13	DC voltage detected abnormal .	1.Input voltage is too high or too low; 2.Driver board failure ;	1.Check the power supply. 2.Change the driver board;
14	PFC LOW voltage detected failure.		
15	AD offset abnormal detected failure.	Driver board failure.	Change the driver board.
16	Inverter PWM logic set fault.		
17	Inverter PWM initialization failure		
18	PFC_PWM logic set fault.		
19	PFC_PWM initialization fault.		
20	Temperature abnormal.		
21	Shunt resistance unbalance adjustment fault		
22	Communication failure.	1.Communication wire connect not well. 2.Driver board failure. 3.Control board failure.	1.Check the wiring. 2.Change the driver board. 3.Change the control board.
23	Motor parameters setting of failure	Initialization abnormal.	Reset the power supply.
33	EE data abnormal	Driver board EEPROM abnormal	1.Change EEPROM ; 2.Change driver board.
26	DC voltage mutation error	1.Power input changes suddenly 2.Driver board failure	1.Check power supply , to provide stable power supply ; 2.Change driver board.
27	D axis current control error	1.System overload , phase current is too high; 2.Driver board failure	1.Check system if normally. 2.Check stop valve if is open; 3.Change driver board.
28	q axis current control error	1.System overload , phase current is too high ; 2.Driver board failure	1.Check system if normally. 2.Check stop valve if is open; 3.Change driver board.
29	Saturation error of d axis current control integral	1. System overload suddenly; 2. Compressor parameter not suitable; 3. Driver board failure	1.Check system if normally. 2.Check stop valve if is open; 3.Change driver board.
30	Saturation error of q axis current control integral	1. System overload suddenly; 2. Compressor parameter not suitable; 3. Driver board failure	1.Check system if normally. 2.Check stop valve if is open; 3.Change driver board.

11 TROUBLE SHOOTING

Sheet 6 Drive Fault code (24K/27K/36K)

Fault code	Fault Description	Possible Reason of Abnormality	How to Deal With
1	Q axis current detection, step out of failure	1. compressor wire connect not well; 2. Bad driver board components; 3. Compressor start load is too large; 4. Compressor demagnetization; 5. Compressor oil shortage, serious wear of crankshaft.; 6. The compressor insulation fault	1. Check compressor wire; 2. Change driver board ; 3. Turn on the machine after pressure balance again; 4. Change Compressor; 5. Change the Compressor; 6. Change the Compressor.
2	Phase current detection, out of step	1.Compressor voltage default phase; 2.Bad driver board components; 3.The compressor insulation fault	1.Check compressor wire connection; 2.Change the driver board; 3.Change the Compressor.
3	Initialization, phase current imbalance	Bad driver board components.	Change driver board .
4	Speed estimation, step out of failure	1.Bad driver board components; 2.Compressor shaft clamping; 3.The compressor insulation fault.	1.Change driver board ; 2.Change the Compressor ; 3.Change the Compressor .
5	IPM FO output fault	1.System overload or current overload. 2.Driver board fault; 3.Compressor oil shortage,serious wear of crankshaft; 4.The compressor insulation fault.	1.Check the air-conditioner system; 2.Change the driver board; 3.Change the Compressor; 4.Change the Compressor.
6	Communication between driver board and control board fault	1.Communication wire connect not well; 2.Driver board fault; 3.Control board fault;	1.Check compressor wire connect. 2.Change the driver board; 3.Change the control board ;
7	AC voltage,overload voltage	1.Supply voltage input too high or too low; 2.Driver board fault;	1.Check power supply; 2.Change the driver board;
8	DC voltage,overload voltage	1.Supply voltage input too high ; 2.Driver board fault;	1.Check power supply; 2.Change the driver board;
9	AC voltage imbalance	Driver board fault;	Change the driver board;
10	The PFC current detection circuit fault before compressor is ON	Bad driver board components;	Change the driver board
11	AC voltage supply in outrange	1.Power supply abnormal, power frequency out of range; 2.Driver board fault;	1.Check the system; 2.Change the driver board;
12	Products of single-phase PFC over-current, FO output low level	1.System overload, current too large; 2.Driver board fault; 3.PFC fault.	1.Check the system; 2.Change the driver board; 3.Change PFC.
	Inverter over current (3-phase power supply air conditioners)	1.System overload, current too large; 2.Driver board fault; 3.Compressor oil shortage, serious wear of crankshaft; 4.The compressor insulation fault.	1.Check the system; 2.Change the driver board; 3.Change the Compressor; 4.Change the Compressor.
13	Inverter over current	1.System overload, current too large; 2.Driver board fault; 3.Compressor oil shortage,serious wear of crankshaft; 4.The compressor insulation fault.	1.Check the system; 2.Change the driver board; 3.Change the Compressor; 4.Change the Compressor.
14	PFC over current(single-phase air-conditioner)	1.System overload, current too large; 2.Driver board fault; 3.PFC fault.	1.Check the system; 2.Change the driver board; 3.Change PFC.
	Phase imbalance or phase lacks or the instantaneous power failure (only for 3-phase power supply air conditioners)	1.3-Phase voltage imbalance; 2.The 3-phase power supply phase lost; 3.Power supply wiring wrong; 4.Driver board fault.	1,Check the power supply; 2.Check the power supply; 3.Check the power supply wiring connect; 4.Change the driver board.
15	The instantaneous power failure detection	1.The power supply is not stable ; 2.The instantaneous power failure ; 3.Driver board fault;	1.Check the power supply. 2.Not fault. 3.Change the driver board;

11. TROUBLE SHOOTING

Fault code	Fault Description	Possible Reason of Abnormality	How to Deal With
16	Low DC voltage 200V	1.Voltage input too low ; 2.Driver board fault.	1.Check the power supply. 2.Change the driver board.
18	Driver board read EE data error	1.EEPROM has no data or data error; 2.EEPROM circuit fault.	1,Change EEPROM component; 2,Change the driver board.
19	PFC chip receive data fault	Abnormal communication loop	Change the drive board.
20	PFC soft start abnormal	Abnormal PFC drive loop	Change the drive board.
21	The compressor drive chip could not receive data from PFC chip.	Communication loop fault.	Change the drive board.

12.CHECKING COMPONENTS

12.Checking components

12.1 Check refrigerant system

TEST SYSTEM FLOW

Conditions: ① Compressor is running.

② The air condition should be installed in good ventilation.

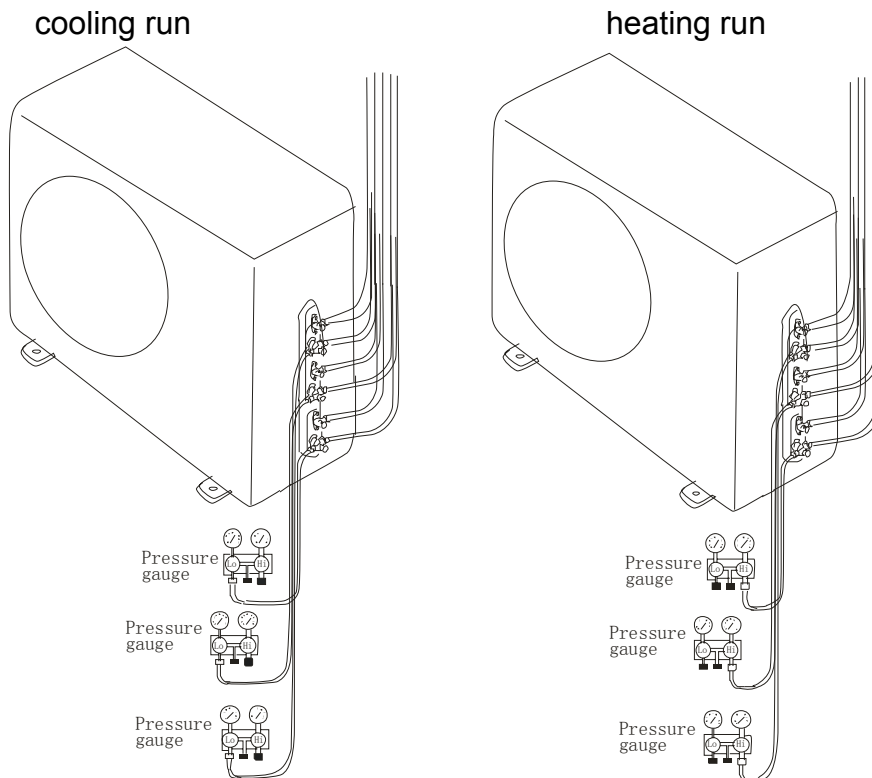
Tool: Pressure Gauge

Technique: ① see ② feel ③ test

SEE ----- Tube defrost.

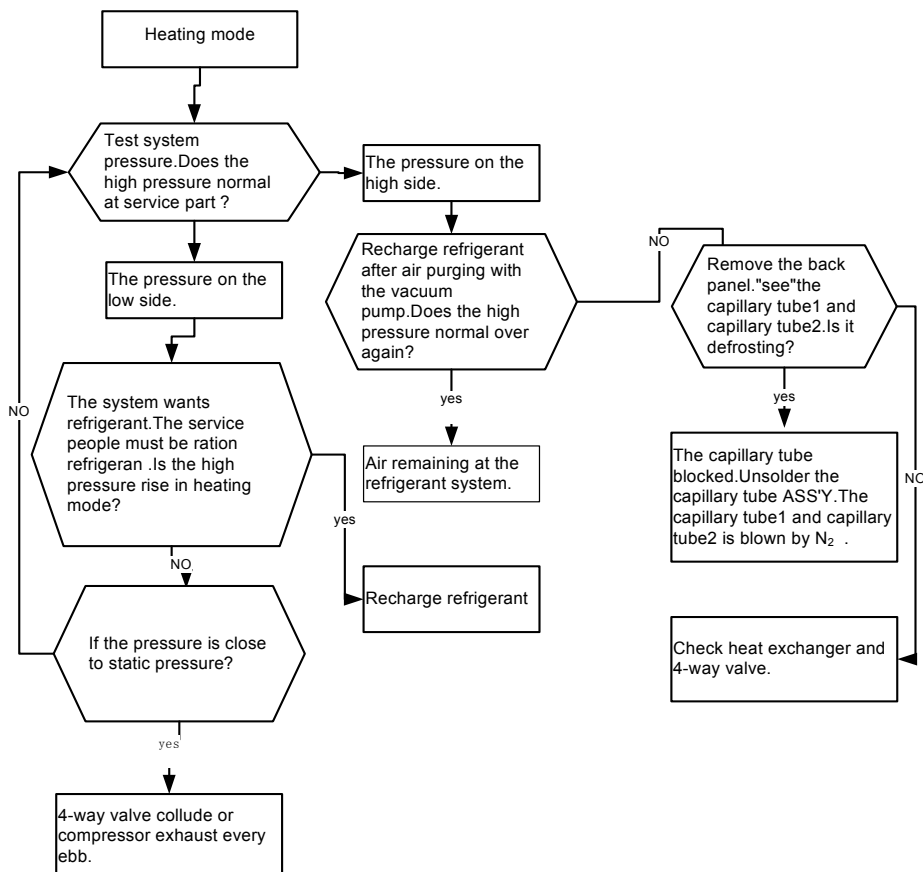
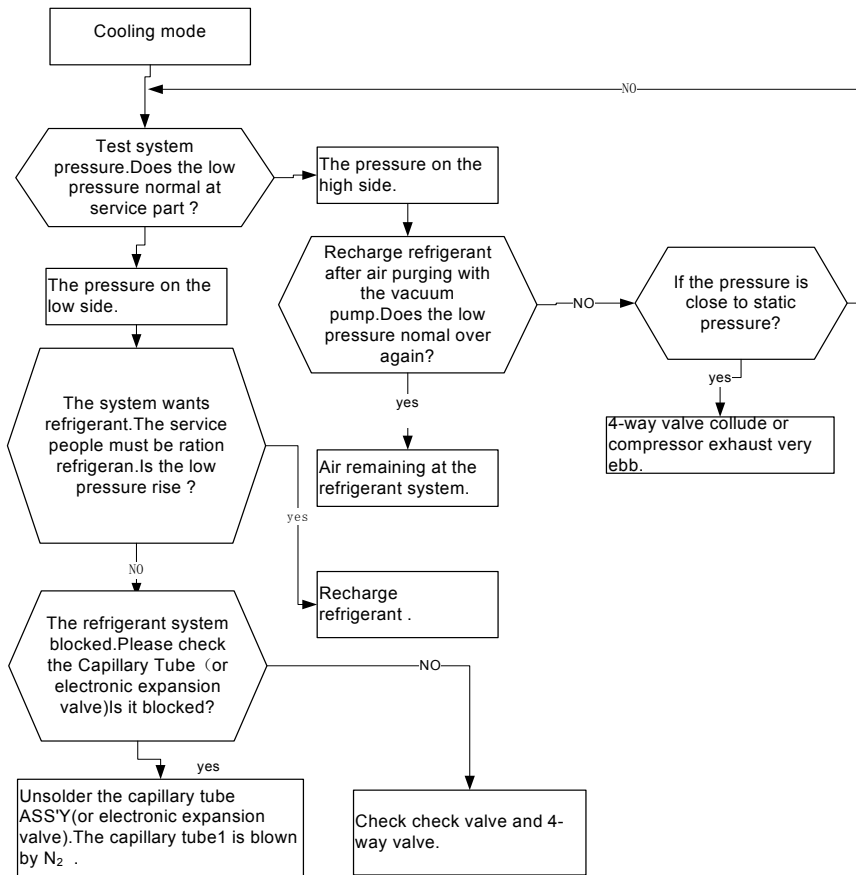
FEEL ----- The difference between tube's temperature.

TEST ----- Test pressure.



12.CHECKING COMPONENTS

Test system flow



12.CHECKING COMPONENTS

12.2 Check parts unit

1.Fan motor

DC motor

14K

MODEL:SIC-52FV-F130-3

18K

MODEL:ZWA228D44B

24K

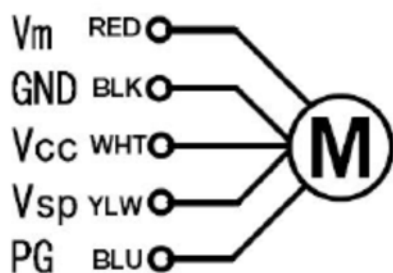
MODEL: SIC-71FW-D8121-1

27K

MODEL: SIC-71FW-D8121-1

36K

MODEL: SIC-71FW-D8121-1



3. COMPRESSOR

COMPRESSOR EXAMINE AND
REPAIR 14K:

Model: GSD113RKRA8JV6

18K:

Model: KTN150D42UFZ

24K

Model: KTF235D22UMT

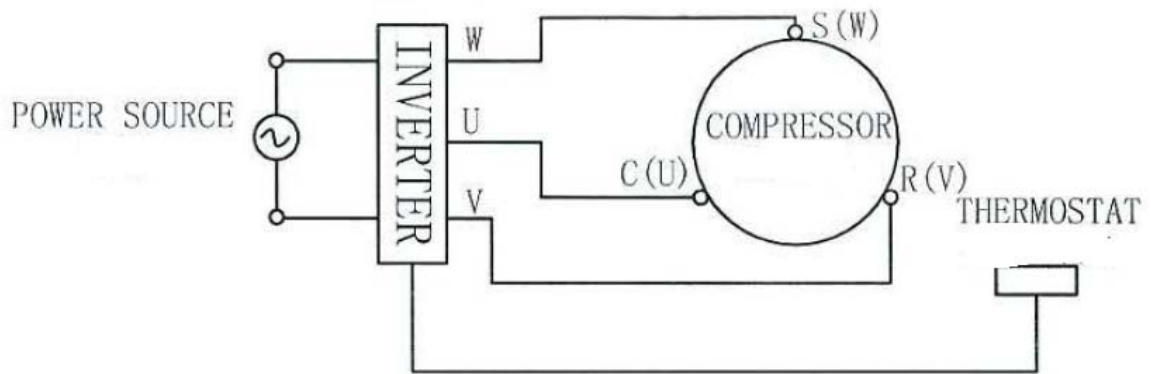
27K

Model: KTF235D22UMT

36K

Model: KTF235D22UMT

12.CHECKING COMPONENTS



Test in resistance.

TOOL: Multimeter.

Test the resistance of the winding. The compressor is fault if the resistance of winding 0(short circuit)or ∞ (open circuit)

Familiar error:

- 1)Compressor motor lock.
- 2)Discharge pressure value approaches static pressure value .
- 3)Compressor motor winding abnormality.

Notes:

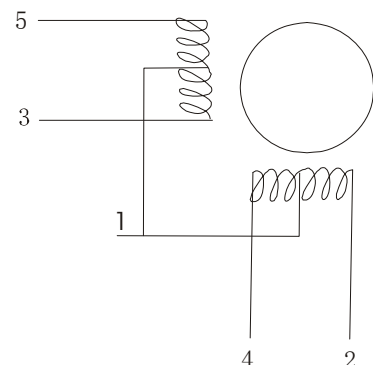
- 1) Don't put a compressor on its side or turn over.
- 2) Please assembly the compressor in your air conditioner rapidly after removing the plugs. Don't place the comp. In air for along time.
- 3) Avoiding compressor running in reverse caused by connecting electrical wire incorrectly.
- 4) Warning! In case AC voltage is impressed to compressor, the compressor performance will below because of its rotor magnetic force decreasing.

4. INDUCTANCE

Familiar error:

- 1)Sound abnormality
- 2)Insulation resistance disqualification.

5. STEP MOTOR



Test in resistance.

12.CHECKING COMPONENTS

TOOL: Multimeter.

Test the resistance of winding. The stepper motor is fault if the resistance of winding 0(short circuit)or ∞ (open circuit) .

6. FUSE

Checking continuity of fuse on PCB ASS'Y.

- 1) Remove the PCB ASS'Y from the electrical component box. Then pull out the fuse from the PCB ASS'Y (Fig.1)

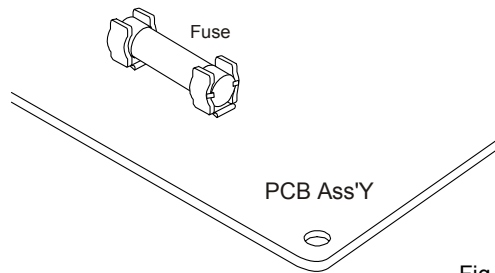


Fig.1

- 2) Check for continuity by a multimeter as shown in Fig.2.

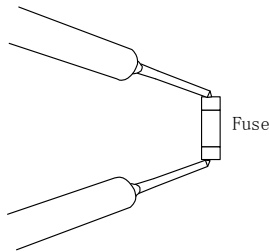


Fig.2

7.CAPACITOR

- 1) Remove the lead wires from the capacitor terminals, and then place a probe on the capacitor terminals as shown in Fig.3.
- 2) Observe the deflection of the pointer, setting the resistance measuring range of the multimeter to the maximum value.
- 3) The capacitor is "good" if the pointer bounces to a great extent and then gradually returns to its original position.
- 4) The range of deflection and deflection time differ according to the capacity of the capacitor.

12.CHECKING COMPONENTS

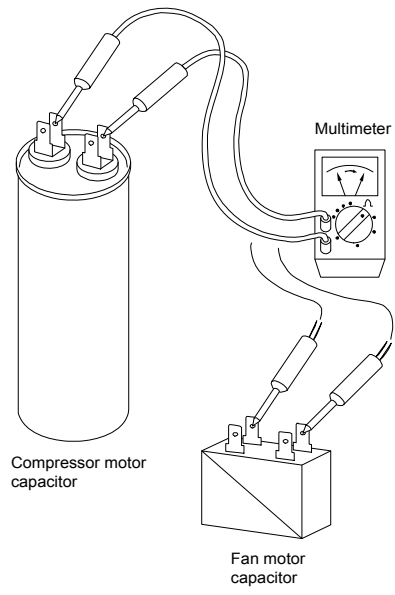


Fig.3

Hisense