

TECHNICAL & SERVICE MANUAL V2.0

Factory model:

Duct type

AUD-30UX4RKSH1

AUD-36UX4RKSH1

AUD-42UX4RHS1

AUD-48UX4RHS1

AUD-60UX4RHS1

AU Model#:

Duct type

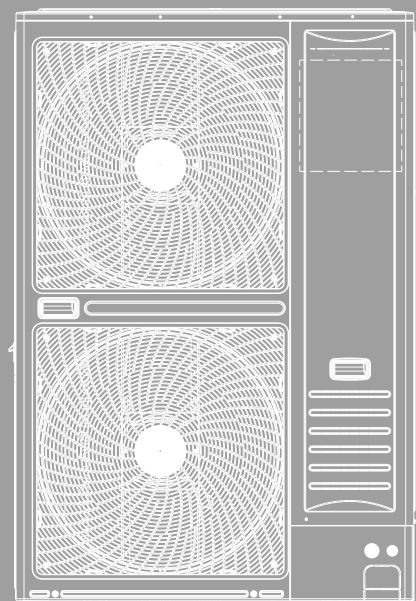
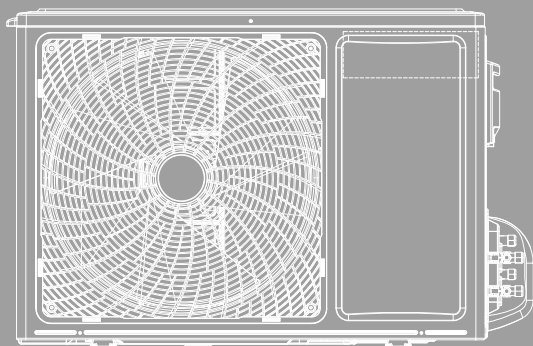
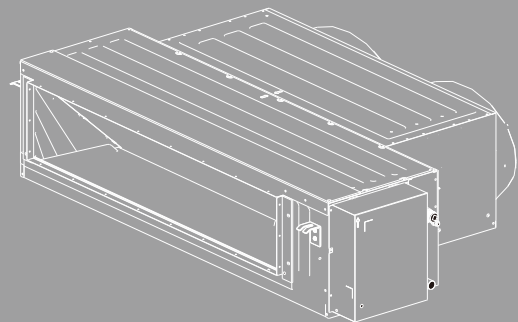
AUD-85UX4RKSH1

AUD-100UX4RKSH1

AUD-125UX4RHS1

AUD-140UX4RHS1

AUD-160UX4RHS1



SAFETY SUMMARY

IMPORTANT NOTICE

- We pursue a policy of continuing improvement in design and performance of products. The right is therefore reserved to vary specifications without notice.
- We cannot anticipate every possible circumstance that might involve a potential hazard.
- This air conditioner is designed for standard air conditioning only. Do not use this air conditioner for other purposes such as drying clothes, refrigerating foods or for any other cooling or heating process. Do not let the air-out face animals or plants, it might have an adverse effect on them.
- The installer and system specialist shall secure safety against leakage according to local regulations or standards.
- Signal words (DANGER, WARNING and CAUTION) are used to identify levels of hazard seriousness. Definitions for identifying hazard levels are provided below with their respective signal words.

▲ DANGER

: Immediate hazards which WILL result in severe personal injury or death.

▲ WARNING

: Hazards or unsafe practices which COULD result in severe personal injury or death.

▲ CAUTION

: Hazards or unsafe practices which COULD result in minor personal injury or product or property damage.

NOTE

: Useful information for operation and/or maintenance.

- Installation should be performed by the dealer or other professional personnels. Improper installation may cause water leakage, electrical shock, or fire.

▲ DANGER

- Do not perform installation work, refrigerant piping work, drain piping and electrical wiring connection without referring to our installation manual. If the instructions are not followed, it may result in a water leakage, electric shock or a fire.
- Use refrigerant R32 in the refrigerant cycle.
- Do not pour water into the indoor or outdoor unit. These products are equipped with electrical parts. If poured, it will cause a serious electric shock.
- Do not open the service cover or access panel for the indoor or outdoor units without turning OFF the main power supply.
- Do not touch or adjust safety devices inside the indoor or outdoor units. If these devices are touched or readjusted, it may cause a serious accident.
- Refrigerant leakage can cause difficulty with breathing due to insufficient air. Turn OFF the main switch, extinguish any naked flames and contact your service contractor, if refrigerant leakage occurs.
- Do perform air-tight test. Do not charge oxygen, acetylene or other flammable and poisonous gas into the refrigerant cycle when performing a leakage test or an air-tight test. These types of gas are extremely dangerous and can cause an explosion. It is recommended that nitrogen be used for this test.
- The installer and system specialist shall secure safety against refrigerant leakage according to local regulations or standards.
- Use an ELB (Electric Leakage Breaker). In the event of a fault, there is danger of an electric shock or a fire if it is not used.

▲ WARNING

- Do not use any sprays such as insecticide, lacquer, hair spray or other flammable gas within approximately one (1) meter from the system.

- If circuit breaker or fuse is often activated, stop the system and contact your service contractor.
- Check that the ground wire is securely connected. If the unit is not correctly grounded, it will cause an electric shock. Do not connect the ground wiring to gas piping, water piping, lightning conductor or ground wiring for telephone.
- Before performing any brazing work, check to ensure that there is no flammable material around. When using refrigerant be sure to wear leather gloves to prevent cold injuries.
- Protect the wires, electrical parts, etc. from rats or other small animals. If not protected, rats may gnaw at unprotected parts and which may lead to a fire.
- Fix the cables securely. External forces on the terminals could lead to a fire.
- Install the air conditioner on a solid base that can support the unit weight. An inadequate base or incomplete installation may cause injury in the event the unit falls off the base. Incomplete connections or clamping may cause terminal overheating or fire.
- Make sure that the outdoor unit is not covered with snow or ice, before operation.

⚠ CAUTION

- Do not step or put any material on the product.
- Do not put any foreign material on the unit or inside the unit.

NOTE

- It is recommended that the room be ventilated every 3 to 4 hours.
- The air conditioner may not work properly under the following circumstances. The power transformer provides the same power with the air conditioner. The electrical equipment is too close to the power supply of the air conditioner. With the sharp change of power consumption and switching action, the power supply of the air conditioner will generate a large induction surge voltage.

CHECKING PRODUCT RECEIVED

- Upon receiving this product, inspect it for any shipping damage. Claims for damage, either apparent or concealed, should be filed immediately with the shipping company.
- Check the model number, electrical characteristics (power supply, voltage and frequency) and accessories to determine if they are correct.

The standard utilization of the unit shall be explained in these instructions.

Therefore, the utilization of the unit other than those indicated in these instructions is not recommended.

Please contact your local agent, as the occasion arises.

NOTE:

- The figures in this manual are based on the external view of a standard model. Consequently, the shape may differ from that of the air conditioner you have selected.
- Heating and electric heating function are not available in single cooling only models.

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1. GENERAL

1. General

1.1 Features

Duct Type Air Conditioner



Features

- **Saving Installation Space**
The indoor unit can be installed inside the ceiling conveniently.
- **Optional Static Pressure**
Optional ESP, a variety of optional installation methods.
- **24-hour Timer ON and OFF**
This Timer can be set to automatically turn the unit on or off within a 24-hour period.
- **Mute Operation**
The excellent fan design enables smooth airflow with minimum noise.
- **Meeting Various Installation Requirements**
The back-air-inlet type should be adopted according to the actual installation space. The unit is also installed with down-air-inlet type and the noise will increase by 5-6dB.
- **Auto re-start from Power Break**
When the power supply is recovered after power break, all presets are still effective and the air-conditioner will run according to the previous setting.
- **Fault Self-diagnosis Function**
When there is a problem in the air-conditioner, the microcomputer could diagnose the faults, which can be read from the display and is convenient for maintenance.

1. GENERAL

1.2 Product lineup

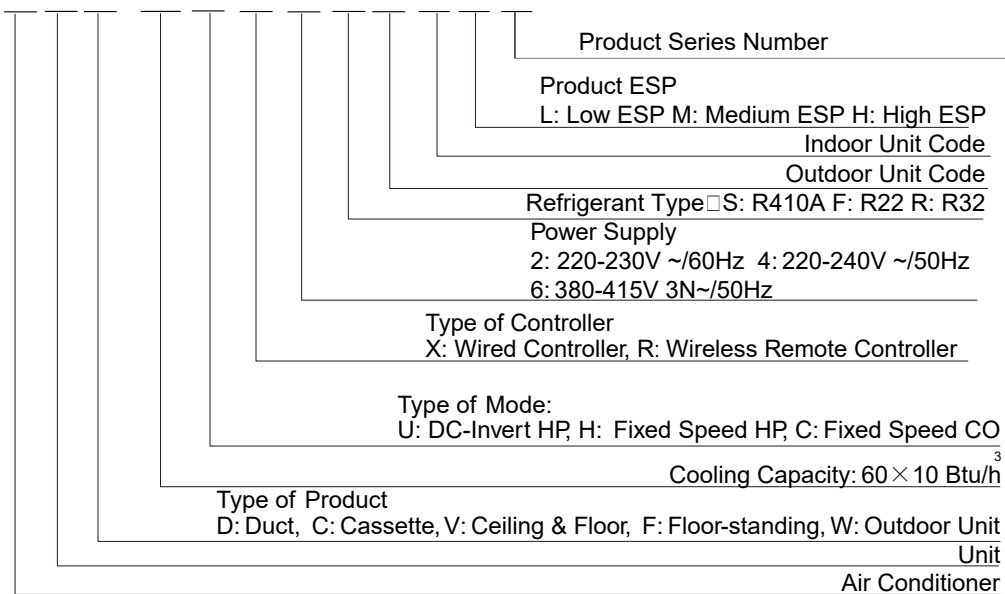
Type \ Model (Btu/h)	30K	36K	42K	48K	60K
Duct Type	●	●	●	●	●

●: available model
○: in development

AUD-60UX4RSH1

1.3 Nomenclature

A U D - 6 0 U X 4 R H S H 1



1.4 Unit installation

1:1 system is the only compatible combination.
(Only one indoor unit can be connected with one outdoor unit.)

1. GENERAL

1.5 Working range

Power supply

Working Voltage	176V ~ 253V
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 air conditioner is designed for the following outdoor operating temperatures.

Model	Mode	Outdoor operation temperature range (°C)	
		Maximum	Minimum
30K/36K	Cooling Operation	46	-10
	Heating Operation	24	-15
42K/48K/60K	Cooling Operation	50	-10
	Heating Operation	24	-15




Storage condition: Temperature -25°C~60°C

Humidity 30%~80%

1. GENERAL

1.6 Product appearance

Duct Type

Model (Heating Pump)	Indoor Unit	Outdoor Unit
30K/36K	 A long, low-profile, light grey ducted indoor unit with a black grille on the front.	 A compact, light grey outdoor unit with a single large fan and a Hisense logo on the right side.
42K/48K/60K	 A long, low-profile, light grey ducted indoor unit, similar in design to the 30K/36K model but longer.	 A taller, light grey outdoor unit with two fans stacked vertically and a Hisense logo on the right side.

2. OUTLINES AND DIMENSIONS

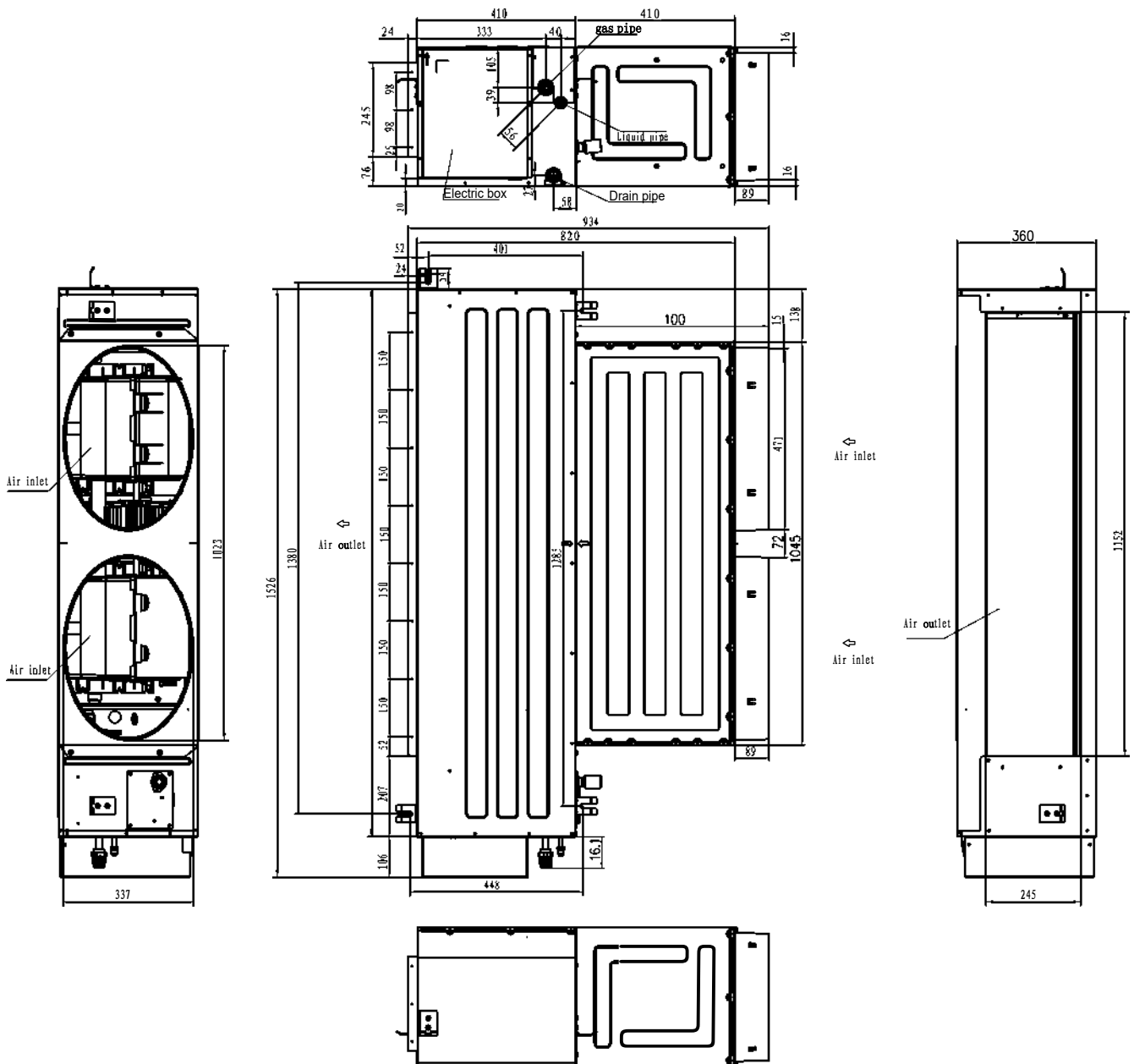
2. Outlines and dimensions

2.1 Indoor units

Duct Type

30K/36K/42K/48K/60K

Unit: mm

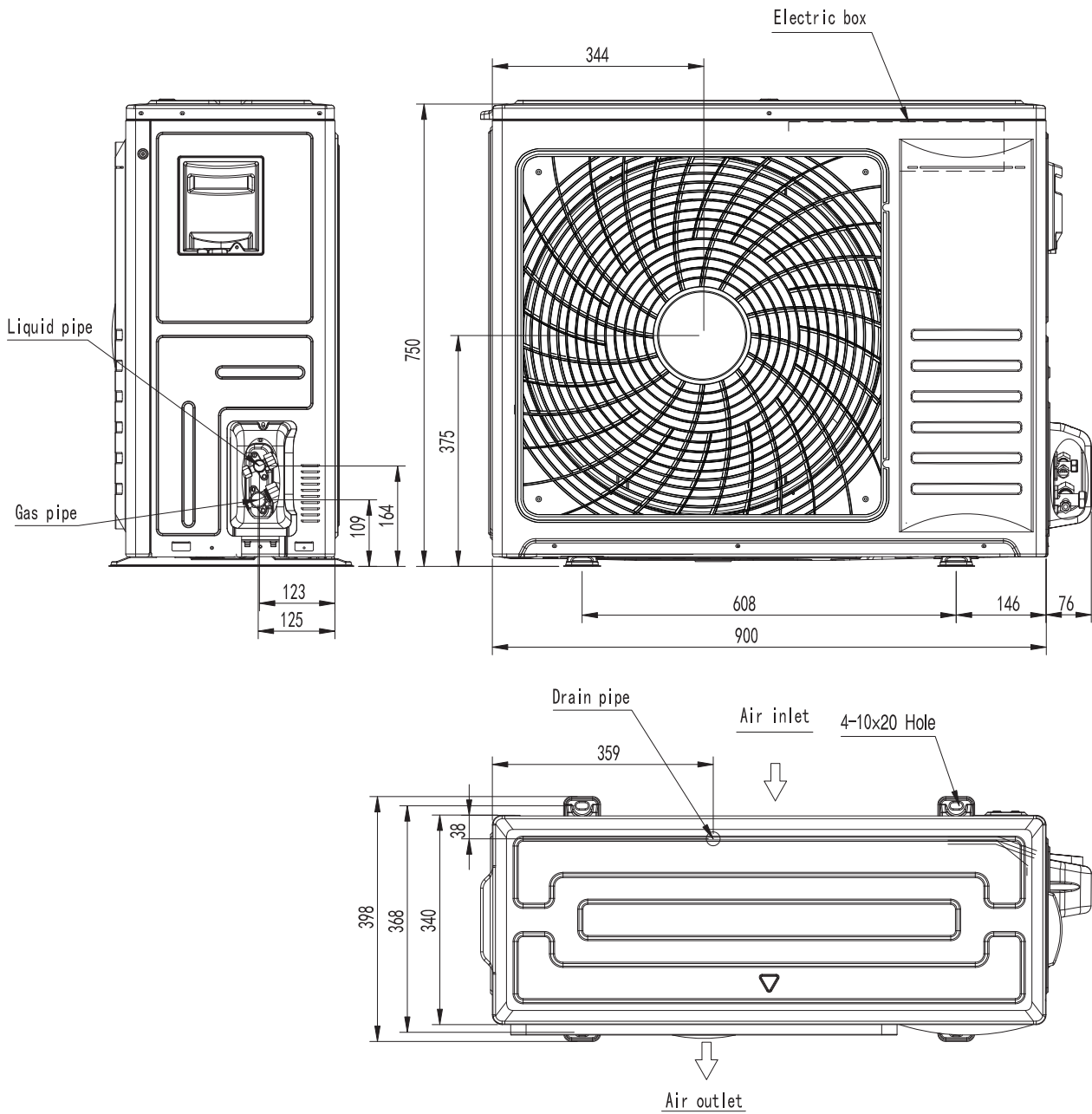


2. OUTLINES AND DIMENSIONS

2.2 Outdoor units

Unit: mm

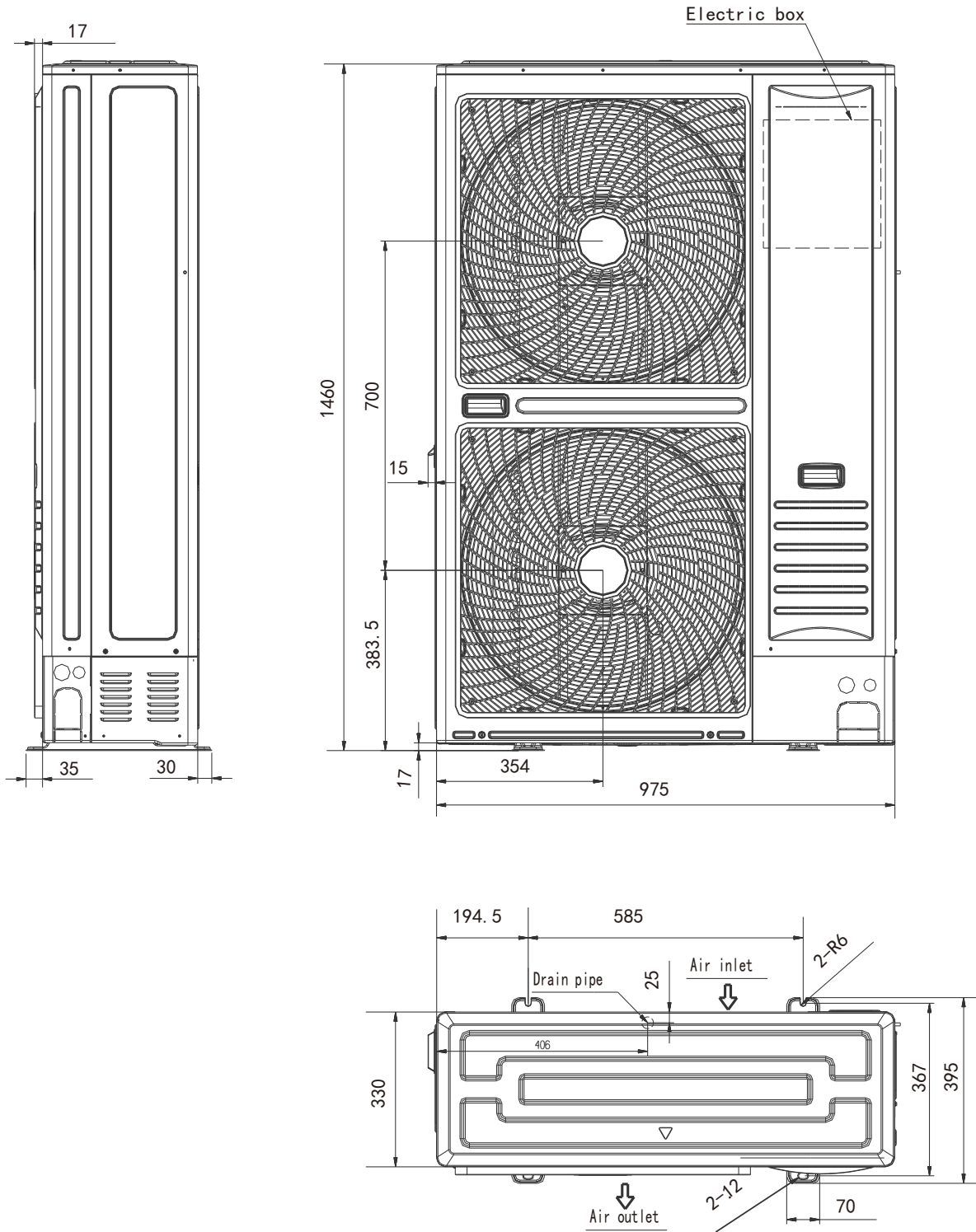
30K/36K



2. OUTLINES AND DIMENSIONS

Unit: mm

42K/48K/60K



3. ELECTRICAL DATA

3. Electrical data

Model Capacity	Power Supply	ELB		Power Source Cable Size	Transmitting Cable Size	Circuit Breaker (A)
		Nominal Current (A)	Nominal Sensitive Current (mA)	IEC60335-1*1	IEC60335-1*1	
30K/36K	220-240V~/50Hz	32	30	3×2.5mm ²	4×1.5mm ²	32
42K/48K/60K	220-240V~/50Hz	40	30	3×6.0mm ²	4×1.5mm ²	40

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.

4. CAPACITIES AND SELECTION DATA

4. Capacities and selection data

4.1 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(30K/36K)/0m
7.5m(48-60K)/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.

4. CAPACITIES AND SELECTION DATA

PERFORMANCE DATA (Heating Operation at Rated Frequency)																
AUD-30UX4RKSH1																
CAPACITY: 10.00 kW INPUT: 2600 W																
INDOOR DB(°C)	OUTDOOR DB(°C)															
	-15		-10		-5		0		5		10		15		20	
	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT
10	7.50	2149	8.80	2187	10.89	2239	11.00	2303	11.12	2357	11.25	2521	11.37	2599	11.50	2652
12	7.27	2191	8.57	2234	10.35	2286	10.77	2345	10.89	2399	11.02	2558	11.14	2637	11.27	2695
14	7.04	2233	8.34	2282	9.34	2334	10.54	2388	10.66	2441	10.79	2595	10.91	2675	11.04	2738
16	6.81	2276	8.11	2328	9.11	2380	10.31	2432	10.43	2484	10.56	2634	10.68	2712	10.81	2779
18	6.58	2318	7.88	2375	8.88	2427	9.90	2475	10.00	2526	10.33	2672	10.45	2750	10.58	2821
20	6.35	2360	7.65	2422	8.65	2474	9.85	2517	9.97	2568	10.28	2709	10.22	2787	10.35	2864
22	6.12	2402	7.42	2469	8.42	2521	9.62	2560	9.74	2610	9.87	2746	10.09	2825	10.12	2906
24	5.89	2444	7.19	2516	8.19	2568	9.39	2603	9.51	2652	9.64	2783	9.76	2863	9.89	2949
26	5.66	2486	6.96	2563	7.96	2615	9.16	2646	9.28	2695	9.41	2820	9.53	2901	9.66	2991
28	5.43	2528	6.73	2611	7.73	2663	8.93	2688	9.05	2737	9.18	2857	9.30	2939	9.43	3033
30	5.20	2570	6.50	2658	7.50	2710	8.70	2731	8.82	2779	8.95	2895	9.07	2976	9.20	3076

(°C DB) : Dry Bulb Temperature
 (°C WB) : Wet Bulb Temperature
 Q: Total Capacity (Btu/h)
 SHC: Sensible Heat Capacity(Btu/h)
 SHF: Sensible Heat Factor
 IPT: Input Power(W)

4. CAPACITIES AND SELECTION DATA

PERFORMANCE DATA (Heating Operation at Rated Frequency)																
AUD-36UX4RKSH1																
CAPACITY: 11.00 kW INPUT: 2895 W																
INDOOR DB(°C)	OUTDOOR DB(°C)															
	-15		-10		-5		0		5		10		15		20	
	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT
10	8.25	2393	9.68	2435	11.98	2493	12.10	2564	12.23	2625	12.38	2808	12.51	2894	12.65	2953
12	8.00	2440	9.43	2488	11.39	2546	11.85	2612	11.98	2672	12.12	2849	12.25	2936	12.40	3001
14	7.74	2487	9.17	2541	10.27	2599	11.59	2659	11.73	2718	11.87	2890	12.00	2979	12.14	3048
16	7.49	2534	8.92	2592	10.02	2650	11.34	2708	11.47	2766	11.62	2933	11.75	3019	11.89	3094
18	7.24	2581	8.67	2644	9.77	2702	10.89	2755	11.00	2813	11.36	2975	11.50	3062	11.64	3141
20	6.99	2628	8.42	2697	9.52	2755	10.84	2803	10.97	2860	11.31	3016	11.24	3104	11.39	3189
22	6.73	2674	8.16	2749	9.26	2807	10.58	2851	10.71	2907	10.86	3057	11.10	3146	11.13	3236
24	6.48	2721	7.91	2802	9.01	2860	10.33	2898	10.46	2953	10.60	3099	10.74	3188	10.88	3283
26	6.23	2768	7.66	2854	8.76	2912	10.08	2946	10.21	3000	10.35	3140	10.48	3230	10.63	3330
28	5.97	2815	7.40	2907	8.50	2965	9.82	2994	9.96	3047	10.10	3182	10.23	3272	10.37	3378
30	5.72	2862	7.15	2959	8.25	3017	9.57	3041	9.70	3094	9.85	3223	9.98	3314	10.12	3425

(°C DB) : Dry Bulb Temperature
 (°C WB) : Wet Bulb Temperature
 Q: Total Capacity (Btu/h)
 SHC: Sensible Heat Capacity(Btu/h)
 SHF: Sensible Heat Factor
 IPT: Input Power(W)

4. CAPACITIES AND SELECTION DATA

PERFORMANCE DATA (Heating Operation at Rated Frequency)																
AUD-42UX4RHS1																
CAPACITY: 15.50 kW INPUT: 3780 W																
INDOOR DB(°C)	OUTDOOR DB(°C)															
	-15		-10		-5		0		5		10		15		20	
	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT
10	11.63	3125	13.64	3180	16.88	3255	17.05	3348	17.24	3427	17.44	3666	17.62	3779	17.83	3856
12	11.27	3186	13.28	3249	16.04	3324	16.69	3410	16.88	3488	17.08	3720	17.27	3834	17.47	3918
14	10.91	3247	12.93	3317	14.48	3393	16.34	3472	16.52	3549	16.72	3773	16.91	3889	17.11	3980
16	10.56	3308	12.57	3384	14.12	3460	15.98	3535	16.17	3611	16.37	3830	16.55	3943	16.76	4040
18	10.20	3369	12.21	3453	13.76	3528	15.35	3598	15.50	3672	16.01	3884	16.20	3997	16.40	4102
20	9.84	3431	11.86	3521	13.41	3597	15.27	3660	15.45	3734	15.93	3938	15.84	4052	16.04	4163
22	9.49	3492	11.50	3590	13.05	3665	14.91	3722	15.10	3795	15.30	3992	15.64	4107	15.69	4225
24	9.13	3553	11.14	3658	12.69	3734	14.55	3784	14.74	3856	14.94	4046	15.13	4162	15.33	4287
26	8.77	3614	10.79	3727	12.34	3802	14.20	3846	14.38	3918	14.59	4100	14.77	4217	14.97	4348
28	8.42	3676	10.43	3795	11.98	3871	13.84	3909	14.03	3979	14.23	4154	14.42	4272	14.62	4410
30	8.06	3737	10.08	3864	11.63	3940	13.49	3971	13.67	4040	13.87	4208	14.06	4327	14.26	4472

(°C DB) : Dry Bulb Temperature
 (°C WB) : Wet Bulb Temperature
 Q: Total Capacity (Btu/h)
 SHC: Sensible Heat Capacity(Btu/h)
 SHF: Sensible Heat Factor
 IPT: Input Power(W)

4. CAPACITIES AND SELECTION DATA

PERFORMANCE DATA (Heating Operation at Rated Frequency)																
AUD-48UX4RHS1																
CAPACITY: 17.00 kW INPUT: 4250 W																
INDOOR DB(°C)	OUTDOOR DB(°C)															
	-15		-10		-5		0		5		10		15		20	
	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT
10	12.75	3513	14.96	3575	18.51	3660	18.70	3764	18.90	3853	19.13	4122	19.33	4249	19.55	4335
12	12.36	3582	14.57	3652	17.60	3737	18.31	3834	18.51	3922	18.73	4182	18.94	4311	19.16	4405
14	11.97	3651	14.18	3730	15.88	3815	17.92	3904	18.12	3991	18.34	4242	18.55	4373	18.77	4475
16	11.58	3720	13.79	3805	15.49	3890	17.53	3975	17.73	4060	17.95	4306	18.16	4433	18.38	4542
18	11.19	3788	13.40	3882	15.10	3967	16.83	4045	17.00	4129	17.56	4367	17.77	4495	17.99	4611
20	10.80	3857	13.01	3959	14.71	4044	16.75	4115	16.95	4198	17.48	4428	17.37	4556	17.60	4681
22	10.40	3926	12.61	4036	14.31	4121	16.35	4185	16.56	4267	16.78	4489	17.15	4618	17.20	4750
24	10.01	3995	12.22	4113	13.92	4198	15.96	4255	16.17	4336	16.39	4549	16.59	4680	16.81	4820
26	9.62	4064	11.83	4190	13.53	4275	15.57	4325	15.78	4405	16.00	4610	16.20	4742	16.42	4889
28	9.23	4133	11.44	4267	13.14	4352	15.18	4395	15.39	4474	15.61	4671	15.81	4803	16.03	4958
30	8.84	4202	11.05	4344	12.75	4429	14.79	4465	14.99	4543	15.22	4732	15.42	4865	15.64	5028

(°C DB) : Dry Bulb Temperature
 (°C WB) : Wet Bulb Temperature
 Q: Total Capacity (Btu/h)
 SHC: Sensible Heat Capacity(Btu/h)
 SHF: Sensible Heat Factor
 IPT: Input Power(W)

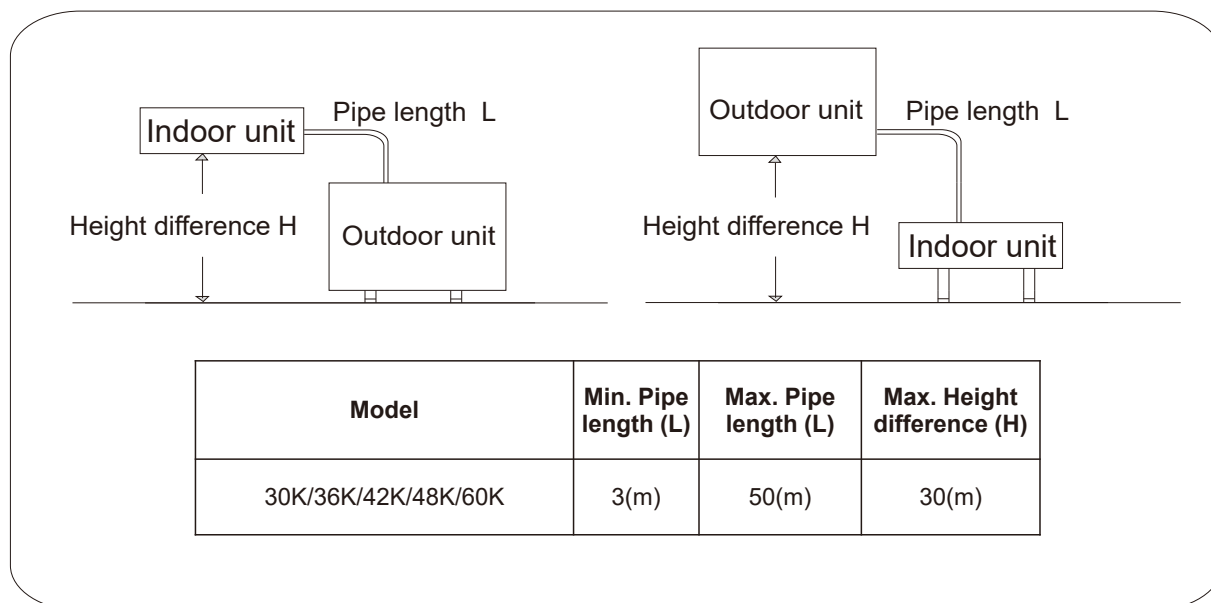
4. CAPACITIES AND SELECTION DATA

PERFORMANCE DATA (Heating Operation at Rated Frequency)																
AUD-60UX4RHS1																
CAPACITY: 18.90 kW INPUT: 4870W																
INDOOR DB(°C)	OUTDOOR DB(°C)															
	-15		-10		-5		0		5		10		15		20	
	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT
10	14.18	4026	16.63	4097	20.58	4194	20.79	4313	21.02	4415	21.26	4723	21.49	4869	21.74	4968
12	13.74	4104	16.20	4185	19.56	4283	20.36	4393	20.58	4494	20.83	4792	21.05	4940	21.30	5048
14	13.31	4183	15.76	4274	17.65	4371	19.92	4473	20.15	4573	20.39	4861	20.62	5011	20.87	5128
16	12.87	4262	15.33	4360	17.22	4457	19.49	4555	19.71	4652	19.96	4934	20.19	5079	20.43	5205
18	12.44	4341	14.89	4448	16.78	4546	18.71	4635	18.90	4731	19.52	5004	19.75	5150	20.00	5284
20	12.00	4420	14.46	4537	16.35	4634	18.62	4715	18.84	4810	19.43	5074	19.32	5221	19.56	5364
22	11.57	4499	14.02	4625	15.91	4722	18.18	4795	18.41	4889	18.65	5143	19.07	5292	19.13	5443
24	11.13	4578	13.59	4713	15.48	4811	17.75	4875	17.97	4968	18.22	5213	18.45	5363	18.69	5523
26	10.70	4657	13.15	4802	15.04	4899	17.31	4956	17.54	5047	17.78	5283	18.01	5433	18.26	5602
28	10.26	4736	12.72	4890	14.61	4987	16.88	5036	17.10	5126	17.35	5352	17.58	5504	17.82	5682
30	9.83	4814	12.29	4978	14.18	5076	16.44	5116	16.67	5205	16.92	5422	17.14	5575	17.39	5761

(°C DB) : Dry Bulb Temperature
 (°C WB) : Wet Bulb Temperature
 Q: Total Capacity (Btu/h)
 SHC: Sensible Heat Capacity(Btu/h)
 SHF: Sensible Heat Factor
 IPT: Input Power(W)

4. CAPACITIES AND SELECTION DATA

4.2 Piping length correction factor



Additional Refrigerant Charge

The unit has been filled with refrigerant.

The outdoor unit is pre-charged with refrigerant to accommodate a total piping length of 5m(30K/36K) or 7.5m(42K/48K/60K). Additional refrigerant (R32) is required for extending the piping beyond 5m(30K/36K) or 7.5m(42K/48K/60K):

For 30K/36K: Additional refrigerant charge = $(L-5) \times 35\text{g/m}$

For 42K/48K/60K: Additional refrigerant charge = $(L-7.5) \times 35\text{g/m}$

In specific scenarios, the piping length of 20(30-36K)/30(42-60K) meters no need adding extra refrigerant, the user experience has a slight impact, and the right of interpretation belongs to the manufacturer.

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 difference between indoor unit and outdoor unit (m).

- $H > 0$: Position of outdoor unit is higher than that of the indoor unit (m).

- $H < 0$: Position of outdoor unit is lower than that of the 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/EL(m)	0.15	0.2	0.25	0.35

Cooling

EL Factor	7.5m	15m	20m	25m	30m	35m	40m	45m	50m
30K/36K	1.00	0.96	0.94	0.92	0.91	0.87	0.86	0.84	0.83
42K/48K/60K	1.00	0.96	0.93	0.90	0.88	0.86	0.84	0.81	0.78

4. CAPACITIES AND SELECTION DATA

Heating:

EL Factor	7.5m	15m	20m	25m	30m	35m	40m	45m	50m
30K/36K	1.00	0.95	0.90	0.88	0.86	0.84	0.82	0.80	0.78
42K/48K/60K	1.00	0.95	0.92	0.90	0.88	0.86	0.82	0.80	0.76
Height difference	5m		10m		20m		30m		
Factor	0.010		0.015		0.020		0.025		

To ensure correct unit selection, consider the farthest indoor unit. NOTE:

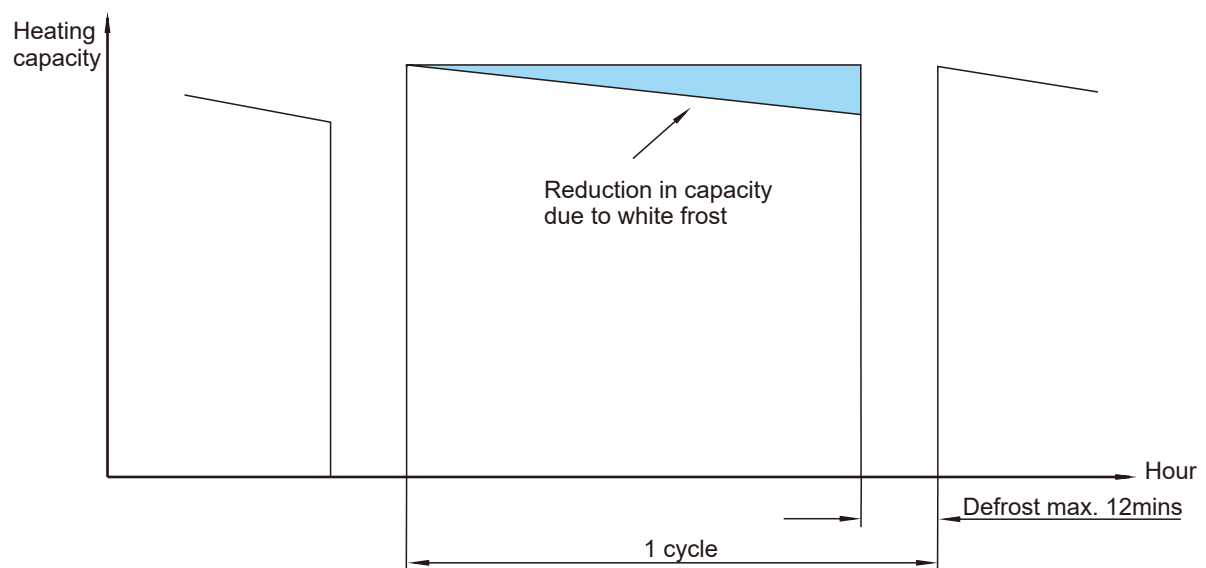
1. Above data is assuming that the height difference between indoor unit and outdoor unit is 0m.
2. Be sure to minimize length of connection pipes to optimize performance. If the outdoor unit is installed higher or lower than the indoor unit, it is necessary to apply height correction factor additionally 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.

4.3 Correction factors according to defrosting operation

The heating capacity in the preceding paragraph, excludes the condition of the frost or the defrosting operation period. In consideration of the frost or the defrosting operation, the heating capacity is corrected by the equation below.

Corrected heating capacity = Defrost Correction factor x unit capacity

Outdoor temperature (°C DB) Correction factor (humidity rate 85% RH)	-15	-7	-5	0	7	10
30K/36K	0.45	0.55	0.58	0.64	1.00	1.00
42K/48K/60K	0.55	0.65	0.69	0.75	1.00	1.00



NOTE:

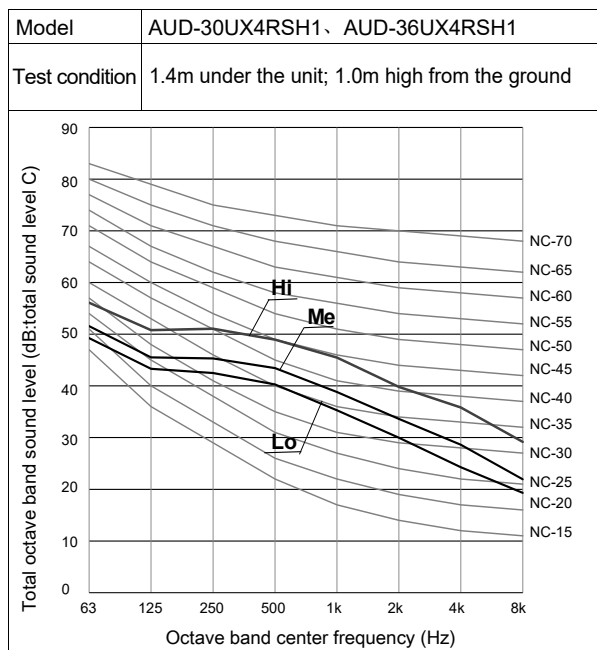
The correction factor is not valid for special conditions such as snowfall or operation in a transitional period.

5. SOUND PRESSURE DATA

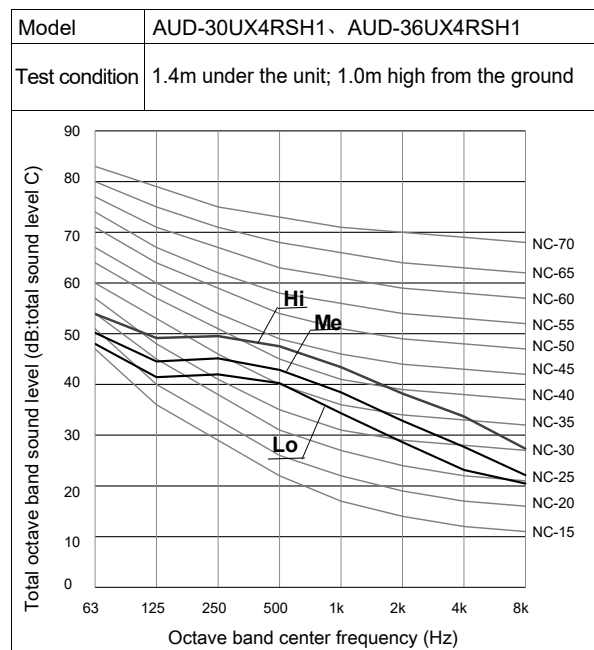
5. Sound pressure data

Indoor unit

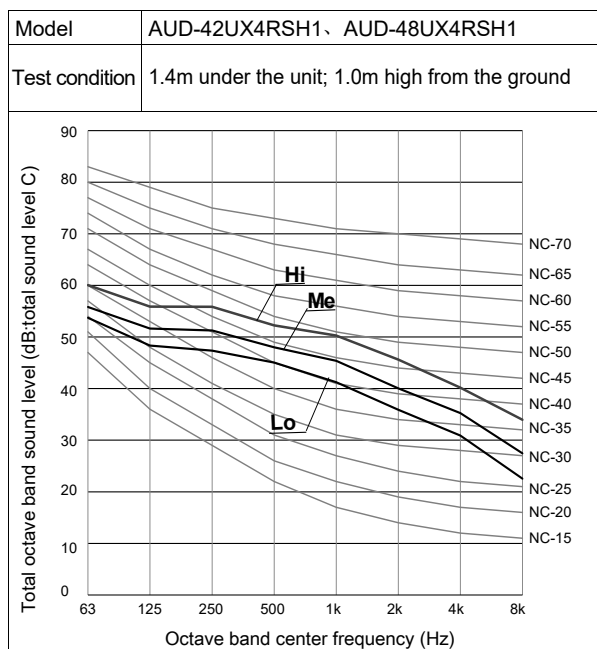
Cooling



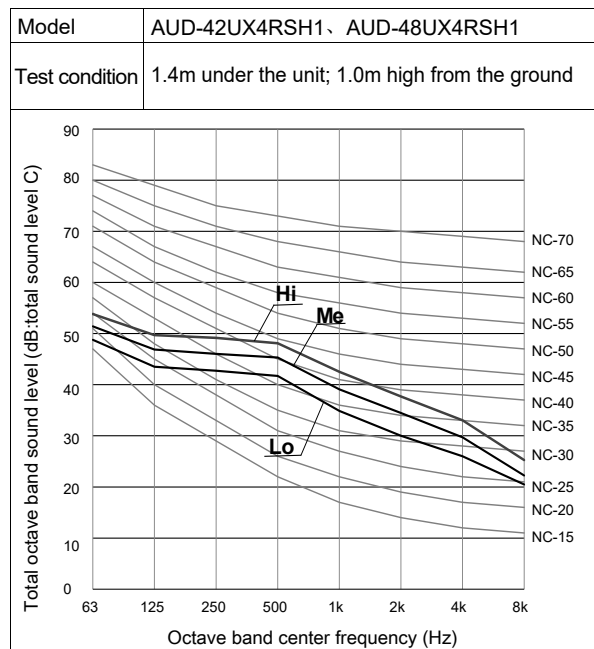
Heating



Cooling

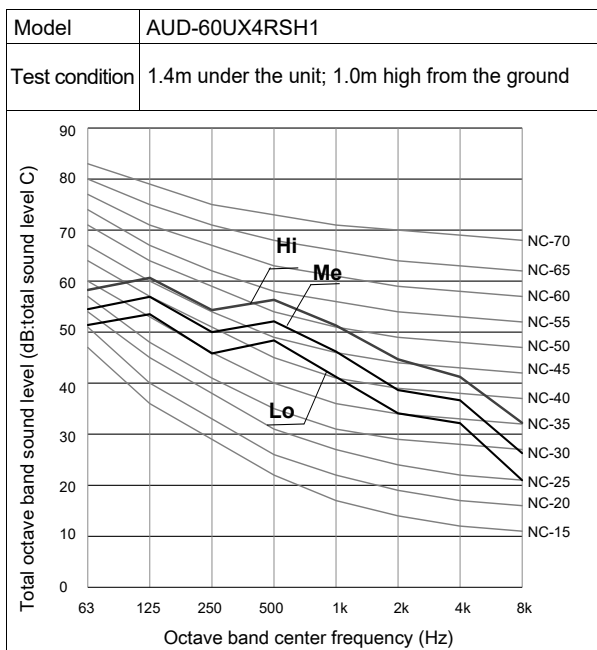


Heating

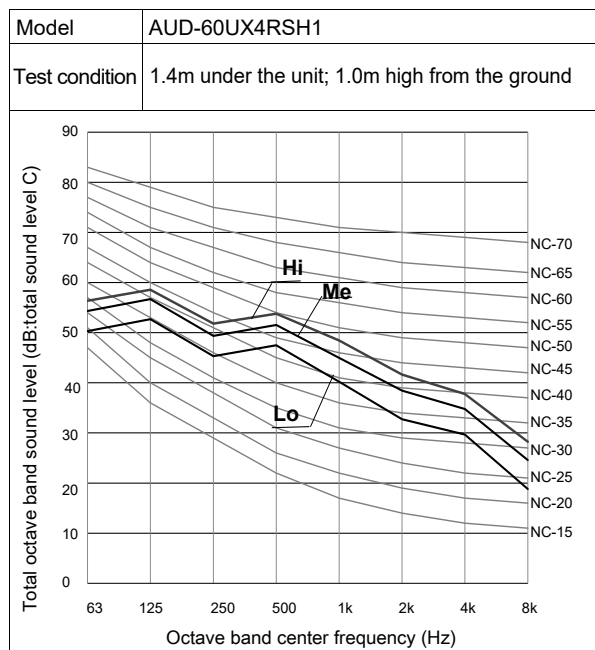


5. SOUND PRESSURE DATA

Cooling



Heating

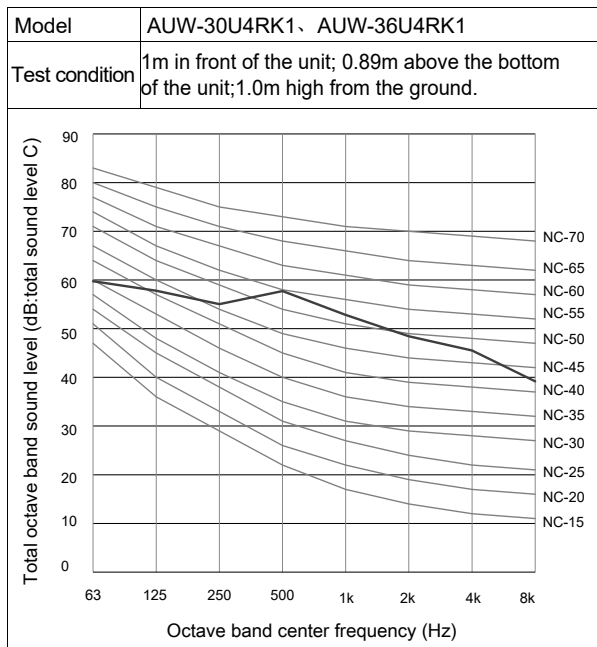


5. SOUND PRESSURE DATA

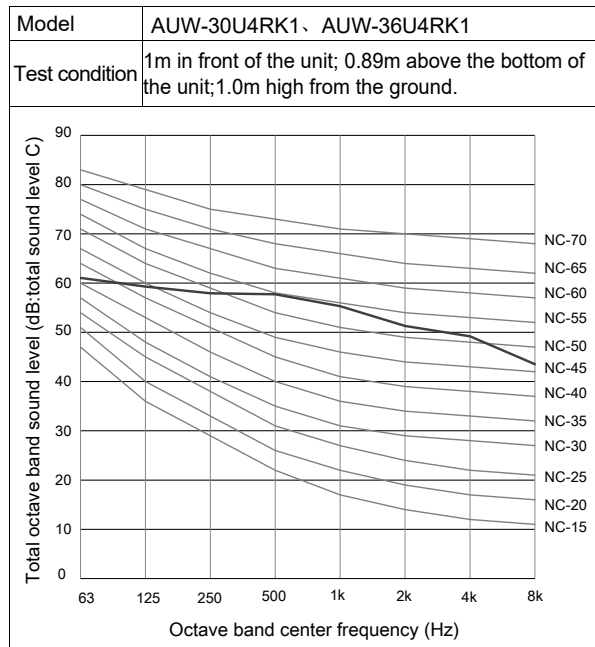
5. Sound pressure data

Outdoor unit

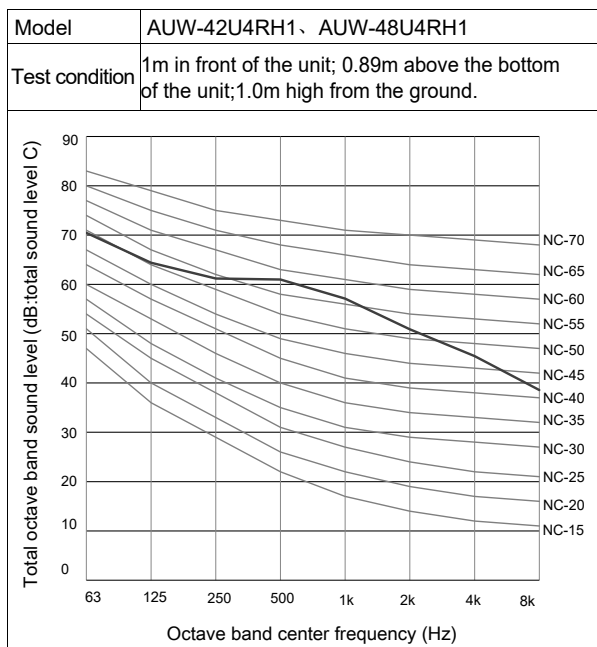
Cooling



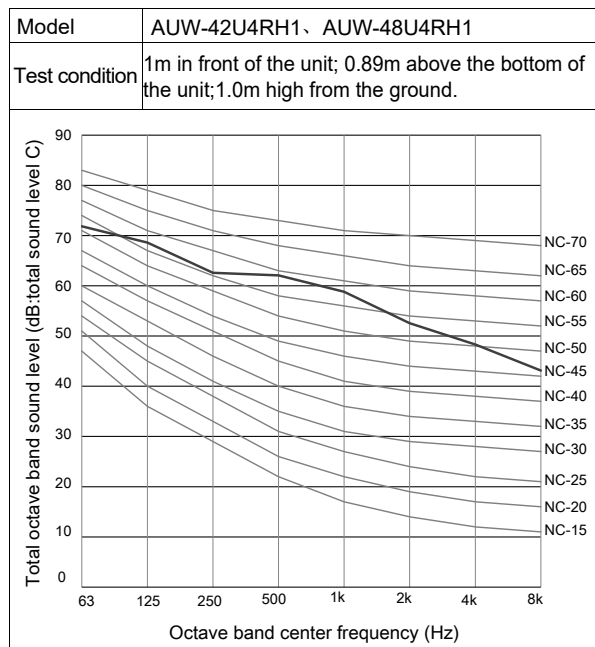
Heating



Cooling

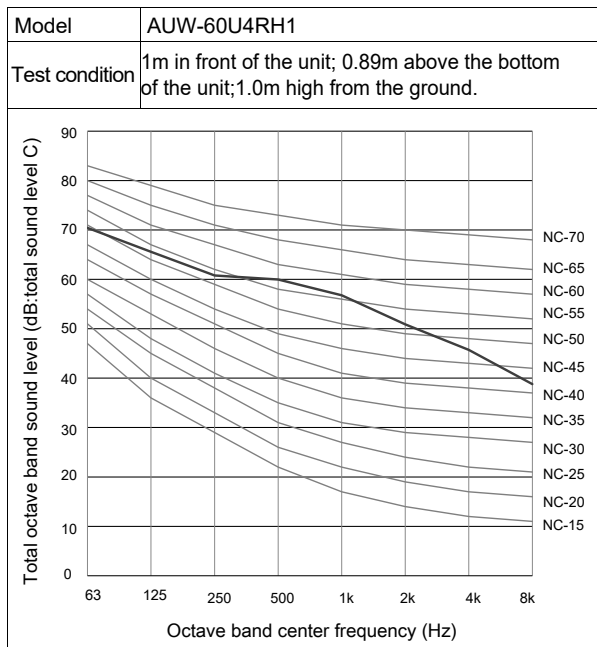


Heating

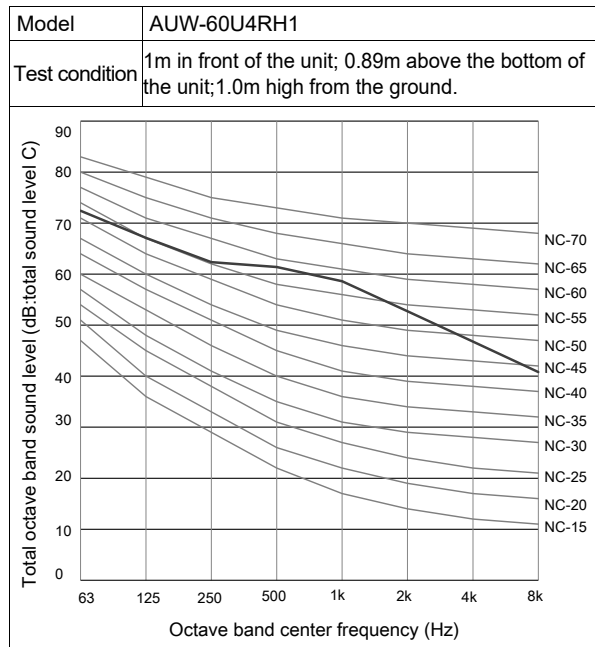


5. SOUND PRESSURE DATA

Cooling

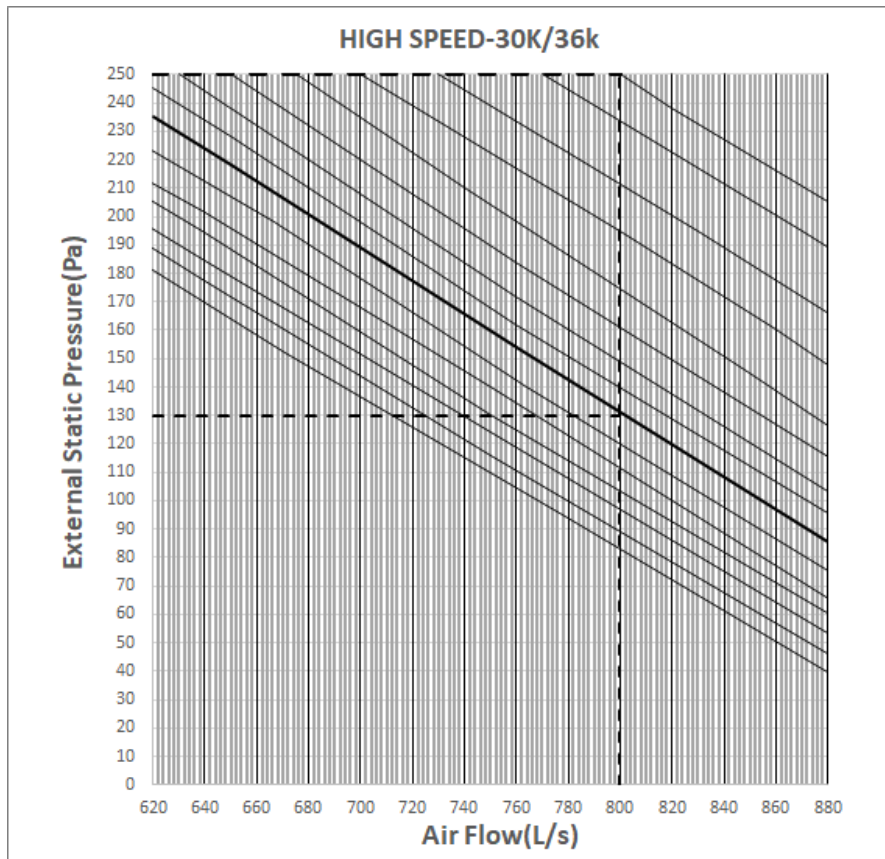


Heating

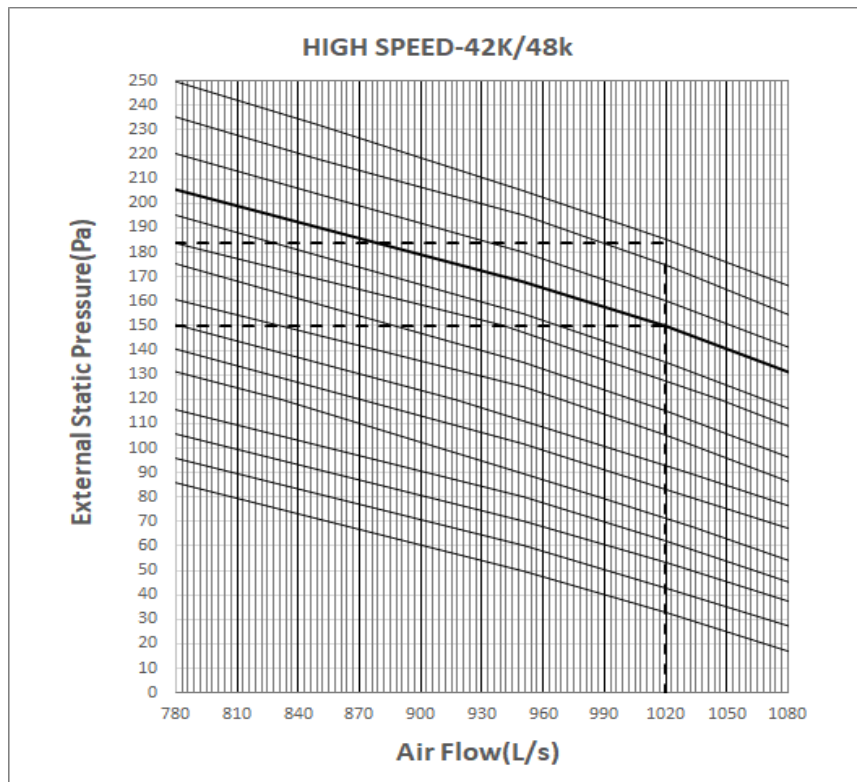


6. ESP (EXTERNAL STATIC PRESSURE) CHART (DUCT TYPE)

30K/36K

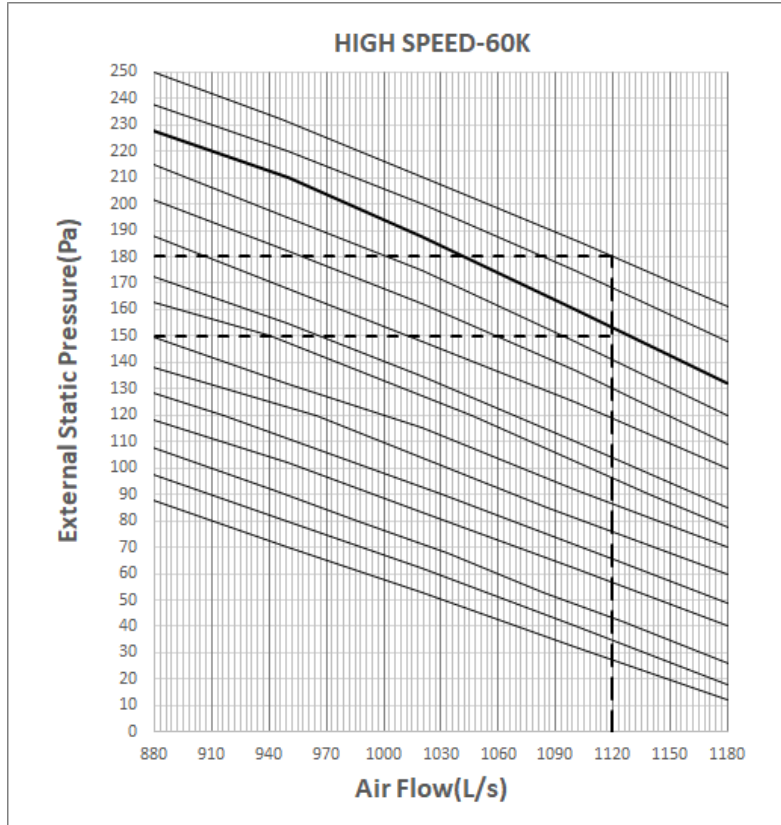


42K/48K



6. ESP (EXTERNAL STATIC PRESSURE) CHART (DUCT TYPE)

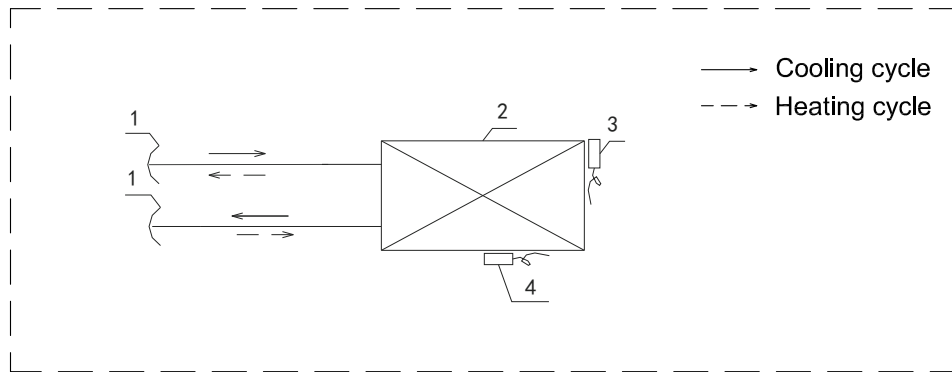
60K



7. REFRIGERANT CYCLE

7. Refrigerant cycle

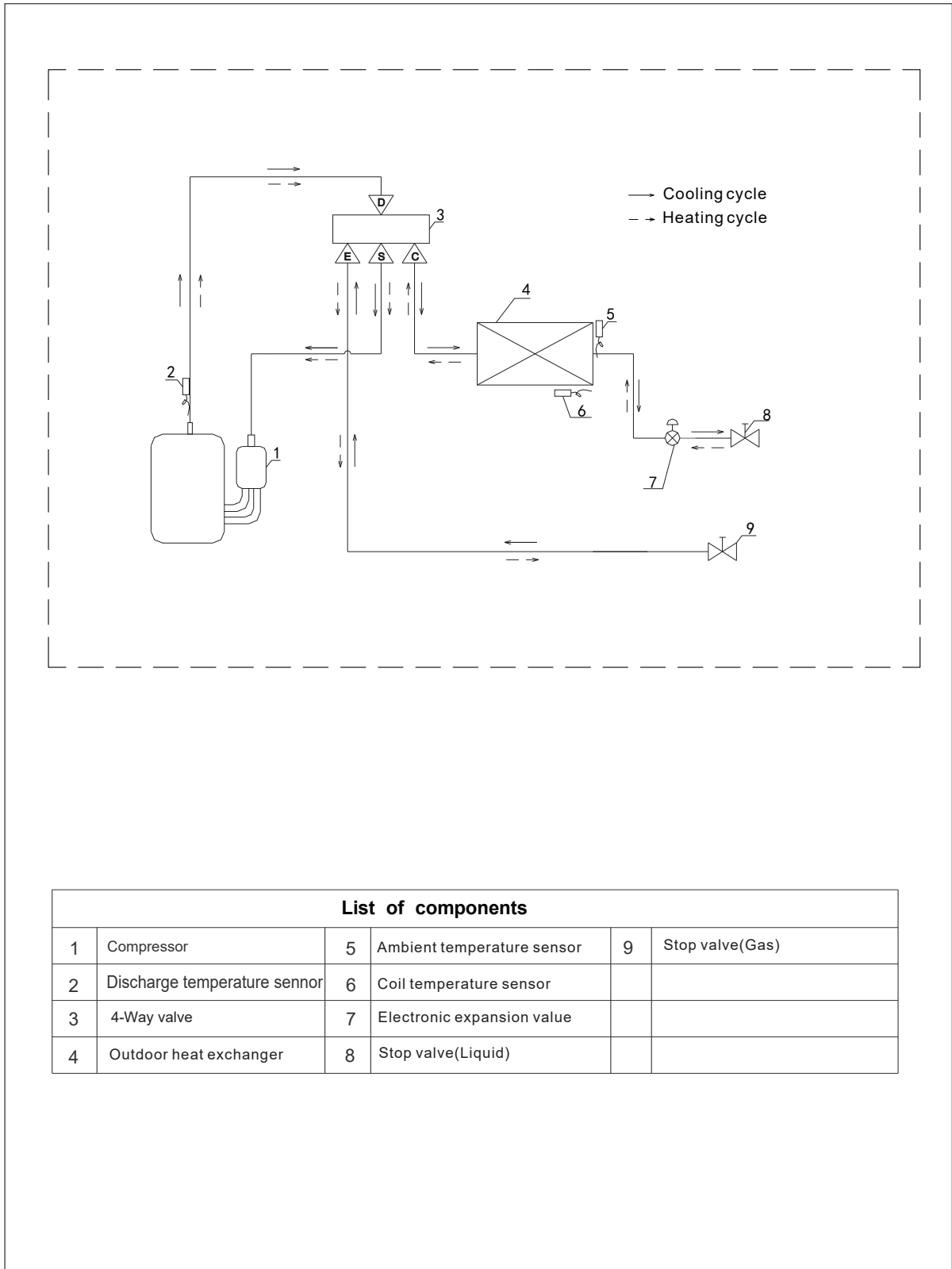
Indoor unit



List of Components			
1	Hexagon nut	3	Ambient temperature sensor
2	Indoor heat exchanger	4	Coil temperature sensor

7. REFRIGERANT CYCLE

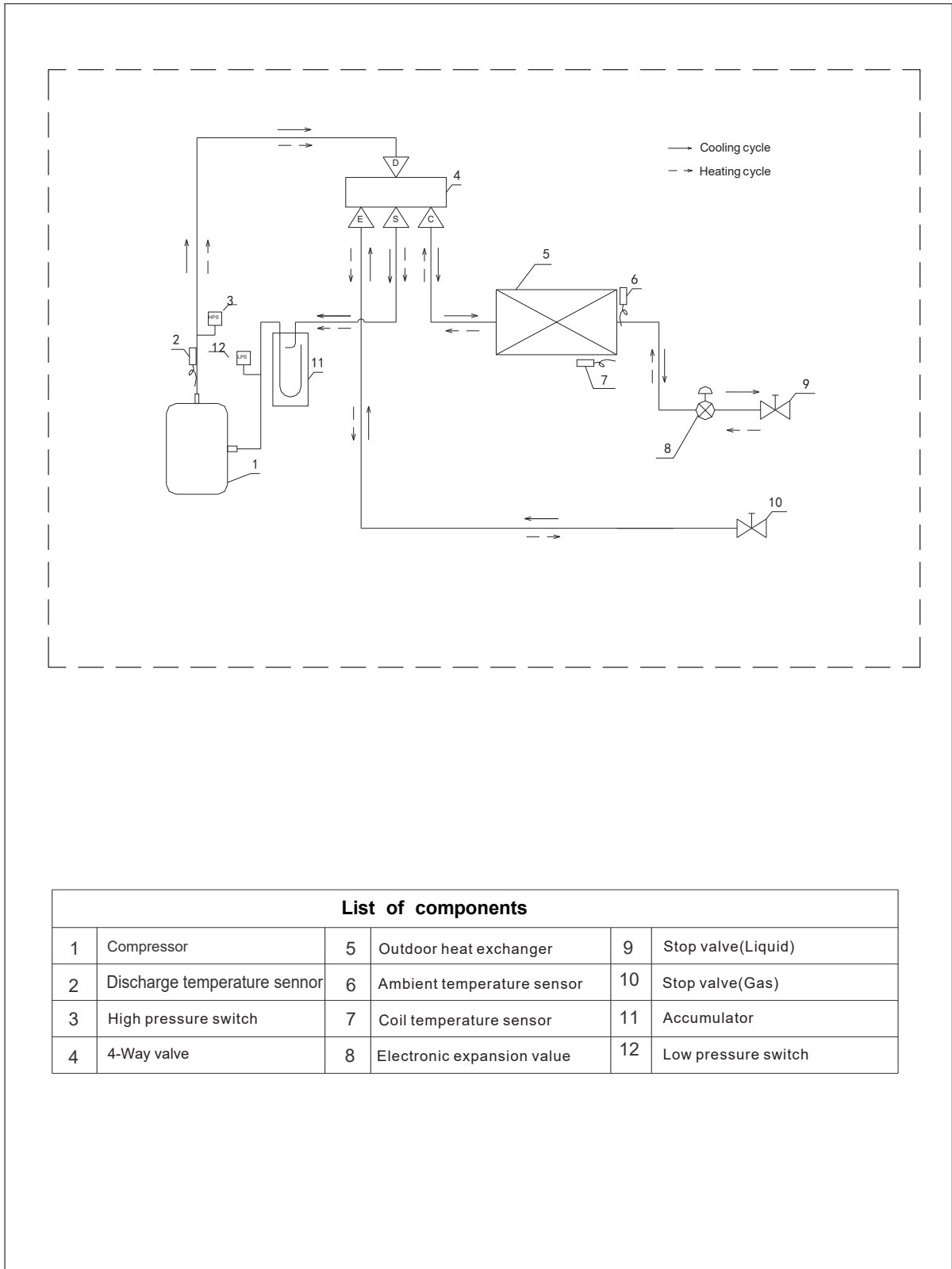
Outdoor unit
30K/36K



List of components					
1	Compressor	5	Ambient temperature sensor	9	Stop valve(Gas)
2	Discharge temperature sensor	6	Coil temperature sensor		
3	4-Way valve	7	Electronic expansion valve		
4	Outdoor heat exchanger	8	Stop valve(Liquid)		

7. REFRIGERANT CYCLE

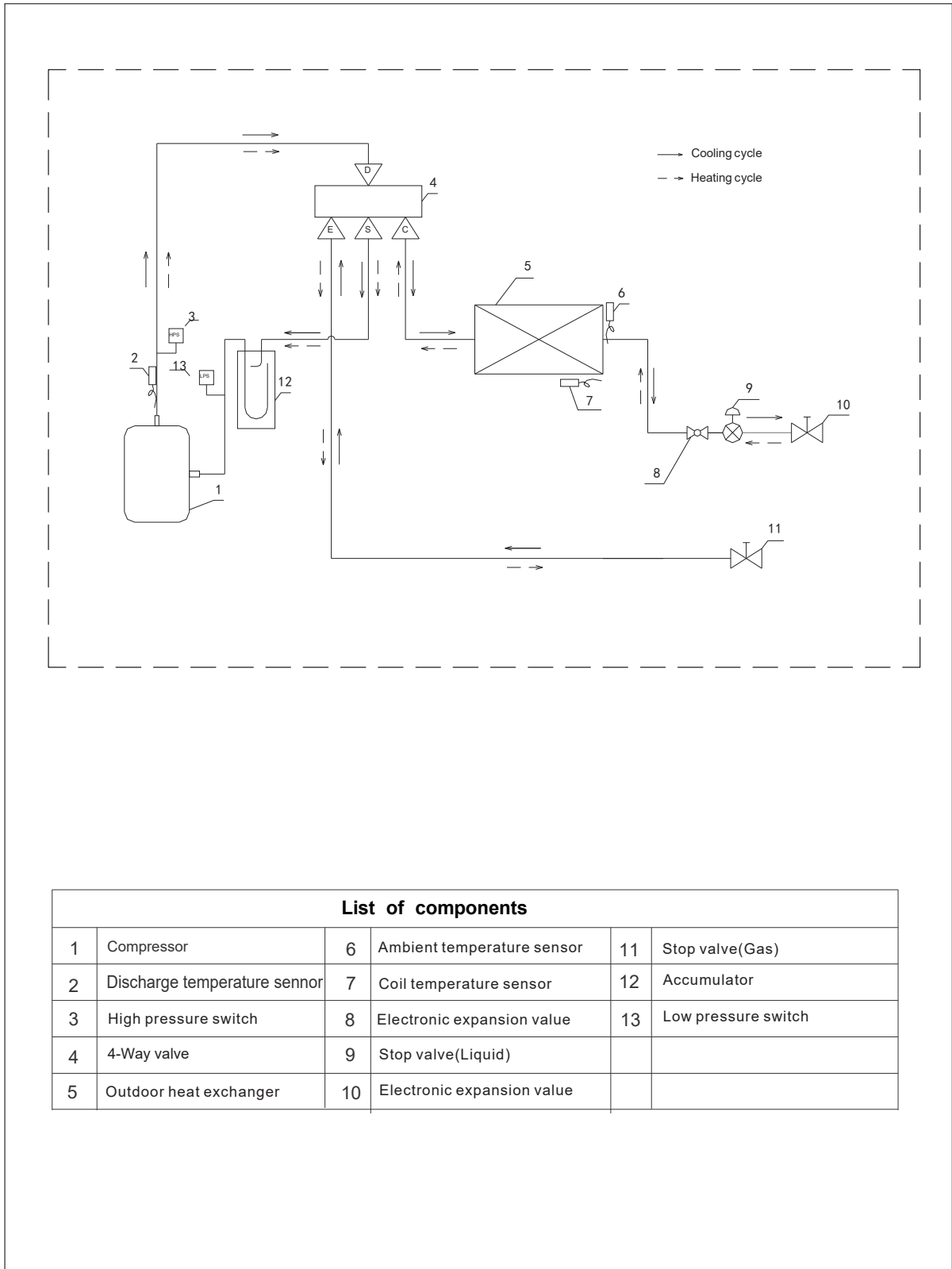
Outdoor unit
42K/48K



List of components					
1	Compressor	5	Outdoor heat exchanger	9	Stop valve(Liquid)
2	Discharge temperature sennor	6	Ambient temperature sensor	10	Stop valve(Gas)
3	High pressure switch	7	Coil temperature sensor	11	Accumulator
4	4-Way valve	8	Electronic expansion value	12	Low pressure switch

7. REFRIGERANT CYCLE

Outdoor unit
60K



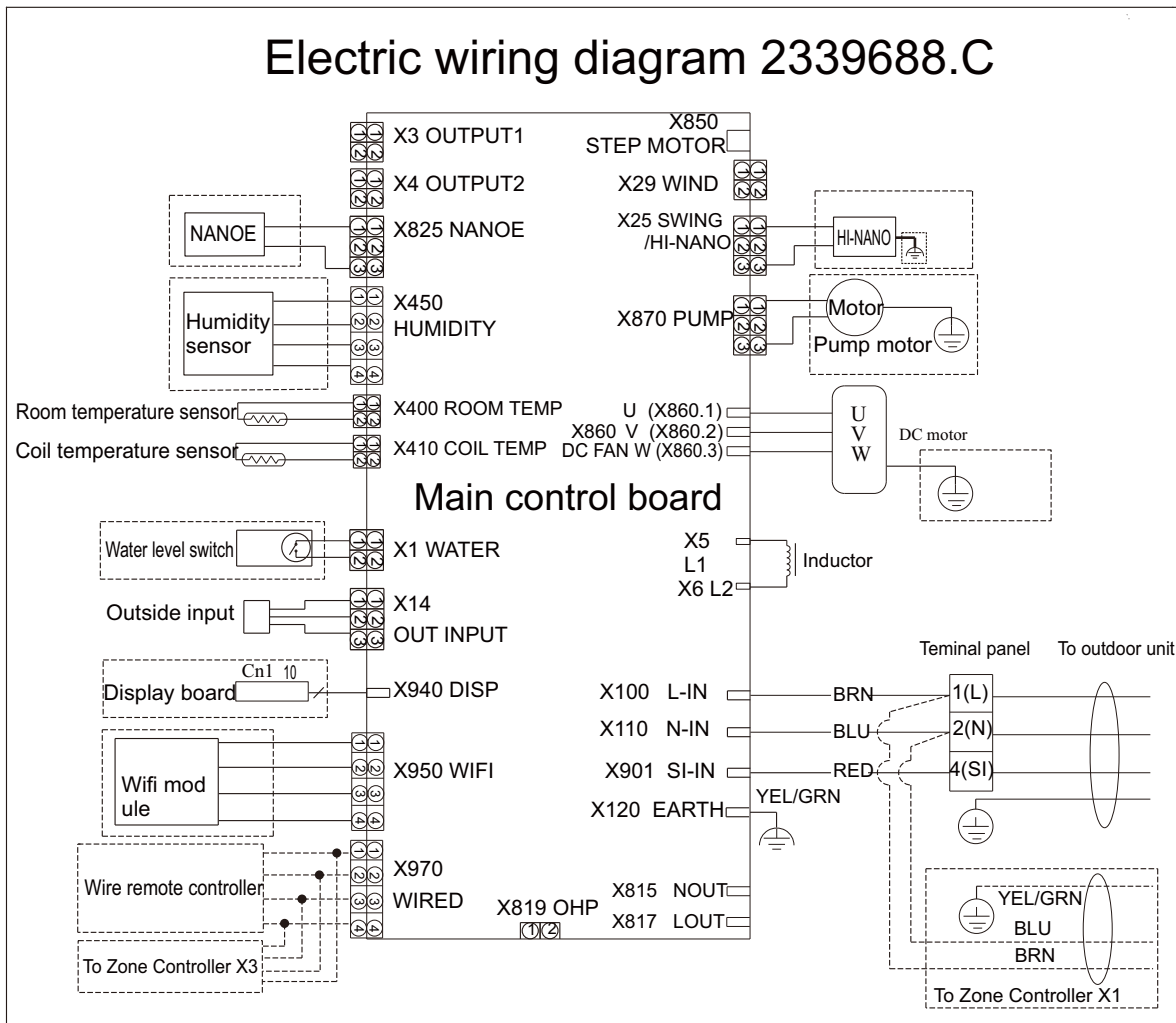
8. WIRING DIAGRAM

8. Wiring diagram

8.1 Electrical wiring diagram

Indoor unit

Ducted (30-60K)



Remark:

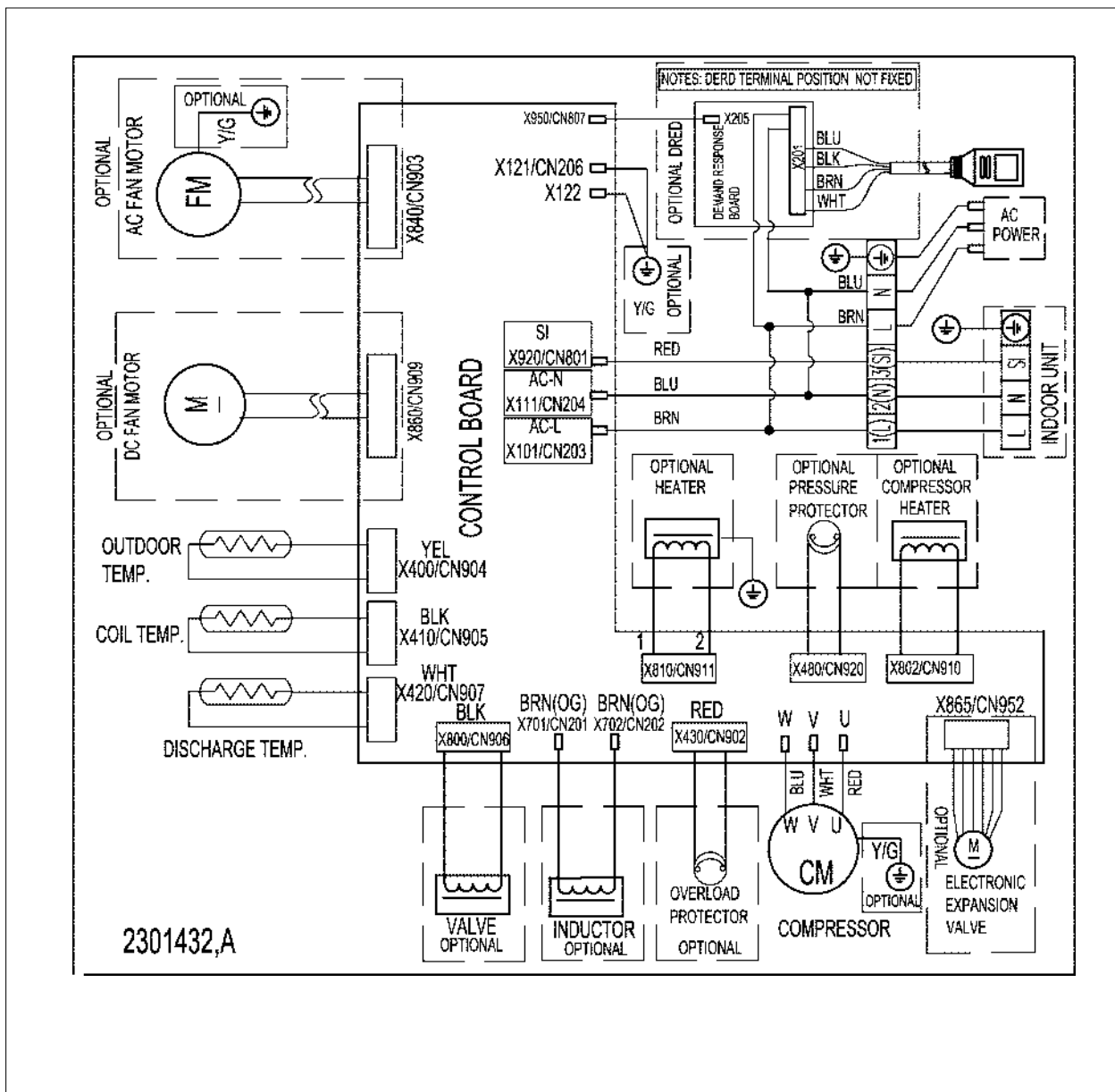
Dashed parts are not available in some models. For details, please see the table below.

Indoor units model	Nanoe-Humidity	Water level switch	Display board	Wire remote controller	Wifi-Pump motor	To Zone controller X3 To Zone controller X1	earth of DC motor	Hi-nano
30-60K			●	●			●	

●--available part

8. WIRING DIAGRAM

Outdoor unit
(30K/36K)



Remark:

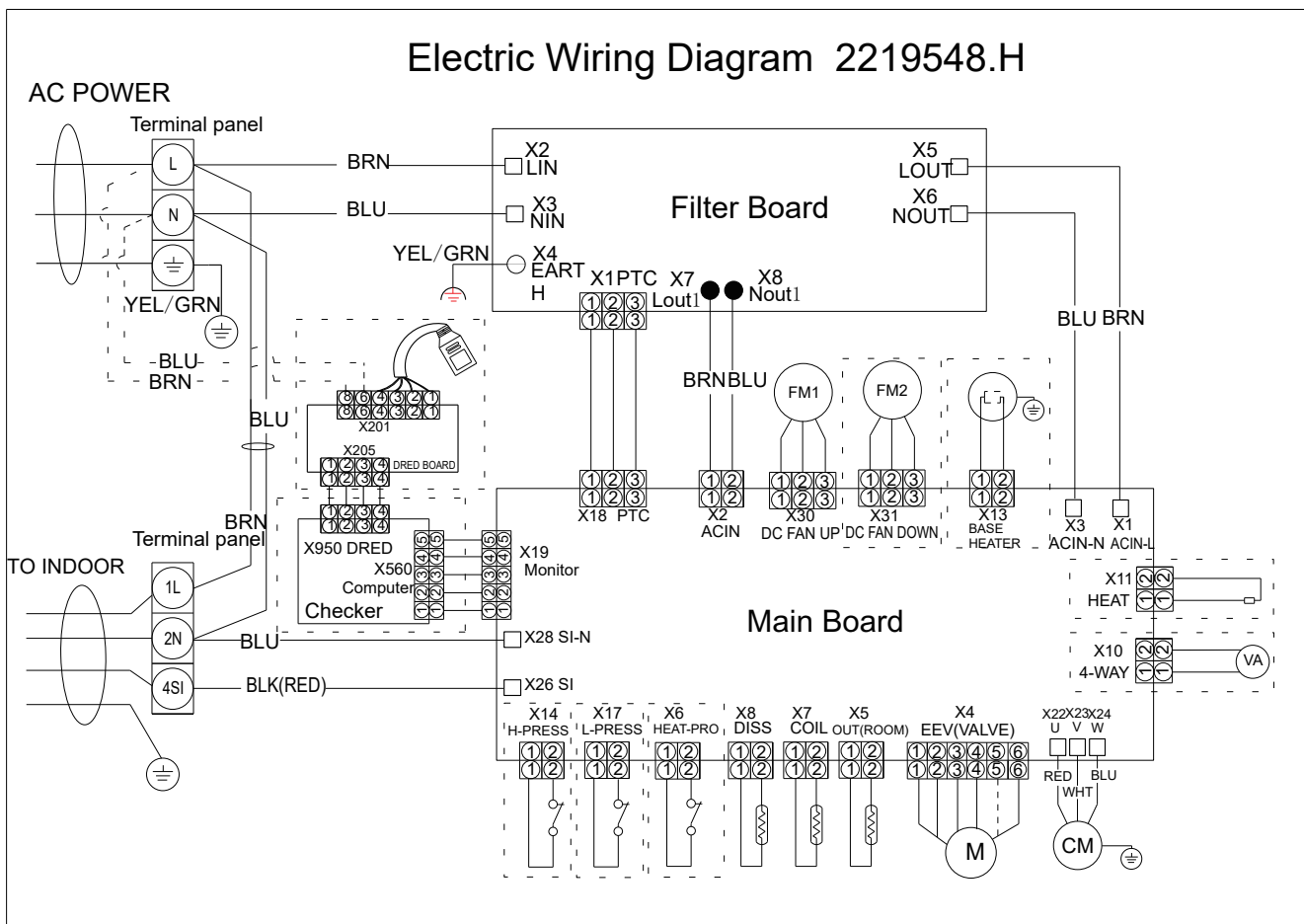
Dashed parts are not available in some models.
Details see the table below.

Series	Indoor units model	AC Fan motor	DC Fan motor	4 WAY VALVE	Inductor	Overload Protector	Compressor earth	Electronic expansion valve	Compressor Heater	Pressure protector	Heater	X121 & X122 earth	Dred board
Outdoor unit	30K/36K		●	●	●		●	●				●	●

●--available part

8. WIRING DIAGRAM

42K/48K/60K



REMARK:
 Dashed parts are not available in some models.
 For details, please see the table below.

Outdoor unit model	DRED board	Checker	H-press switch L-press switch	Heat-pro	4-Valve valve	Compressor Crankcase Heater	Base heater	DC FAN down
42K/48K/60K	•	•	•		•	•		•

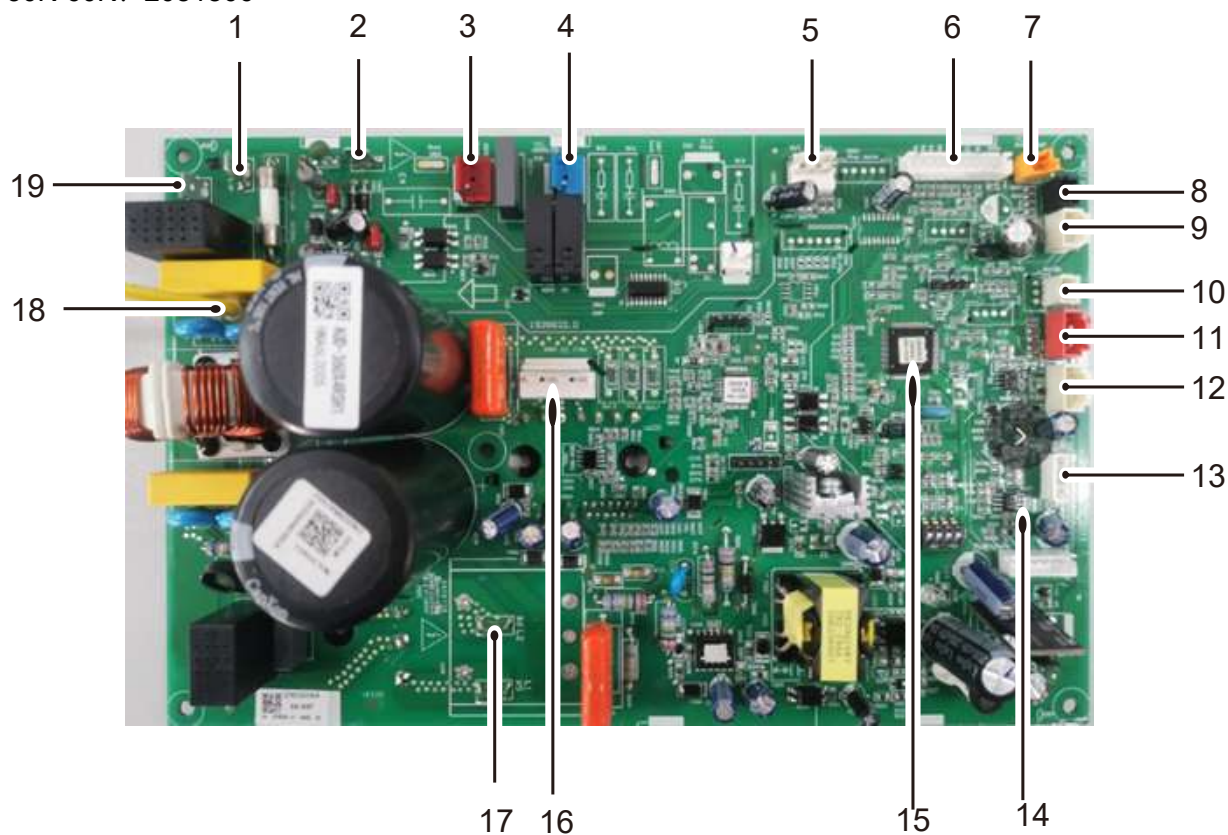
• --available part

8. WIRING DIAGRAM

8.2 Control board picture

Indoor unit

30K-60K: 2081806

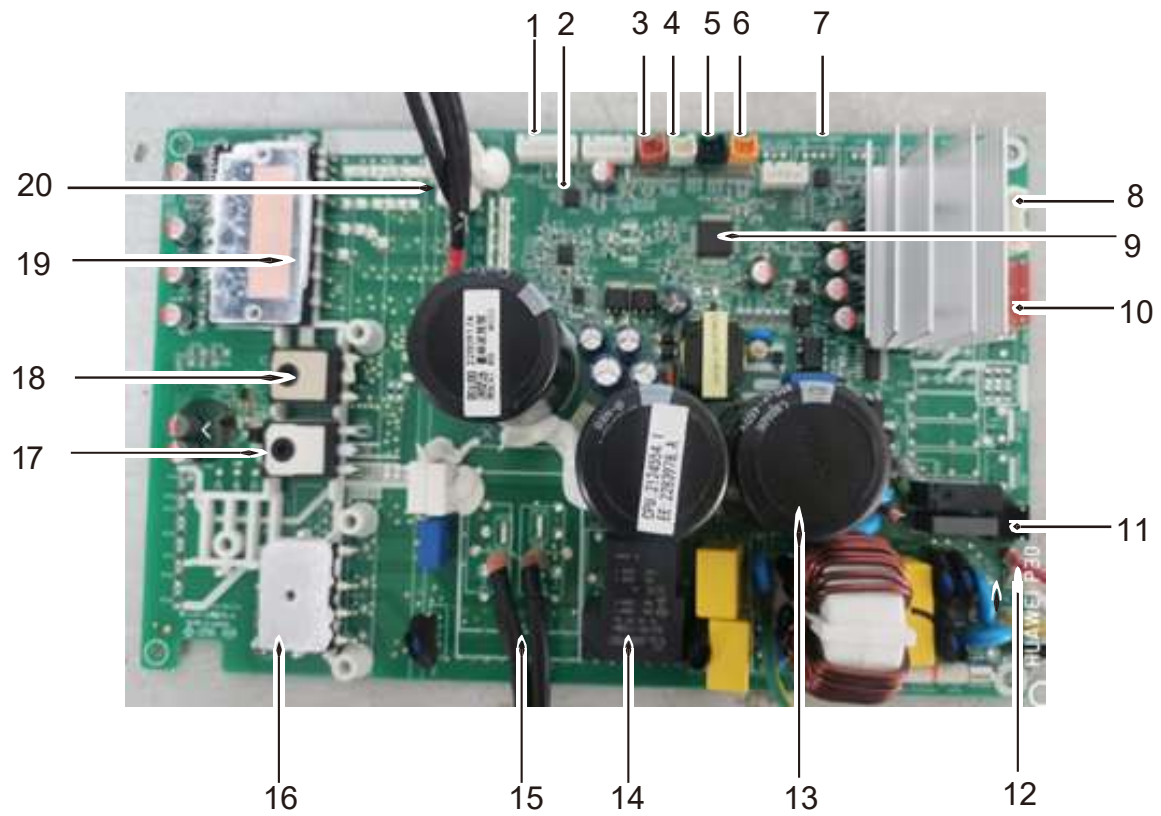


NO.	Description	NO.	Description
1	L_IN	11	Humidity sensor
2	SI-IN	12	Wi-Fi
3	Pump motor	13	Wired controller
4	Hinano	14	EE
5	Fire coupling/Access interface	15	MCU
6	Display board	16	DC fan motor
7	Ambient temp. sensor	17	Electric Reactor
8	Indoor coil temp. sensor	18	Earth
9	Nanoe	19	N-IN
10	Water level switch		

8. WIRINGDIAGRAM

Outdoor unit

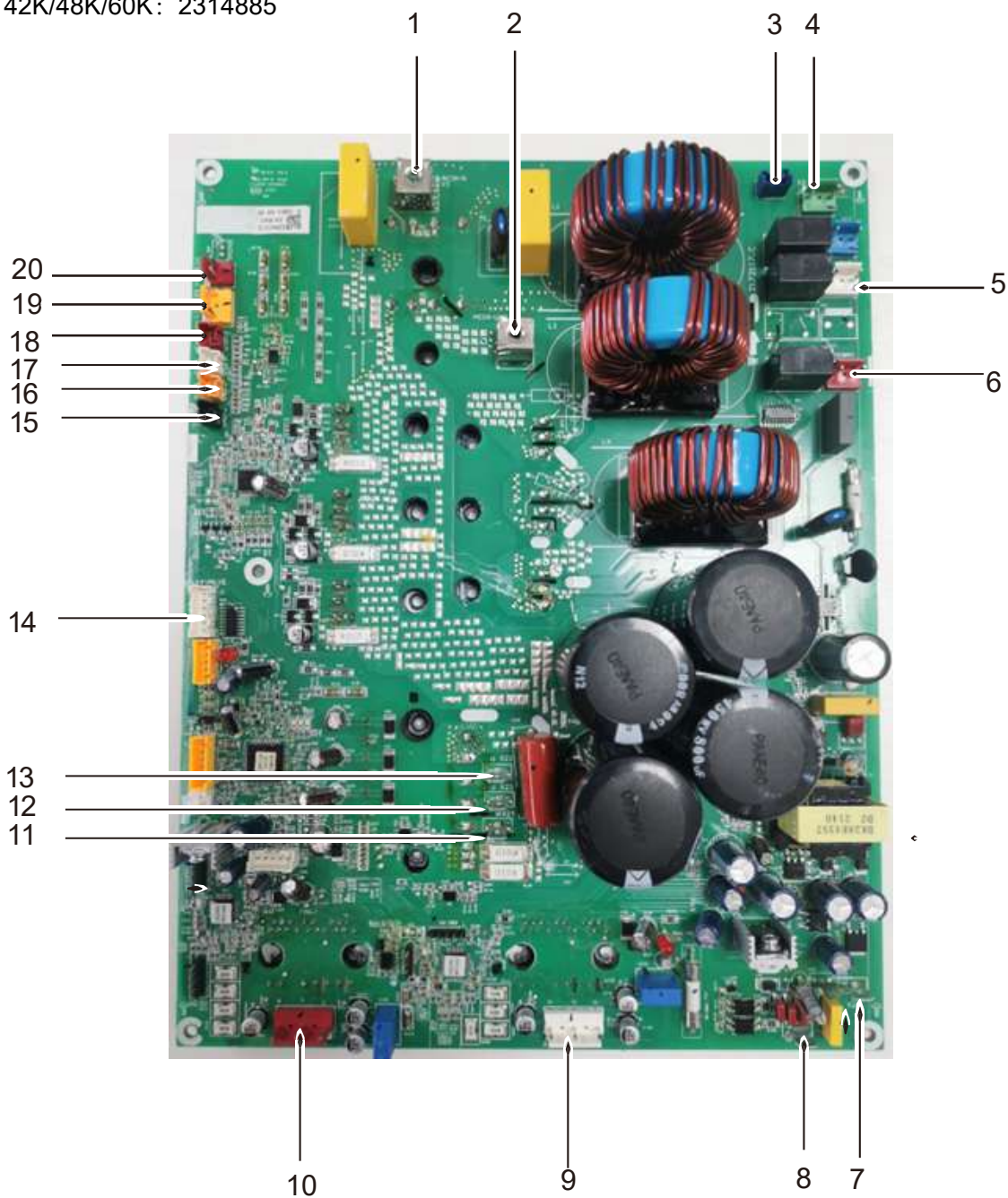
30K/36K: 2284932



NO.	Description	NO.	Description
1	EEPROM Flashing	11	4-way valve
2	EE	12	L/N Power input
3	Compressor overheat protector	13	Filter Electrolytic Capacitor
4	Discharge Temp Sensor	14	Main realy
5	Coil Temp Sensor	15	Electric Reactor wire
6	Ambient Temp Sensor	16	Bridge Rectifier
7	To DRED board	17	IGBT
8	Electronic Expansion Valve	18	Power Diode
9	MCU	19	IPM Module circuit
10	DC Fan motor	20	Compressor U,V,W wire

8. WIRINGDIAGRAM

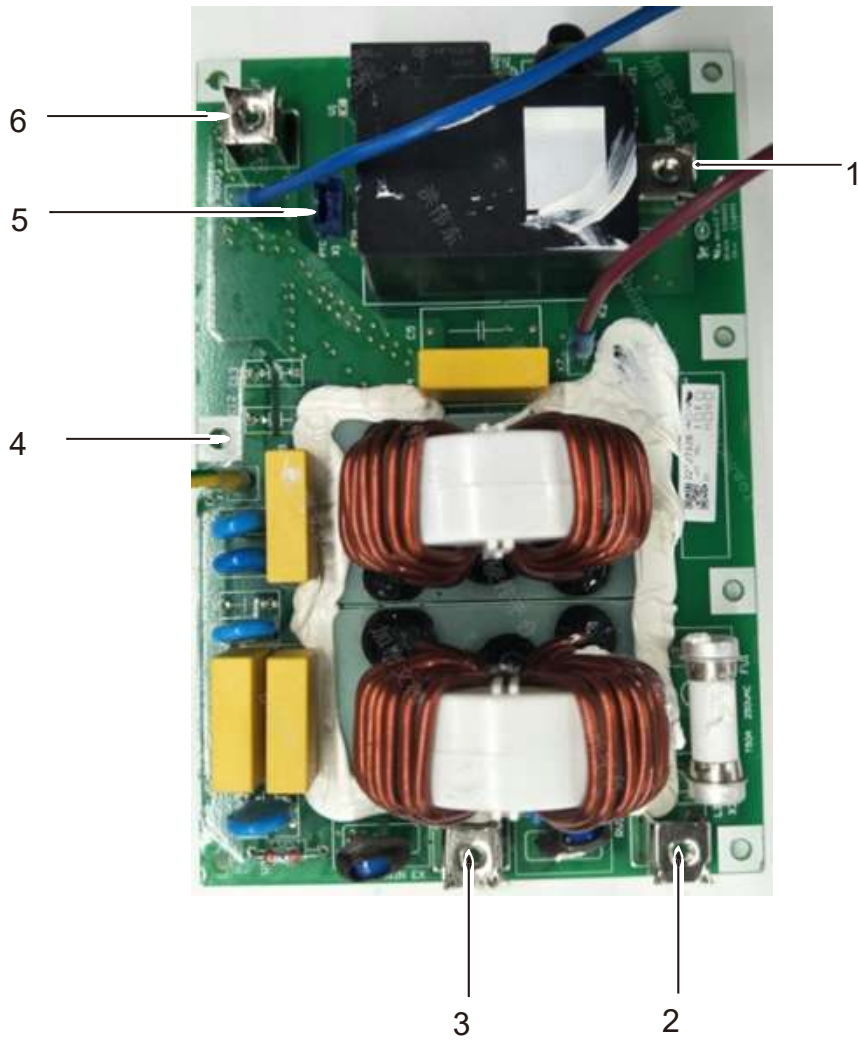
42K/48K/60K: 2314885



NO.	Description	NO.	Description
1	NIN	11	W
2	LIN	12	v
3	PTC signal from filter board	13	U
4	AC In from filter board	14	Electronic expansion valver
5	Electric heating belt	15	Coil temp.sensor
6	4-Way valve	16	Ambient temp.sensor
7	SI-N	17	Discharge temp.sensor
8	SI	18	Overheat switch
9	Upper DC fan motor	19	Low pressure switch
10	Dower DC fan motor	20	High pressure switch

8. WIRINGDIAGRAM

2093111



NO.	Description
1	LOUT
2	LIN
3	NIN
4	Earth
5	PTC signal
6	NOUT

8. WIRING DIAGRAM

8.3 Common wiring

Recommend wire size

Electrical data

Model Capacity	Power Supply	ELB		Power Source Cable Size	Transmitting Cable Size	Circuit Breaker (A)
		Nominal Current (A)	Nominal Sensitive Current (mA)	IEC60335-1*1	IEC60335-1*1	
30K/36K	220-240V~/50Hz	32	30	3×2.5mm ²	4×1.5mm ²	32
42K/48K/60K	220-240V~/50Hz	40	30	3×6.0mm ²	4×1.5mm ²	40

Max. Running Current(A): REFER TO NAMEPLATE

- Use an ELB (Electric Leakage Breaker).
- Do not operate the system until all the check points have been cleared.
 - (A) Check to ensure that the insulation resistance is more than 2 Mega Ohm, by measuring the resistance between ground and the terminal of the electrical parts. If not, do not operate the system until the electrical leakage is found and repaired.
 - (B) Check to ensure that the stop valves of the outdoor unit are fully opened and then start the system.
- Pay attention to the following items while the system is running.
 - Do not touch any of the parts by hand at the discharge gas side, since the compressor chamber and the pipes at the discharge side are heated higher than 90°C.

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 National Standard, IEC60335-1.
- (4) When transmitting cable length is more than 15 meters, a larger wire size should be selected.
- (5) Install main switch and ELB for each system separately. Select the high response type ELB that is acted within 0.1 second. Recommended capacity to see table above.
- (6) In the case that power cables are connected in series, add each unit maximum current and select wires below.

Selection According to IEC60335-1

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
$63 < i$	*

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

9. FIELDSETTING

9. Field setting

9.1 DIP Setting

DIP Switch Setting of Outdoor Unit (Optional setting)

1. Turn on the power before setting the S4-2/S4-3 DIP switches, and dial the switches from OFF to ON. Without turning on, the switches settings are not refreshed and might be invalid.
2. Turn on all power sources before setting. Without turning on, the switches settings are not refreshed and might be invalid
3. Mark of "■" indicates the position of DIP

S4 DIP Switch Setting		S5 DIP Switch Setting	
Factory Setting		Factory Setting	
Pump Down Switch		Capacity High—Low	
Force Defrost		Cooling Only	

Force defrost mode set

Operation:

Dial the switch from OFF to ON before turning on the appliance, and set it in heating mode, then it will run with manual defrosting mode at once.

Cooling only set

Operation:

Heating mode will be invalid after the DIP has been dialed.

Capacity Hi-Low and Quiet set

Actions:

The air conditioner will run more energy-saving and also reduce the outdoor unit noise.

Pump down mode

Actions:

The compressor runs with the target frequency, and without any protection when frequency rises; The EEV runs with setting opening; Outdoor unit fan will run with the set fan speed.

Operation procedures:

The thermostat is turned off during the whole process.

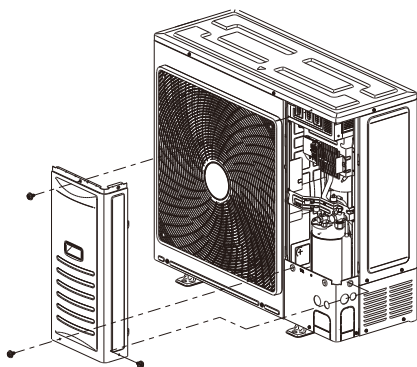
Please power off before operation.

Step 1:

Open the wiring cover on the right side of the machine.

Step 2:

Close the stop valve of the liquid piping with an Allen wrench in a clockwise direction.



Other models

9. FIELD SETTING

Step 3:

Switch on the machine power.

Step 4:

Switch S4-2 to ON position on the checker board, the outdoor unit starts, and the current frequency value is displayed on the LED digital tube of the checker board.

Step 5:

The frequency value will keep changing until "CLOS" is displayed on the LED digital tube of the checker board, then please check whether the liquid stop valve is closed.



Step 6:

When "GOOD" is displayed on the LED digital tube of the checker board, please close the stop valve of the gas piping with an Allen wrench in a clockwise direction within 10s.



36K(W8)



Other models

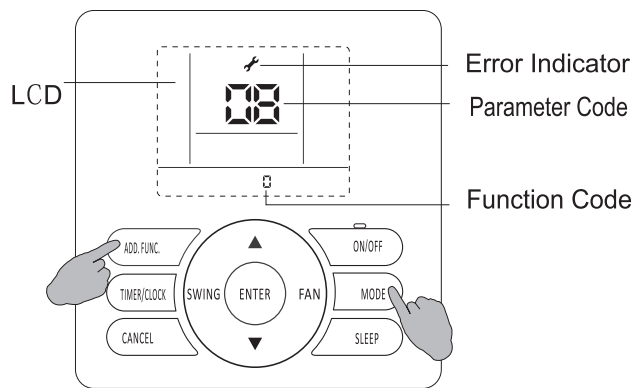
Step 7:

Cut off machine power and the procedure for recovering refrigerant is finished.

9. FIELD SETTING

9.2 ESP setting

Model (Btu/h)	The range of static pressure	Function code set
30-60K	30-250Pa	30-250, function code value equals static pressure value [default: 130(130Pa,30K/36K); 150(150Pa,42K/48K/60K)]



YXE-C01U2(E)

Fig 6.2.2

Static pressure setting :

- 1 Press both "FUNCT" button and "MODE" button for 3 seconds, to enter the parameter self-setting state. Then, icon "ADD." and "CHEC."
- 2 Press "MODE/TIMER" button to set root address as "3".
- 3 Press the "FAN"/"LOU" button to increase or decrease the sub-address, and select the value 10.
- 4 Press the "∧"/"∨" button to select desired parameters, and press "FUNCT"
- 5 Press ⏻ button to quit.

If you still have any trouble, please contact local technical service center of our company for further information.

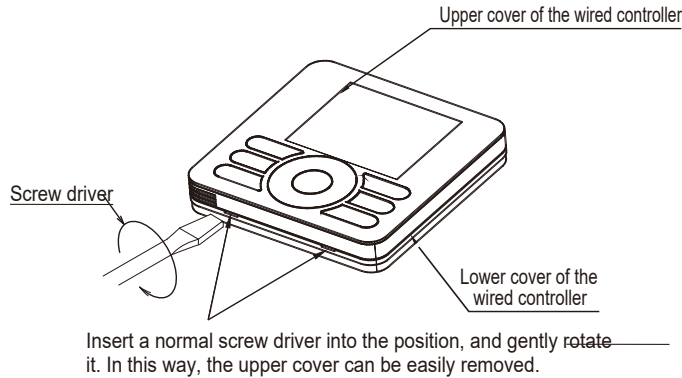
9. FIELD SETTING

9.3 Indoor unit parameter revision

Internal control parameter adjustment can be performed using wired controller YXE-C01U2(E)

1) Connecting wired controller with the indoor unit

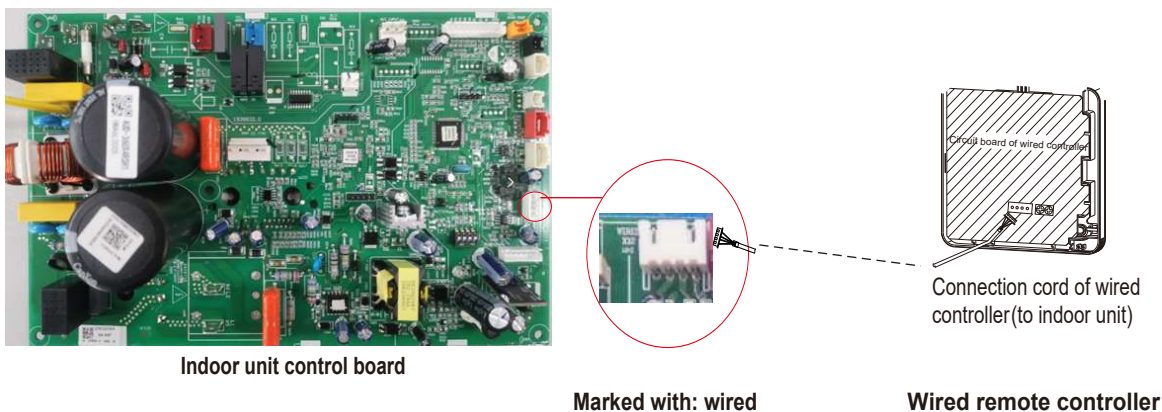
Step 1: Remove the upper cover of the wired controller



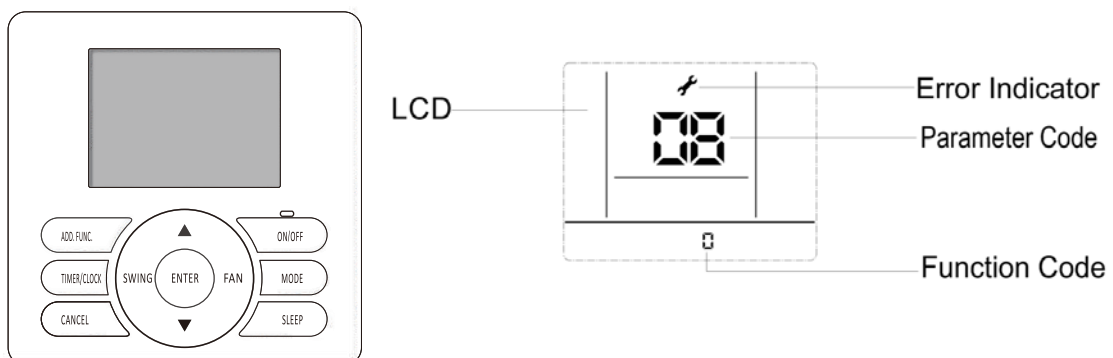
NOTE:

Control board of the remote controller is placed on upper cover. Please protect it from being scratched during removal and installation!



Step 2: Connect the wired controller with the indoor unit



2) Changing system parameter



OPERATION:

- ① Hold down both "MODE" button and "ADD.FUNC." button for 3 seconds, symbol  and parameter number blink at the same time.
- ② Press "▲" "▼" button to adjust parameter number until "17" is displayed. And press "ENTER" button to enter system parameter adaption state and symbol  stops blinking, parameter number blinks.
- ③ Select desired parameter code by pressing "▲" / "▼" button following the table below, and press "ENTER" button to confirm.
- ④ Select desired function code by pressing "▲" / "▼" button, and press "ENTER" button to confirm.

9. FIELD SETTING

PARAMETER CODE	PARAMETER DESCRIPTION	PARAMETER VALUE&REPRESENTATION		NOTE
		DATA TYPE	REPRESENTATION (FUNCTION CODE)	
1	Self Recovery of Power Break	Integer	0: Cancel Self Recovery of Power Break function; 1: Self Recovery of Power Break; others: invalid	
2	Temperature Type	Integer	0: Centigrade Temperature; 1: Fahrenheit Temperature; others: invalid	
3	Temperature Display Type	Integer	0: Default display set temperature; 1: Default display room temperature; others: invalid	
4	Ratio of ambient temperature sensed by indoor temperature sensor(cooling mode)	Integer	0~10valid, more than 10 default is10 0: 0%; 1: 10%; ...; 10: 100%	0-entirely use temperature sensed by wired remote controller; 10-entirely use temperature sensed by indoor unit
5	Filter Cleaning Indication	Integer	0: Cancel Filter Clean prompt function; 1: Set Filter Clean prompt function; others: invalid	
6	Filter Cleaning Time Setting	Integer	0~32, more than 32 default is 32*1000h	
7	Installation Height Compensation	Integer	0~10m, more than 10m default is 10. =0,1,2 :no fan speed compensation; =3: increase fan speed; =4~10: increase more fan speed.	
8	Cooling Temperature Compensation (indoor unit temperature sensor)	Integer	0 : 0°C ; 1 : -0.5°C ; 2 : -1°C ; 3 : -1.5°C ; 4 : -2°C ; 5 : -2.5°C ; 6 : -3°C ; 7 : -3.5°C ; 8 : -4°C ; 9 : -4.5°C ; 10 : -5°C.(the wired controller displays integer with the symbol)	
9	Heating Temperature Compensation (indoor unit temperature sensor)	Integer	0 : 0°C ; 1 : -0.5°C ; 2 : -1°C ; 3 : -1.5°C ; 4 : -2°C ; 5 : -2.5°C ; 6 : -3°C ; 7 : -3.5°C ; 8 : -4°C ; 9 : -4.5°C ; 10 : -5°C.(the wired controller displays integer with the symbol)	
10	Static Pressure Setting	Integer	1~240, function code=static pressure more than the limit static pressure default the limit static pressure, Default is 0(default static pressure, related to models)	Duct type (DC motor)
12	Ratio of temperature sensed by indoor temperature sensor(Heating mode)	Integer	0~10valid, more than 10 default is10 0: 0%; 1: 10%; ...; 10: 100%	0-entirely use temperature sensed by wired remote controller; 10-entirely use temperature sensed by indoor unit
13	Temperature Adjustment-Cooling	Character	-10~10°C (Single Character with symbol)	Temperature displayed on wired controller
14	Temperature Adjustment-Heating	Character	-10~10°C (Single Character with symbol)	Temperature displayed on wired controller
25	Access control, fire protection, ON/OFF function set	Integer	=0, Access control, fire protection functions are all invalid; =1, Access control function is valid; =2, fire protection function is valid; =3, Access control, fire protection are all valid; =4, ON/OFF function are all valid.	

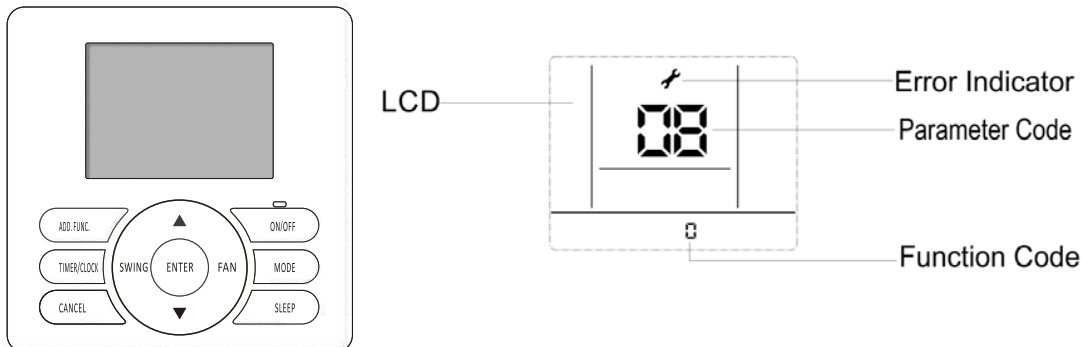
9. FIELD SETTING

9.4 Running parameter check

Running parameter can be referred to by 7 segment display or specified wired remote controller. **Check by wired controller**

Operation:

YXE-C01U2(E)



OPERATION:

- (1) Hold down both "MODE" button and "FUNC" button for 3 seconds, then the "CHEC." and "ADD." icon will be always on.
- (2) Press "MODE" / "TIMER" button to increase/decrease the root address as 2.
- (3) Press "FAN" / "LOU" button to increase/decrease the sub-address, and select the desired sub-address value.

Parameter Code	Parameter Description
06	Indoor unit air inlet temperature
07	Indoor unit coil sensor temperature
08	Outdoor unit ambient sensor temperature
09	Discharge temperature
10	Suction temperature
11	Outdoor coil temperature
12	Discharge pressure
13	Suction pressure
14	Outdoor EEV opening
15	AC current input
16	AC voltage
24	Error code
25	Drive error code
26	Indoor unit air outlet temperature
28	Compressor current
29	Indoor unit room temperature
30	Indoor unit coil inlet temperature
31	Indoor unit coil outlet temperature
32	Outdoor unit condenser inlet temperature
33	Outdoor unit condenser outlet temperature
43	Outdoor unit defrost temperature
57	Outdoor fan 1 speed
58	Outdoor fan 2 speed
60	Indoor fan speed

9. FIELD SETTING

9.5 Instructions for the function setting of access control, fire protection

9.5.1 Factory setting

In case of using or canceling the access control / fire protection function, use the wired controller to modify the parameters of indoor unit.

NOTE: please refer to "Site Setting" section in TC Manual for how to use the wired controller to modify the parameters of indoor unit.

9.5.2 Function introduction

- (1) Access control: a kind of control mode to control the machine startup & shutdown based on the on & off state of the access control port.
- (2) Fire protection: a kind of control mode to control the machine startup & shutdown based on the on & off state of the fire protection port.

9.5.3. Function setting

- (1) Hardware connection



Figure 1 short wiring

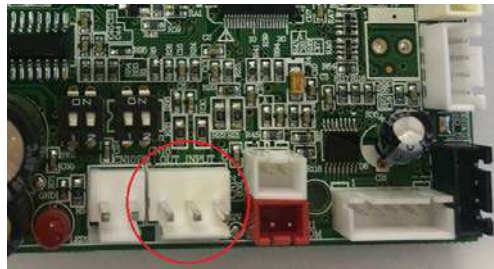


Figure 2 main control board

3 pins of the OUT INPUT (CN16 or according to the wiring diagram) socket shown in the electrical wiring diagram are tacitly approved to be in short circuit state under the factory state (an external short circuit plug shown as Figure 1), and the OUT INPUT CN16 socket of main control board is shown as Figure 2 (Illustration: the socket number in circuit is subject to the actual serial number of PCB.)

- 1) When using the door lock function, the user cuts off the red short wire shown in Figure 1 and accesses the door lock control switch (supplied by user), and the connecting wire should be 22AWG or above specification. The door lock switch is closed under normal conditions and off under abnormal conditions.
- 2) When using the fire protection function, the user cuts off the white short wire shown in Figure 1 and accesses the fire protection control switch (supplied by user), and the connecting wire should be 22AWG or above specification. The protection control switch is closed under normal conditions and off under abnormal conditions.

- (2) Timing sequence description:

9. FIELD SETTING

- Access control

Access control1:

1) Control of entrance card disconnection:

The air conditioner shall be shut down after the access control signal is disconnected for 30 seconds. In this state, the indoor unit can't be started. If the user performs starting operation, the wired controller shall not respond and displays power-off.

2) Control of entrance card connection: After the short circuit of entrance card interface, release power-on restrictions, the wire controller maintains power-off and the startup & shutdown control is effective.

Access control2:

1) Control of entrance card disconnection:

The air conditioner shall be shut down after the access control signal is disconnected for 30 seconds if it was on shutdown state before, otherwise, the indoor unit will be set as low fan speed mode, and the temperature shall be set to 22°C in heating mode or 26°C in other modes.

2) Control of entrance card connection: after the short circuit of entrance card interface, release power-on restrictions, the air conditioner shall return to its previous state, and the controllers maintains power-off and the startup & shutdown control is effective.

- Fire protection

1) Access to fire protection: the air conditioner shall be shut down and not blow waste cold or warm air after the access control signal is disconnected for 3 seconds. In this state, the indoor unit can't be started. If the user performs starting operation, the wire controller shall not respond and displays power-off.

2) Cancellation of fire protection: after the short circuit of fire protection signal, release power-on restrictions, the wire controller maintains power-off and the startup & shutdown control is effective.

(3) Relative priorities of instructions

Access control and fire prevention functions shall not affect each other.

- ON/OFF1

1) In the situation where ON/OFF1 function is enabled, the port is closed and in short circuit, the indoor unit starts; the indoor unit shuts down once the port is disconnected;

2) Other operation information (such as mode, air speed, air door, and so on.) except for startup & shutdown can be set through the wired controller, remote-controller and WIFI module, priority is given to the latest command received.

3) In the mode of ON/OFF1 function, wired controller, remote-controller, WIFI module and access control cannot control the unit startup & shutdown, neither the operation mode, timer or sleeping mode.

4) Relative priorities of instructions:

ON/OFF1 has the highest priority. The access control function shall be disabled when ON/OFF1 is enabled.

9. FIELD SETTING

- ON/OFF2

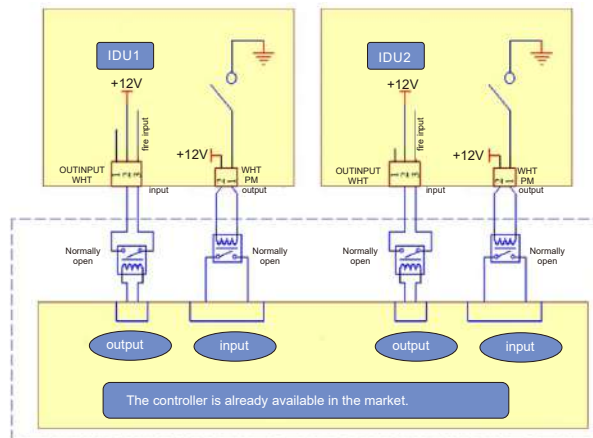
- 1) In the situation where ON/OFF2 function is enabled, the indoor unit starts with the action of the port is from closed(in short circuit) to disconnected; the indoor unit shuts down with the action of the port is from disconnected to closed;
- 2) In the mode of ON/OFF2 function, startup & shutdown is the same as other operation(such as mode, air speed, air door, and so on.) can be set through the wired controller, remote-controller and WIFI module, priority is given to the latest command received.

Notes:There will be 12V signal output when machine fault occurs.



Input

Output

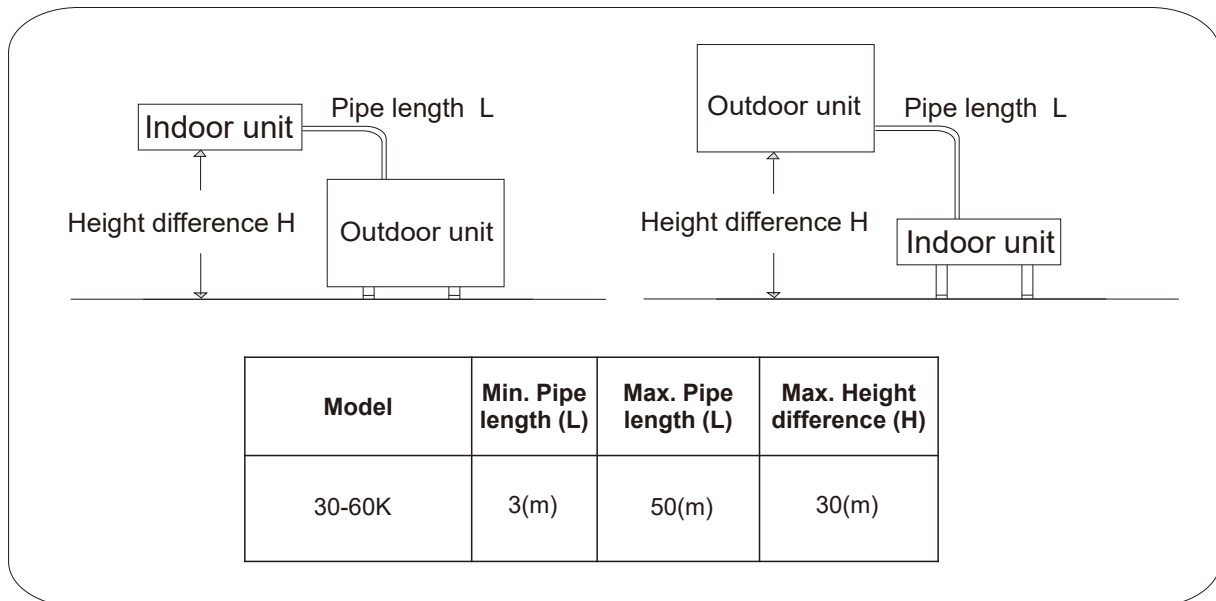


10. PIPINGWORKANDREFRIGERANTCHARGE

10. Piping work and refrigerant charge

10.1 MAX. length allowed

The shorter the refrigerant piping length is, the better. So the connecting pipe should be as short as possible.



Additional Refrigerant Charge

The unit has been filled with refrigerant.

The outdoor unit is pre-charged with refrigerant to accommodate a total piping length of 5m(30K/36K) or 7.5m(42K/48K/60K). Additional refrigerant (R32) is required for extending the piping beyond 5m(30K/36K) or 7.5m(42K/48K/60K):

For 30K/36K: Additional refrigerant charge $= (L-5) \times 35\text{g/m}$

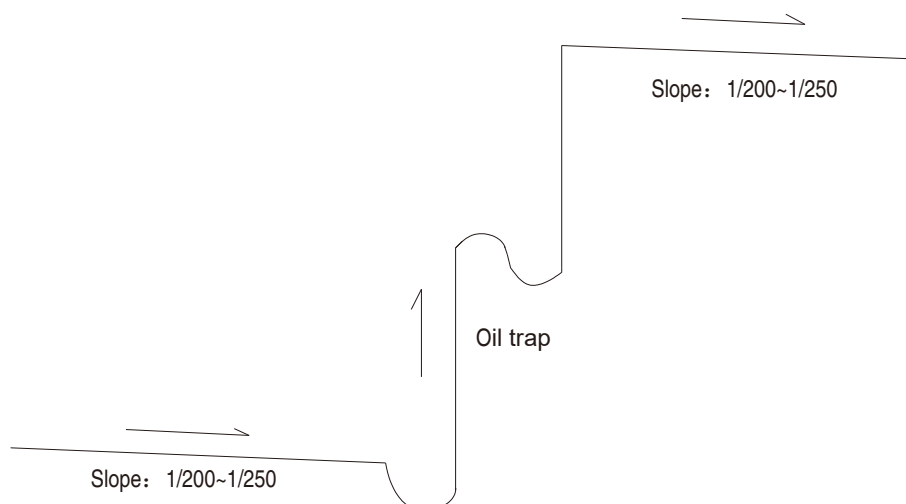
For 42K/48K/60K: Additional refrigerant charge $= (L-7.5) \times 35\text{g/m}$

In specific scenarios, the piping length of 20(30-36K)/30(42-60K) meters no need adding extra refrigerant, the user experience has a slight impact, and the right of interpretation belongs to the manufacturer.

10.2 Oil trap

When the indoor unit is lower than outdoor unit and height difference is larger than 5m, set an oil

trap every 5m(height difference) on suction piping.



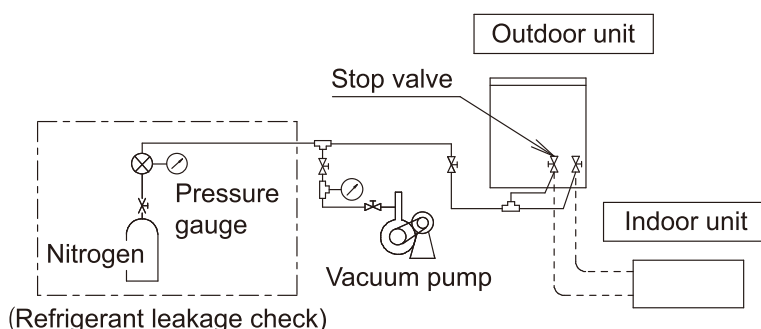
10. PIPING WORK AND REFRIGERANT CHARGE

NOTE:

1. To avoid storing too much oil in the oil bend, the oil bend should be as short as possible.
2. The horizontal piping should slope down along the refrigerant flow direction, to bring the oil back to compressor, the slop is about 1/200 to 1/250.
3. In order to ensure better cooling/heating performance, the refrigerant piping should be as short and straight as possible.

10.3 Air tight test

- Perform a refrigerant leakage check using nitrogen gas (airtightness test) with the outdoor unit stop valve close, to make sure there are no leakage. For the airtightness test, raise the pressure to the design pressure in the high pressure section (30K/36K :4.28 MPa; 42K/48K/60K:4.5MPa)
- For the airtightness test, the unit passes the test if the pressure in the high pressure section does not drop for 24 hours after increasing to the design pressure. A correction is required since the pressure decreases approx. 0.01 MPa when the ambient temperature of 1 C° decreases.
- If the pressure drop is confirmed, perform the airtightness test again after checking and modifying the leakage points.
- Evacuate by the vacuum pump for more than 1 hours until the internal pressure decreases below -0.1 Mpa. After that, leave it with -0.1 MPa or less for more than one hour and confirm that the value of vacuum gauges does not increase.
- If the value of vacuum gauge increases, there is moisture inside the refrigerant piping or there are leakage points. Perform evacuation again after checking and improving the leakage points.



10.4 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 (W_0 (kg))
 W_0 is the outdoor unit refrigerant charge before shipment;
 X_g is additional refrigerant outdoor unit needed to charge according to piping length during installation.

Model	Refrigerant precharged before shipment (W_0 (g))	Total refrigerant pipe length	
		0m~5m (30K/36K)	5m(30K/36K)~MAX. Pipe length allowed 7.5m(42K/48K60K)~MAX. Pipe length allowed
30K/36K	2050	0g	$X_g = 35g / m \times (\text{Total pipe length(m)} - 5)$
42K/48K/60K	4000	0g	$X_g = 35g / m \times (\text{Total pipe length(m)} - 7.5)$

11. INSTALLATION TOOLS AND INSTALLATION FLOWCHART

11. Installation tools and installation flow chart

11.1 Necessary tools and instrument list for installation

No.	Tool	No.	Tool	No.	Tool	No.	Tool
1	Handsaw	6	Copper Pipe Bender	11	Spanner	16	Leveler
2	Phillips Screwdriver	7	Manual Water Pump	12	Charging Cylinder	17	Clamper for Solderless Terminals
3	Vacuum Pump	8	Pipe Cutter	13	Gauge Manifold	18	Hoist (for Indoor Unit)
4	Refrigerant Gas Hose	9	Brazing Kit	14	Cutter for Wires	19	Ammeter
5	Megohmmeter	10	Hexagon Wrench	15	Gas Leak Detector	20	Voltage Meter

Use tools and measuring instruments only for the new refrigerant which is directly touch to refrigerant.

◇ : Interchangeability is available with R410A

● : Only for Refrigerant R32

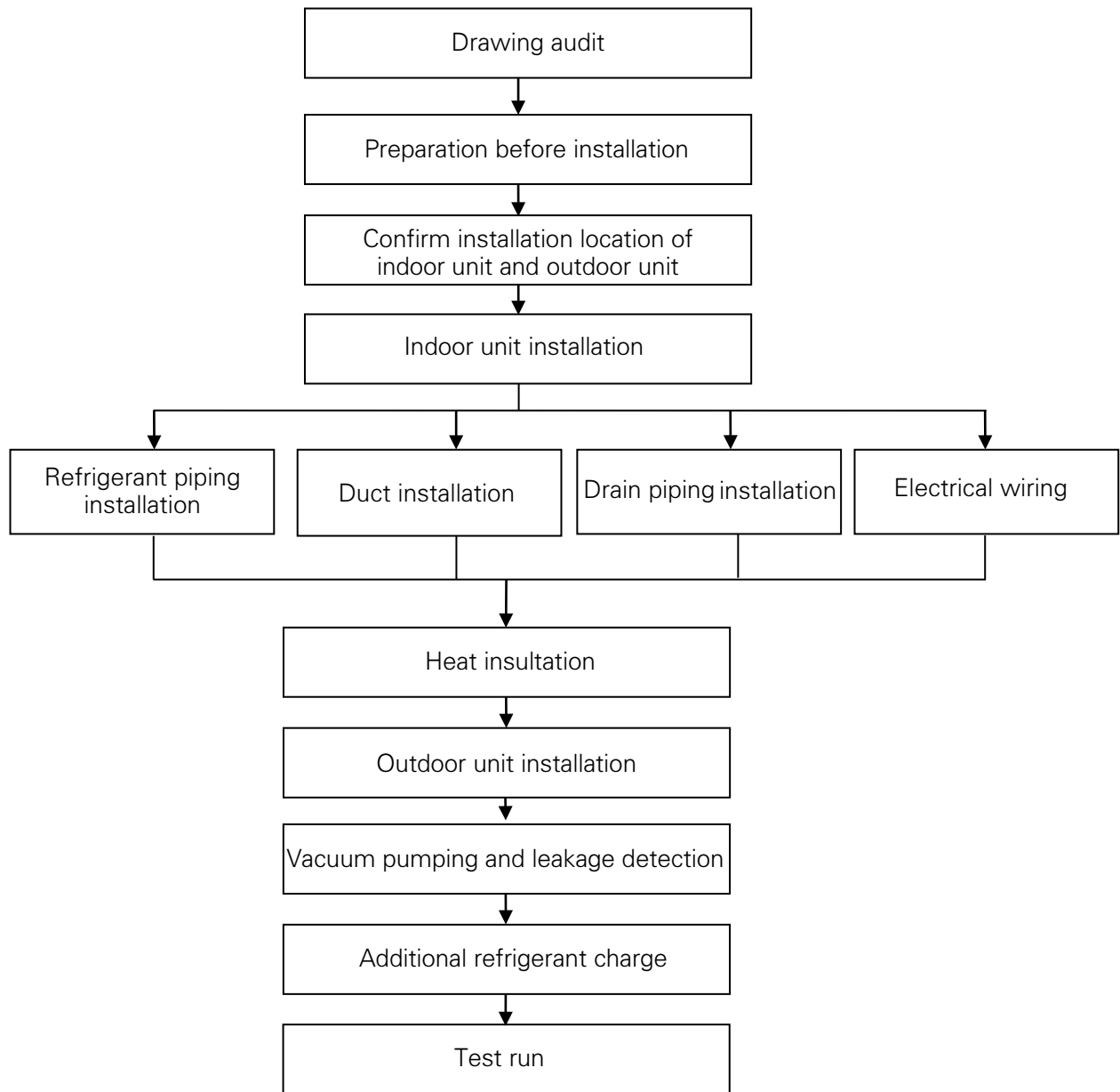
× : Prohibited

◆ : Only for Refrigerant R22

Measuring Instrument and Tool for R410A	R32	R22	Reason of Non-Interchangeability and Attention (*: Strictly Required)	Use	
Refrigerant Pipe	Pipe Cutter Chamfering Reamer	◇	◇	-	Cutting Pipe Removing Burrs
	Flaring Tool	◇	◇	* The flaring tools for R32 are applicable to R22/R410A. * If using flaring tube, make dimension of tube larger for R410A. * In case of material 1/2H, flaring is not available.	Flaring for Tubes
	Pipe Bender	◇	◇	* In case of material 1/2H, bending is not available. Use elbow for bend and braze.	Bending
	Expanding Tool	◇	◇	* In case of material 1/2H, expanding of tube is not available. Use socket for connecting tube.	Expanding Tubes
	Torque Wrench	◇	×	*For φ 1/2, φ 5/8, spanner size is up 2mm.	Connection of Flare Nut
		◇	◇	*For φ 1/4, φ 3/8, φ 3/4, spanner size is the same.	
	Brazing Tool	◇	◇	*Perform correct brazing work.	Brazing for Tubes
	Nitrogen Gas	◇	◇	*Strict Control against Contamin (Blow nitrogen during brazing.)	Prevention from Oxidation during Brazing
Lubrication Oil (for Flare Surface)	●	◆	* Use a synthetic oil which is equivalent to the oil used in the refrigeration cycle. * Synthetic oil absorbs moisture quickly.	Applying Oil to the Flared Surface	
Vacuum Drying & Refrigerant Charge	Refrigerant Cylinder	×	×	* Check refrigerant cylinder color. * Liquid refrigerant charging is required regarding zeotropic refrigerant. * Use the weight scale.	Refrigerant Charging
	Vacuum Pump	◇	◇	* The current ones are applicable. However, it is required to mount a vacuum pump adapter which can prevent from reverse flow when a vacuum pump stops, resulting in no reverse oil flow.	Vacuum Pumping
	Adapter for Vacuum Pump	◇	◆		
	Manifold Valve	◇	◆	* No interchangeability is available due to higher pressures when compared with R22. * Do not use current ones to the different refrigerant. If used, mineral oil will flow into the cycle and cause sludges, resulting in clogging or compressor failure.	Vacuum Pumping, Vacuum Holding, Refrigerant Charging and Check of Pressures
	Charging Hose	◇	×	* Connection diameter is different; R32/R410A: UNF1/2, R22: UNF7/16.	
	Weight Scale	◇	◇		Measuring Instrument for Refrigerant Charging
	Refrigerant Gas Leakage Detector	×	×	* The current gas leakage detector (R22) is not applicable due to different detecting method.	Gas Leakage Check method.

11. INSTALLATION TOOLS AND INSTALLATION FLOWCHART

11.2 Installation flow chart



NOTE:

This flow is only for reference; for details, see installation manual section.

12. CONTROL MODE

12. Control mode

12.1 Indoor unit control mode

1. Functions of the controller

Control function

1.1 Operator-machine communication

Air conditioning and remote controller is provided with a temperature sensor. The remote controller on the temperature sensor detects the default settings of room temperature at room temperature. If the indoor control unit has not received remote control signal for a long time, it will automatically switch to the air conditioner body temperature sensor.

1.2 Timer function

(1) Timer on

When set to start in a time by the remote controller, the air conditioner starts in the timer on condition. When the set time is up, the air conditioner will turn on and operates in the preset conditions after receiving a signal from the remote controller. If the air conditioner has not received a signal from the remote controller when the set time is up, it will automatically start and operate in the preset conditions.

(2) Timer off

When set to stop in a set time by the remote controller, the air conditioner will start in the timer off condition. When the set time is up, the air conditioner will turn off after receiving a signal from the remote controller. If the air conditioner has not received a signal from the remote controller when the set time is up, it will turn off automatically.

(3) Neither the turning on nor turning off operation will cancel the timer function.

1.3 Sleep

(1) In the heating, cooling or dehumidifying mode, press the "Sleep" button on the remote controller to start or cancel the sleep function in turn, and at the same time the sleep icon on the display screen will be on or off accordingly.

(2) In the heating mode, the set temperature will decrease automatically after the sleep function is started.

(3) In the cooling mode, the set temperature will rise automatically after the sleep function is started.

(4) In default, the setting is to cancel the sleep function. Turning off the unit will also cancel the sleep function.

1.4 High efficient run function

In Cool, Dehumidification, Fan mode, press the "HIGH POWER/SUPER" to enter the refrigeration mode, set the temperature automatically adjusting to 16°C; the Fan speed is powerful speed; frequency is high frequency operation.

In the heating mode, powerful function is invalid for H1 wireless remote controller.

1.5 Cooling wind prevention mode

In the heating-run, to prevent the indoor fan from blowing cold air, the indoor fan will stop or run slowly until the coil is warm.

1.6 Blowing waste heating and waste cooling function

In the heating mode, when the air conditioner is turned off, the indoor heat exchanger temperature is still higher, so the air conditioner will continue to run the waste heat operation. In Cooling and dehumidification mode, after the compressor stops, indoor unit will continue to set the speed of operation for a period of time.

12. CONTROL MODE

1.7 Dehumidifying method

If remote control setting is in dehumidifying mode, indoor unit is forced to run at low speed (high power key or a strong bond also maintains a low wind speed), and the outdoor unit runs according to the refrigeration mode operation.

1.8 Auto Re-start from of Power Break

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

How to set/cancel:

It can be set/cancelled with wired remote controller.

For details, see internal control parameter adjustment.

1.9 Filter cleaning

Filer cleaning FC will light up when air filter is clogged with dust.

How to set/cancel: It can be set /cancelled with wired remote controller.

For details, see internal control parameter adjustment.

12. CONTROL MODE

12.2 Outdoor unit control mode

1.1 Cooling anti-freeze protection

The indoor coil sensor functions as real time temperature detector of evaporator. It prevents the indoor unit evaporator temperature becoming too low. If the indoor coil temperature is too low, the compressor will automatically start the protection mode.

1.2 Overload protection

To prevent system overload caused by excessive pressure, the unit will implement real-time detection when outdoor coil temperature is too high during cooling mode or indoor coil temperature is too high during heating mode.

1.3 Operation mode

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

1.4 Start-up protection

To prevent the compressor from restarting frequently when the system pressure has not been completely balanced, and it can't be restarted within 3 minutes.

1.5 Exhaust temperature protection

To prevent deterioration due to high exhaust temperature of compressor, the machine will realize the real-time detection of the exhaust gas temperature. If the temperature is too high, then the compressor will come to automatic protection.

1.6 Oil-return control

When the compressor runs at low frequencies for a long time, control system will start the oil-return mechanism. The oil in the system returns to the compressor.

1.7 Pressure protection

When the pressure increases to a preset value, the pressure switch will automatically protect the unit. The compressor will stop and report the fault code protection.

13. SENSORPARAMETER

13. Sensor parameter

1. THE PARAMETER OF OUTDOOR COMPRESSOR DISCHARGE TEMPERATURE

SENSOR:($R_0=187.25K\pm 6.3\%$; $R_{100}=3.77K\pm 2.5K$; $B_0/100=3979K\pm 1\%$)

DR: Deviation Rate

$DR(MIN)\% = (R_{min} - R_{nom}) / R_{nom} * 100\%$

$DR(MAX)\% = (R_{max} - R_{nom}) / R_{nom} * 100\%$

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
5	137.0455	145.8905	154.7246	-6.06	5.71
6	130.5528	138.9097	147.2544	-6.02	5.67
7	124.4033	132.3011	140.1856	-5.97	5.62
8	118.5769	126.0429	133.4946	-5.92	5.58
9	113.0550	120.1146	127.1591	-5.88	5.54
10	107.8202	114.4973	121.1586	-5.83	5.50
11	102.8560	109.1728	115.4734	-5.79	5.46
12	98.1470	104.1246	110.0855	-5.74	5.41
13	93.6787	99.3367	104.9778	-5.70	5.37
14	89.4378	94.7946	100.1342	-5.65	5.33
15	85.4114	90.4842	95.5398	-5.61	5.29
16	81.5875	86.3926	91.1805	-5.56	5.25
17	77.9551	82.5076	87.0430	-5.52	5.21
18	74.5034	78.8177	83.1150	-5.47	5.17

13. SENSORPARAMETER

T [°C]	Rmin [KΩ]	Rnom [KΩ]	Rmax [KΩ]	DR(MIN)%	DR(MAX)%
19	71.2227	75.3122	79.3848	-5.43	5.13
20	68.1036	71.9808	75.8414	-5.39	5.09
21	65.1373	68.8141	72.4746	-5.34	5.05
22	62.3155	65.8032	69.2746	-5.30	5.01
23	59.6306	62.9395	66.2324	-5.26	4.97
24	57.0752	60.2152	63.3395	-5.21	4.93
25	54.6424	57.6227	60.5877	-5.17	4.89
26	52.3258	55.1551	57.9695	-5.13	4.85
27	50.1192	52.8058	55.4778	-5.09	4.82
28	48.0168	50.5684	53.1058	-5.05	4.78
29	46.0133	48.4371	50.8472	-5.00	4.74
30	44.1034	46.4046	48.6960	-4.96	4.71
31	42.2825	44.4711	46.6466	-4.92	4.66
32	40.5458	42.6261	44.6937	-4.88	4.63
33	38.8891	40.8668	42.8323	-4.84	4.59
34	37.3084	39.1890	41.0576	-4.80	4.55
35	35.7998	37.5883	39.3653	-4.76	4.51
36	34.3596	36.0609	37.7511	-4.72	4.48
37	32.9844	34.6030	36.2109	-4.68	4.44
38	31.6710	33.2113	34.7412	-4.64	4.40
39	30.4164	31.8823	33.3383	-4.60	4.37
40	29.2176	30.6130	31.9988	-4.56	4.33
41	28.0718	29.4004	30.7197	-4.52	4.29
42	26.9765	28.2417	29.4979	-4.48	4.26
43	25.9293	27.1342	28.3306	-4.44	4.22
44	24.9277	26.0755	27.2150	-4.40	4.19
45	23.9697	25.0632	26.1488	-4.36	4.15
46	23.0530	24.0950	25.1293	-4.32	4.12
47	22.1757	23.1688	24.1545	-4.29	4.08
48	21.3360	22.2826	23.2221	-4.25	4.05
49	20.5321	21.4345	22.3301	-4.21	4.01
50	19.7623	20.6226	21.4766	-4.17	3.98
51	19.0261	19.8468	20.6612	-4.14	3.94
52	18.3211	19.1040	19.8808	-4.10	3.91
53	17.6458	18.3926	19.1338	-4.06	3.87
54	16.9986	17.7113	18.4185	-4.02	3.84
55	16.3784	17.0537	17.7335	-3.96	3.83
56	15.7839	16.4332	17.0774	-3.95	3.77
57	15.2139	15.8338	16.4488	-3.92	3.74
58	14.6673	15.2592	15.8464	-3.88	3.71
59	14.1430	14.7083	15.2690	-3.84	3.67
60	13.6400	14.1799	14.7154	-3.81	3.64
61	13.1573	13.6730	14.1846	-3.77	3.61
62	12.6941	13.1868	13.6756	-3.74	3.57
63	12.2494	12.7202	13.1872	-3.70	3.54
64	11.8224	12.2723	12.7186	-3.67	3.51
65	11.4124	11.8424	12.2690	-3.63	3.48
66	11.0185	11.4295	11.8373	-3.60	3.45
67	10.6401	11.0331	11.4230	-3.56	3.41
68	10.2765	10.6522	11.0251	-3.53	3.38
69	9.9271	10.2863	10.6429	-3.49	3.35
70	9.5912	9.9348	10.2756	-3.46	3.32
71	9.2682	9.5968	9.9231	-3.42	3.29
72	8.9576	9.2720	9.5841	-3.39	3.26
73	8.6589	8.9597	9.2583	-3.36	3.23
74	8.3716	8.6594	8.9451	-3.32	3.19

13. SENSORPARAMETER

T [°C]	Rmin [KΩ]	Rnom [KΩ]	Rmax [KΩ]	DR(MIN)%	DR(MAX)%
75	8.0951	8.3705	8.6440	-3.29	3.16
76	7.8290	8.0926	8.3544	-3.26	3.13
77	7.5730	7.8252	8.0758	-3.22	3.10
78	7.3264	7.5679	7.8078	-3.19	3.07
79	7.0891	7.3202	7.5499	-3.16	3.04
80	6.8605	7.0818	7.3018	-3.12	3.01
81	6.6403	6.8522	7.0629	-3.09	2.98
82	6.4282	6.6311	6.8329	-3.06	2.95
83	6.2239	6.4182	6.6115	-3.03	2.92
84	6.0269	6.2131	6.3982	-3.00	2.89
85	5.8371	6.0154	6.1928	-2.96	2.86
86	5.6542	5.8249	5.9949	-2.93	2.84
87	5.4777	5.6413	5.8042	-2.90	2.81
88	5.3076	5.4644	5.6205	-2.87	2.78
89	5.1435	5.2937	5.4433	-2.84	2.75
90	4.9853	5.1292	5.2726	-2.81	2.72
91	4.8326	4.9705	5.1079	-2.77	2.69
92	4.6852	4.8174	4.9492	-2.74	2.66
93	4.5430	4.6697	4.7960	-2.71	2.63
94	4.4058	4.5272	4.6483	-2.68	2.61
95	4.2733	4.3896	4.5058	-2.65	2.58
96	4.1453	4.2568	4.3683	-2.62	2.55
97	4.0218	4.1287	4.2355	-2.59	2.52
98	3.9024	4.0049	4.1074	-2.56	2.50
99	3.7872	3.8854	3.9837	-2.53	2.47
100	3.6758	3.7700	3.8643	-2.50	2.44
101	3.5661	3.6585	3.7512	-2.53	2.47
102	3.4601	3.5509	3.6419	-2.56	2.50
103	3.3577	3.4468	3.5362	-2.59	2.53
104	3.2588	3.3463	3.4341	-2.61	2.56
105	3.1632	3.2491	3.3353	-2.64	2.58
106	3.0708	3.1551	3.2398	-2.67	2.61
107	2.9816	3.0643	3.1475	-2.70	2.64
108	2.8953	2.9765	3.0582	-2.73	2.67
109	2.8118	2.8915	2.9717	-2.76	2.70
110	2.7311	2.8093	2.8881	-2.78	2.73
111	2.6531	2.7299	2.8072	-2.81	2.75
112	2.5776	2.6530	2.7289	-2.84	2.78
113	2.5046	2.5785	2.6531	-2.87	2.81
114	2.4340	2.5065	2.5798	-2.89	2.84
115	2.3656	2.4368	2.5087	-2.92	2.87
116	2.2995	2.3693	2.4400	-2.95	2.90
117	2.2354	2.3040	2.3733	-2.98	2.92
118	2.1734	2.2407	2.3088	-3.00	2.95
119	2.1134	2.1795	2.2463	-3.03	2.97
120	2.0553	2.1201	2.1858	-3.06	3.01
121	1.9991	2.0626	2.1271	-3.08	3.03
122	1.9446	2.0070	2.0702	-3.11	3.05
123	1.8918	1.9530	2.0151	-3.13	3.08
124	1.8406	1.9007	1.9617	-3.16	3.11
125	1.7911	1.8500	1.9099	-3.18	3.14
126	1.7430	1.8009	1.8597	-3.22	3.16
127	1.6965	1.7533	1.8110	-3.24	3.19
128	1.6514	1.7071	1.7638	-3.26	3.21
129	1.6076	1.6623	1.7180	-3.29	3.24
130	1.5652	1.6189	1.6736	-3.32	3.27

13. SENSORPARAMETER

2. THE PARAMETER OF THE OTHER SENSOR IN INDOOR AND OUTDOOR UNIT:

($R_0=15K\pm 2\%$; $B_0/100=3450K\pm 2\%$)

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
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

13. SENSORPARAMETER

T [°C]	Rmin [KΩ]	Rnom [KΩ]	Rmax [KΩ]	DR(MIN)%	DR(MAX)%
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
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

13. SENSORPARAMETER

T [°C]	Rmin [KΩ]	Rnom [KΩ]	Rmax [KΩ]	DR(MIN)%	DR(MAX)%
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
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

13. SENSORPARAMETER

B25/50=4100±3%, R25=15KΩ±3%

Temp		Resistance (KΩ)		Temp		Resistance (KΩ)	
(°C)	Rmax	R(t)Normal	Rmin	(°C)	Rmax	R(t)Normal	Rmin
-20	174.809	160.098	145.38	43	7.178	6.857	6.543
-19	165.347	150.828	137.177	44	6.894	6.581	6.275
-18	155.615	142.154	129.492	45	6.626	6.32	6.021
-17	146.51	134.03	122.288	46	6.369	6.069	5.777
-16	137.985	126.417	115.526	47	6.123	5.831	5.546
-15	130.004	119.282	109.182	48	5.888	5.603	5.325
-14	122.526	112.589	103.223	49	5.664	5.385	5.114
-13	115.52	106.31	97.625	50	5.448	5.177	4.911
-12	108.948	100.415	92.361	51	5.243	4.977	4.719
-11	102.785	94.878	87.411	52	5.045	4.787	4.535
-10	97.002	89.676	82.754	53	4.856	4.604	4.358
-9	91.572	84.786	78.369	54	4.674	4.428	4.19
-8	86.474	80.187	74.238	55	4.502	4.262	4.028
-7	81.684	75.863	70.349	56	4.335	4.101	3.873
-6	77.184	71.793	66.683	57	4.176	3.948	3.726
-5	72.954	67.962	63.225	58	4.023	3.801	3.585
-4	68.976	64.355	59.966	59	3.878	3.66	3.449
-3	65.235	60.957	56.891	60	3.737	3.525	3.32
-2	61.716	57.756	53.988	61	3.602	3.396	3.195
-1	58.403	54.738	51.248	62	3.473	3.272	3.077
0	55.286	51.894	48.66	63	3.35	3.153	2.963
1	52.347	49.211	46.215	64	3.231	3.039	2.855
2	49.583	46.68	43.907	65	3.116	2.93	2.75
3	46.976	44.292	41.723	66	3.006	2.825	2.649
4	44.522	42.039	39.66	67	2.901	2.724	2.553
5	42.207	39.912	37.71	68	2.801	2.628	2.462
6	40.023	37.902	35.864	69	2.703	2.535	2.373
7	37.965	36.005	34.118	70	2.61	2.447	2.288
8	36.024	34.212	32.466	71	2.52	2.361	2.207
9	34.191	32.517	30.902	72	2.433	2.279	2.129
10	32.462	30.915	29.421	73	2.351	2.199	2.054
11	30.83	29.402	28.02	74	2.271	2.124	1.982
12	29.288	27.969	26.691	75	2.195	2.051	1.913
13	27.831	26.615	25.433	76	2.121	1.982	1.845
14	26.454	25.332	24.24	77	2.051	1.914	1.782
15	25.154	24.119	23.109	78	1.982	1.85	1.721
16	23.924	22.97	22.037	79	1.916	1.787	1.662
17	22.761	21.882	21.021	80	1.853	1.727	1.605
18	21.663	20.853	20.058	81	1.793	1.67	1.551
19	20.622	19.877	19.143	82	1.734	1.614	1.499
20	19.64	18.953	18.275	83	1.677	1.562	1.449
21	18.707	18.075	17.451	84	1.623	1.511	1.401
22	17.825	17.244	16.668	85	1.571	1.461	1.355
23	16.991	16.457	15.926	86	1.521	1.413	1.311
24	16.2	15.71	15.221	87	1.473	1.368	1.268
25	15.45	15	14.55	88	1.427	1.325	1.227
26	14.772	14.327	13.883	89	1.382	1.283	1.187
27	14.127	13.688	13.251	90	1.338	1.242	1.149
28	13.515	13.082	12.651	91	1.296	1.203	1.113
29	12.932	12.506	12.083	92	1.257	1.166	1.079
30	12.378	11.958	11.543	93	1.218	1.13	1.044
31	11.85	11.438	11.03	94	1.181	1.095	1.013
32	11.349	10.944	10.544	95	1.145	1.062	0.981
33	10.871	10.473	10.082	96	1.11	1.029	0.951
34	10.416	10.026	9.642	97	1.077	0.999	0.923
35	9.984	9.602	9.225	98	1.046	0.969	0.896
36	9.572	9.197	8.829	99	1.016	0.941	0.869
37	9.179	8.811	8.451	100	0.986	0.914	0.843
38	8.805	8.445	8.093	101	0.957	0.887	0.819
39	8.447	8.096	7.751	102	0.93	0.861	0.795
40	8.106	7.763	7.427	103	0.903	0.837	0.773
41	7.782	7.446	7.118	104	0.878	0.813	0.752
42	7.473	7.145	6.824	105	0.854	0.791	0.728

14. TROUBLESHOOTING

14. Troubleshooting

14.1 Trouble guide

Troubleshooting for Normal Malfunction

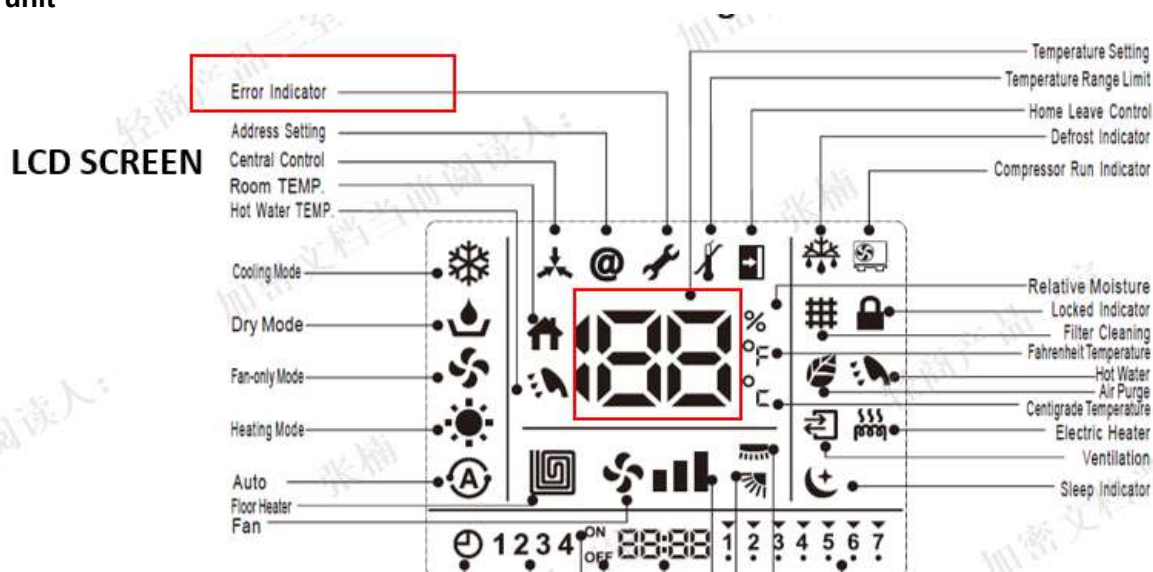
Trouble shooting	Possible Reason for Abnormality	How to Deal With
Air conditioner can not start up	<ol style="list-style-type: none"> 1. Power supply failure; 2. Trip of breaker or blow of fuse; 3. Power voltage is too low; 4. Setting of remote controller wrong; 5. Remote controller is short of power. 	<ol style="list-style-type: none"> 1. Check power supply circuit; 2. Measure insulation resistance to ground to see if there is any leakage; 3. Check if there is a defective contact or leak current in the power supply circuit; 4. Check and set remote controller again; 5. Change batteries.
The compressor starts or stops frequently	The air inlet and outlet has been blocked.	Remove obstacles.
Poor cooling/heating	<ol style="list-style-type: none"> 1. The outdoor heat exchanger is dirty, such as the condenser; 2. There are heating devices indoors; 3. The air tightness is not enough. People come in and out too frequently. 4. Block of outdoor heat exchanger; 5. Improper setting of temperature. 	<ol style="list-style-type: none"> 1. Clean the heat exchanger of the outdoor unit, such as condenser ; 2. Remove heating devices; 3. Keep certain air tightness indoors; 4. Remove obstacles; 5. Check and try to set temperature again.
Sound from deforming parts	During system starting or stopping, a sound might be heard. However, this is due to thermal deformation of plastic parts.	It is not abnormal, and the sound will disappear soon.
Water leakage	<ol style="list-style-type: none"> 1. Drainage pipe is blocked or broken; 2. Wrap of refrigerant pipe joint is not closed enough. 	<ol style="list-style-type: none"> 1. Change the drainage pipe. 2. Re-wrap and make it tight.

Troubleshooting according to fault codes

When the air conditioner failure occurs, the fault code will display on control board, wired controller or display panel.

How to check fault codes

Indoor unit



When the air conditioner is malfunction ,  Will display on the LCD, and error codes will appear and blink.

14. TROUBLESHOOTING

Display panel



Lamp RUN (LED2, Red) and Lamp DEFROST (LED5, Green) flash. Lamp RUN displays fault code represented by 2- digit number, and lamp DEFROST displays fault code represented by single digit number (as shown fig. below). For example, fault code 36: LED RUN & defrost flash 3 times at the same time, and LED DEFROST continues flashing 3 times, it reports No. 36 fault.

LED FLASH CONTROL: flash 300ms(T1), off 300ms(T2), after 2000ms(T3) fault code repeat displays. (as shown below)

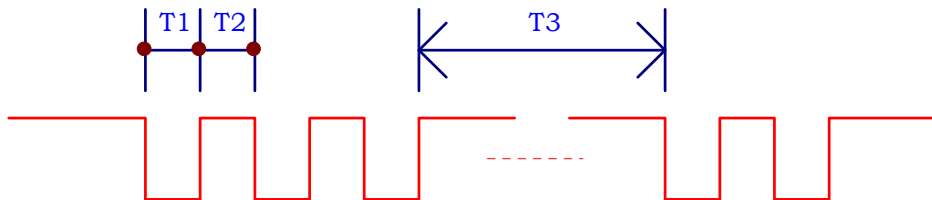


Fig.2 LED FLASH CONTROL

- 1 Run indicator (Red)
Indicates the fault code ten digital number.
- 2 Defrost indicator (Green)
Indicates the fault code single digital number.

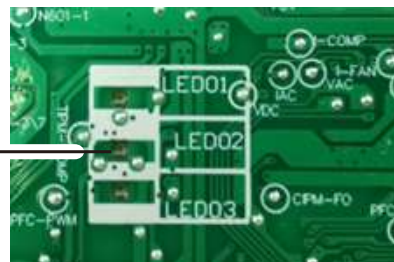
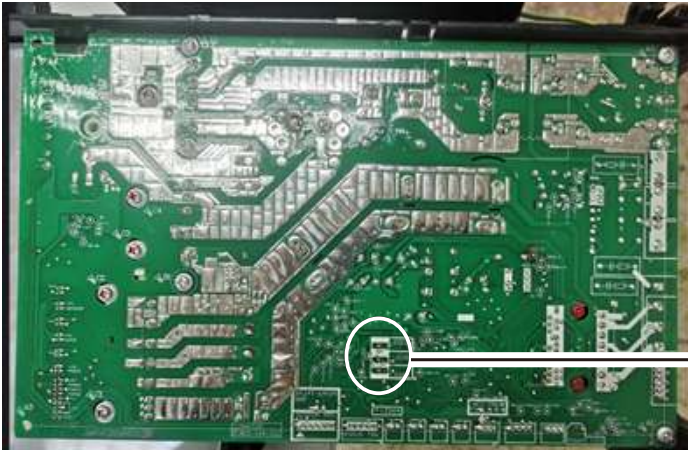
14. TROUBLESHOOTING

How to check fault codes

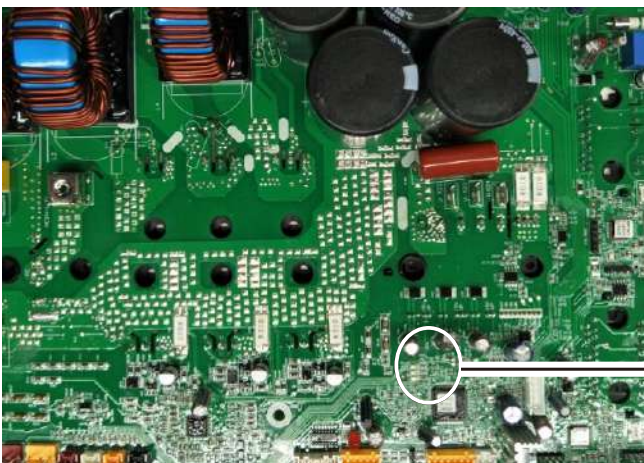
Troubleshooting according to fault codes

When the air conditioner failure occurs, the fault code will display on control board, or maintenance board.

30K/36K



42K/48K/60K



V28(LED1): Ten's place
V29(LED2): Unit's place
V30(LED3): Drive failure indicator

Fault code displayed by LED lamps on outdoor main control board.

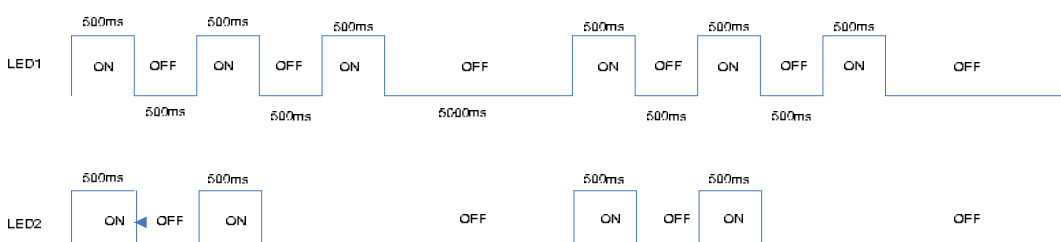
There are 3 LED lamps on control board, LED1, LED2 and LED3.

LED1 indicates fault code represented by 2-digit number, LED2 indicates fault code represented by single digit number and LED3 indicates outdoor drive control fault. When LED3 is off, LED1 and LED 2 indicate main control fault code.

When LED3 is on, LED1 and LED 2 indicate drive control fault code.

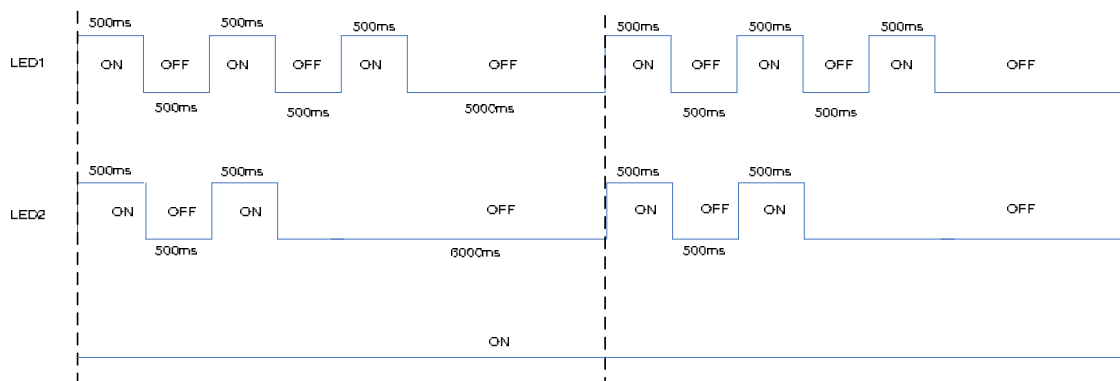
When LED3 is flickering and LED1, LED 2 are all off, indicate compressor is preheating. Failures display with 5s interval. It means LED will be off for 5s to report next fault code. System protection codes display method is the same with main control fault code. LED lamps will be off when there is no failure, protection or preheating.

For example, outdoor main control fault 32:



14. TROUBLESHOOTING

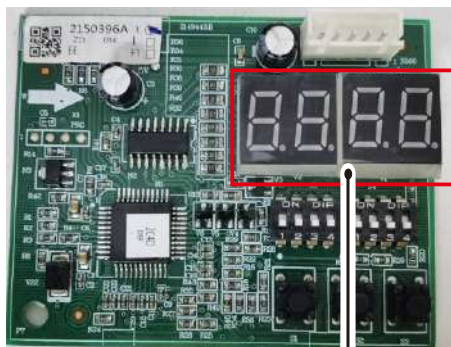
For example, outdoor drive fault 32:



Outdoor unit

Fault code displayed on checker board(42K/48K/60K)

Fault code/drive fault code will be displayed on checker board.



7-segment display

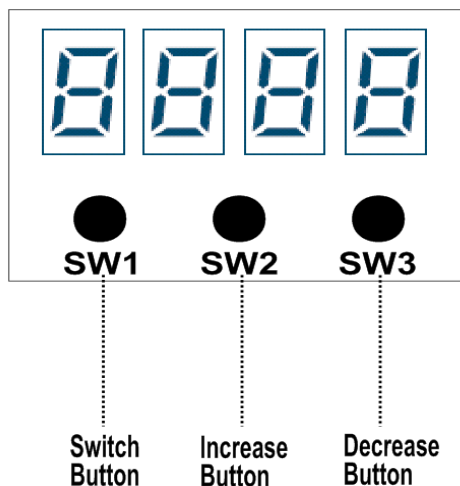


shows failure occur

Display ERROR code

Digital Display Switch Introduction

It can be used to check outdoor running parameters.



14. TROUBLESHOOTING

There are 3 buttons on the digital display board :

- 1) SWITCH button : Indoor parameters and outdoor parameters can be selected in turn by pressing it.
 “P.”-outdoor unit parameter ,“A.”-indoor unit parameter ;
- 2) INCREASE button : Each time it is pressed, the number rises by 1,hold down it, the number will be rapidly increase;
- 3) DECREASE button : Each time it is pressed, the number lowers by 1,hold down it, the number will rapidly decreased.
- 4) The parameters will be displayed after 3s when the checking numbers are selected.

Parameters can be checked as following table below.

Parameter Code	Descriptions	Parameter Code	Descriptions
P.0	Fault codes	P.27	Outdoor DC Motor 2 target speed
P.1	Compressor actual frequency	P.29	The current opening of the outdoor expansion valve
P.2	Compressor driving frequency	A.1	Unit A fault codes
P.4	Compressor target frequency	A.2	Unit A valve actual opening
P.5	Compressor exhaust temperature	A.4	Unit A liquid pipe temperature
P.6	Outdoor suction Temperature	A.5	Unit A gas pipe temperature
P.7	Outdoor ambient temperature	A.6	Unit A coil temperature
P.8	Outdoor coil temperature	A.7	Unit A ambient temperature
P.9	Outdoor defrosting temperature	A.8	Unit A set temperature
P.10	IPM module temperature	A.9	Unit A capacity
P.11	Outdoor capacity requirement	A.10	Unit A set fan speed
P.12	IPM fault codes	A.11	Unit A actual suction overheating (cooling)
P.13	Outdoor DC Motor 1 target speed		
P.14	AC input current		
P.15	AC input voltage		
P.16	DC bus voltage		
P.17	Compressor phase current		
P.18	Frequency limit code		
P.20	Target suction overheating		
P.21	Target exhaust overheating		
P.22	Actual suction overheating (heating)		
P.23	Actual exhaust overheating (heating)		

14. TROUBLESHOOTING

14.2 Fault codes

The following is the fault code table of outdoor unit.

30K/36K

When the unit has the following trouble and the compressor stops running, The LED of outdoor control board will show the error sequence automatically:

NOTE: ★: LIGHT O: FLASH ×: OFF

Error code	Outdoor Failure Description	LED 1	LED 2	LED 3	the root cause may be one of the following	
Mark description: the lights flash every second for the following faults						
	Fault description	LED 1	LED 2	LED 3	Possible reasons for abnormality	How to deal with
	Outdoor coil temperature sensor in trouble	★	×	★	a. the outdoor coil sensor connect loose; b. the outdoor coil temperature sensor is failure; c. the outdoor control board is failure	a. Reconnect the outdoor coil temperature sensor; b. Replace the outdoor coil temperature sensor components;
	Compressor exhaust temperature sensor in trouble	★	×	×	a. the compressor exhaust temperature sensor connect loose; b. the compressor exhaust temperature sensor is failure;	a. Reconnect the Compressor exhaust temperature sensor; b. Replace the Compressor exhaust temperature sensor
					c. the outdoor control board is failure	c. Replace the outdoor control board
	Communication failure between the indoor unit and outdoor unit	×	×	O	a. the communication cable connect loose;	a. Reconnect the communication cable;
					c. the connection between the filter board and the outdoor control board is incorrect or loose;	b. Replace the communication cable;
					d. the connection between the filter board and the terminal is incorrect or loose	c. Reconnect the connection between the filter board and the outdoor control board ;
					e. the indoor control board is failure;	d. Reconnect the connection between the filter board and the terminal ;
					f. the PFC board is failure;	e. Replace the indoor control board;
					g. the power board is failure; h. the outdoor control board is failure.	f. Replace the outdoor control board
	Current overload protection	★	O	×	a. the fan motor run abnormally;	a. Replace the fan motor;
					b. the condenser or and evaporator is dirty;	b. Clean the condenser and evaporator; c. Inspect the air inlet and outlet.
	Maximum current protection	★	O	★	a. the outdoor control board is short	a. Replace the outdoor control board;
					b. the drive board is short circuit;	b. Inspect the other components and Replace the one witch is short circuit.
					c. the other components is short circuit	

14. TROUBLESHOOTING

Communication trouble between outdoor unit and driver	×	★	★	a. the connection wires connect loose b. the outdoor board or drive board is failure;	a. Reconnect the wires; b. Replace the outdoor control board.
Outdoor EEPROM in trouble	★	★	★	a. he EEPROM chip is loose; b. the EEPROM chip inserted with c. the EEPROM chip is failure	Replace the outdoor control board.
Compressor exhaust temperature too high protection	×	○	★	a. the compressor exhaust temperature sensor is failure;	a. Replace the compressor exhaust temperature sensor ;
				b. the refrigerant of the unit is not enough	b. Recharge the refrigerant;
				c. Outdoor ambient temperature exceeds the limit	c. Reboot the product when the outdoor ambient temperature within operation range
Outdoor ambient temperature sensor in trouble	★	★	×	a. the outdoor ambient temperature sensor connect loose;	a. Reconnect the outdoor ambient temperature sensor;
				c. the outdoor control board is failure	c. Replace the outdoor control board .
Compressor shell temperature too high protection	×	★	○	a. the compressor exhaust temperature b. the refrigerant of the unit is not	a. Reconnect the compressor exhaust b. Recharge the refrigerant;
Anti-freeze protection with cooling or overload protection with heating in indoor unit	×	○	○	a. the indoor coil temperature sensor	a. Reconnect the indoor coil temperature sensor;
				b. the indoor coil temperature sensor is	b. Replace the indoor coil temperature sensor;
				c. the indoor control board is failure	c. Replace the indoor control board.
				d. the refrigerant system is abnormal.	d. Inspect the refrigerant system
Compressor drive in trouble	○	×	○	a. the outdoor drive board is failure; b. the compressor is failure c. the outdoor control board is failure	Replace the outdoor control board; c. Replace the compressor.
Outdoor fan motor locked rotor protection	○	○	★	a. the connection of the outdoor fan motor is loose; b. there are something block the outdoor fan; c. the fan motor is failure;	a. Reconnect the connection of the outdoor fan motor; b. Remove any obstructions; c. Replace the fan motor; d. Replace the outdoor control board
Outdoor coil anti-overload protection with cooling	×	★	×	a. the refrigerant is too much; b. the outdoor fan motor is failure; c. the outdoor fan is broken; d. the condenser is dirty; e. the air inlet and air outlet of the indoor unit and the outdoor unit is not	a.confirm the refrigerant charging; b.Replace the fan motor; c.Replace the fan; d.Clean the condenser; e.Take inspection of air inlet and air outlet of the indoor unit and the outdoor unit

14. TROUBLESHOOTING

IPM module protection	×	○	×	a. The IPM board is failure;	a. Replace the IPM board
				b. The outdoor fan is broken;	b. Replace the outdoor fan ;
				c. The outdoor fan motor is failure;	c. Replace the outdoor fan motor;
				d. The outdoor fan has been blocked ;	d. Remove any obstructions ;
				e. The condenser is dirty;	e. Clean the condenser ;
				f. The outdoor unit has been installed	f. Reinstall the product with standard.
PFC protection	○	×	×	a. the PFC is failure; b. the outdoor drive board is failure	Replace the outdoor control board.
Compressor pre heating process	○	★	○	it is normal mode in cold weather	/
Chip in outdoor board in trouble	★	×	○	a. Using the wrong drive board;	a. Replace the outdoor control board;
				b. Using the wrong compressor.	b. Replace the compressor.
AC voltage higher or lower protection	★	★	○	a. the supply voltage is higher or lower b. the inner supply voltage of the unit is higher or lower than normal	Supply the stable power
DC compressor start failure	○	○	×	a. the outdoor drive board is failure; b. the compressor is failure	a. Replace the outdoor control board; b. Replace the compressor.
Outdoor ambient temperature too low or too high protection	★	○	○	a、 Outdoor ambient temperature too low or too high	Reboot the product when the outdoor ambient temperature within opration range
There is a leak in the product (Just suitable for some products only)	○	★	★	a. There is a leak in the indoor	Take inspection of refrigeration system
				b. There is a leak in the outdoor	
				c. There is a leak in the connecting	
Mark description: the lights flash every two seconds for the following faults					
Protection against overheated outdoor radiator	○	×	×	a. Radiator sensors fail b. Detection circuit of the sensor on the control panel fails	Replace the outdoor control board
Protection of the system against too high pressure	○	○	×	a. The pressure switch fails	Replace the switch;
				b. The pressure detection switch on the	c. Turn off the air-condition and reboot it after 3 minute. If the code still remains, should comfort the outdoor ambient temperature exceeds the
				c. The measured value of the system pressure exceeds the limit	
protection of the system abnormal	×	○	★	a. Check whether the outdoor valves are opened.	open the valves
	○	×	★	a. Check whether the Dred sing required by AU grid PeakSmart function was	

14. TROUBLESHOOTING

42K/48K/60K

Table 1 Outdoor fault code

Fault code	Fault description	Possible reasons for abnormality	How to deal with	Remarks
1	Outdoor ambient temperature sensor fault	<ol style="list-style-type: none"> 1.The outdoor ambient temperature sensor is connected loosely; 2.The outdoor ambient temperature sensor fails to work; 3.The sampling circuit fails. 	<ol style="list-style-type: none"> 1.Reconnect the outdoor ambient temperature sensor; 2.Replace the outdoor ambient temperature sensor components; 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 is connected loosely; 2.The outdoor coil temperature sensor fails to work; 3.The sampling circuit fails. 	<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 fails; 2. The current is over high because 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. Normal protection; 3. Replace the compressor; 4. Please see NOTE 3; 5. Please see NOTE 4. 	
4	EEProm Data error	<ol style="list-style-type: none"> 1.EE components fails; 2.EE components control circuit fails; 3.EE components are inserted incorrectly. 	<ol style="list-style-type: none"> 1.Replace the EE components; 2.Replace the outdoor control board components; 3.Reassemble 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 installed in accordance with the installation standards, and the air inlet is too close to the air outlet . 	<ol style="list-style-type: none"> 1.Check whether the indoor fan, indoor fan motor and evaporator work normally; 2.Normal 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 referring to the user manual to change the distance between the indoor unit and the wall or ceiling. 	
7	The communication fault between the indoor unit and outdoor unit	<ol style="list-style-type: none"> 1.The connection cable is connected improperly between the indoor unit and outdoor unit; 2.The communication cable is connected loosely; 3.The communication cable fails; 4.The indoor control board fails; 5.The outdoor control board fails; 6.Communication circuit fuse open; 7.The specification of communication cable is incorrect. 	<ol style="list-style-type: none"> 1.Reconnect the connection cable referring 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 referring to the user manual 	

14. TROUBLESHOOTING

Fault code	Fault description	Possible reasons for abnormality	How to deal with	Remarks
13	Compressor overheat protector device	<ol style="list-style-type: none"> 1. The wiring of the overload protector is connected loosely. 2. The overload protector fails . 3. The refrigerant is not enough; 4. The installation pipe is much longer than the normal one, but extra refrigerant is not added ; 5. The expansion valve fails; 6. The outdoor control board fails. 	<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 operation or the unit is turned off for high pressure protection	<ol style="list-style-type: none"> 1.The wiring of the high pressure protector is connected loosely; 2.The high pressure protector fails; 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 of 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
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 is connected loosely; 2.The discharge temperature sensor fails; 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. 	
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 abnormal. 	<ol style="list-style-type: none"> 1. Normal protection, please check the supply power; 2. Replace the driver board. 	
45	IPM fault	There are many reasons for this failure. You can check the driver board fault LED to further analyze the fault code of the drive board and to learn about what leads to the fault and how to operate it. Specific information can be seen in 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 is connected loosely; 2.The cable between the control board and the driver board fails; 3.The driver board fails; 4.The control board fails. 	<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. 	

14. TROUBLESHOOTING

Fault code	Fault description	Possible reasons for abnormality	How to deal with	Remarks
47	Too high discharge temperature 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 that the installation pipe is longer. 3.Throttling service fails; 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 leakage point, and then add some refrigerant. 2.Add some refrigerant referring 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 connecting wiring of the up DC fan motor is loose; 2.The cord of the upper DC fan motor fails; 3.The upper DC fan motor fails; 4.The drive circuit of the upper DC fan motor fails; 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 upper DC fan motor; 3.Replace the upper 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 connecting wiring of the down DC fan motor is loose; 2.The cord of the down DC fan motor fails; 3.The down DC fan motor fails; 4.The drive circuit of the down DC fan motor fails; 5.The out 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 temp. 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 is not installed in accordance with the 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. 	
96	Lacking of refrigerant	The refrigerant of the unit is not enough.	Discharge the refrigerant and charge the refrigerant referring to the rating label.	

14. TROUBLESHOOTING

The following is the fault code table of indoor unit.

Table 2 Indoor Fault code

Fault code	Fault description	Possible reasons for abnormality	How to deal with	Remarks
37	Coil humidity sensor failure	<ol style="list-style-type: none"> 1.The cable of the humidity sensor connect loose; 2.The humidity sensor is failure; 3.The indoor control board is failure. 	<ol style="list-style-type: none"> 1.Reconnect the cable of the humidity sensor; 2.Replace the humidity sensor; 3.Replace the indoor control board. 	
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 is connected loosely; 3.The water level switch fails; 4.The control board fails. 	<ol style="list-style-type: none"> 1.1 Check whether there is something blocking 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 fails; 2. Reconnect the cable of the water level switch referring to the wiring diagram; 3. Replace the water level switch; 4. Replace the control board. 	
55	Mode conflict fault	The user set the conflicting mode for more than two indoor units	Reset the operation mode for the indoor unit, for with one outdoor unit, the user should avoid setting the conflicting operation mode with the indoor units.	
64	Communication between Indoor & Outdoor unit Fault	<ol style="list-style-type: none"> 1. The indoor unit and the outdoor unit are not connected properly; 2. The communication cable is connected loosely; 3. The communication cable between the indoor unit and the outdoor unit is failure or the cable between the indoor control board to terminal fails or the cable between the outdoor control board to the terminal fails; 4. The indoor control board fails; 5. The outdoor control board fails. 	<ol style="list-style-type: none"> 1. Reconnect the connection cable referring to the indoor and outdoor wiring diagram; 2. Reconnect the communication cable referring to the indoor and outdoor wiring diagram; 3. Replace the communication cable referring 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 is connected loosely; 2. The cable of the indoor fan motor fails; 3. The indoor fan motor fails; 4. The indoor control board fails. 	<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 fails; 2. The control circuit of the EE components fails; 3. The EE components has been inserted in 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. 	

14. TROUBLESHOOTING

Fault code	Fault Description	Possible Reason of Abnormality	How to Deal With	Remarks
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. 	
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 & Wired controller Fault (display on wired controller)	<ol style="list-style-type: none"> 1. The wired controller and the indoor control board are connected loosely. 2. The sequence of the wiring between the wired controller to the indoor control board is wrong; 3. The wiring between the wired controller to the indoor control board fails; 4. The wired controller is fails; 5. The indoor control board is abnormal. 	<ol style="list-style-type: none"> 1. Reconnect the wiring between the wired controller to the indoor control board; 2. Replace the wiring between the wired controller to the indoor control board; 3. Replace the wiring between the wired controller to the indoor control board; 4. Replace the wired controller; 5. Replace the indoor control Board. 	

14. TROUBLESHOOTING

NOTE 1:

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

NOTE 2:

If the indoor unit displays the 08,09 fault code after you turn on the unit, please check the TEST seat of the indoor control board or the TEST detection circuit whether short circuit exists.

NOTE 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 referring to the rating label.
2	The outdoor ambient temperature is too high	Please use it within allowable temperature range.
3	Short-circuit occurs in the air outlet and air inlet of the outdoor unit.	Adjust the installation of the outdoor unit referring to the user manual.
4	The outdoor heat exchanger is dirty, such as the condenser.	Clean the heat exchanger of the outdoor unit, such as the condenser.
5	The speed of the outdoor fan motor is too low.	Check the outdoor fan motor and the fan capacitor.
6	The outdoor fan is broken or the outdoor fan is blocked.	Check the outdoor fan.
7	The air inlet and outlet have been blocked.	Remove the obstructions.
8	The expansion valve or the capillary fails.	Replace the expansion valve or the capillary

NOTE 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 referring to the rating label.
2	The indoor ambient temperature is too high.	Please use it within allowable temperature range.
3	Short-circuit occurs in the air outlet and air inlet of the indoor unit.	Adjust the installation of the indoor unit referring 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 have been blocked.	Remove the obstructions.
8	The expansion valve or the capillary fails.	Replace the expansion valve or the capillary.

14. TROUBLESHOOTING

Table 5 Analysis of the driving board fault (42K/48K/60K)

Fault code	Fault description	Possible reasons for abnormality	How to deal with
1	Inverter DC voltage overload fault	1. Power supply input is too high or too low; 2. Driver board fault.	1. Check the power supply; 2. Change the 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 the compressor wire connection; 2. Change the driver board; 3. Change the 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 the driver board; 3. Change the compressor; 4. Change the compressor.
8	Inverter IPM fault (level)		
9	PFC fault (edge)		
10	PFC fault (level)		
11	PFC power detection of failure	1. The power supply is not stable; 2. Instantaneous power failure; 3. Driver board failure.	1. Check the power supply; 2. No need to deal with; 3. Change the driver board.
12	PFC overload current detection of failure.	1. System overloads, and the current is too high; 2. Driver board fails; 3. PFC fails.	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 fails.	1. Check the power supply; 2. Change the driver board.
14	PFC LOW voltage detected failure.		
15	AD offset abnormal detected failure.	Driver board fails.	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 connection is not proper; 2. Driver board fails; 3. Control board fails.	1. Check the wiring; 2. Change the driver board; 3. Change the control board.
23	Motor parameters setting of failure	Initialization is abnormal.	Reset the power supply.
25	EE data abnormal	Driver board EEPROM is abnormal.	1. Change EEPROM; 2. Change the driver board.
26	DC voltage mutation error	1. Power input changes suddenly; 2. Driver board fails.	1. Check the power supply, to provide stable power supply; 2. Change the driver board.
27	D axis current control error	1. System overload, phase current is too high; 2. Driver board fails.	1. Check if the system is normal; 2. Check if the stop valve is open; 3. Change the driver board.
28	Q axis current control error	1. System overload, phase current is too high; 2. Driver board fails.	1. Check if the system is normal; 2. Check if the stop valve is open; 3. Change the driver board.
29	Saturation error of D axis current control integral	1. System overloads suddenly; 2. Compressor parameter is not suitable; 3. Driver board fails.	1. Check if the system is normal; 2. Check if the stop valve is open; 3. Change the driver board.
30	Saturation error of Q axis current control integral	1. System overloads suddenly; 2. Compressor parameter is not suitable; 3. Driver board fails.	1. Check if the system is normal; 2. Check if the stop valve is open; 3. Change the driver board.

14. TROUBLESHOOTING

Fault code	Fault description	Possible reasons for abnormality	How to deal with
50	Motor software over-current	<ol style="list-style-type: none"> 1. The fan motor system overloads; 2. The drive board fails; 3. The connector of the motor is in poor contact. 	<ol style="list-style-type: none"> 1. Check whether the air inlet/outlet is seriously dirty. 2. Change the drive board; 3. Reconnect the motor.
53	Out of phase detection fault	<ol style="list-style-type: none"> 1. Phase loss of the fan motor; 2. Bad drive board components. 	<ol style="list-style-type: none"> 1. Change the drive board; 2. Change the fan motor; 3. Change the fan motor
54	IPM-FO hardware over-current (edge)	<ol style="list-style-type: none"> 1. The fan motor overloads or over-current; 2. The drive board fails; 3. The fan motor insulation fails. 	<ol style="list-style-type: none"> 1. Change the fan motor; 2. Change the drive board; 3. Change the fan motor.
57	IPM temperature overload fault	<ol style="list-style-type: none"> 1. The drive board fails; 2. Loosening of IPM and radiator; 3. The fan motor load is large. 	<ol style="list-style-type: none"> 1. Change the drive board; 2. Check if the IPM is in close contact with the radiator 3. Check whether the air inlet/outlet is seriously dirty.
59	Inverter DC voltage of bus line overload fault	<ol style="list-style-type: none"> 1. Power supply input is too high or too low; 2. The drive board fault. 	<ol style="list-style-type: none"> 1. Check the power supply; 2. Change the drive board.
60	Inverter DC voltage of bus line undervoltage fault		
61	Communication failure.	<ol style="list-style-type: none"> 1. Communication wire connection is not proper; 2. Driver board fails; 3. Control board fails. 	<ol style="list-style-type: none"> 1. Check the wiring; 2. Change the driver board; 3. Change the control board.
62	Rotor blocked	Foreign object blocked the fan.	Check and remove foreign object.
63	No motor	The connector of the motor is in poor contact.	Reconnect the motor.

14. TROUBLESHOOTING

Table 6 Limitation Code

Code	Definitions	Descriptions
101	When overcurrent occurs, stop the frequency from increasing.	Current control
102	When overcurrent occurs, reduce the frequency.	Current control
103	When the temperature of IPM module is too high, stop the frequency from increasing.	Frequency control to keep appropriate temperature of IPM module.
104	When the temperature of IPM module is too high, reduce the frequency.	Frequency control to keep appropriate temperature of IPM module.
105	When the discharge temperature is too high, stop the frequency from increasing.	Frequency control to keep appropriate discharge temperature.
106	When the discharge temperature is too high, reduce the frequency.	Frequency control to keep appropriate discharge temperature.
107	In cooling mode, when the temperature of the outdoor unit coil is too high, stop the frequency from increasing.	Frequency control to keep appropriate temperature of the outdoor unit coil in cooling mode.
108	In cooling mode, when the temperature of the outdoor unit coil is too high, reduce the frequency.	Frequency control to keep appropriate temperature of the outdoor unit coil in cooling mode.
113	To prevent the indoor unit from being frozen or high temperature, stop the frequency from increasing.	Frequency control to keep appropriate temperature of the indoor unit coil.
114	To prevent the indoor unit from being frozen or high temperature, reduce the frequency.	Frequency control to keep appropriate temperature of the indoor unit coil.
119	When DSH exceeds the target value, the valve opening gets wider to adjust the flow.	Control on expansion valve based on DSH.
120	When DSH exceeds the target value, the valve opening gets narrower to adjust the flow.	Control on expansion valve based on DSH.
121	When DSH exceeds the target value, stop the valve opening from getting narrower.	Control on expansion valve based on DSH.
122	When DSH exceeds the target value, stop the valve opening from getting wider.	Control on expansion valve based on DSH.
131	When the temperature of IPM module is too high, stop the frequency from increasing.	Frequency control to keep appropriate temperature of IPM module.
132	When the temperature of IPM module is too high, reduce the frequency.	Frequency control to keep appropriate temperature of IPM module.
134	When the discharge temperature is too high, stop the valve opening getting narrower.	Control on discharge temperature expansion valve.
140	The compressor overloads.	Control on the compressor output.
141	The compressor current overloads.	Control on the output torque of the compressor.

※ DSH: Discharge Super Heat

These codes appearing in the operation process indicate some kind of normal operation state, instead of faults, so they do not need to be dealt with.

15. CHECKING COMPONENTS

15. Checking components

15.1 Check refrigerant system

TEST SYSTEM FLOW

Conditions: ① Compressor is running.

② The air condition should be installed in good ventilation.

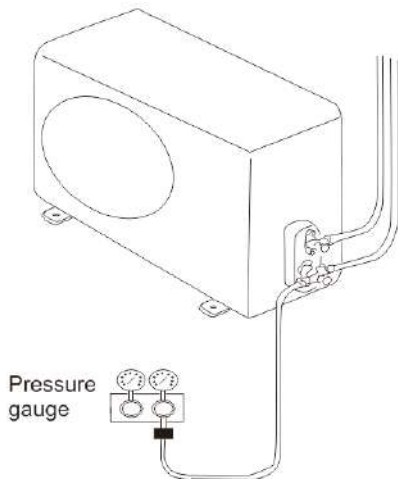
Tool: Pressure Gauge

Technique: ① see ② feel ③ test

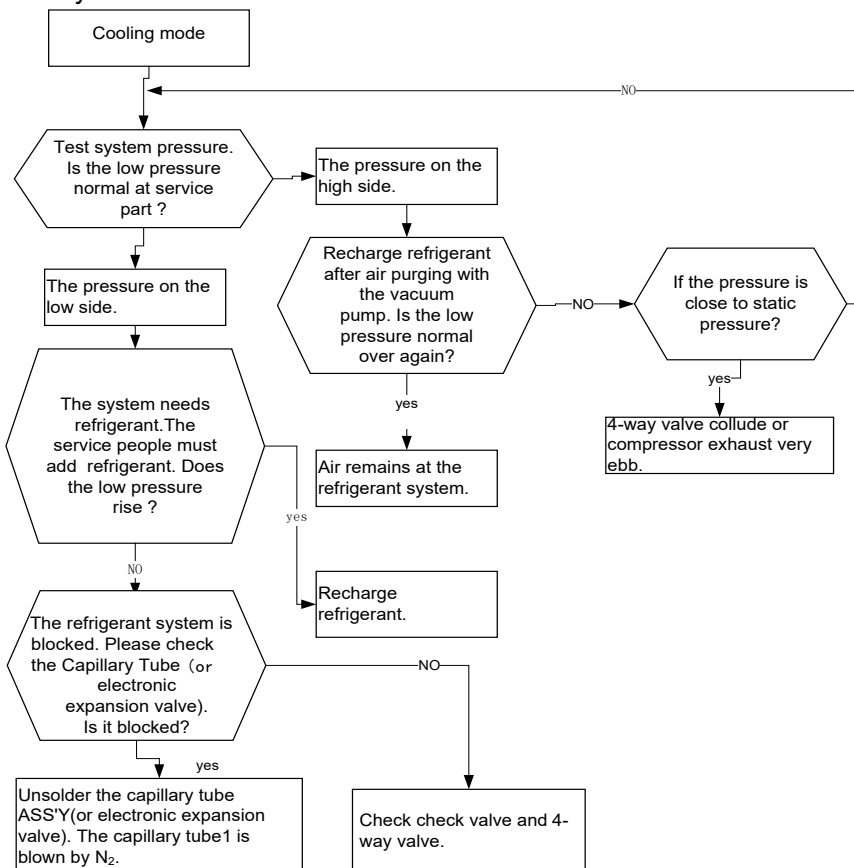
SEE ----- Tube defrost.

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

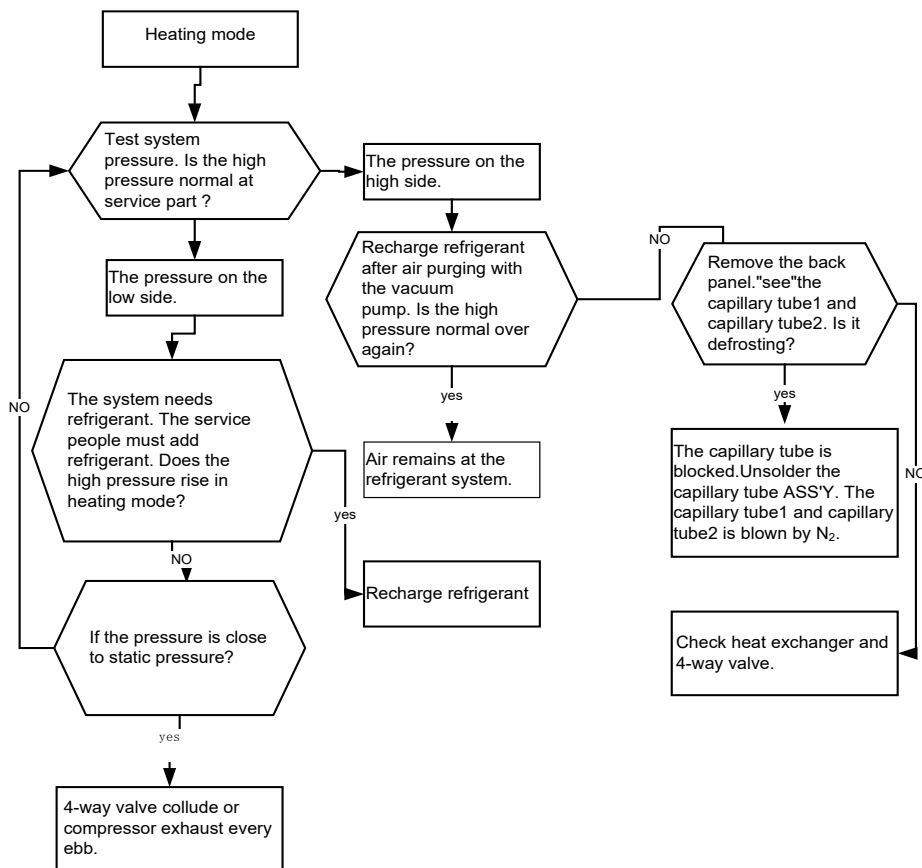
TEST ----- Test pressure.



Test system flow



15. CHECKING COMPONENTS

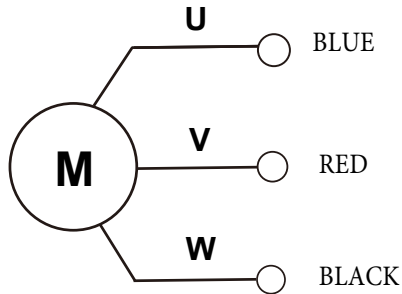


15. CHECKING COMPONENTS

15.2 Check parts unit

1. Indoor fan motor

Ducted motor model (DC motor) : ZW702F000019



blue-red: $2.2\Omega \pm 7\%$ (25°C)
 blue-black: $2.2\Omega \pm 7\%$ (25°C)
 red-black: $2.2\Omega \pm 7\%$ (25°C)

Test in resistance

TOOL: Multimeter.

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

Notes:

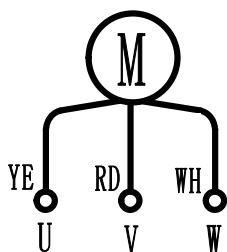
Please don't hold motor by leading wires.

Please don't plug IN/OUT the motor connector while power ON.

Please don't drop hurl or dump motor against hard material. Malfunction may not be observed at early stage after such shock. But it may be found later, this type of mishandling void our warranty.

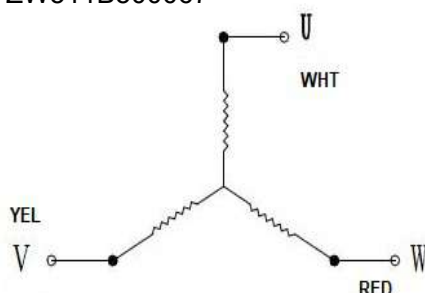
2. Outdoor motor

Motor Model(DC motor) :
 30K/36K: ZWB278L46A



yellow-red: $34.5\Omega \pm 10\%$ (25°C)
 yellow-white: $34.5\Omega \pm 10\%$ (25°C)
 red-white: $34.5\Omega \pm 10\%$ (25°C)

Motor Model(DC motor) :
 42K/48K/60K: ZW511B500064/
 ZW511B500067



yellow-red: $34.5\Omega \pm 10\%$ (25°C)
 yellow-white: $34.5\Omega \pm 10\%$ (25°C)
 red-white: $34.5\Omega \pm 10\%$ (25°C)

15. CHECKING COMPONENTS

Test in resistance

TOOL: Multimeter.

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

Notes:

Please don't hold motor by leading wires.

Please don't plug IN/OUT the motor connector while power ON.

Please don't drop hurl or dump motor against hard material. Malfunction may not be observed at early stage after such shock. But it may be found later, this type of mishandling void our warranty.

3. COMPRESSOR

COMPRESSOR EXAMINE AND REPAIR

30K/36K:GTL253UDPC9AUL

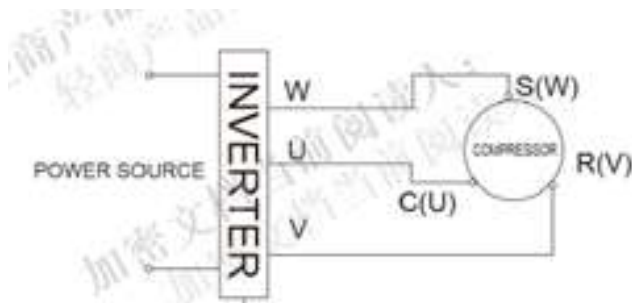
42K/48K/60K: WHP15600GUKPC8DQC

30K/36K:

U-V:0.932 Ω

V-W:0.932 Ω

W-U:0.932 Ω



42K/48K/60K:

U-V:0.417 Ω

V-W:0.417 Ω

U-W:0.417 Ω

Test in resistance.

TOOL: Multi-meter.

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.

NOTE:

- 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 a long 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.

15. CHECKING COMPONENTS

4. INDUCTANCE

Familiar error:

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

5. FUSE

Checking continuity of fuse on PCB ASS'Y.

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

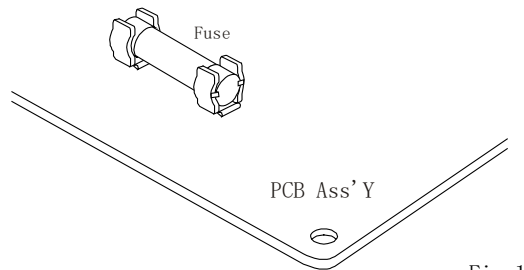


Fig. 1

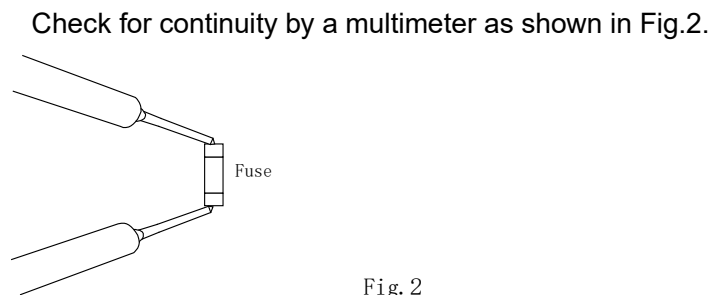


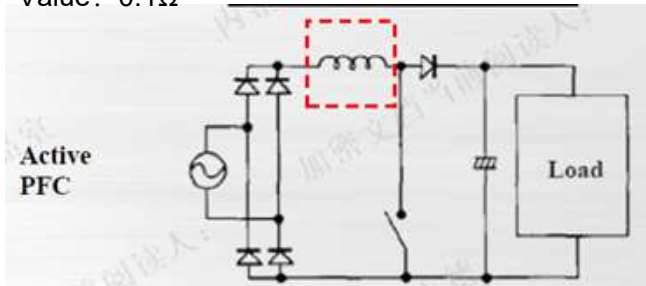
Fig. 2

6. REACTOR

It is an inductor, a part of PFC circuit.

use the mutimeter to test resistance between two terminals at 25 C

Value: 0.1Ω



6. EEV body

1. The electronic expansion valve acts like a capillary and is used for throttling.
2. Electronic expansion valve test:
 - A. Use the magnet tool on the EEV;
 - B. You can turn the magnet to adjust the opening of the EEV;
 - C. Inflating during the rotation process, and determining whether the opening degree is normal by the size of the airflow;

EEV Coil

30K/36K:1511786

Test way:At 20℃ , Use multimeter to test the resistance between two harness :

BROWN (com) -WHITE:46± 3.7Ω

BROWN (com) -ORANGE:46± 3.7Ω

RED (com) -YELLOW:46± 3.7Ω

RED (com) -BLUE:46± 3.7Ω

42K/48K/60K:2236760

Test wayuse the mutimeter to test resistance between two terminals at 20℃

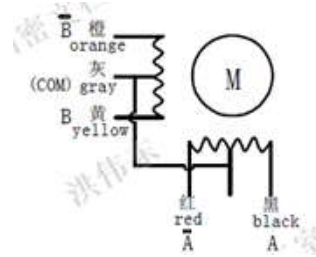
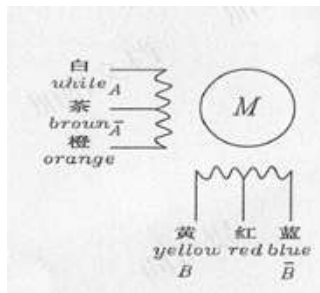
gray (com) -orange:46± 3.7Ω

gray (com) -black:46± 3.7Ω

gray (com) -yellow:46± 3.7Ω

gray (com) -red:46± 3.7Ω

15. CHECKING COMPONENTS



7. 4 way coil

30K/36K:1511783 ,2000Ω±10%

Test way:At 25 C , Use multimeter to test the resistance between two harness :

42K/48K/60K:1302932,2000Ω±10%

Test way:At 25 C , Use multimeter to test the resistance between two harness :

8. Pressure Switch

High pressure switch part number:1820202

Break(MPa):4.4±0.15

Connect(MPa):3.4±0.2

Low pressure switch part number:1820199

Break(MPa):0.05±0.03

Connect(MPa):0.15±0.05



In order to check if the High/Low pressure switch is good, you can use the buzz mode of multimeter to check if it is connective or breaking;If the buzzer is ringing, the pressure switch is connective. If the buzzer is not ringing, the pressure switch is breaking;

Remark: When the air conditioner have been charged the refrigerate , the high/low pressure switch is connected.

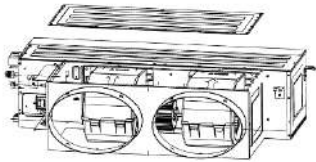
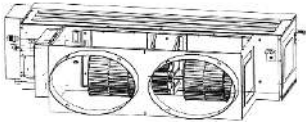
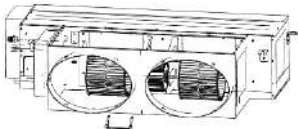
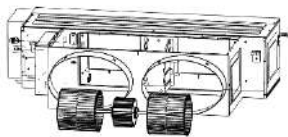

16. DISASSEMBLY AND ASSEMBLY FOR COMPRESSOR, MOTOR AND ELECTRICAL BOX

16. Disassembly and assembly for compressor, motor and Electrical box

The special tools for compressor & motor & electrical box disassembly and assembly:

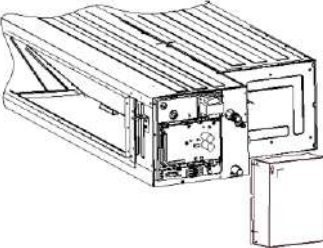
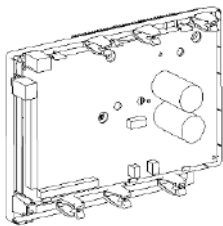
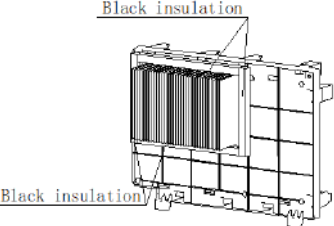
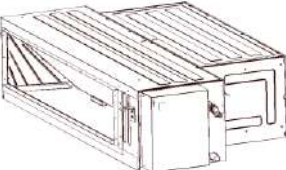
NO.	Tool
1	Hexagon Screwdriver 
2	Hexagon Socket 

Indoor unit

Removal and Assembly of Fan Motor		
Important: Before removing the fan, make sure power to the system is disconnected.		
Step	Illustration	Handling Instruction
1. Remove the top cover of the air inlet frame		Remove the top cover of the air inlet frame and unplug the motor wire from the docking plug on the base.
2. Remove the snail shell		Use a screwdriver to remove the screws that secure the upper volute to the motor mounting plate, and remove the upper and lower volutes from the motor mounting plate.
3. Remove the motor snap ring		Remove the motor snap ring from the motor bracket.
4. Replacing the motor		Place the motor with a fan on a flat surface, use a screwdriver to remove the fan from the motor shaft, and replace the motor.
5. Reassembly the unit		Reassemble the indoor unit in the order of disassembly

16. DISASSEMBLY AND ASSEMBLY FOR COMPRESSOR、 MOTOR AND ELECTRICAL BOX

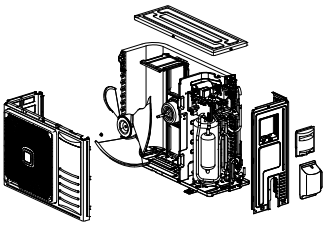
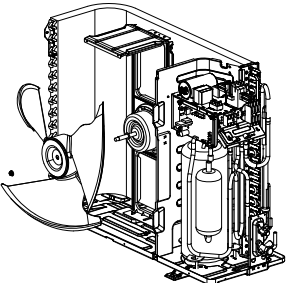
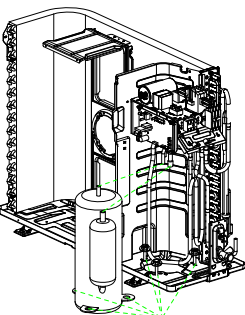
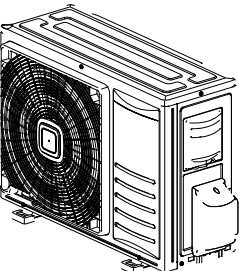
16. Disassembly and assembly for compressor、 motor and Electrical box

Removal and Assembly of E-BOX		
Important:After assembly the E-box, make sure power to the system is disconnected.		
Step	Illustration	Handling Instruction
1.Remove the E-box cover		Remove the screws from the electrical box cover and remove it from the machine.
2.Remove the PCB of E- box		When removing the plastic electrical box board and PCB board from the electrical box, the sponge on the back will be damaged.
3.Replace the new PCB and the new insulation.		Replace the circuit board and the 4 sponges shown on the back.
4. Reassembly the unit		Reassemble the indoor unit in the order of disassembly

16. DISASSEMBLY AND ASSEMBLY FOR COMPRESSOR, MOTOR AND ELECTRICAL BOX

Outdoor unit

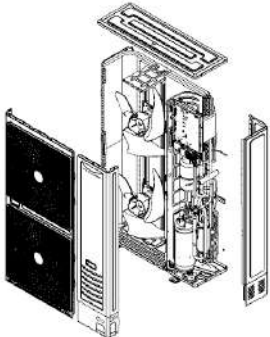
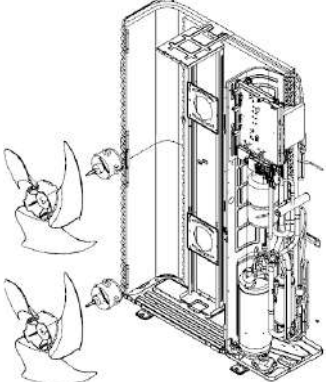
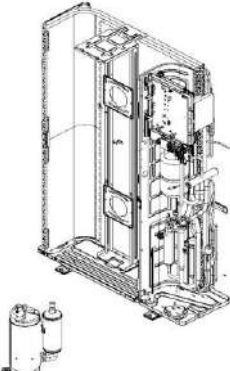
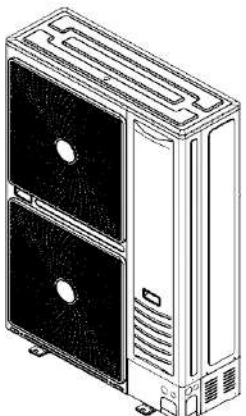
30K/36K

Important: Before disassembly and assembly, make sure that the power to the system has been disconnected and verified as voltage free.		
Step	Illustration	Handling Instruction
1.Remove external casing		<ol style="list-style-type: none"> 1.Remove the top cover, handle and valve cover; 2.Remove the outer case and right side plate.
2.Remove motor		<ol style="list-style-type: none"> 1.Remove the blade nut and then remove the blade; 2.Remove the motor from motor supporter.
3.Remove compressor		<ol style="list-style-type: none"> 1.Reclaim the refrigerant from the entire system. 2.Unsolder the 4-way valve piping assy from compressor; 3.Remove the compressor mounting bolts by using hexagon socket; 4.Carefully remove the compressor from chassis.
4.Assemble unit		

16. DISASSEMBLY AND ASSEMBLY FOR COMPRESSOR, MOTOR AND ELECTRICAL BOX

42K/48K/60K

Important: Before disassembly and assembly, make sure that the power to the system has been disconnected and verified as voltage free.

Step	Illustration	Handling Instruction
1.Remove external casing		<p>1.Remove the top cover, handle and valve cover; 2.Remove the outer case and right side plate.</p>
2.Remove motor		<p>1.Remove the blade nut and then remove the blade; 2.Remove the motor from motor supporter</p>
3.Remove compressor		<p>1. Unsolder the 4-way valve piping assy from compressor; 2. Remove the compressor mounting bolts; 3. Carefully remove the compressor from chassis.</p>
4.Assemble unit		<p>Assemble the unit in the reverse order of disassembly.</p>

17. CONTROL LOGIC DESCRIPTION

17. Control logic description

17.1 Fan Only Mode

(1) Outdoor fan and compressor stop.

(2) Temperature setting function is disabled, and no setting temperature is displayed.

(3) Indoor fan can be set to high/medium/low, but can not be set to auto.

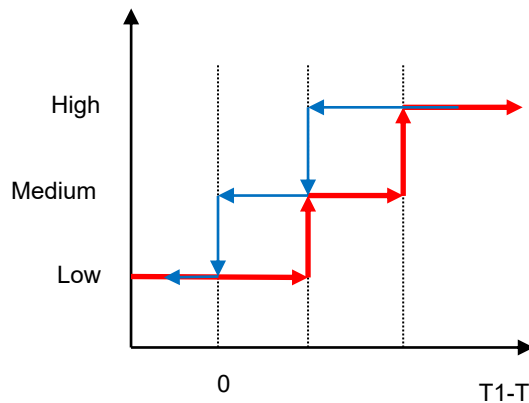
17.2 Cooling Mode

Indoor fan running rules:

In cooling mode, indoor fan runs all the time and the speed can be selected as high,(medium), low and auto.

The auto fan:

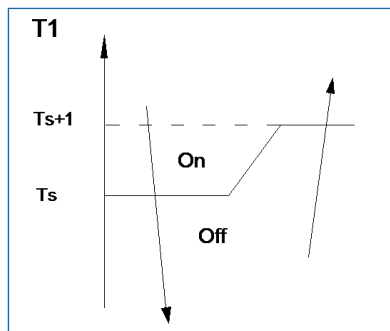
T1 is indoor room temperature. Ts is setting temperature.



Compressor and outdoor fan running rules:

Once the compressor starts up, it will follow the below rules:

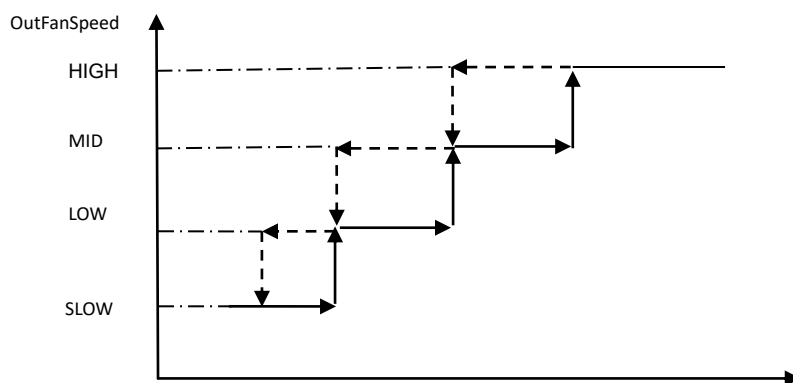
When indoor room temp. T1 is lower than Ts, the compressor and outdoor fan will shut off. When T1 is higher than Ts+1, the compressor and outdoor fan will start up.



Outdoor fan running rules:

Single outdoor fan and double outdoor fan:

17. CONTROL LOGIC DESCRIPTION



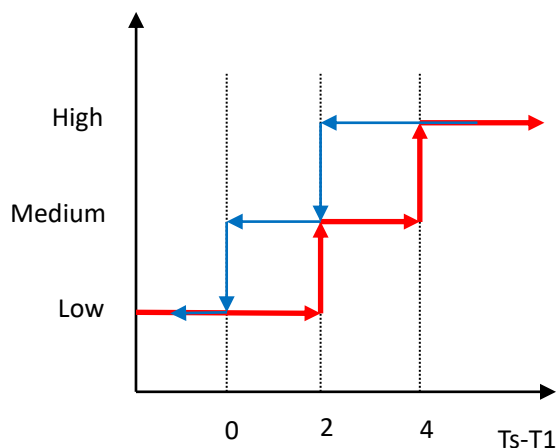
17.3 Heating Mode

Indoor fan running rules:

In several minutes after the heating mode is started, the fan of the indoor unit will not run until the heat exchanger of the indoor unit reaches a high enough temperature. That is because cold air prevention system is operating. After several minutes, the speed can be selected as high, (medium), low and auto.

The auto fan:

T1 is indoor room temperature. Ts is setting temperature.



17.4 Auto Mode

This mode can be chosen with remote controller and the setting temperature can be changed between 16~30°C.

In auto mode, the machine will choose cooling, heating or fan-only mode according to ΔT ($\Delta T = T1 - Ts$).

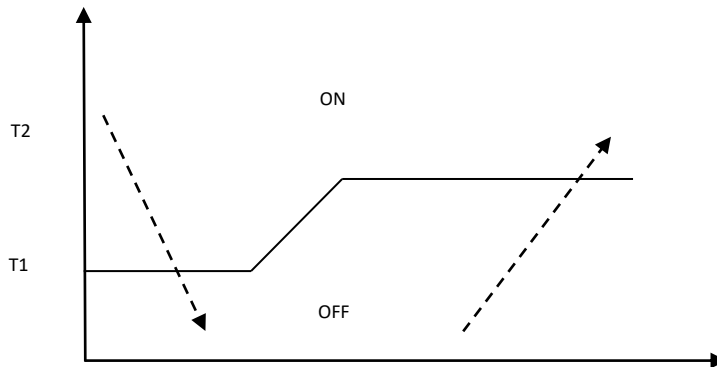
$\Delta T = T1 - Ts$	Running mode
$\Delta T > 3^{\circ}\text{C}$	Cooling
$-3^{\circ}\text{C} \leq \Delta T \leq 3^{\circ}\text{C}$	Fan-only
$\Delta T < -3^{\circ}\text{C}$	Heating

Indoor fan will run at auto fan of the relevant mode. The louver operates same as in relevant mode. If the compressor keep stopping for 10 minutes or the setting temperature is modified, the machine will choose mode according to ΔT again.

17. CONTROL LOGIC DESCRIPTION

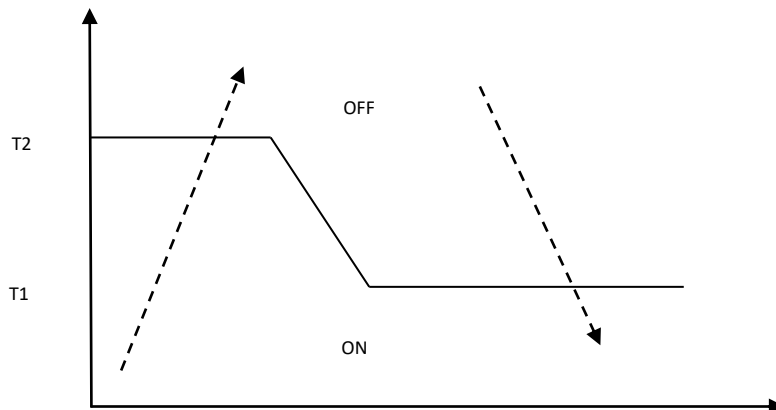
17.5 Evaporator Low-temperature Protection

When the indoor coil temp keeps lower than T1 for 3 minutes, the compressor and outdoor fan will shut off. When temp is higher than T2, the compressor and outdoor fan will restart up.



17.6 Condenser High-temperature Protection

When the condenser coil temp keeps higher than T2, the compressor and outdoor fan will shut off. When temp is lower than T1, the compressor and outdoor fan will restart up.



Hisense

Product improvement, specifications and appearance in this manual are subject to change without prior notice.