Hisense

R410A
Refrigerant

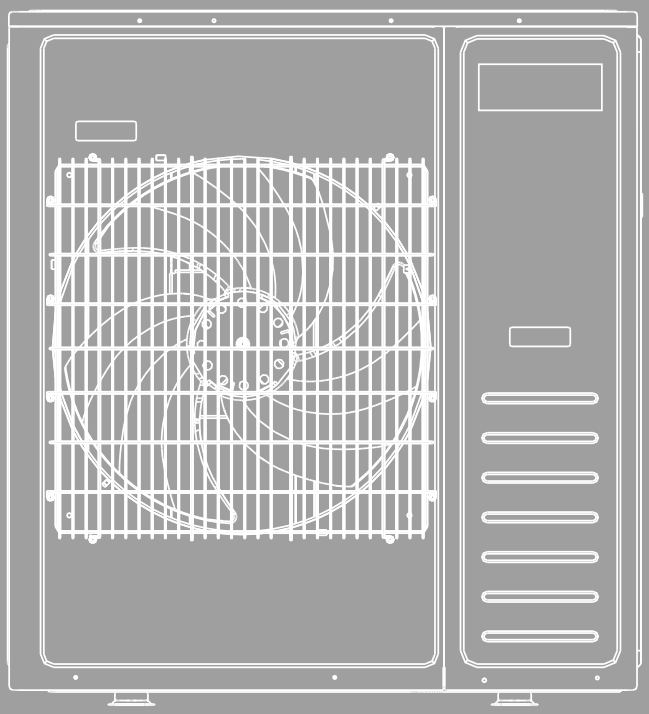
TECHNICAL & SERVICE MANUAL V3.0

—MULTI-SPLIT TYPE AIR CONDITIONERS

Models:

<Outdoor Unit>

AMW2-18U3SFA
AMW3-24U3SAA
AMW4-36U3STA
AMW5-42U3STA



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 it.
- 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 another professional personnel. 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 R410A 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 electrical 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 gases into the refrigerant cycle when performing a leakage test or an air-tight test. These types of gases 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 gases 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 leads to 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, which may lead to 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 or power as 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.

• ***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.***

Table of Contents

1. GENERAL

1. General

1.1 Features

Features

- **Twin Rotary DC Inverter Compressor**

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

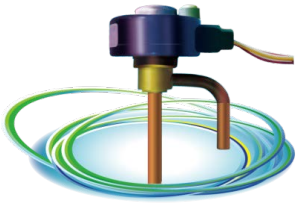
- **3-DC Inverter Technology**

3-DC Inverter technology allows for extremely accurate control of compressor rotation speed, saving roughly 50% more energy than traditional air conditioners.

- **Electronic Expansion Valve**

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

- **Self Recovery of Power Break**



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

- **Comfortable temperature control**

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

- **Long piping lengths for installation flexibility**

The long piping design permits more freedom in the placement of air conditioner units and enables you to optimise interior space.

1. GENERAL

- **Variety Indoor & Outdoor Unit Type**

The new line-up expands the range of layout options both indoors and outdoors. More methods, more conveniently.

- **Option Remote Controller**

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

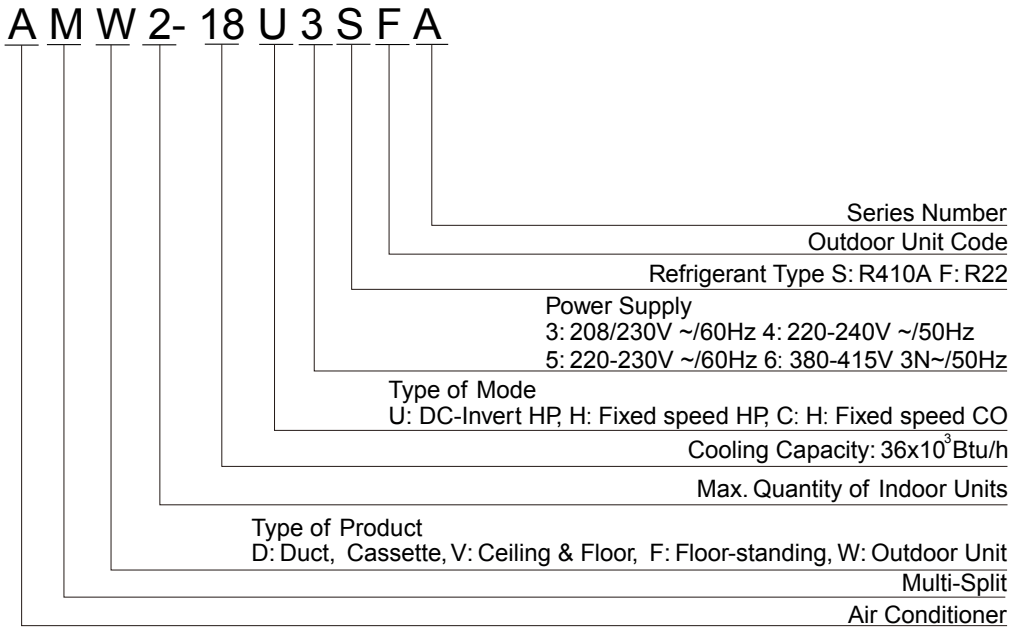
1.2 Product lineup

Model(Btu/h) / Type	18K	24K	36K	42K
Dual	●			
Trio		●		
Quattro			●	
1 by 5				●

●--- available model

1.3 Nomenclature

Outdoor unit model



1.4 Unit installation

With the DC inverter technology, one outdoor unit can be connected with 5 indoor units at most.

The combination rate range is from 80% to 130%.

Model(Btu/h)	Max. Combined Quantity of Indoor Units
18K	2
24K	3
36K	4
42K	5

1.5 Working range

Power Supply

Working Voltage	198V ~ 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.

Type	Mode	Outdoor operating temperature	
		maximum	minimum
Multi-Split Air Conditioner (Heat pump type)	Cooling Operation	115℉(46℃)	14℉(-10℃)
	Heating Operation	75℉(24℃)	-13℉(-25℃)

Storage condition:

Temperature -13~140℉ (-25~60℃)

Humidity 30%~80%

1.6 Product appearance

Type	Capacity (Btu/h)	View
Dual	18K	
Trio	24K	
Quattro	36K	
1 by 5	42K	

2. SPECIFICATIONS

2. Specifications

Type (Multi Zone)				Up to 2 indoor units	Up to 3 indoor units	Up to 4 indoor units	Up to 5 indoor units
Model Name				**AMW2-18U3SFA**	**AMW3-24U3SAA**	**AMW4-36U3STA**	**AMW5-42U3STA**
Gas				R410A	R410A	R410A	R410A
Capacity	Rated Cooling Capacity	95 ºF	Btu/h	18000	24000	32000	42000
	Rated Heating Capacity	47 ºF	Btu/h	18000	24000	36000	42000
		17 ºF	Btu/h	12200	15400	22800	24000
	Maximum Heating Capacity	17 ºF	Btu/h	20000	26000	40000	40000
		5 ºF	Btu/h	18000	24000	36000	36000
	Cooling Capacity Range	95 ºF	Btu/h	18000(7500~24000)	24000(8000~30200)	32000(12000~42000)	42000(9000~50000)
	Heating Capacity Range	47 ºF	Btu/h	18000(5800~28700)	24000(5200~37000)	36000(8000~52000)	42000(9000~52000)
Airflow Outdoor Unit			m3/h	3150	4000	5800	5800
			CFM	1850	2350	3411	3411
EER2		95 ºF	Btu/(W•h)	12.5	12.5	12.5	10.5
EER2		95 ºF	W/W	3.66	3.66	3.66	3.08
COP2		47 ºF	W/W	3.45	3.66	3.37	3.17
COP2		47 ºF	Btu/(W•h)	11.77	12.49	11.50	10.82
COP at 5°F (At Maximum Capacity)		5 ºF	Btu/(W•h)	1.8	1.8	1.8	1.8
SEER2			Btu/(W•h)	21	22	21	20
HSPF2			Btu/(W•h)	9.50	9.05	9.00	8.95
Noise Level			dB(A) (Hi)	55	59	59	63
Guaranteed Operating Range	Cooling		℉	14~114.8	14~114.8	14~114.8	14~114.8
			℃	-10~46	-10~46	-10~46	-10~46
	Heating		℉	-13~75.2	-13~75.2	-13~75.2	-4~75.2
			℃	-25~24	-25~24	-25~24	-20~24
Compressor	Model			EATF200D22UMT	EATF250D22UMT	EATF400D42UMTA	EATF400D42UMTA
	Type			ROTARY	ROTARY	ROTARY	ROTARY
	Brand			GMCC	GMCC	GMCC	GMCC
Electrical Data							
Voltage, Frequency, Phase			V/Hz/f	208/230 50/60 1	208/230 50/60 1	208/230 50/60 1	208/230 50/60 1
Voltage Range			V	198-253	198-253	198-253	198-253
Power Input	Cooling	95 ºF	W	1440(510~2610)	1920（420～2640）	2550(690~5010)	4020(660~5550)
	Heating	47 ºF	W	1530(450~3510)	1920（420～4020）	3120(600~6000)	3870(540~6450)
Rated Current	Cooling	95 ºF	A	6.5	8.7	11	17.5
	Heating	47 ºF	A	6.9	8.7	13	17
Max. Current	Cooling		A	11.8	12.0	21.8	24.0
	Heating		A	15.7	18.0	26.4	28.0
Current Range	Cooling		A	6.5(2.3-11.8)	8.7(1.9-12.0)	11.0(3.0-21.8)	17.5(3.0-24.0)
	Heating		A	6.9(2.0-15.7)	8.7(1.9-18.0)	13.0(2.6-26.4)	17.0(2.4-28.0)
Max. td Fuse/Breaker			A	30	30	50	50
Power Source Cable Size			No.× AWG	3×14	3×12	3×10	3×10
Transmitting Cable Size			No.× AWG	4×16	4×16	4×16	4×16
Power Consumption in Stand-by mode			W	12	20	20	20
Dimension & Weight							
Net Dimension (W×H×D)			mm	860×670×310	950×840×340	950×1050×340	950×1050×340
			inch	33-7/8×26-3/8×12-1/4	37-3/8×33×13-3/8	37-3/8×41-3/8×13-3/8	37-3/8×41-3/8×13-3/8
Net Weight			kg	53	72	85.5	90
			lbs	116.8	158.7	188.5	198.4
Package Dimension (WxHxD)			mm	990×450×730	1110×460×920	1110×460×1200	1110×460×1200
			inch	39×17-3/4×28-3/4	43-3/4×18-1/8×36-1/4	43-3/4×18-1/8×47-1/4	43-3/4×18-1/8×47-1/4

2. SPECIFICATIONS

Type (Multi Zone)				Up to 2 indoor units	Up to 3 indoor units	Up to 4 indoor units	Up to 5 indoor units
Model Name				AMW2-18U3SFA	AMW3-24U3SAA	AMW4-36U3STA	AMW5-42U3STA
Gross Weight			kg	57	77	100	102
			lbs	125.6	169.5	220.5	224.5
Technical Information							
Piping	Diameter(Liquid)		mm	6.35	6.35	6.35	6.35
			inch	1/4	1/4	1/4	1/4
	Diameter(Gas)		mm	9.52	9.52	9.52	9.52
			inch	3/8	3/8	3/8	3/8
	Min Length(Each)		m	7.6	7.6	7.6	7.6
			ft	25	25	25	25
	Min Length(Total)		m	15.2	22.8	30.4	38.0
			ft	50	75	100	125
	Max Length(Each)		m	25	20	20	20
			ft	82	66	66	66
	Max Length(Total)		m	50	60	75	80
			ft	164	197	246	262
	Max Height		m	15	15	15	15
			ft	49	49	49	49
Upload refrigerant			g	1800	2300	3000	3400
			oz	63.49	81.13	105.82	120
Upload additional refrigerant			g/m	15g/m over 15m	15g/m over 22.5m	15g/m over 30m	15g/m over37.5m
			oz/ft	0.161oz/ft over 15m	0.161oz/ft over 22.5m	0.161oz/ft over 30m	0.161oz/ft over 37.5m
Loading capacity	20'/40'/40HQ		sets	90/186/186	52/106/106	26/53/106	26/53/106

NOTE:

1. Test conditions:

1.1 Rated capacity test conditions:

Cooling: Indoor: DB 80.0℉ (26.7°C) /WB 67.0℉ (19.4°C)

Outdoor: DB 95.0℉ (35.0°C) /WB 75.0℉ (23.9°C)

Heating: Indoor: DB 70.0℉ (21.1°C) /WB 60.0℉ (15.6°C)

Outdoor: DB 47℉ (8.3°C) /WB 43℉ (6.1°C)

1.2 SEER & HSPF test standard: AHRI 210/240.

2. The Sound Pressure Level is based on the following conditions:

Outdoor unit:

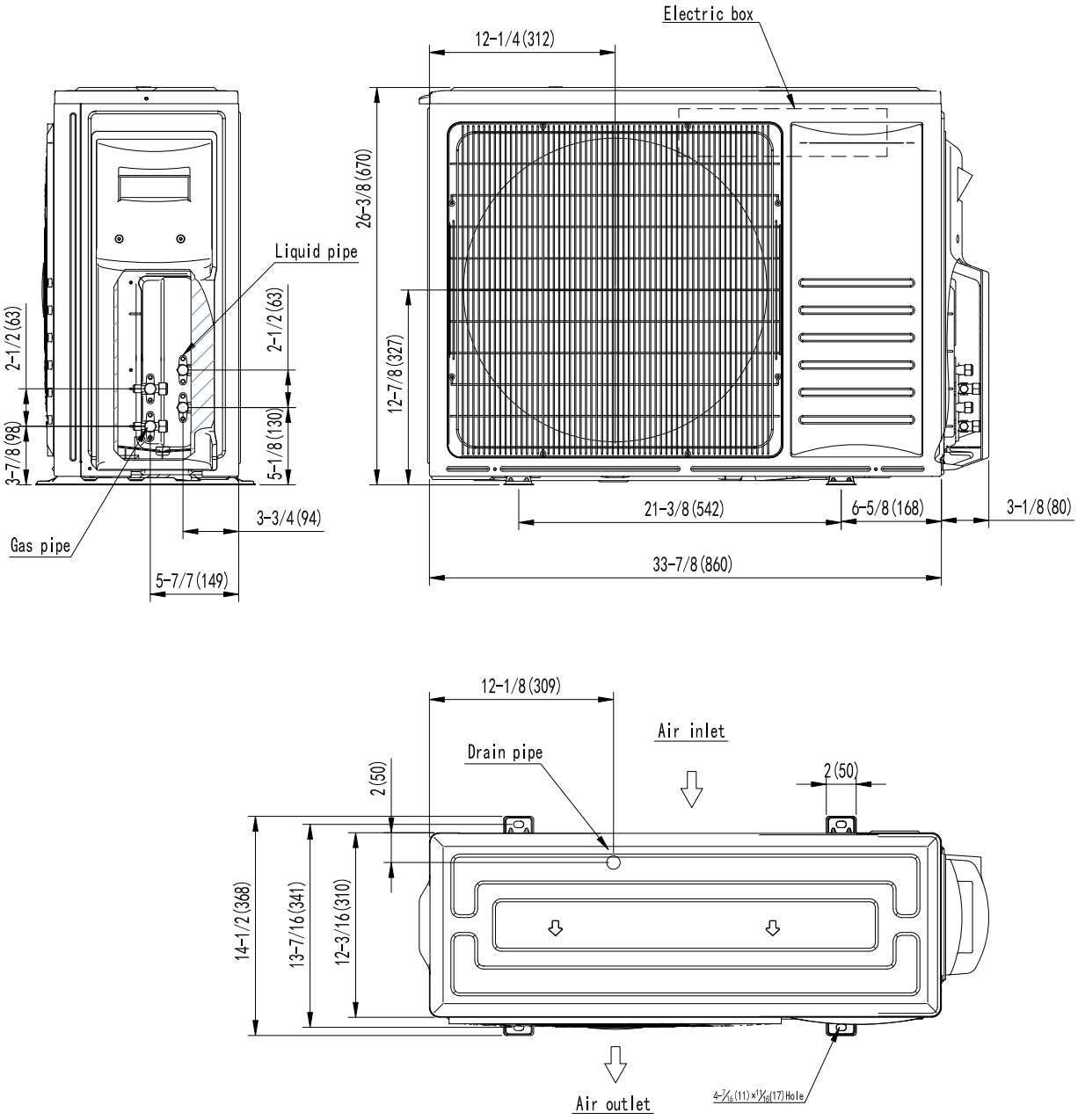
Measure the noise value of 3 points, the points are 3.28ft (1.0 m) in front of the three sides of the unit surface (front/left/right) and height =1/2 (unit height+1) meter from floor level, and calculate the weighted average of the noise.

The values given in the table for noise level reflect the levels in anechoic chamber.

3. Outlines and dimensions

18K

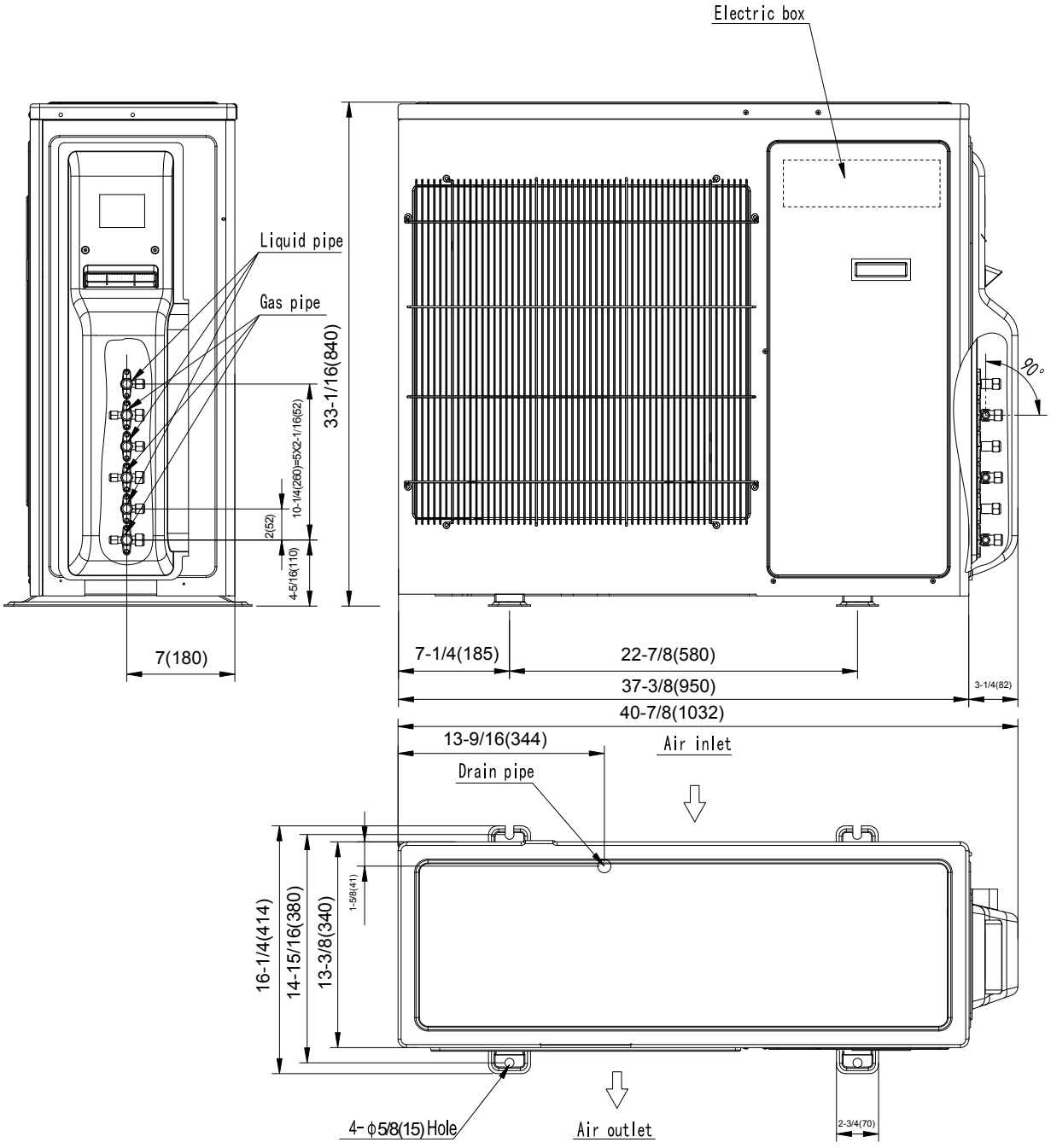
Unit: in.(mm)



3. OUTLINES AND DIMENSIONS

24K

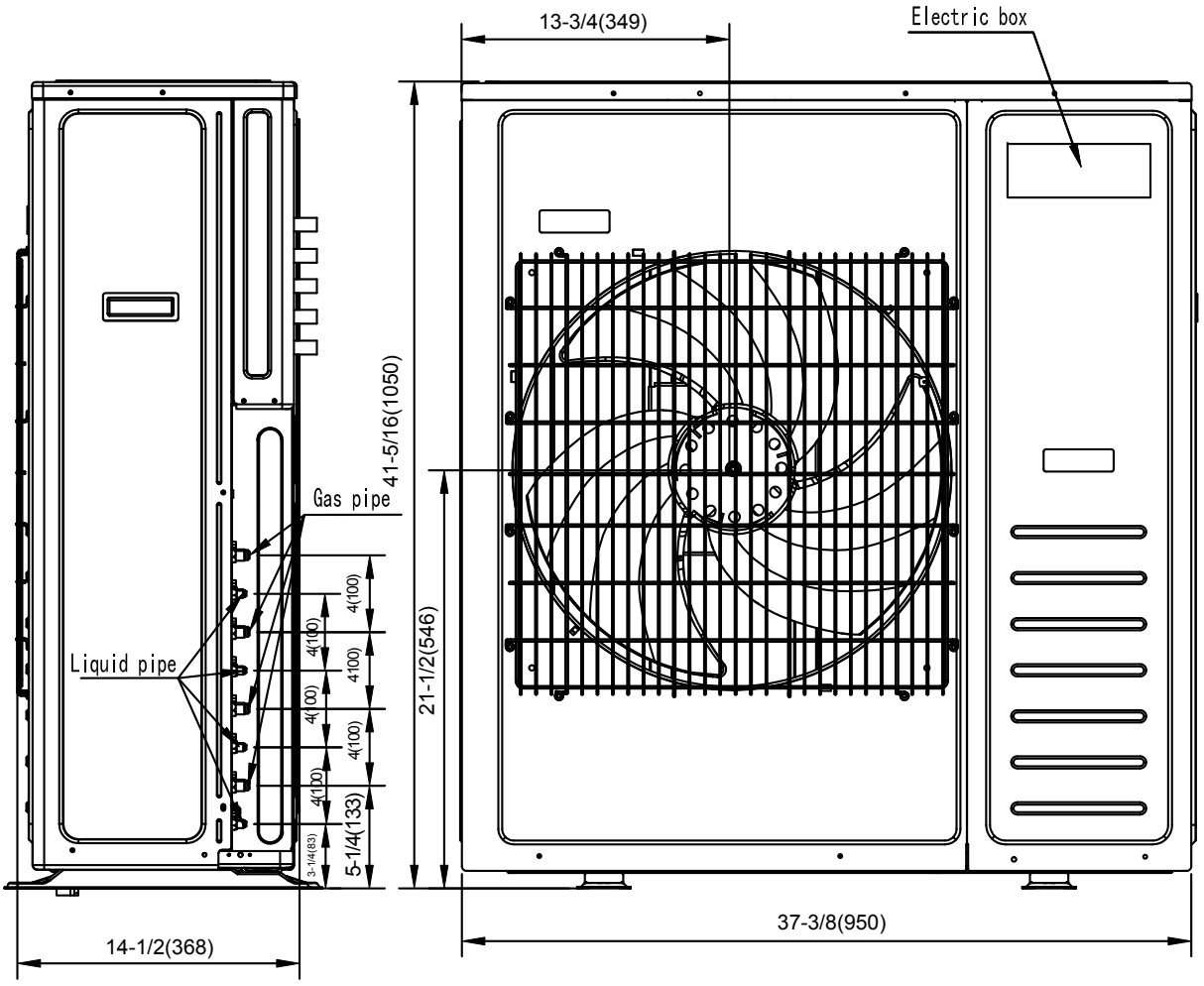
Unit: in.(mm)

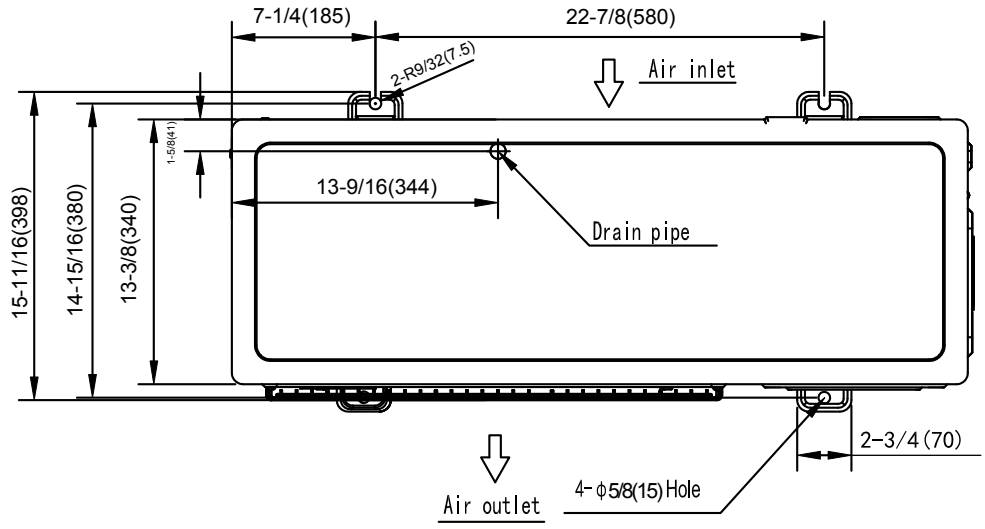


3. OUTLINES AND DIMENSIONS

36K

Unit: in.(mm)

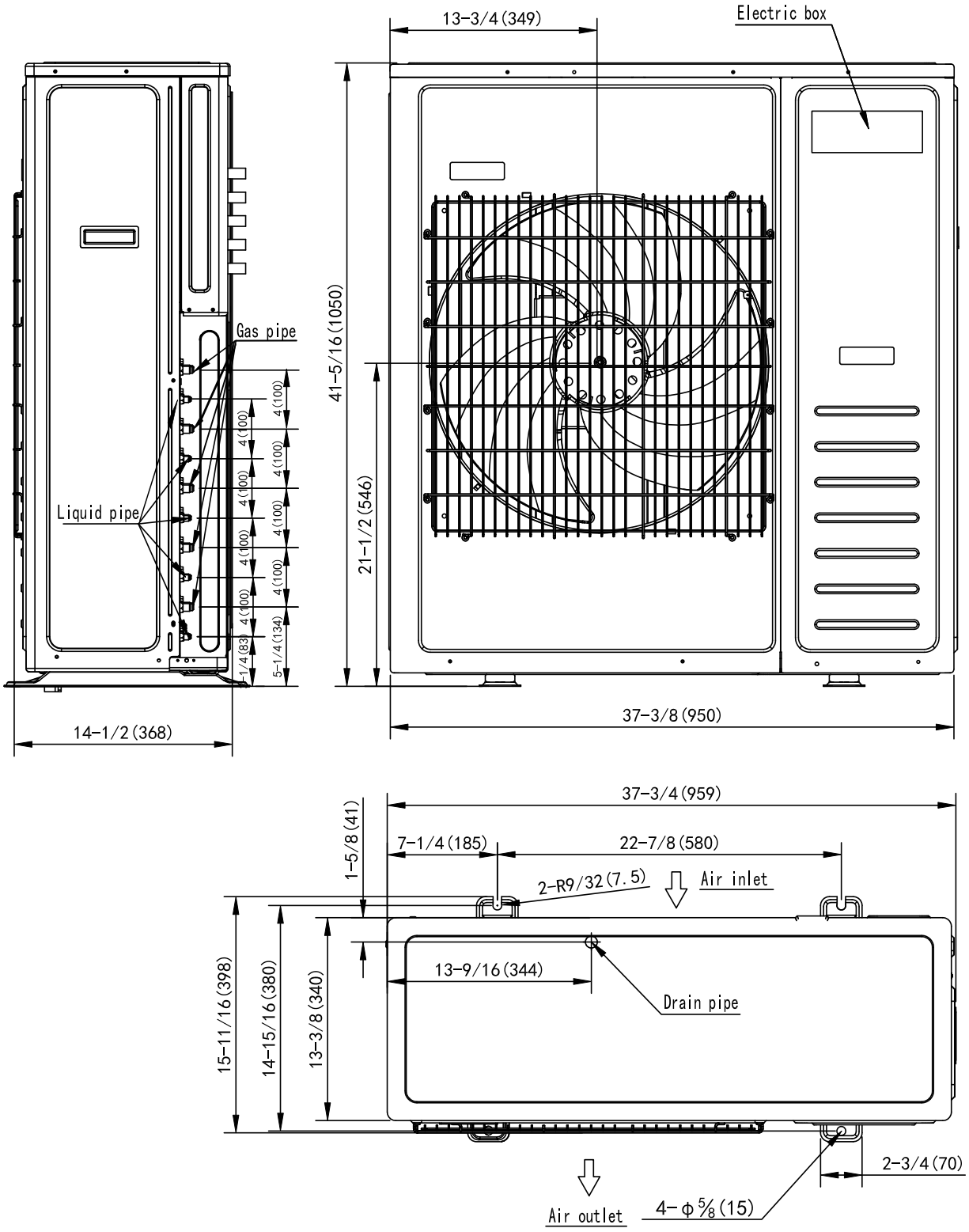




3. OUTLINES AND DIMENSIONS

42K

Unit: in.(mm)



4. Electrical data

	Power supply			Applicable voltage		ELB	
Outdoor unit	Voltage(V)	PH	Frequency (Hz)	Umin(V)	Umax(V)	Nominal Current(A)	Nominal Sensitive Current(mA)
18K/24K	208/230	1	60	198	253	30	30
36K/42K	208/230	1	60	198	253	50	30

NOTE:

1. The above compressor data is based on 100% capacity combination of indoor units at the rated operating frequency.
2. This data is based on the same conditions as the nominal heating and cooling capacities.
3. The compressor started by an inverter, resulting in extremely low starting current.

5. Capacities and selection data

5.1 Capacity characteristic charts

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

Conditions:

① Pipe length / height difference : 25 ft. (7.6m) / 0 ft. (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.

5. CAPACITIES AND SELECTION DATA

18K

Performance data (Cooling mode)

Indoor units (Btu)	Outdoor Air Temp. (℉ DB)	Indoor Air Temp. ℉ DB / ℉ WB																	
		64 / 54			70 / 60			75/ 83			80 / 67			85 / 71			90 / 73		
		TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
		KBtu/h		kW	KBtu/h		kW	KBtu/h		kW	KBtu/h		kW	KBtu/h		kW	KBtu/h		kW
09+09	14	15.16	12.64	0.88	17.16	12.62	0.90	18.10	13.94	0.90	19.40	14.53	0.90	20.75	14.88	0.92	21.40	16.47	0.93
	23	14.88	12.33	0.96	16.84	12.31	0.97	17.77	13.60	0.98	19.04	14.28	0.98	20.37	14.61	1.01	21.01	16.27	1.01
	32	14.76	12.22	1.02	16.70	12.20	1.03	17.63	13.51	1.04	18.87	14.15	1.04	20.18	14.50	1.06	20.85	16.12	1.07
	41	14.58	12.14	1.16	16.49	12.12	1.18	17.40	13.39	1.19	18.65	14.06	1.19	19.95	14.39	1.21	20.57	16.02	1.22
	50	14.70	12.19	1.31	16.65	12.19	1.33	17.56	13.46	1.34	18.82	14.14	1.34	20.13	14.47	1.38	20.76	16.10	1.39
	59	15.53	12.60	1.48	17.59	12.58	1.51	18.56	13.90	1.53	19.88	14.60	1.53	21.26	15.27	1.56	21.93	16.62	1.57
	67	18.81	14.34	1.72	21.28	14.32	1.74	22.44	15.81	1.76	24.05	16.60	1.76	25.72	17.40	1.81	26.52	18.91	1.81
	77	18.23	14.10	1.97	20.63	14.08	2.01	21.76	15.55	2.03	23.31	16.34	2.03	24.94	17.00	2.07	25.71	18.61	2.08
	87	17.75	13.87	2.24	20.09	13.85	2.28	21.19	15.30	2.30	22.71	16.07	2.30	24.29	16.44	2.35	25.05	18.30	2.36
	95	17.25	13.30	2.41	19.52	13.29	2.46	20.60	14.68	2.48	21.71	15.41	2.48	23.60	15.77	2.53	24.33	17.55	2.54
	104	14.63	12.16	2.19	16.57	12.15	2.23	17.48	13.42	2.24	18.72	14.09	2.24	20.04	14.43	2.30	20.66	16.06	2.31
	115	10.77	10.70	1.76	12.20	10.68	1.78	12.87	11.80	1.80	13.79	12.40	1.80	14.76	12.69	1.84	15.22	14.13	1.85

Performance data (Heating mode)

Indoor units(Btu)	Outdoor Air Temp.		Indoor Air Temp. ℉ DB									
	℉ DB	℉ WB	60		65		70		75		78	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
			KBtu/h	kW	KBtu/h	kW	KBtu/h	kW	KBtu/h	kW	KBtu/h	kW
09+09	-15	-17	12.83	2.17	12.68	2.13	12.60	2.09	12.25	2.05	11.84	2.01
	-5	-7	15.62	2.28	15.22	2.24	14.84	2.20	14.54	2.15	14.10	2.11
	5	3	18.83	2.43	18.38	2.38	18.00	2.34	17.78	2.29	17.36	2.24
	14	12	21.51	2.58	20.97	2.53	20.48	2.48	19.95	2.43	19.40	2.38
	23	19	22.66	2.71	22.10	2.66	21.54	2.60	20.99	2.55	20.43	2.53
	32	28	23.70	2.89	23.09	2.84	22.60	2.77	21.95	2.72	21.38	2.66
	41	37	24.91	2.99	24.27	2.93	23.77	2.87	23.11	2.82	22.53	2.77
	47	43	25.84	3.10	25.06	3.04	24.48	2.98	23.90	2.95	23.31	2.90
	50	47	23.76	2.87	23.15	2.81	22.74	2.75	22.08	2.69	21.48	2.67
	59	50	21.33	2.54	20.78	2.50	20.42	2.44	19.83	2.38	19.28	2.37
	68	59	18.85	2.13	18.37	2.09	18.04	2.04	17.52	2.00	17.04	1.98
	75	65	13.60	1.58	13.25	1.55	13.01	1.52	12.64	1.48	12.29	1.47

Remarks:
TC : Total Cooling Capacity (Gross)
SHC: Sensible Heat Capacity (Gross)
PI: Power Input (including the compressor, evap. fan motor & cond. fan motor)
DB : Dry Bulb Temperature
WB : Wet Bulb Temperature

5. CAPACITIES AND SELECTION DATA

24K

Performance data (Cooling mode)

Indoor units (Btu)	Outdoor Air Temp. (℉ DB)	Indoor Air Temp. ℉ DB / ℉ WB																	
		64 / 54			70 / 60			75/ 83			80 / 67			85 / 71			90 / 73		
		TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
		KBtu/h		kW	KBtu/h		kW	KBtu/h		kW	KBtu/h		kW	KBtu/h		kW	KBtu/h		kW
07+09+09	14	20.68	17.28	0.99	23.40	17.26	1.01	24.69	19.07	1.01	26.46	19.57	1.02	28.30	20.50	1.04	29.18	22.81	1.05
	23	20.23	16.74	1.08	22.89	16.72	1.09	24.16	18.47	1.11	25.88	19.39	1.12	27.69	19.85	1.14	28.56	22.10	1.14
	32	19.95	16.59	1.19	22.56	16.57	1.21	23.83	18.34	1.22	25.50	19.22	1.23	27.28	19.69	1.24	28.18	21.89	1.25
	41	19.70	16.48	1.26	22.29	16.46	1.29	23.52	18.19	1.30	25.20	19.10	1.31	26.96	19.54	1.32	27.79	21.76	1.33
	50	19.87	16.56	1.33	22.50	16.55	1.36	23.73	18.28	1.37	25.43	19.20	1.39	27.20	19.65	1.40	28.06	21.87	1.41
	59	20.99	17.11	1.58	23.77	17.08	1.62	25.08	18.88	1.64	26.86	19.82	1.64	28.74	20.63	1.66	29.64	22.57	1.67
	67	24.92	19.20	1.95	28.20	19.18	1.98	29.74	21.18	2.00	31.87	22.23	2.02	34.08	23.27	2.05	35.14	25.33	2.06
	77	24.57	18.92	2.22	27.80	18.89	2.26	29.31	20.87	2.29	31.41	21.92	2.31	33.60	22.73	2.33	34.64	24.96	2.34
	87	23.97	18.44	2.39	27.13	18.42	2.43	28.61	20.35	2.45	30.66	21.37	2.47	32.80	22.01	2.50	33.82	24.34	2.52
	95	23.22	17.92	2.50	26.28	17.90	2.56	27.72	19.77	2.58	29.22	20.76	2.60	31.76	21.25	2.63	32.75	23.65	2.64
	104	19.78	16.51	2.36	22.39	16.50	2.41	23.62	18.23	2.42	25.30	19.14	2.45	27.08	19.60	2.48	27.92	21.81	2.49
	115	14.56	14.52	2.03	16.49	14.50	2.06	17.39	16.03	2.08	18.64	16.83	2.11	19.95	17.23	2.13	20.57	19.19	2.14

Performance data (Heating mode)

Indoor units(Btu)	Outdoor Air Temp.		Indoor Air Temp. ℉ DB									
	℉ DB	℉ WB	60		65		70		75		78	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
			KBtu/h	kW	KBtu/h	kW	KBtu/h	kW	KBtu/h	kW	KBtu/h	kW
07+09+09	-15	-17	17.11	2.40	16.91	2.45	16.80	2.50	16.33	2.55	15.78	2.60
	-5	-7	20.83	2.94	20.29	2.99	19.79	3.07	19.39	3.12	18.80	3.18
	5	3	25.11	3.47	24.50	3.55	24.00	3.62	23.71	3.69	23.14	3.76
	14	12	28.36	3.56	27.65	3.63	25.92	3.71	26.30	3.78	25.57	3.85
	23	19	29.01	3.57	28.30	3.65	27.09	3.72	26.95	3.80	26.21	3.87
	32	28	30.58	3.41	29.80	3.48	29.17	3.54	28.33	3.62	27.59	3.69
	41	37	31.81	3.23	30.99	3.29	30.35	3.34	29.51	3.42	28.77	3.49
	47	43	33.03	2.95	32.19	2.97	31.62	3.03	30.70	3.09	29.86	3.16
	50	47	30.03	2.65	29.26	2.67	28.74	2.73	27.91	2.78	27.14	2.84
	59	50	26.96	2.35	26.27	2.36	25.80	2.42	25.06	2.48	24.37	2.51
	68	59	23.82	2.05	23.21	2.07	22.80	2.11	22.14	2.16	21.53	2.20
	75	65	17.18	1.45	16.74	1.47	16.45	1.51	15.97	1.54	15.53	1.57

Remarks:
TC :Total Cooling Capacity (Gross)
SHC: Sensible Heat Capacity (Gross)
PI: Power Input (including the compressor, evap. fan motor & cond. fan motor)
DB : Dry Bulb Temperature
WB : Wet Bulb Temperature

5. CAPACITIES AND SELECTION DATA

36K

Performance data (Cooling mode)

Indoor units (Btu)	Outdoor Air Temp. (℉ DB)	Indoor Air Temp. ℉ DB / ℉ WB																	
		64 / 54			70 / 60			75/ 83			80 / 67			85 / 71			90 / 73		
		TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
		KBtu/h		kW	KBtu/h		kW	KBtu/h		kW	KBtu/h		kW	KBtu/h		kW	KBtu/h		kW
09+09+ 09+09	14	27.94	22.43	1.73	31.63	22.40	1.77	33.36	24.75	1.77	35.75	25.40	1.79	38.25	26.40	1.81	39.44	29.23	1.83
	23	27.43	21.88	1.88	31.04	21.85	1.90	32.75	24.14	1.92	35.10	25.34	1.94	37.55	25.94	1.97	38.72	28.88	1.97
	32	27.21	21.69	1.99	30.77	21.66	2.03	32.49	23.98	2.05	34.78	25.12	2.07	37.20	25.73	2.08	38.44	28.61	2.10
	41	26.87	21.54	2.22	30.40	21.51	2.26	32.08	23.77	2.28	34.37	24.96	2.29	36.77	25.54	2.31	37.91	28.44	2.33
	50	27.10	21.64	2.50	30.68	21.63	2.54	32.37	23.89	2.57	34.68	25.09	2.61	37.10	25.69	2.63	38.26	28.58	2.65
	59	28.63	22.36	2.76	32.42	22.33	2.82	34.20	24.68	2.86	36.63	25.91	2.86	39.19	27.11	2.90	40.42	29.51	2.92
	67	34.66	25.45	3.37	39.22	25.41	3.42	41.36	28.07	3.45	44.33	29.47	3.49	47.41	30.88	3.54	48.88	33.57	3.56
	77	33.61	25.03	3.87	38.03	25.00	3.95	40.10	27.61	3.99	42.97	29.00	4.03	45.96	30.18	4.07	47.39	33.03	4.09
	87	32.72	24.61	4.30	37.03	24.58	4.38	39.05	27.16	4.42	41.85	28.53	4.46	44.77	29.18	4.51	46.17	32.48	4.53
	95	31.80	23.61	4.48	35.98	23.58	4.57	37.96	26.05	4.61	40.02	27.35	4.65	43.50	27.99	4.71	44.85	31.16	4.72
	104	26.97	21.58	4.10	30.54	21.57	4.18	32.21	23.83	4.20	34.51	25.02	4.26	36.93	25.61	4.30	38.08	28.51	4.32
	115	19.86	18.98	3.54	22.49	18.95	3.60	23.72	20.95	3.64	25.42	22.00	3.68	27.21	22.52	3.72	28.06	25.08	3.74

Performance data (Heating mode)

Indoor units(Btu)	Outdoor Air Temp.		Indoor Air Temp. ℉ DB									
	℉ DB	℉ WB	60		65		70		75		78	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
			KBtu/h	kW	KBtu/h	kW	KBtu/h	kW	KBtu/h	kW	KBtu/h	kW
09+09+ 09+09	-15	-17	25.67	2.40	25.37	2.45	25.20	2.50	24.50	2.55	23.67	2.60
	-5	-7	31.24	2.94	30.43	2.99	29.69	3.07	29.09	3.12	28.19	3.18
	5	3	37.67	3.47	36.75	3.55	36.00	3.62	35.57	3.69	34.71	3.76
	14	12	42.34	4.07	41.29	4.15	38.71	4.25	39.27	4.33	38.18	4.41
	23	19	43.12	4.25	42.06	4.34	40.27	4.42	40.05	4.52	38.96	4.60
	32	28	45.25	4.37	44.08	4.46	43.15	4.54	41.91	4.65	40.82	4.74
	41	37	46.85	4.59	45.63	4.68	44.70	4.76	43.46	4.87	42.38	4.97
	47	43	48.43	4.33	47.19	4.35	46.35	4.45	45.01	4.54	43.77	4.63
	50	47	44.03	3.62	42.90	3.65	42.14	3.73	40.92	3.81	39.79	3.89
	59	50	39.53	2.98	38.51	3.00	37.83	3.08	36.74	3.15	35.73	3.19
	68	59	34.93	2.40	34.03	2.42	33.43	2.48	32.46	2.53	31.57	2.58
	75	65	25.19	1.71	24.55	1.73	24.11	1.77	23.42	1.81	22.77	1.84

Remarks:
TC : Total Cooling Capacity (Gross)
SHC: Sensible Heat Capacity (Gross)
PI: Power Input (including the compressor, evap. fan motor & cond. fan motor)
DB : Dry Bulb Temperature
WB : Wet Bulb Temperature

5. CAPACITIES AND SELECTION DATA

42K

Performance data (Cooling mode)

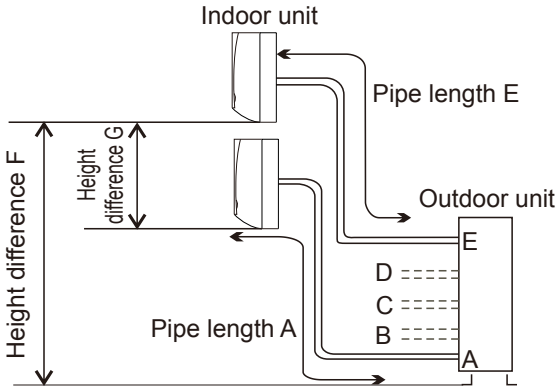
Indoor units (Btu)	Outdoor Air Temp. (℉ DB)	Indoor Air Temp. ℉ DB / ℉ WB																	
		64 / 54			70 / 60			75/ 83			80 / 67			85 / 71			90 / 73		
		TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
		KBtu/h		kW	KBtu/h		kW	KBtu/h		kW	KBtu/h		kW	KBtu/h		kW	KBtu/h		kW
07+09+ 09+ 09+09	14	32.94	27.08	1.85	37.28	27.05	1.89	39.32	29.88	1.89	42.14	31.14	1.89	45.09	31.88	1.93	46.49	35.29	1.95
	23	32.34	26.42	2.01	36.59	26.38	2.03	38.61	29.15	2.05	41.37	30.60	2.05	44.26	31.32	2.11	45.64	34.87	2.11
	32	32.07	26.18	2.13	36.27	26.15	2.16	38.30	28.95	2.18	41.00	30.33	2.18	43.85	31.07	2.22	45.30	34.54	2.24
	41	31.67	26.01	2.42	35.83	25.97	2.47	37.81	28.70	2.49	40.51	30.13	2.49	43.35	30.83	2.53	44.68	34.33	2.55
	50	31.94	26.13	2.74	36.16	26.11	2.79	38.16	28.84	2.81	40.88	30.29	2.81	43.73	31.01	2.88	45.10	34.51	2.91
	59	33.75	26.99	3.10	38.21	26.96	3.17	40.31	29.79	3.21	43.18	31.28	3.21	46.20	32.73	3.26	47.64	35.62	3.28
	67	40.86	30.72	3.59	46.23	30.68	3.65	48.76	33.89	3.69	52.25	35.58	3.69	55.89	37.29	3.78	57.62	40.53	3.80
	77	39.61	30.22	4.13	44.83	30.18	4.21	47.27	33.33	4.26	50.65	35.01	4.26	54.18	36.43	4.34	55.86	39.87	4.36
	87	38.57	29.72	4.69	43.65	29.68	4.77	46.03	32.80	4.82	49.33	34.44	4.82	52.77	35.23	4.92	54.42	39.22	4.94
	95	37.49	28.51	5.05	42.41	28.47	5.16	44.74	31.45	5.20	47.17	33.02	5.20	51.27	33.79	5.30	52.86	37.62	5.32
	104	31.79	26.06	4.58	36.00	26.04	4.67	37.97	28.77	4.70	40.68	30.20	4.70	43.53	30.92	4.81	44.88	34.42	4.83
	115	23.40	22.92	3.67	26.51	22.88	3.73	27.96	25.29	3.77	29.97	26.56	3.77	32.07	27.19	3.85	33.07	30.28	3.87

Performance data (Heating mode)

Indoor units(Btu)	Outdoor Air Temp.		Indoor Air Temp. ℉ DB									
	℉ DB	℉ WB	60		65		70		75		78	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
			KBtu/h	kW	KBtu/h	kW	KBtu/h	kW	KBtu/h	kW	KBtu/h	kW
07+09+ 09+ 09+09	-15	-17	23.95	5.24	23.67	5.14	23.52	5.04	22.86	4.94	22.09	4.84
	-5	-7	29.16	5.51	28.40	5.40	27.71	5.32	27.15	5.18	26.31	5.08
	5	3	35.15	5.78	34.30	5.68	33.60	5.57	33.19	5.46	32.40	5.34
	14	12	40.98	5.96	39.96	5.85	39.02	5.74	38.01	5.62	36.96	5.51
	23	19	44.03	6.18	42.94	6.06	41.86	5.93	40.78	5.82	39.70	5.75
	32	28	46.92	6.30	45.71	6.18	44.75	6.04	43.46	5.93	42.33	5.81
	41	37	50.20	6.35	48.90	6.23	47.90	6.09	46.57	5.98	45.41	5.87
	47	43	52.96	6.39	51.37	6.27	50.17	6.14	48.98	6.07	47.78	5.98
	50	47	48.70	6.01	47.45	5.89	46.61	5.77	45.26	5.64	44.01	5.60
	59	50	43.72	5.59	42.60	5.51	41.84	5.39	40.64	5.26	39.51	5.22
	68	59	38.63	5.15	37.64	5.05	36.97	4.93	35.91	4.83	34.92	4.78
	75	65	27.86	3.83	27.15	3.77	26.67	3.69	25.90	3.60	25.19	3.56

Remarks:
TC :Total Cooling Capacity (Gross)
SHC: Sensible Heat Capacity (Gross)
PI: Power Input (including the compressor, evap. fan motor & cond. fan motor)
DB : Dry Bulb Temperature
WB : Wet Bulb Temperature

5.2 Piping length correction factor



Item \ Model		18K	24K	36K	42K
Piping to each indoor unit (A/B/C/D/E)	ft./m	≤82(25)	≤65.6(20)	≤65.6(20)	≤65.6(20)
Total length of piping between all units	ft./m	A+B≤ 164(50)	A+B+C≤ 197(60)	A+B+C+D≤ 246(75)	A+B+C+D+E ≤262(80)
Max height difference between indoor unit and outdoor unit (F)	ft./m	≤49 (15)			
max height difference between indoor units (G)	ft./m	≤25 (7.5)			

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

• H>0: Position of outdoor unit is higher than position of indoor unit (m).

• H<0: Position of outdoor unit is lower than position of indoor unit (m).

L:

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

EL:

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

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

5. CAPACITIES AND SELECTION DATA

Cooling

EL / Model	49ft (15m)	74ft (22.5m)	98ft (30m)	123ft (37.5m)	164ft (50m)	197ft (60m)	246ft (75m)	262ft (80m)
18K	1.0	0.99	0.97	0.95	0.92	-	-	-
24K	0.99	1.0	0.99	0.98	0.96	0.94	-	-
36K	-	0.99	1.0	0.99	0.98	0.96	0.94	-
42K	-	-	0.99	1.0	0.99	0.97	0.96	0.94

Heating

EL / Model	49ft (15m)	74ft (22.5m)	98ft (30m)	123ft (37.5m)	164ft (50m)	197ft (60m)	246ft (75m)	262ft (80m)
18K	1.0	0.95	0.89	0.84	0.75	-	-	-
24K	1.0	1.0	0.97	0.94	0.87	0.80	-	-
36K	-	1.0	1.0	0.98	0.93	0.87	0.80	-
42K	-	-	1.0	1.0	0.96	0.91	0.87	0.82

The correction factor of height between indoor unit and outdoor unit

Height difference	16ft (5m)	23ft (7m)	29.5ft (9m)	36ft (11m)	43ft (13m)	49ft (15m)
Factor	1	0.98	0.96	0.94	0.91	0.88

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.

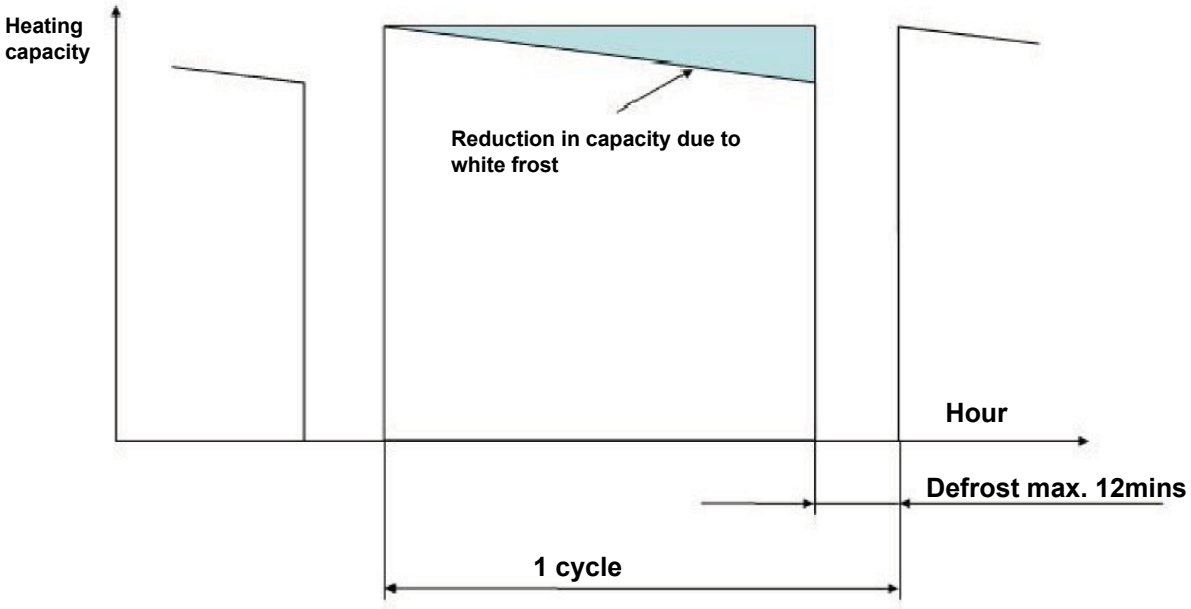
5.3 Correction factors according to defrosting operation

The heating capacity in previous part, excludes the condition of defrosting operation period. In consideration of defrosting operation, the heating capacity is corrected by the equation below.

Corrected heating capacity = Defrost Correction factor x unit capacity

OUTDOOR TEMPERATURE [℉ (℃)DB]	5(-15)	14(-10)	23(-5)	32(0)	44.6(7)	50(10)	59(15)
Correction factor (humidity rate 85% RH)	0.95	0.95	0.92	0.84	1.0	1.0	1.0

Correction Factor

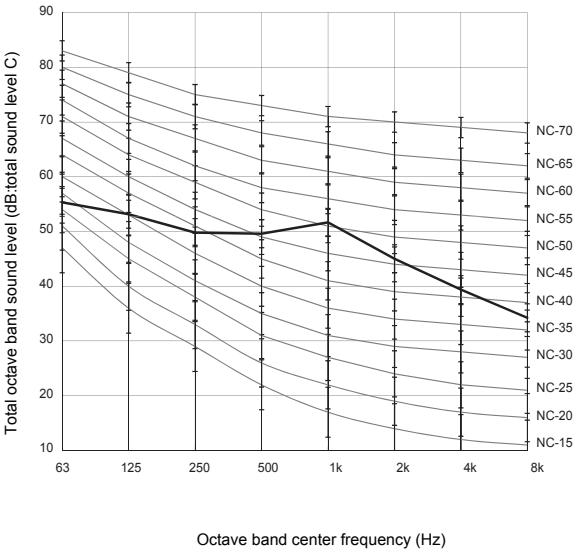


NOTE:
The correction factor is not valid for special conditions such as snowfall or operation in a transitional period.

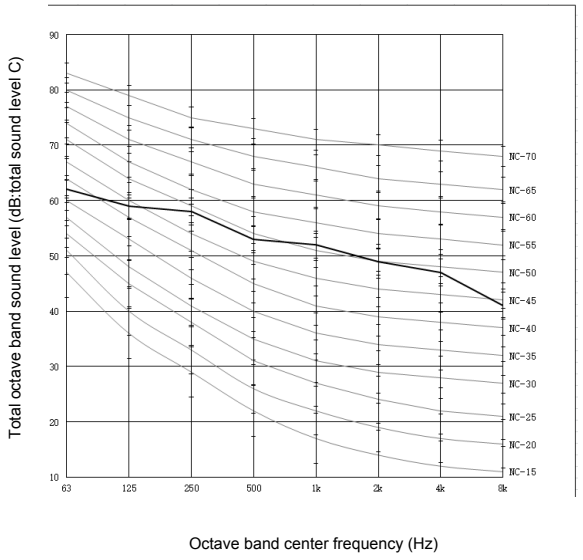
6. Sound pressure data

Outdoor unit

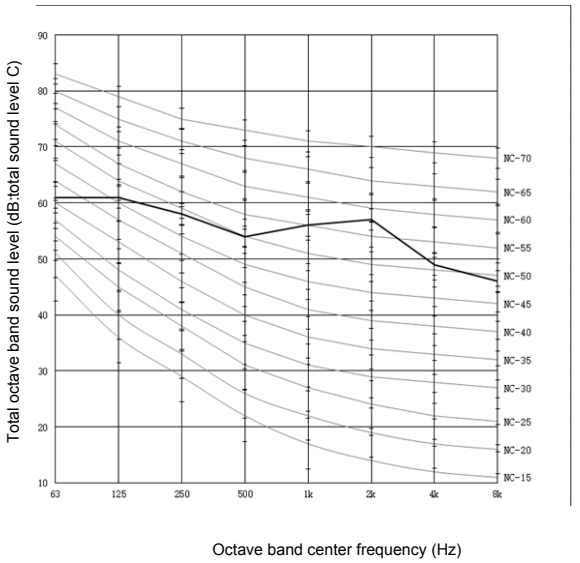
Model	18K
Test condition	3.28ft. (1.0m) ahead of the unit; 2.70ft. (0.83m) high from the bottom of the unit;3.28ft.(1.0m) high from the ground.



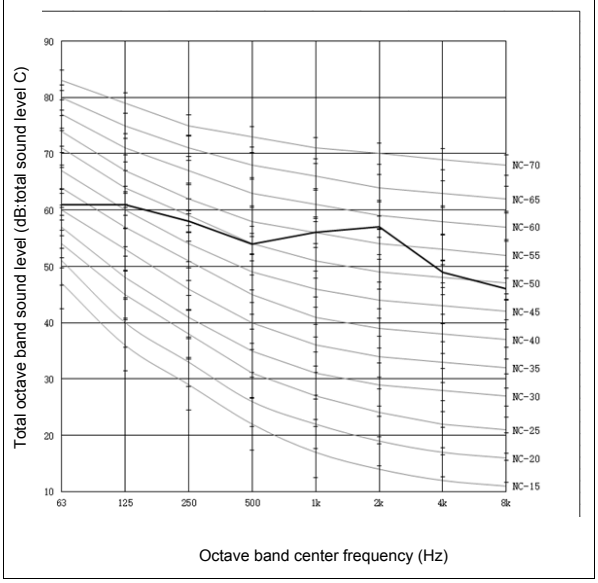
Model	24K
Test condition	3.28ft(1.0m) ahead of the unit; 3ft(0.92m) high from the bottom of the unit; 3.28ft(1.0m) high from the ground



Model	36K
Test condition	3.28ft (1.0m) ahead of the unit; 1.79ft (0.546m) high from the bottom of the unit; 3.28ft (1.0m) high from the ground

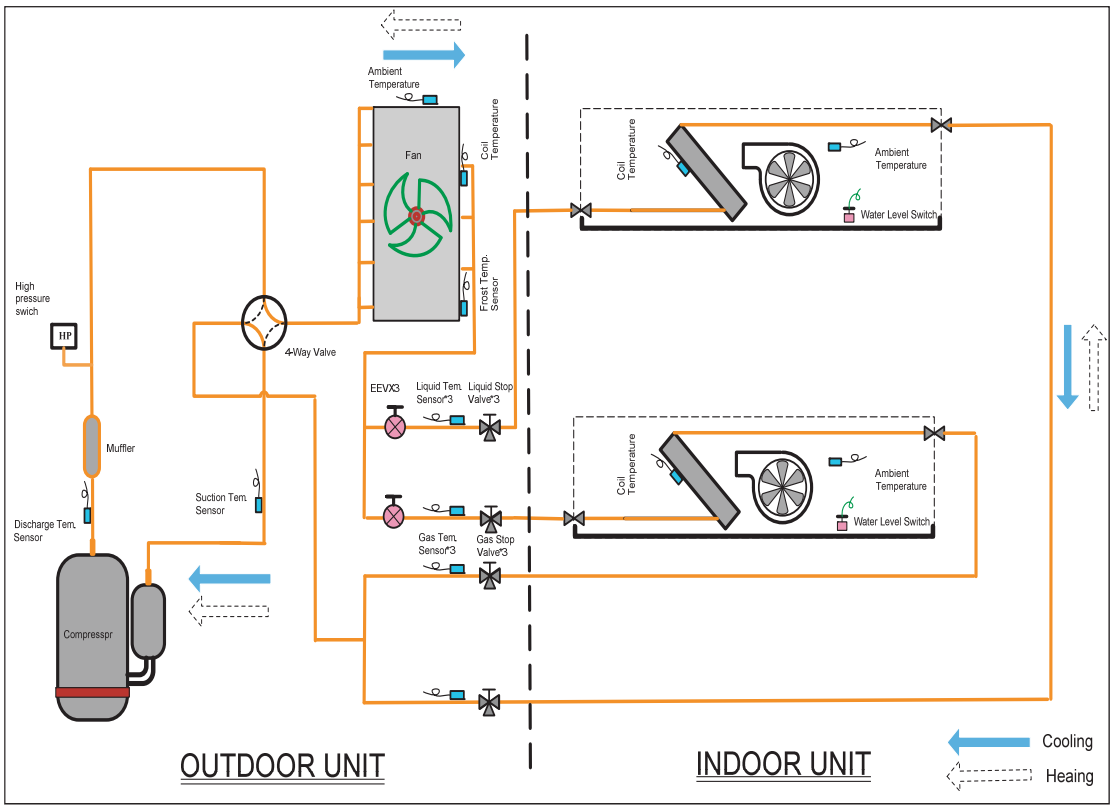


Model	42K
Test condition	3.28ft. (1.0m) ahead of the unit; 3.28ft. (1.0m) high from the bottom of the unit.

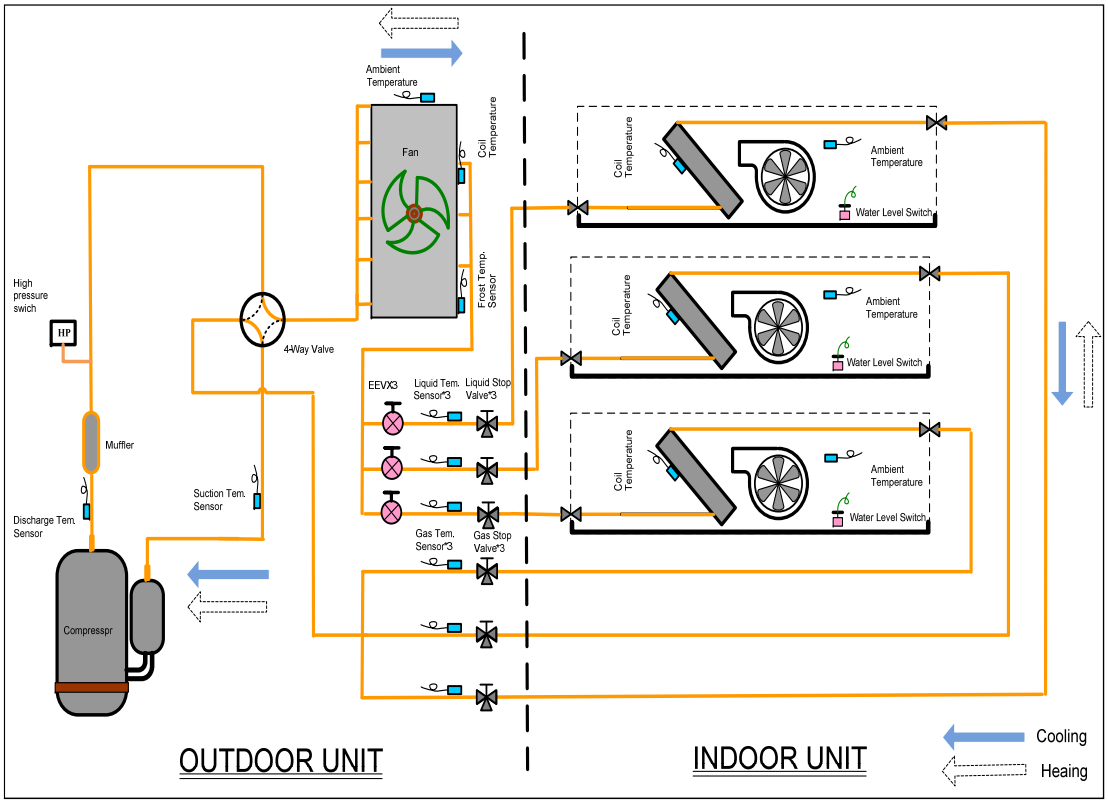


7. Refrigerant cycle

18K

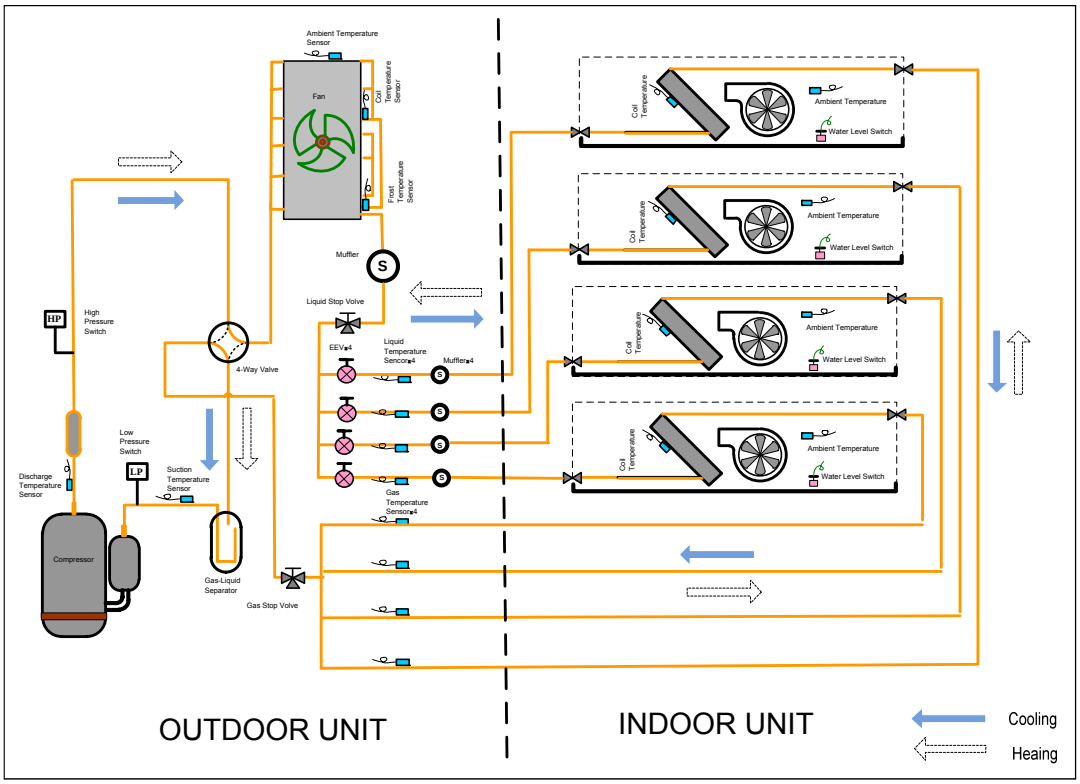


24K

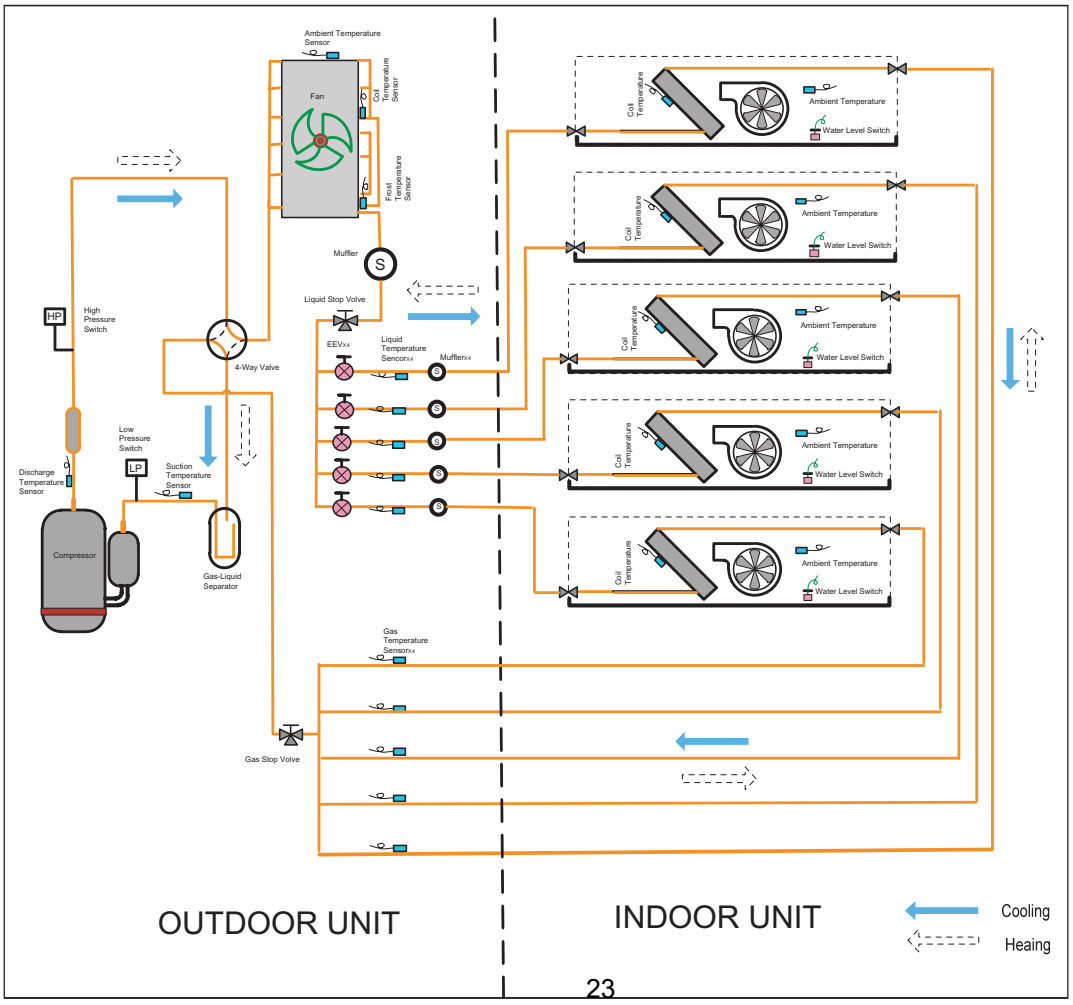


7. REFRIGERANT CYCLE

36K



42K

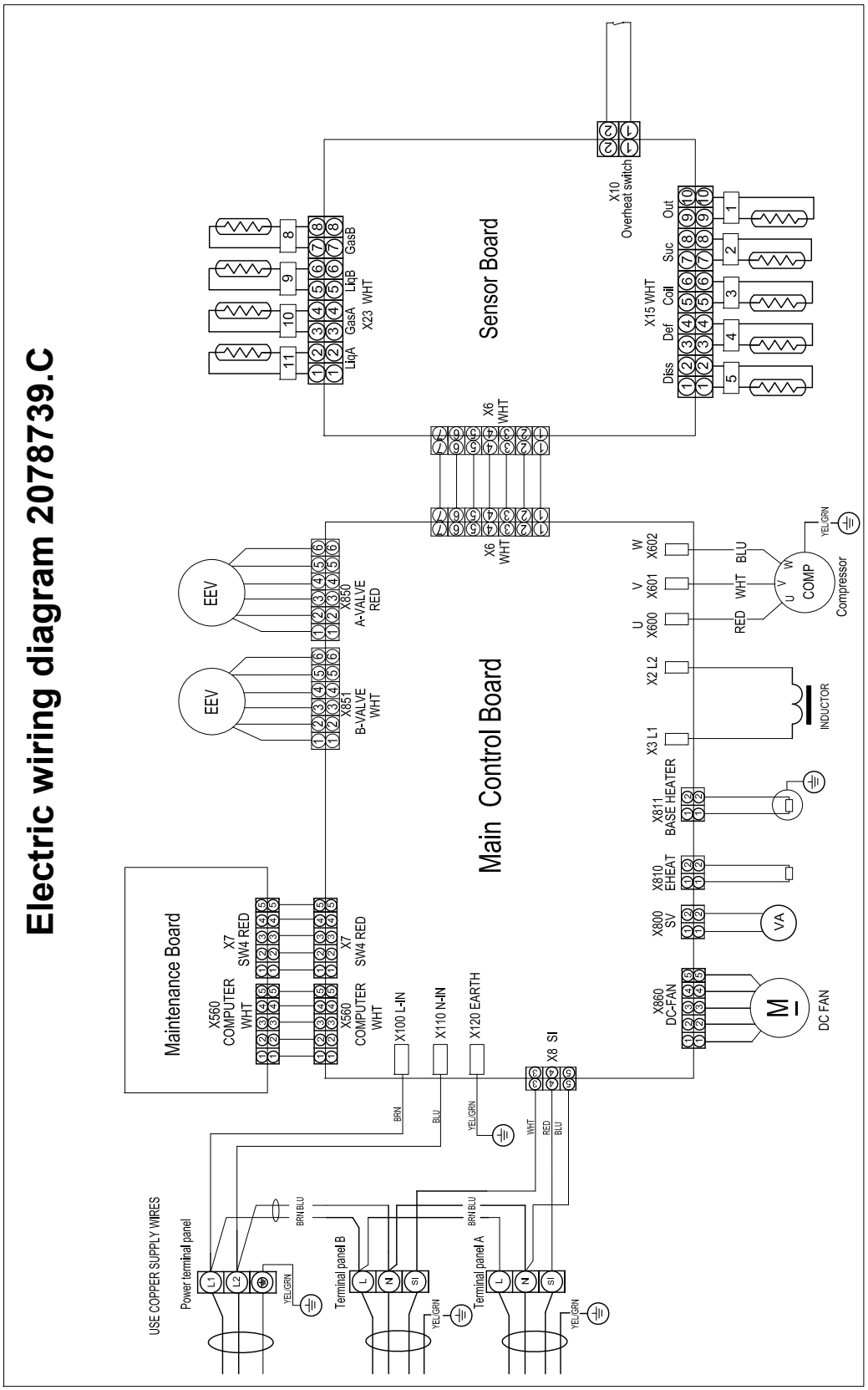


8. Wiring diagram

8.1 Electrical wiring diagram

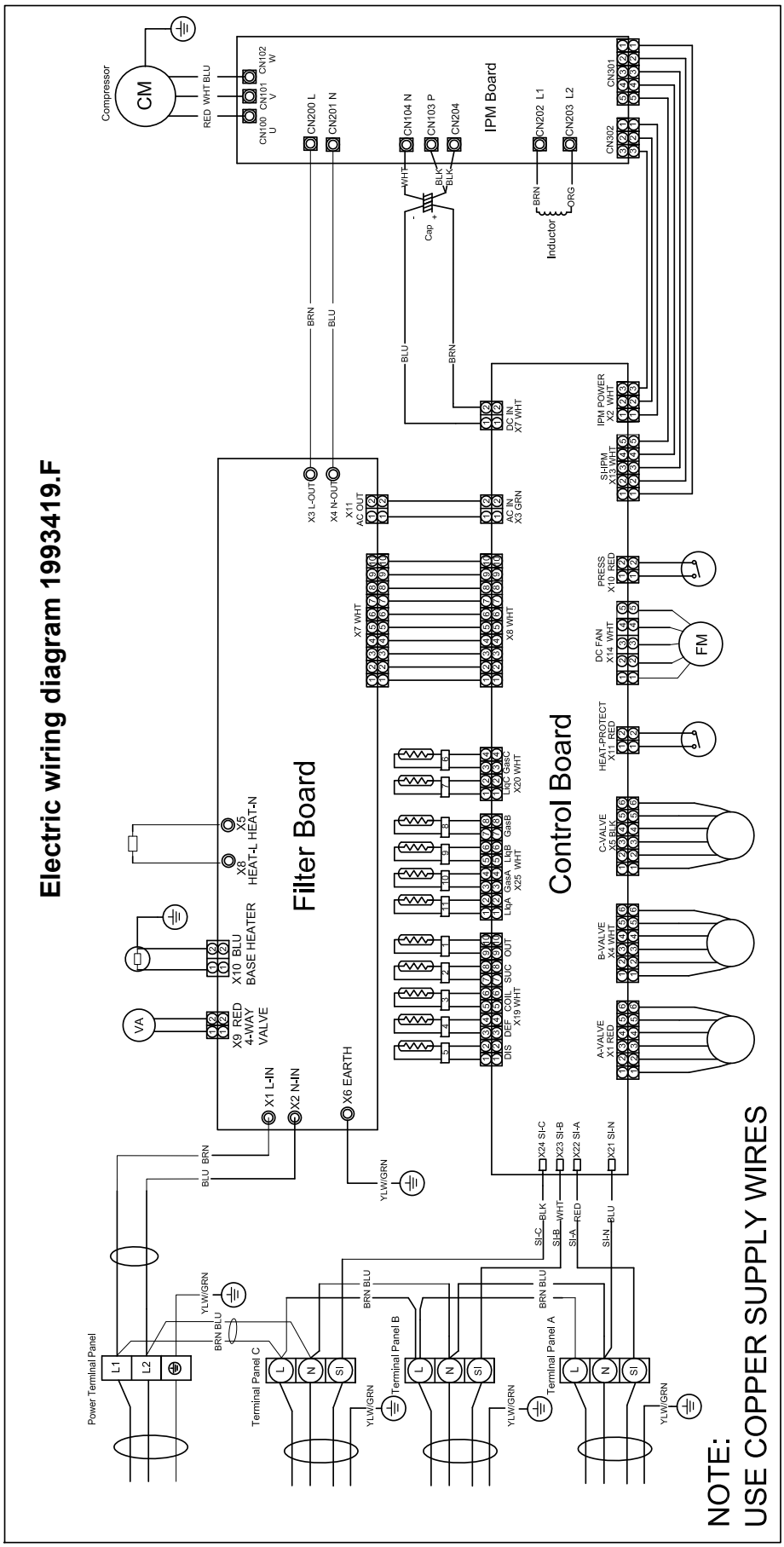
Outdoor unit

18K



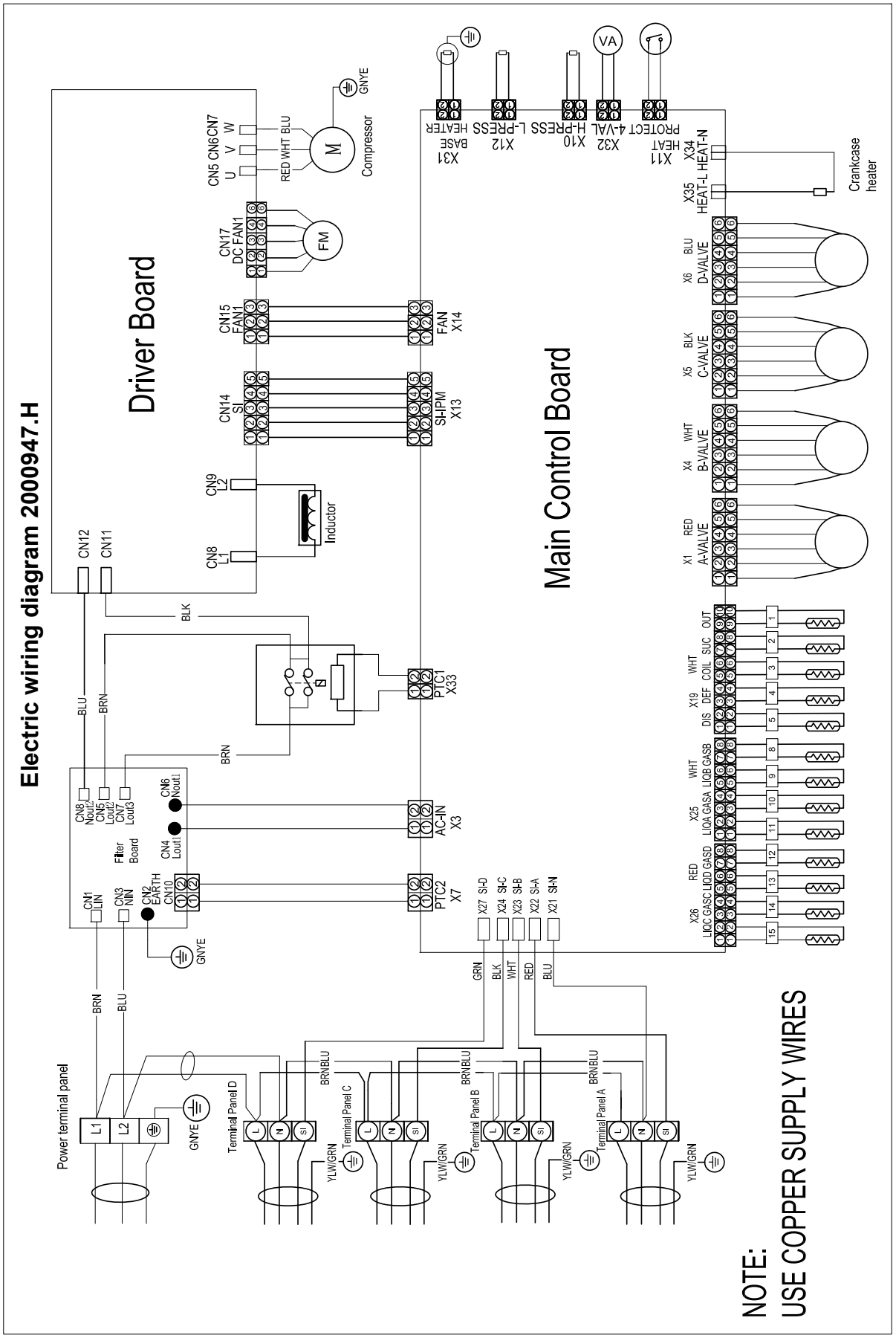
8. WIRING DIAGRAM

24K



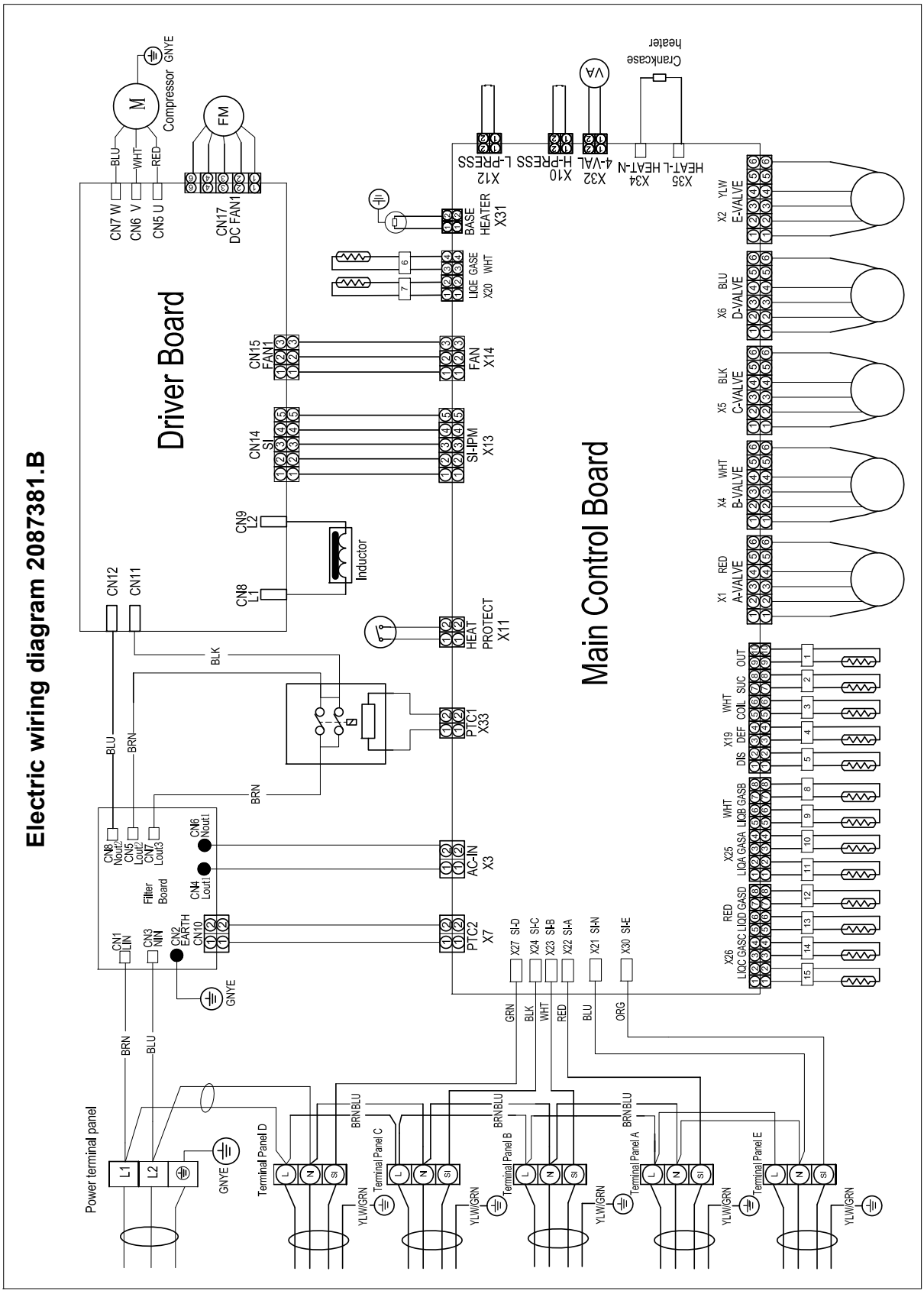
8. WIRING DIAGRAM

36K



8. WIRING DIAGRAM

42K

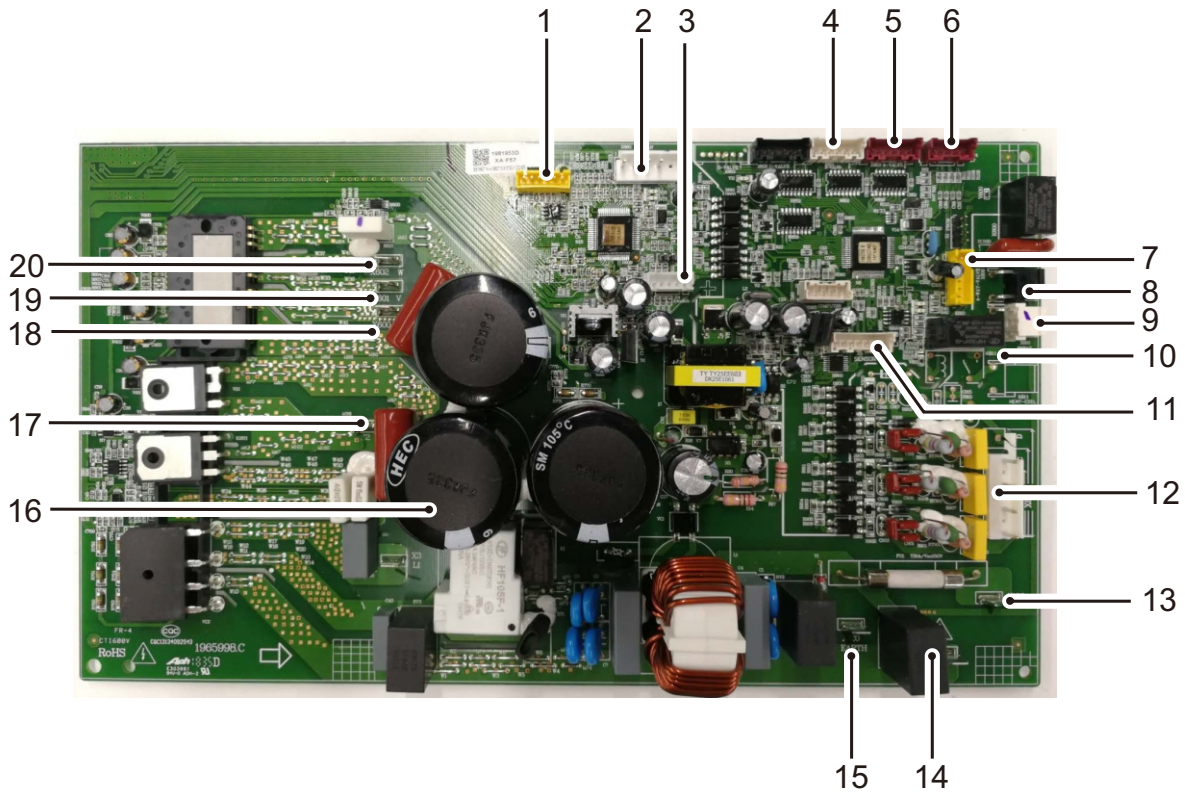


8. WIRING DIAGRAM

8.2 Control board picture

18K

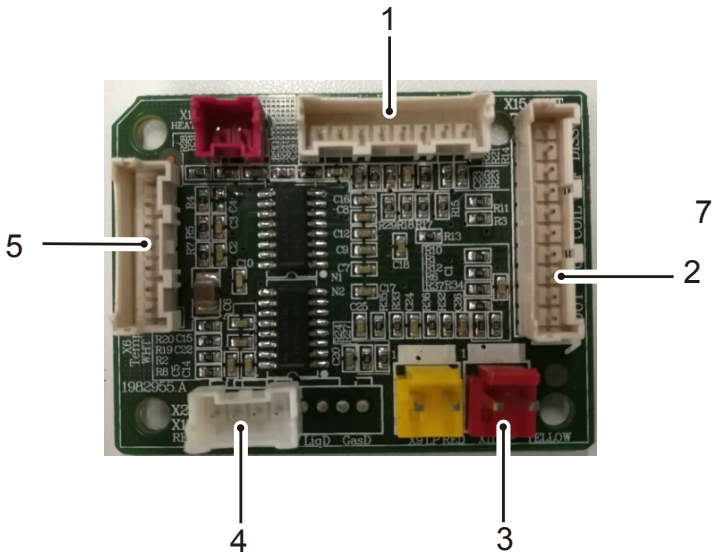
Main control board



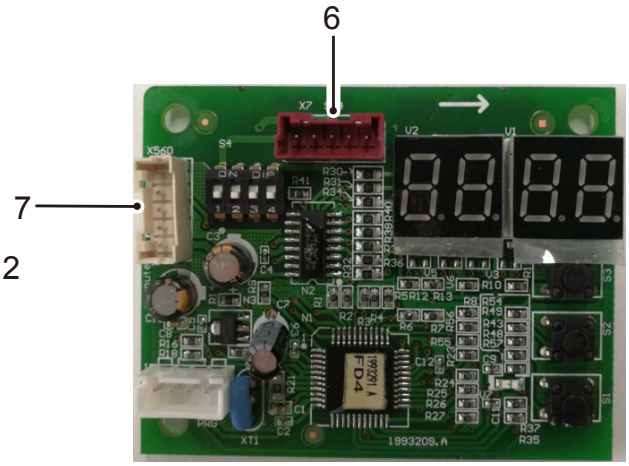
NO.	Description	NO.	Description
1	Driver EE Data Socket	11	Sensor Signal from Sensor Board
2	DC Motor	12	Communication Signal to Indoor
3	Only for developer	13	AC Power Lin
4	Electronic Expansion Valve B	14	AC Power Nin
5	Electronic Expansion Valve A	15	Earth
6	For developer	16	Reactor L1
7	Main EE data socket	17	Reactor L2
8	4-way Valve	18	Compressor U
9	Electric Heating Belt	19	Compressor V
10	Base Heater	20	Compressor W

8. WIRING DIAGRAM

Sensor board



Maintenance board

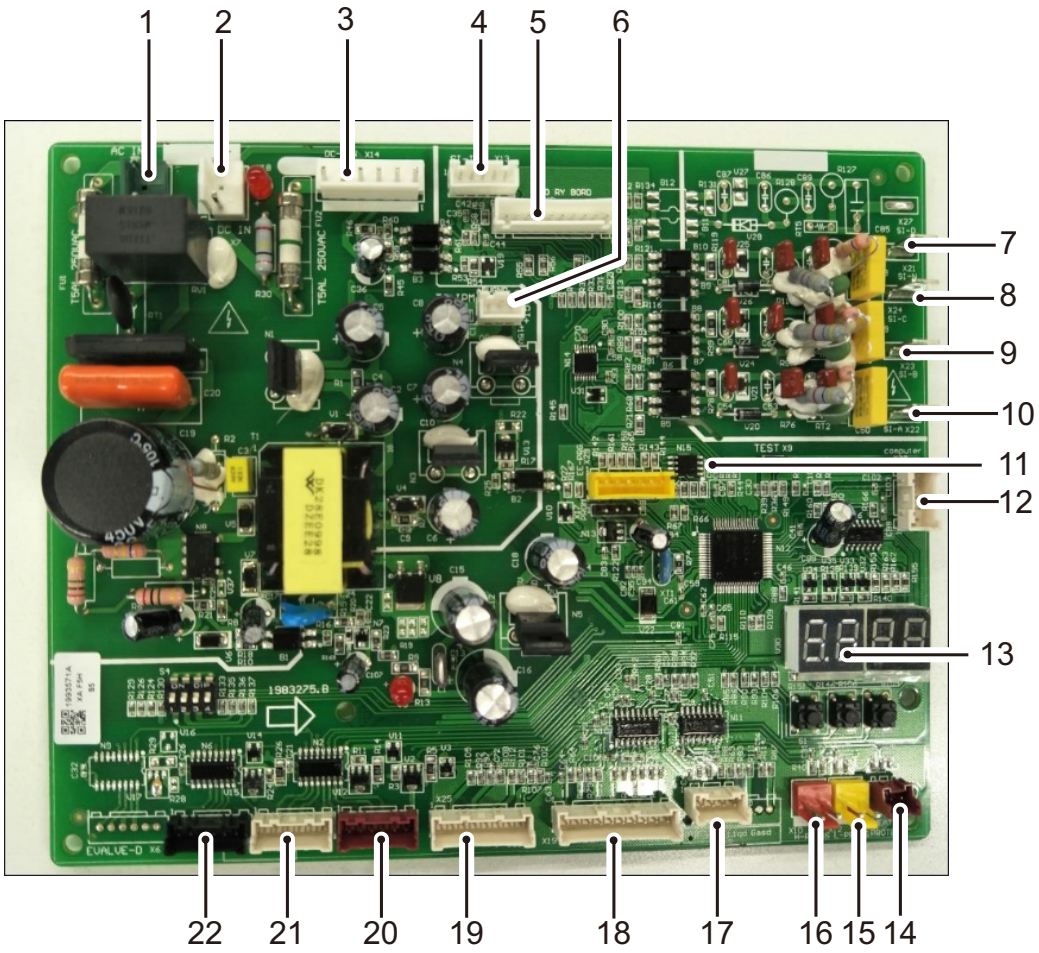


NO.	Description
1	Gas B/Liquid B/Gas A/Liquid A sensor
2	Discharge Sensor/ Defrost Sensor /Coil Sensor /Suction Sensor/ Outdoor Sensor
3	High Pressure Switch
4	Liquid C/ Gas C/Liquid D/Gas D sensor (Invalid for 18K)
5	Sensor Signal to Main Board
6	Select Switch Signal to Mainboard to Indoor
7	Communication signal to main board

8. WIRING DIAGRAM

24K

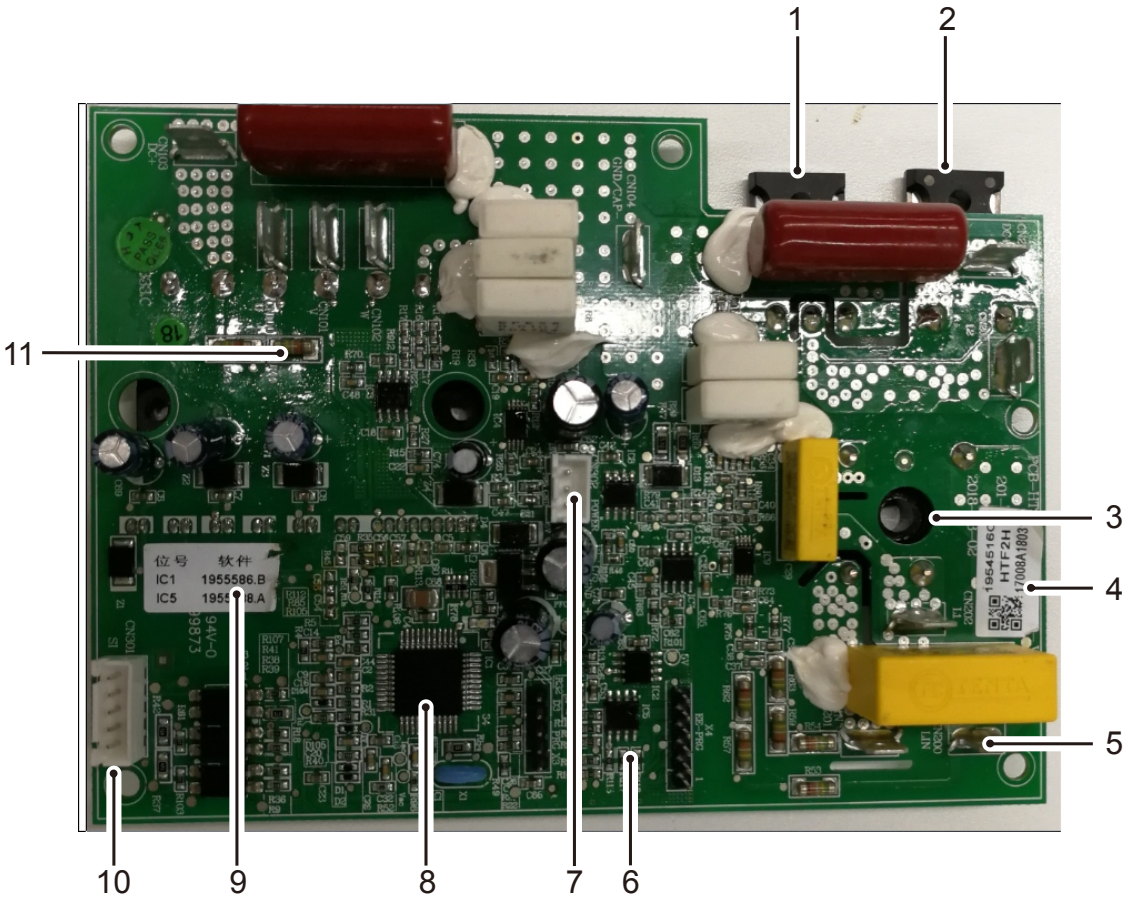
Main control board



NO.	Description	NO.	Description
1	AC Power	12	Computer Monitor
2	DC Power	13	7-Segment display
3	DC fan	14	Compressor Overheat Protection Switch
4	IPM-SI	15	Low Pressure Switch
5	Signal to filter board	16	High Pressure Switch
6	15V & 5V Power	17	Liquid C/Gas C Sensor
7	SI-N	18	Discharge/defrost/Coil/Suction/Ambient Sensor
8	SI-C	19	Liquid A/Gas A/ Liquid B/Gas B Sensor
9	SI-B	20	Electronic Expansion Valve A
10	SI-A	21	Electronic Expansion Valve B
11	EE Program	22	Electronic Expansion Valve C

8. WIRING DIAGRAM

Drive board

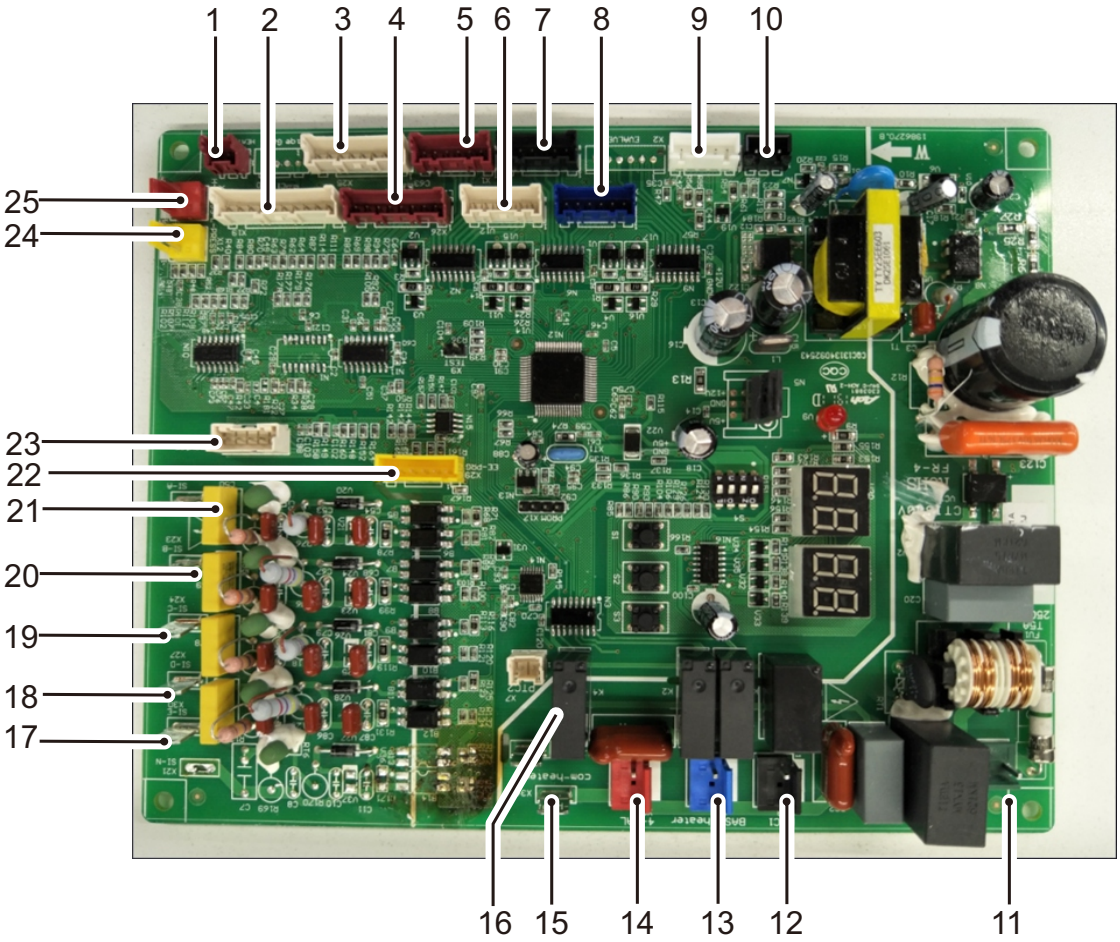


NO.	Description	NO.	Description
1	IGBT	7	15V & 5V Power
2	Diodes	8	MCU
3	Rectifier Bridge	9	CPU Code
4	Drive Board Code	10	Communication with Upper System
5	AC Power Input	11	IPM Module
6	EE		

8. WIRING DIAGRAM

36K/42K

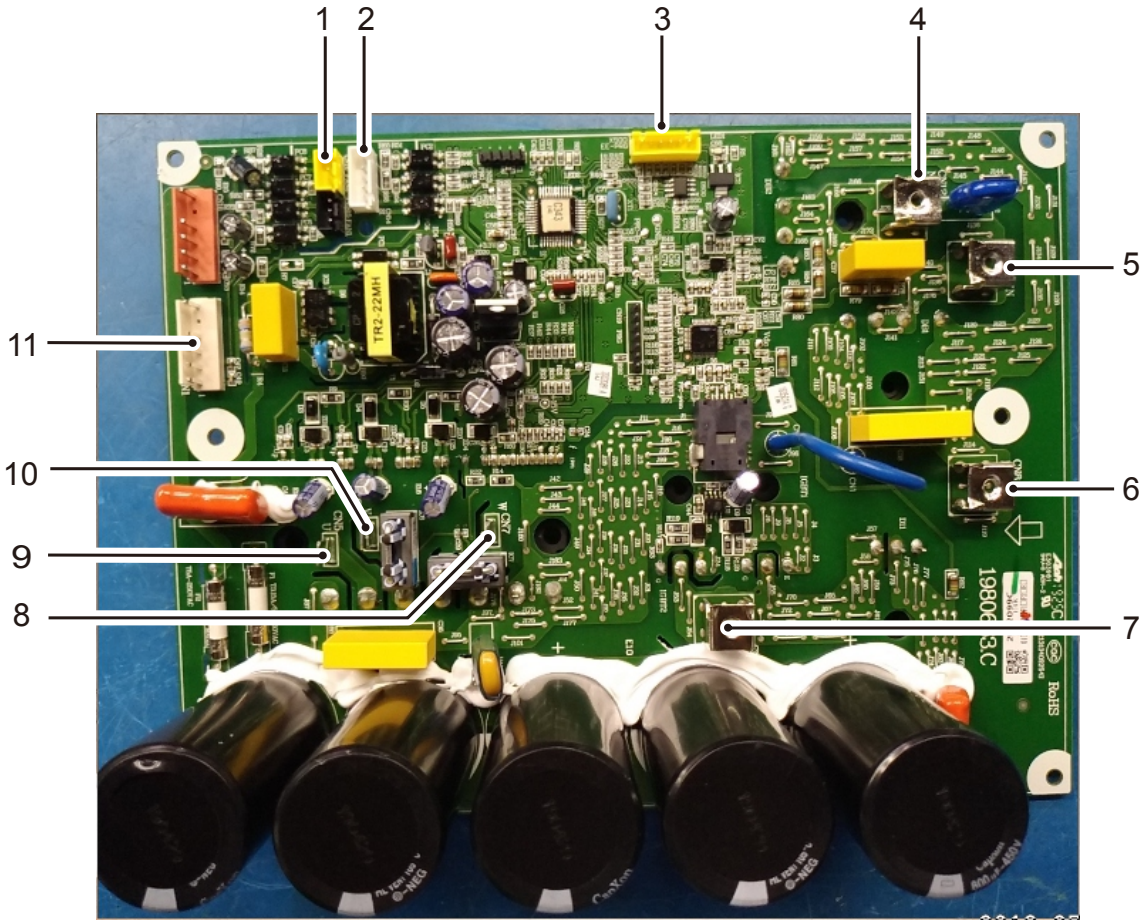
Main control board



NO.	Description	NO.	Description
1	Compressor Overheat Protection Switch	14	4-Way Valve
2	Discharge/Defrost/ Coil/Suction/Ambient Sensor	15	Compressor Heater-N
3	Liquid A/Gas A/ Liquid B/Gas B Sensor	16	Compressor Heater-L
4	Liquid C/Gas C/ Liquid D/Gas D Sensor	17	SI-N
5	Electronic Expansion Valve A	18	SI-D
6	Electronic Expansion Valve B	19	SI-C
7	Electronic Expansion Valve C	20	SI-B
8	Electronic Expansion Valve D	21	SI-A
9	IPM-SI	22	EE
10	Driver	23	Checker/ Computer
11	AC In	24	Low Pressure Switch
12	AC Contactor	25	High Pressure Switch
13	Base Heater		

8. WIRING DIAGRAM

Drive board

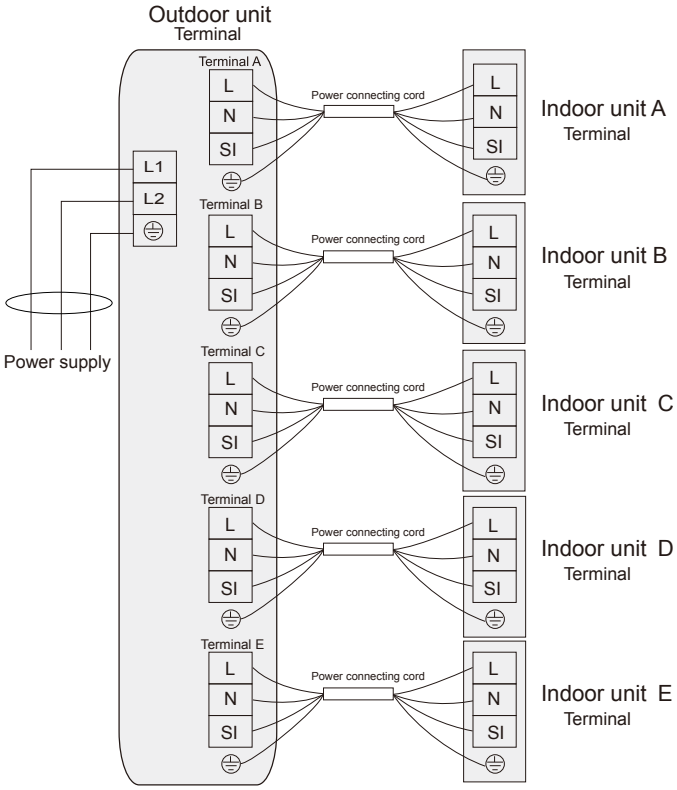


NO.	Description	NO.	Description
1	DC Fan Signal	7	Reactor L2
2	IPM-SI	8	Compressor W
3	EE	9	Compressor U
4	NIN	10	Compressor V
5	LIN	11	Driver
6	Reactor L1		

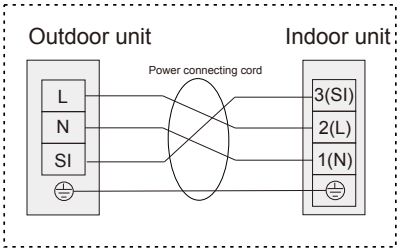
8. WIRING DIAGRAM

8.3 Common wiring

Electrical wiring diagram



Note: For some indoor units



NOTES:

1. For 18K model, there is no INDOOR UNIT C, D and E.
2. For 24K model, there is no INDOOR UNIT D and E.
3. For 36K model, there is no INDOOR UNIT E.

Recommended wire size

Model (Capacity: Btu/h)	Power Supply	ELB		Power Source Cable Size	Transmitting Cable Size	Circuit Breaker (A)
		Rated Current (A)	Nominal Sensitive Current (mA)			
18K	208/230V ~/60Hz	30	30	14AWG 2cable+Ground	16AWG 3cable+Ground	30
24K	208/230V ~/60Hz	30	30	12AWG 2cable+Ground	16AWG 3cable+Ground	30
36K	208/230V ~/60Hz	50	30	10AWG 2cable+Ground	16AWG 3cable+Ground	50
42K	208/230V ~/60Hz	50	30	10AWG 2cable+Ground	16AWG 3cable+Ground	50

Max. Running Current (A): REFER TO NAMEPLATE

NOTE:

- Use cooper power supply wires.
- Follow local codes and regulations when select field wires, and all the above are the minimum wire size.
- When transmitting cable length is longer than 49 ft. (15m), a larger wire size should be selected.
- Install main switch and ELB for each system separately. Select the high response type ELB that acts within 0.1second.

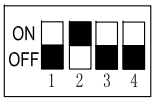
9. Field setting

9.1 Outdoor unit DIP switch

Dip Switch Setting of Outdoor Unit

Mark of "■" indicates the position of dip switches.
Switch is valid when is ON.

Dip switch S4

Factory Setting	
Refrigerant Collection	
Manual Defrost	

Refrigerant collection function

By default setting is OFF.

OFF ----normal mode

ON----refrigerant collection mode

When the power is ON, the dial changed from OFF to ON, enters into refrigerant collection mode. During refrigerant recovery mode, system low pressure protect will not occurs, and compressor will stops after 5 minutes, and will turn to normal state when power on again.

Manual defrost function

By default setting is OFF.

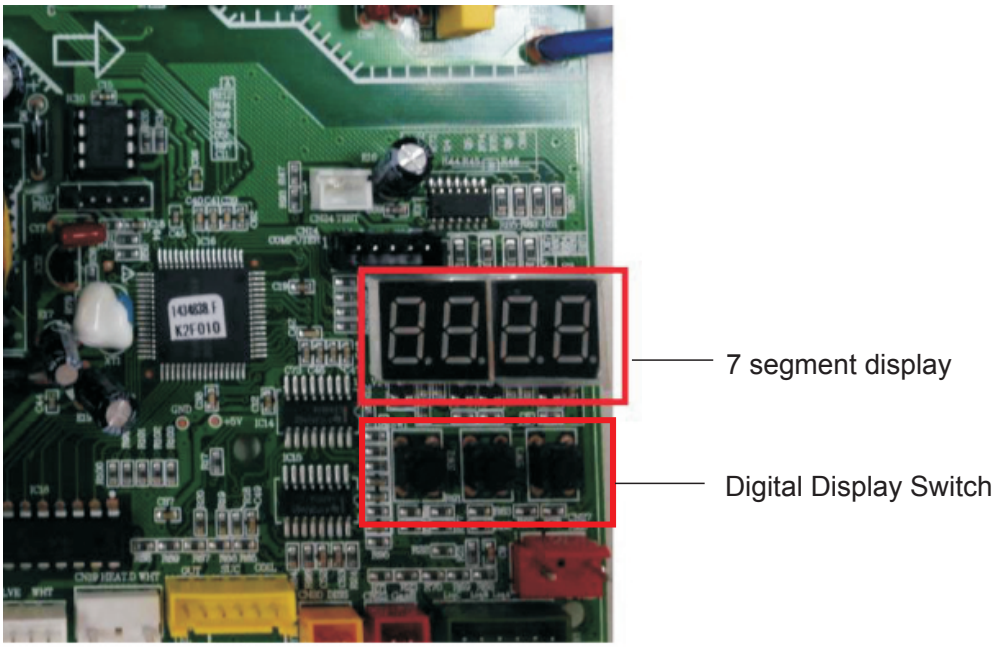
OFF ----normal mode

ON----defrost mode

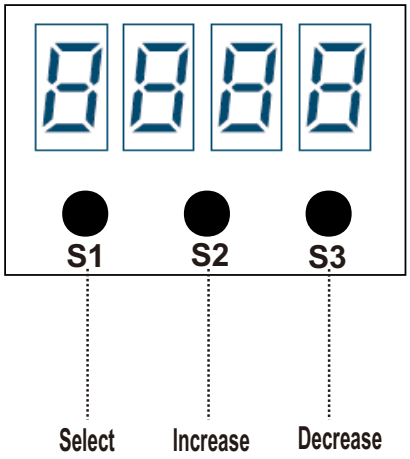
When the dial changed from OFF to ON in heating mode, enters into defrost mode, and only valid once.

9.2 Running parameter query

Outdoor Running parameters can be checked by 7 segment display.



Outdoor control board



There are 3 buttons on the digital display board：

1) Select button: Select to display outdoor/indoor unit parameter.
"P." -- Parameter of outdoor unit
"A." -- Parameter of indoor unit A
"b." -- Parameter of indoor unit B
"C."-- Parameter of indoor unit C
"d."-- Parameter of indoor unit D
"E."-- Parameter of indoor unit E

2) INCREASE button：Each time it is pressed, the number rises by 1.

3) DECREASE button：Each time it is pressed, the number lowers by 1.

The parameter content will automatically displayed after the parameter code is selected for 3s.

Parameters can be checked as following table below.

Note：

(1) ●:Valid； ○: Invalid.

(2) The right is therefore reserved to EE changing without notice.

9. FIELD SETTING

Parameter	Descriptions	Dual	Trio	Quattro	1 by 5
P.0	Fault codes	●	●	●	●
P.1	Compressor actual frequency	●	●	●	●
P.2	Compressor driving frequency	●	●	●	●
P.4	Compressor target frequency	●	●	●	●
P.5	Compressor exhaust temperature	●	●	●	●
P.6	Outdoor suction Temperature	●	●	●	●
P.7	Outdoor ambient temperature	●	●	●	●
P.8	Outdoor coil temperature	●	●	●	●
P.9	Outdoor defrosting temperature	●	●	●	●
P.10	IPM module temperature	●	●	●	●
P.11	Outdoor capacity requirement	●	●	●	●
P.12	IPM fault codes	●	●	●	●
P.13	Outdoor DC Motor 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)	●	●	●	●
A.1	Unit A fault codes	●	●	●	●
A.2	Unit A valve actual opening	●	●	●	●
A.4	Unit A liquid pipe temperature	●	●	●	●
A.5	Unit A gas pipe temperature	●	●	●	●
A.6	Unit A coil temperature	●	●	●	●
A.7	Unit A ambient temperature	●	●	●	●
A.8	Unit A set temperature	●	●	●	●
A.9	Unit A capacity	●	●	●	●
A.10	Unit A set fan speed	●	●	●	●
A.11	Unit A actual suction overheating	●	●	●	●
B.1	Unit B fault codes	●	●	●	●
B.2	Unit B valve actual opening	●	●	●	●
B.4	Unit B liquid pipe temperature	●	●	●	●
B.5	Unit B gas pipe temperature	●	●	●	●
B.6	Unit B coil temperature	●	●	●	●
B.7	Unit B ambient temperature	●	●	●	●
B.8	Unit B set temperature	●	●	●	●
B.9	Unit B capacity	●	●	●	●
B.10	Unit B set fan speed	●	●	●	●
B.11	Unit B actual suction overheating	●	●	●	●
C.1	Unit C fault codes	○	●	●	●
C.2	Unit C valve actual opening	○	●	●	●
C.4	Unit C liquid pipe temperature	○	●	●	●
C.5	Unit C gas pipe temperature	○	●	●	●
C.6	Unit C coil temperature	○	●	●	●
C.7	Unit C ambient temperature	○	●	●	●
C.8	Unit C set temperature	○	●	●	●
C.9	Unit C capacity	○	●	●	●
C.10	Unit C set fan speed	○	●	●	●
C.11	Unit C actual suction overheating	○	●	●	●
D.1	Unit D fault codes	○	○	●	●
D.2	Unit D valve actual opening	○	○	●	●
D.4	Unit D liquid pipe temperature	○	○	●	●
D.5	Unit D gas pipe temperature	○	○	●	●
D.6	Unit D coil temperature	○	○	●	●
D.7	Unit D ambient temperature	○	○	●	●

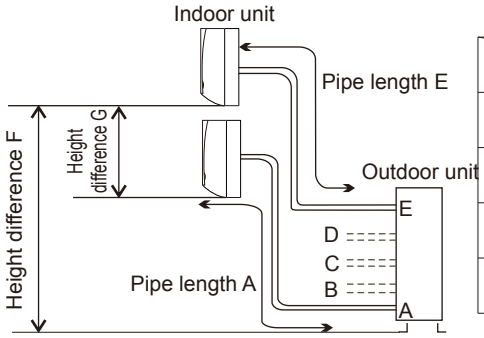
9. FIELD SETTING

Parameter	Descriptions	Dual	Trio	Quattro	1 by 5
D.8	Unit D set temperature	○	○	●	●
D.9	Unit D capacity	○	○	●	●
D.10	Unit D set fan speed	○	○	●	●
D.11	Unit D actual suction overheating	○	○	●	●
E.1	Unit E fault codes	○	○	○	●
E.2	Unit E valve actual opening	○	○	○	●
E.4	Unit E liquid pipe temperature	○	○	○	●
E.5	Unit E gas pipe temperature	○	○	○	●
E.6	Unit E coil temperature	○	○	○	●
E.7	Unit E ambient temperature	○	○	○	●
E.8	Unit E set temperature	○	○	○	●
E.9	Unit E capacity	○	○	○	●
E.10	Unit E set fan speed	○	○	○	●
E.11	Unit E actual suction overheating	○	○	○	●

10. PIPING WORK AND REFRIGERANT CHARGE

10. Piping work and refrigerant charge

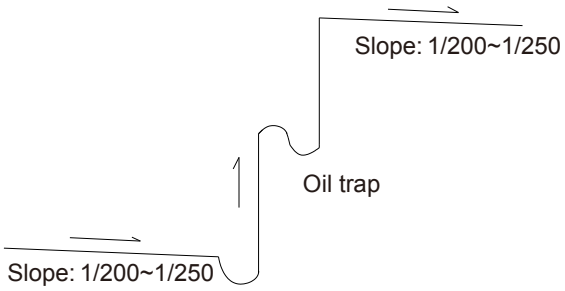
10.1 MAX.length allowed



Item \ Model		18K	24K	36K	42K
Piping to each indoor unit (A/B/C/D/E)	ft./m	≤82(25)	≤65.6(20)	≤65.6(20)	≤65.6(20)
Total length of piping between all units	ft./m	A+B≤ 164(50)	A+B+C≤ 197(60)	A+B+C+D≤ 246(75)	A+B+C+D+E ⩽262(80)
Max height difference between indoor unit and outdoor unit (F)	ft./m	≤49 (15)			
max height difference between indoor units (G)	ft./m	≤25 (7.5)			

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 16.4 ft (5m) (height difference) on suction piping.



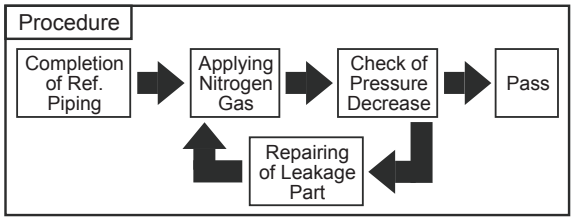
NOTE:

1) To avoid storing too much oil in the oil trap, the oil trap 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 slope is about 1/200 to1/250.
3) In order to ensure cooling/heating performance better, the refrigerant piping should be as short and straight as possible.

10.3 Air tight test

Do use nitrogen when performing air-tight test.

Connect the gauge manifold using charging hoses with a nitrogen cylinder to the check joints of the liquid line and the gas line stop valves. Perform the air-tight test. Don't open the gas line stop valves. Apply nitrogen gas pressure of 550psi. Check for any gas leakage at the flare nut connections, or brazed parts by gas leak detector or foaming agent. It is OK if gas pressure does not decrease. After the air tight test, release nitrogen gas.



Air tight procedure

10.4 Additional refrigerant charge

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

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

Refrigerant charge before shipment (W0 (kg))

W0 is the outdoor unit refrigerant charge before shipment;

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

Model	Refrigerant precharged before shipment(W0(ozg))	Additional refrigerant charge
18K	63.49/1800	[L-50ft (15m)]×0.807oz/5ft (15g/m)
24K	81.13/2300	[L-75ft (22.5m)]×0.807oz/5ft (15g/m)
36K	105.82/3000	[L-98ft (30m)]×0.807oz/5ft (15g/m)
42K	120/3400	[L-125ft (37.5m)]×0.807oz/5ft (15g/m)

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 Solder-less 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 specified tools and measuring instruments only for the new refrigerant.

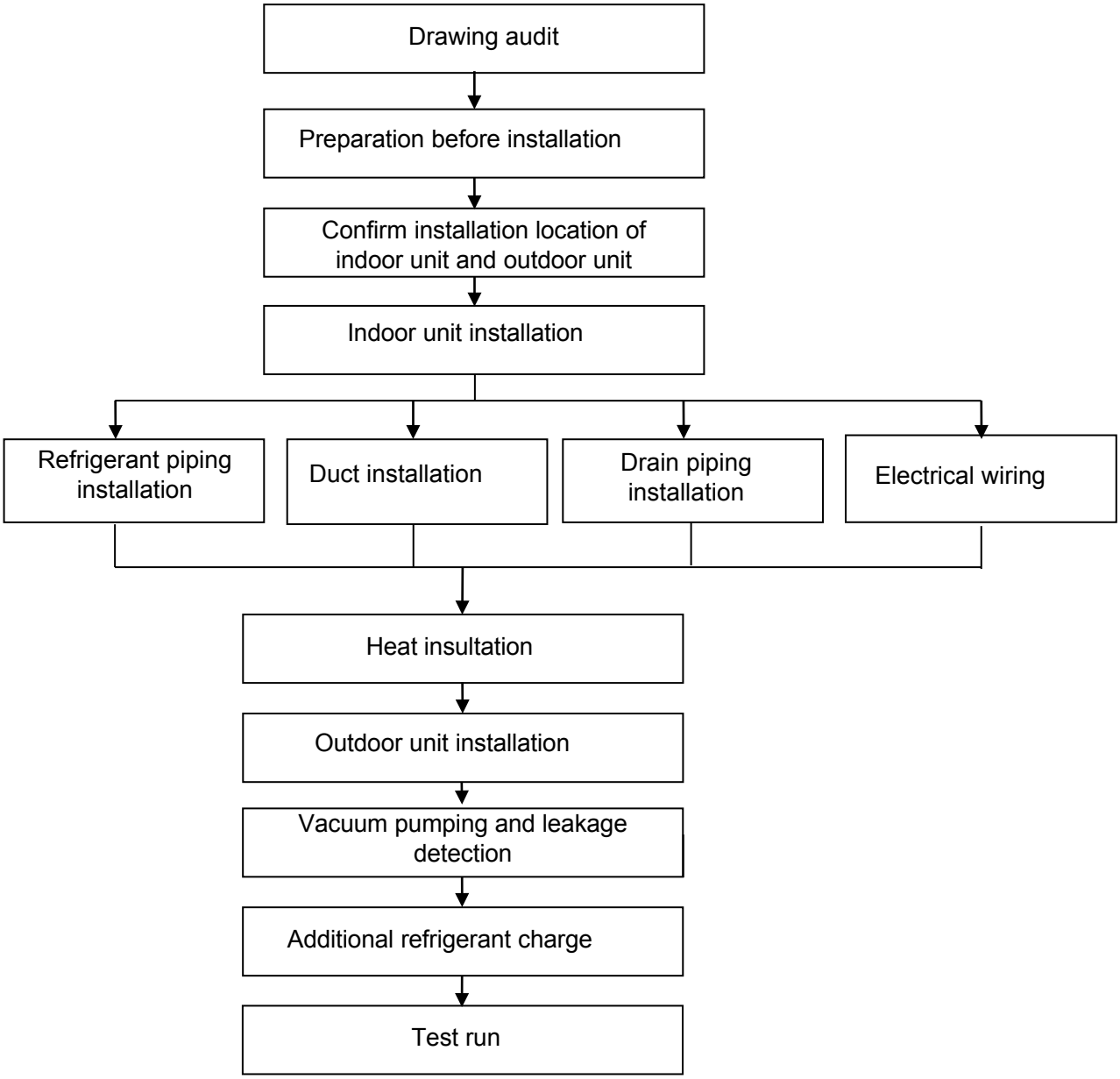
✧: Interchangeability is available with R410A ●: Only for Refrigerant R32

×: 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 ϕ1/2, ϕ5/8, spanner size is up 2mm.	Connection of Flare Nut
		✧	✧	* For ϕ1/4, ϕ3/8, ϕ3/4, 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 B i
	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 zeotoropic 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

11. INSTALLATION TOOLS AND INSTALLATION FLOW CHART

11.2 Installation flow chart



Note: this flow is only for reference; detailed see installation manual section.

12. Control mode

1) Cooling Anti-freeze Protection

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

2) Heating Overload Protection

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

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

3) Cooling Overload Protection

To prevent system overload due to excessive pressure during cooling operation, the machine will implement real-time detection over the outdoor condenser coil temperature: If the outdoor coil temperature grows higher, the compressor will be prohibited from increasing the frequency; If the temperature continues to rise, the compressor will decrease the frequency; If the outdoor fan-coil temperature is too high, then the compressor will stop working immediately. The compressor will reboot after the outdoor coil temperature reduces.

4) Discharge Temperature Protection

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

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

5) Oil-return Control

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

6) Operation Mode

a. Mode Categori

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

b. Mode conflict

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

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

√———Mode conflict will not happen

×———Mode conflict will happen

7) Outdoor four-way Valve Control

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

8) Start-up Protection

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

9) Pressure Protection

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

13. SENSOR PARAMETER

13. Sensor parameter

1. THE PARAMETER OF OUTDOOR COMPRESSOR DISCHARGE TEMPERATURE SENSOR:

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

T [℃]	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. SENSOR PARAMETER

T [℃]	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. SENSOR PARAMETER

T [℃]	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. SENSOR PARAMETER

2. THE PARAMETER OF THE OTHER SENSOR：

（R_0=15K±2%；B0/100=3450K±2%）

T [℃]	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. SENSOR PARAMETER

T [℃]	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. SENSOR PARAMETER

T [℃]	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

14. Troubleshooting

14.1 Trouble guide

Troubleshooting for normal malfunction

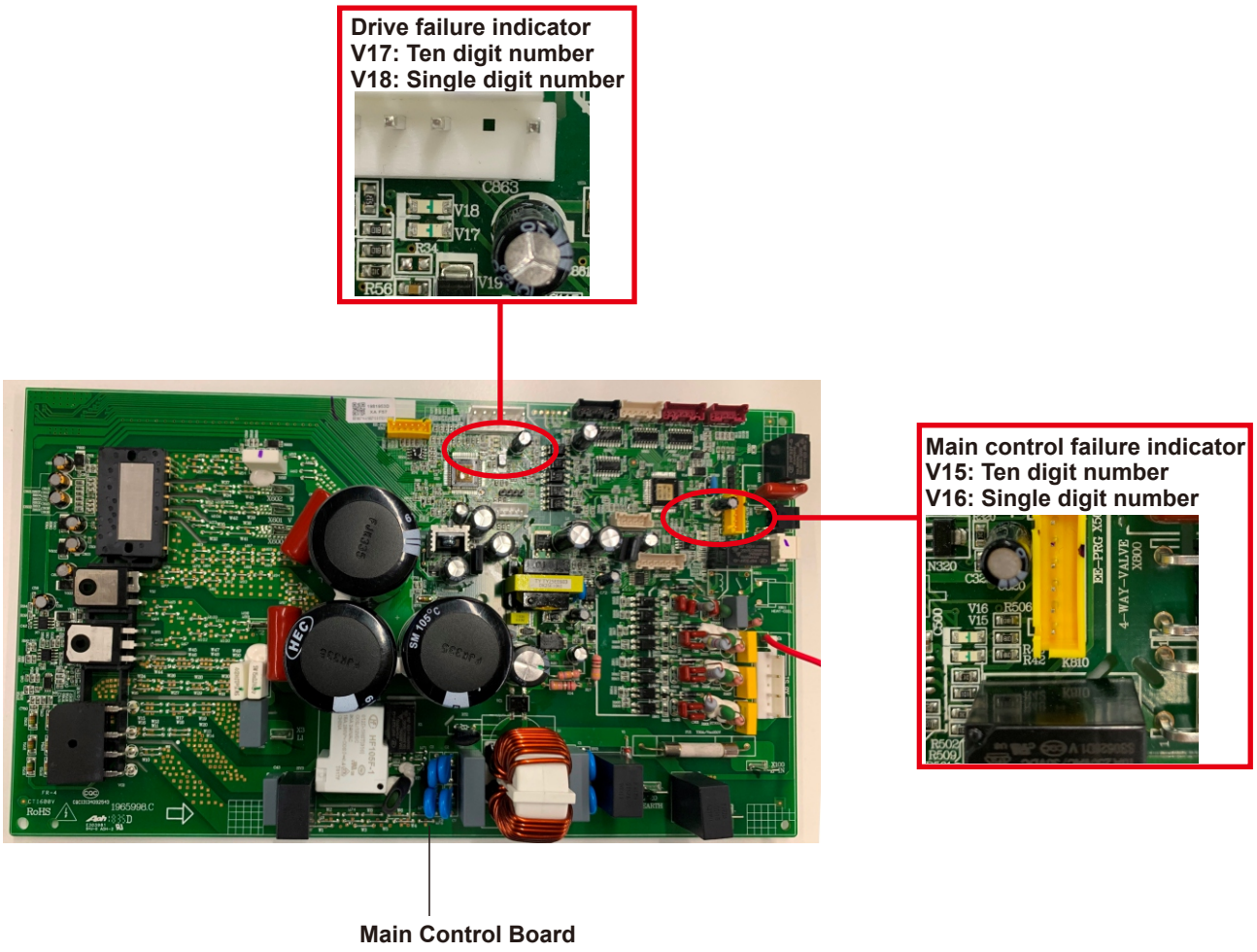
Troubleshooting	Possible Reason of Abnormality	How to Deal With
Air conditioner can not start up	1. Power supply failure; 2. Trip of breaker or blow of fuse; 3. Power voltage is too low; 4. Improper setting of remote controller ; 5. Remote controller is short of power.	1. Check power supply circuit; 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 block obstacles.
Poor cooling/heating	1. The outdoor heat exchanger is dirty, such as 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.	1. Clean the heat exchanger of the outdoor unit, such as condenser ; 2. Remove heating devices; 3. Keep certain air tightness indoors; 4. Remove block 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	1. Drainage pipe blocked or broken; 2. Wrap of refrigerant pipe joint is not closed completely.	1. Change drainage pipe. 2. Re-wrap and make it tight.

14. TROUBLESHOOTING

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

HOW TO CHECK FAULT CODES

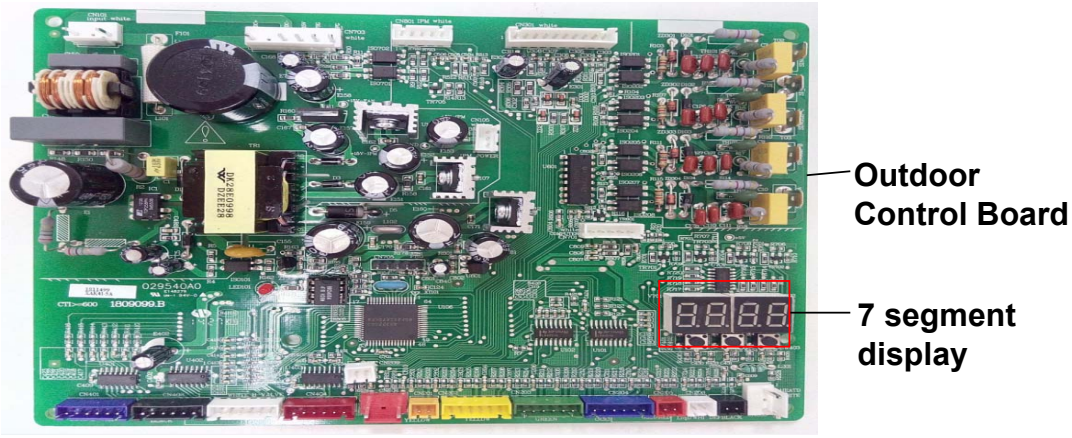
1) 18K



2) 18K/24K/36K/42K

Main control failure

Fault code will display on 7 segment display on outdoor control board.



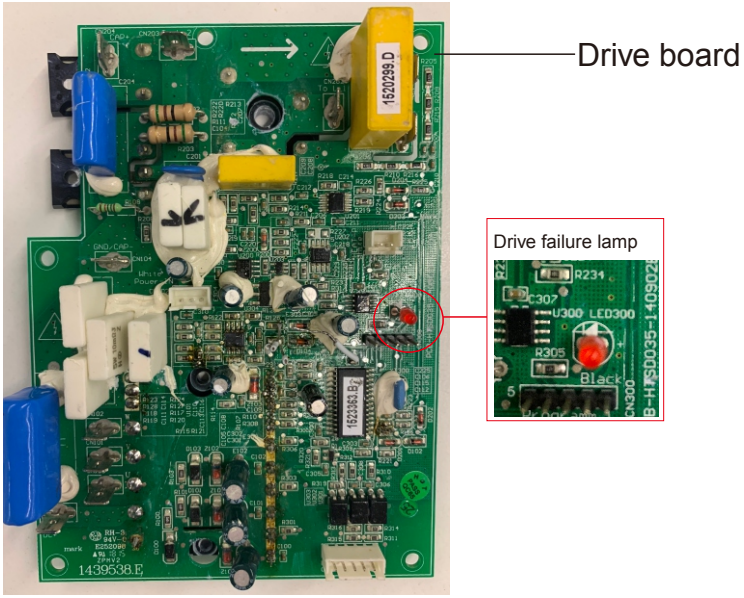
14. TROUBLESHOOTING

E shows failure occur	Display ERROR Code

Drive fault code display

The lamp of drive board flash shows failure occurs.

The drive failure lamp flicking times shows the failure code.



The drive failure lamp flicking times shows the failure code.

14. TROUBLESHOOTING

14.2 Fault codes

The following is the fault code table of outdoor units.

Table 1 Outdoor fault code

Fault code	Fault description	Possible reasons for abnormality	How to deal with	Remarks
1	Outdoor ambient temperature sensor fault	1.The outdoor ambient temperature sensor is connected loosely; 2.The outdoor ambient temperature sensor fails to work; 3.The sampling circuit fails.	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	1.The outdoor coil temperature sensor is connected loosely; 2.The outdoor coil temperature sensor fails to work; 3.The sampling circuit fails.	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	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.	1. Replace the electrical control board components; 2. Normally protection 3. Replace the compressor 4. Please see the Note 3 5. Please see the Note 4	
4	EEprom Data error	1.EE components fails; 2.EE components control circuit fails; 3.EE components are inserted incorrectly.	1.Replace the EE components; 2.Replace the outdoor control board components; 3.Reassembly the EE components.	
5	Cooling freezing protection (the indoor coil temperature is too low) or heating overload (indoor coil temperature is too high)	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 .	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	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.	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	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.	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	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.	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	1.The wiring of the discharge temperature sensor is connected loosely; 2.The discharge temperature sensor fails; 3.The sampling circuit is abnormal.	1. Reconnect the wiring of the discharge temperature sensor; 2. Replace the discharge temperature sensor fails; 3. The sampling circuit is abnormal.	
18	AC voltage is abnormal	1.The AC voltage>275V or <160V. 2.The AC voltage of sampling circuit on the driver board is abnormal.	1. Normal protection, please check the supply power; 2. Replace the driver board.	
19	Suction temperature sensor fault	1.The wiring of the suction temperature sensor is connected loosely; 2.The suction temperature sensor fails; 3.The sampling circuit is abnormal.	1.Reconnect the wiring of the suction temperature sensor; 2.Replace the suction temperature sensor; 3.Replace the outdoor control board.	
22	The defrosting sensor fault	1.The wiring of the defrosting sensor is connected loosely; 2.The defrosting sensor fails; 3.The sampling circuit is abnormal.	1. Reconnect the wiring of the defrosting sensor; 2. Replace the defrosting sensor; 3. Replace the outdoor control board.	
23	Expansion valve A tube (thin) sensor fault	1. The wiring of the sensor for the expansion valve A(thin tube) connect loose; 2. The sensor for the expansion A(thin tube) is failure; 3. The sampling circuit is abnormally	1. Reconnect the wiring of the sensor for the expansion valve A (thin tube); 2. Replace the sensor for the expansion valve A (thin tube); 3. Replace the outdoor control board.	
24	Expansion valve B (thin)tube sensor fault	1. The wiring of the sensor for the expansion valve B (thin tube) connect loose; 2.The sensor for the expansion valve B(thin tube) is failure; 3.The sampling circuit is abnormally	1. Reconnect the wiring of the sensor for the expansion valve B(thin tube); 2.Replace the sensor for the expansion valve B(thin tube); 3. Replace the outdoor control board.	

14. TROUBLESHOOTING

Fault code	Fault description	Possible reasons for abnormality	How to deal with	Remarks
25	Expansion valve C (liquid) pipe sensor fault	1. The wiring of the sensor for the expansion valve C (liquid pipe) is connected loosely; 2. The sensor of the expansion valve C (liquid pipe) fails; 3. The sampling circuit fails.	1. Reconnect the wiring of the sensor for the expansion valve C (liquid pipe). 2. Replace the sensor for the expansion valve C (liquid pipe); 3. Replace the outdoor control board.	
26	Expansion valve D (liquid) pipe sensor fault	1.The wiring of the sensor for the expansion valve D (liquid pipe) is connected loosely; 2.The sensor of the expansion valve D (liquid pipe) fails; 3.The sampling circuit fails.	1. Reconnect the wiring of the sensor for the expansion valve D (liquid pipe); 2. Replace the sensor for the expansion valve D (liquid pipe); 3. Replace the outdoor control board.	
27	Expansion valve A (gas pipe) sensor fault	1. The wiring of the sensor for the expansion valve A (gas pipe) is connected loosely; 2. The sensor of the expansion valve A (gas pipe) fails; 3. The sampling circuit fails.	1. Reconnect the wiring of the sensor for the expansion valve A (gas pipe); 2. Replace the sensor for the expansion valve A (gas pipe); 3. Replace the outdoor control board.	
28	Expansion valve B (gas pipe) sensor fault	1. The wiring of the sensor for the expansion valve B (gas pipe) connect is connected loosely; 2. The sensor of the expansion valve B (gas pipe) fails; 3. The sampling circuit fails.	1. Reconnect the wiring of the sensor for the expansion valve B (gas pipe); 2. Replace the sensor for the expansion valve B (gas pipe); 3. Replace the outdoor control board.	
29	Expansion valve C (gas pipe) sensor fault	1. The wiring of the sensor for the expansion valve B (gas pipe) connect is connected loosely; 2. The sensor of the expansion valve C (gas pipe) is fails; 3. The sampling circuit fails.	1. Reconnect the wiring of the sensor for the expansion valve B (gas pipe); 2. Replace the sensor for the expansion valve C (gas pipe); 3. Replace the outdoor control board.	
30	Expansion valve D (gas pipe) sensor fault	1. The wiring of the sensor for the expansion valve B (gas pipe) is connected loosely; 2. The sensor of the expansion valve D (gas pipe) fails; 3. The sampling circuit fails.	1. Reconnect the wiring of the sensor for the expansion valve B (gas pipe); 2. Replace the sensor for the expansion valve D (gas pipe); 3. Replace the outdoor control 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".	

14. TROUBLESHOOTING

Fault code	Fault description	Possible reasons for abnormality	How to deal with	Remarks
46	IPM and control board communication fault	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.	1.Reconnect the cable between the control board and the driver board; 2.Replace the communication cable between the control board and the driver board; 3.Replace the driver board; 4.Replace the control board.	
47	Too high discharge temperature fault	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.	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.Normal protection.	
48	The outdoor DC fan motor fault (upper fan motor)	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.	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.	
50	Expansion valve E (gas pipe) sensor fault	1. The wiring of the sensor for the expansion valve E (gas pipe) is connected loosely; 2. The sensor of the expansion valve E (gas pipe) fails; 3. The sampling circuit fails.	1. Reconnect the wiring of the sensor for the expansion valve E (gas pipe); 2. Replace the sensor for the expansion valve E (gas pipe); 3. Replace the outdoor control board.	
53	Expansion valve D (liquid) pipe sensor fault	1.The wiring of the sensor for the expansion valve D (liquid pipe) is connected loosely; 2.The sensor of the expansion valve D (liquid pipe) fails; 3.The sampling circuit fails.	1. Reconnect the wiring of the sensor for the expansion valve D (liquid pipe); 2. Replace the sensor for the expansion valve D (liquid pipe); 3. Replace the outdoor control board.	
96	Lacking of refrigerant	The refrigerant of the unit is not enough.	Discharge the refrigerant and charge the refrigerant referring to the rating label.	
97	4-way valve commutation failure fault	1.The connecting wiring of the 4-way valve coil is loose; 2.The 4-way valve coil fails; 3.The 4-way valve fails; 4.The driver board of the 4-way valve fails.	1. Reconnect the wiring of the 4-way valve; 2. Replace the 4-way valve coil; 3. Replace the 4-way valve; 4.Replace the driver board of the 4-way valve.	

14. TROUBLESHOOTING

Fault code	Fault description	Possible reasons for abnormality	How to deal with	Remarks
74	Indoor EEPROM Data 2 fault	EE in MCU is fails, the unit can run, but the function user has set is ineffective.	Replace EE data in MCU.	
81	Indoor ambient Temperature Sensor Fault	1. The cable of the room temperature sensor is connect loosely; 2. The room temperature sensor fails; 3. The sampling circuit is abnormal.	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	1.The cable of the coil temperature sensor of the evaporator fails; 2.The coil temperature sensor of the evaporator fails; 3.The sampling circuit is abnormal.	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)	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.	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.	
ER	Communication between main control board & display board Fault (displays on display board)	1.The wiring between the display board to the indoor control board is connected loosely; 2.The sequence of the wiring between the display board to the indoor control board is wrong; 3.The wiring between the display board to the indoor control board fails; 4.The display board fails; 5.The indoor control board fails.	1. Reconnect the wiring between the display board to the indoor control board; 2. Replace the wiring between the display board to the indoor control board; 3. Replace the wiring between the display board to the indoor control board; 4. Replace the display board; 5. Replace the indoor control board.	

14. TROUBLESHOOTING

NOTE 1:

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

NOTE 2:

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

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 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 condenser.	Clean the heat exchanger of the outdoor unit, such as condenser.
5	The speed of the outdoor fan motor is too low.	Check the outdoor fan motor and fan capacitor.
6	The outdoor fan is broken or the outdoor fan is blocked.	Check the outdoor fan.
7	The air inlet and outlet has been blocked.	Remove the blocked objects.
8	The expansion valve or the capillary fails.	Replace the expansion valve or the capillary.

NOTE 4: Over load 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 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 has been blocked.	Remove the blocked objects.
8	The expansion valve or the capillary fails.	Replace the expansion valve or the capillary.

14. TROUBLESHOOTING

Table 3 Drive fault code (18K)

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 power supply 2. Change driver board.
2	Inverter DC low voltage fault		
3	Inverter AC current overload fault		
4	Out-of-step detection	1. Compressor phase lost ; 2. Bad driver board components ; 3. The compressor insulation fault	1. Check compressor wire connection; 2. Change driver board ; 3. Change compressor.
5	Loss phase detection fault (speed pulsation)		
6	Loss phase detection fault (current imbalance)		
7	Inverter IPM fault (edge)	1. System overload or current overload; 2. Driver board fault. 3. Compressor oil shortage, serious wear of crankshaft ; 4. The compressor insulation fault.	1. Check the system. 2. Change driver board; 3. Change the compressor; 4. Change the compressor.
8	Inverter IPM fault (level)		
9	PFC_IPM IPM fault (edge)		
10	PFC_IPM IPM fault (level)		
11	PFC power detection of failure	1. The power supply is not stable; 2. Instantaneous power off; 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 overload, 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 abnormal.	Reset the power supply.
25	EE data abnormal	Driver board EEPROM abnormal	1. Change EEPROM ; 2. Change driver board.
26	DC voltage mutation error	1. Power input changes suddenly 2. Driver board fails.	1.Check power supply, to provide stable power supply; 2.Change driver board.
27	D axis current control error	1. System overload, phase current is too high; 2. Driver board fails.	1. Check system if normally. 2. Check stop valve if is open; 3. Change driver board.
28	Q axis current control error	1. System overload, phase current is too high ; 2. Driver board fails.	1. Check system if normally. 2. Check stop valve if is open; 3. Change driver board.
29	Saturation error of d axis current control integral	1. System overload suddenly; 2. Compressor parameter is not suitable; 3. Driver board fails.	1. Check system if normally. 2. Check stop valve if is open; 3. Change driver board.
30	Saturation error of q axis current control integral	1. System overload suddenly; 2. Compressor parameter is not suitable; 3. Driver board fails.	1. Check system if normally. 2. Check stop valve if is open; 3. Change driver board.

14. TROUBLESHOOTING

Table 4 Drive Fault Code (24K/36K/42K)

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

14. TROUBLESHOOTING

Fault code	Fault description	Possible reasons for abnormality	How to deal with
16	Low DC voltage 200V	1. Voltage input is too low; 2. Drive board fault.	1. Check the power supply. 2. Change the driver board.
18	Driver board read EE data error	1. EEPROM has no data or data error; 2. EEPROM circuit fault.	1. Change EEPROM component; 2. Change the driver board.
19	PFC chip receive data fault	Abnormal communication loop.	Change the drive board.
20	PFC soft start abnormal	Abnormal PFC drive loop.	Change the drive board.
21	The compressor drive chip could not receive data from PFC chip.	Communication loop fault.	Change the drive board.

15. Checking components

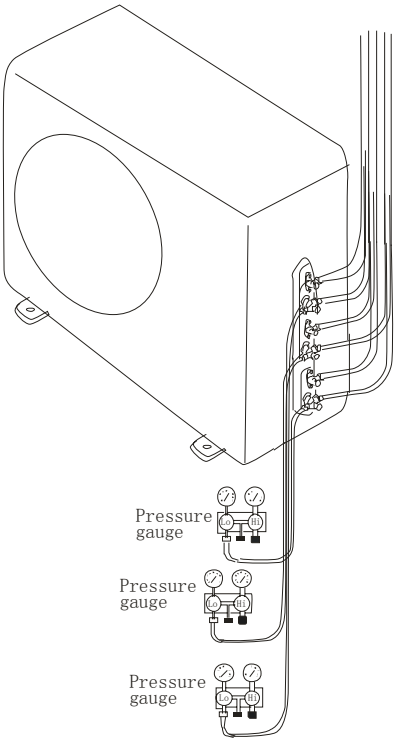
15.1 Check refrigerant system

TEST SYSTEM FLOW

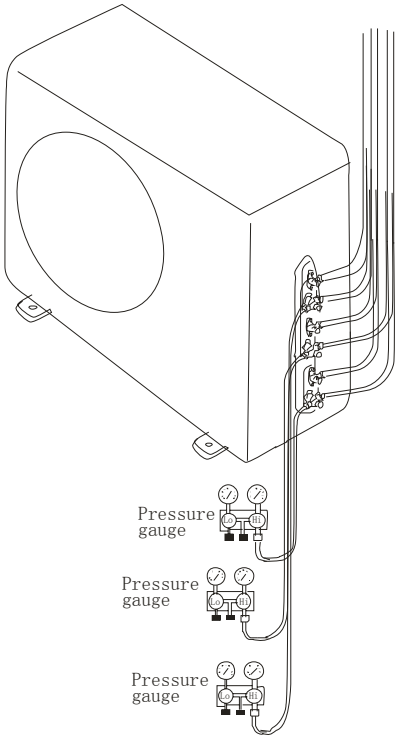
Conditions: ① Compressor is running.
② The air condition should be installed in good ventilation.
Tool: Pressure Gauge
Technique: ① see ② feel ③ test

See ----- Tube defrost.
Feel ----- The difference between tube's temperature.
Test ----- Test pressure.

cooling run

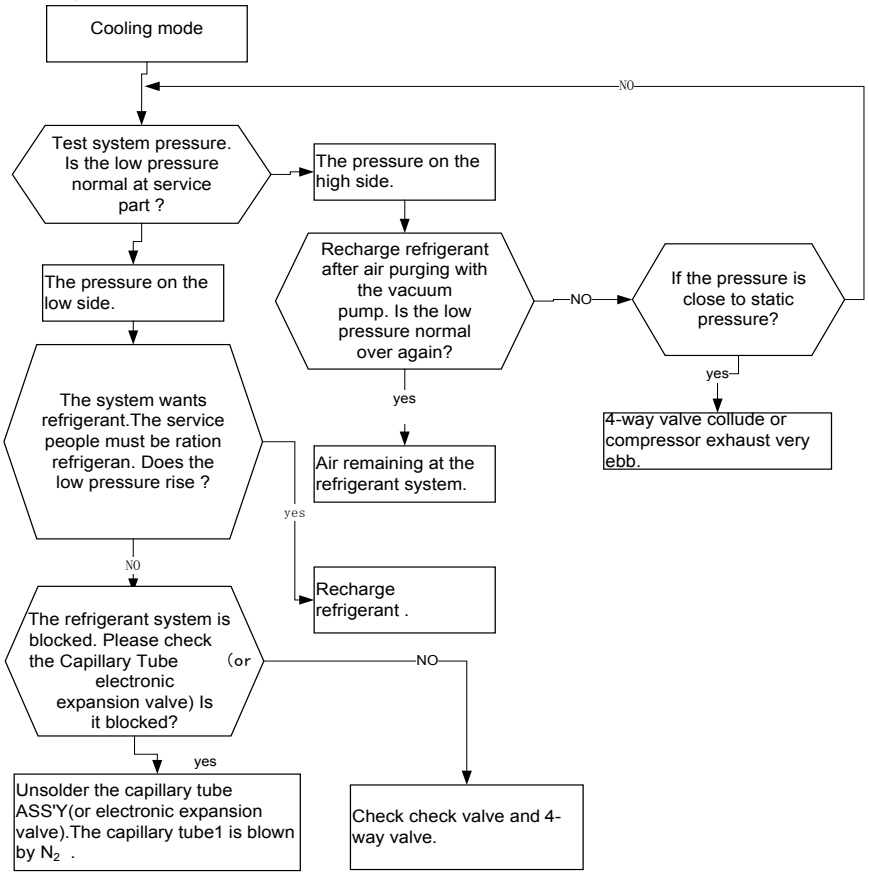


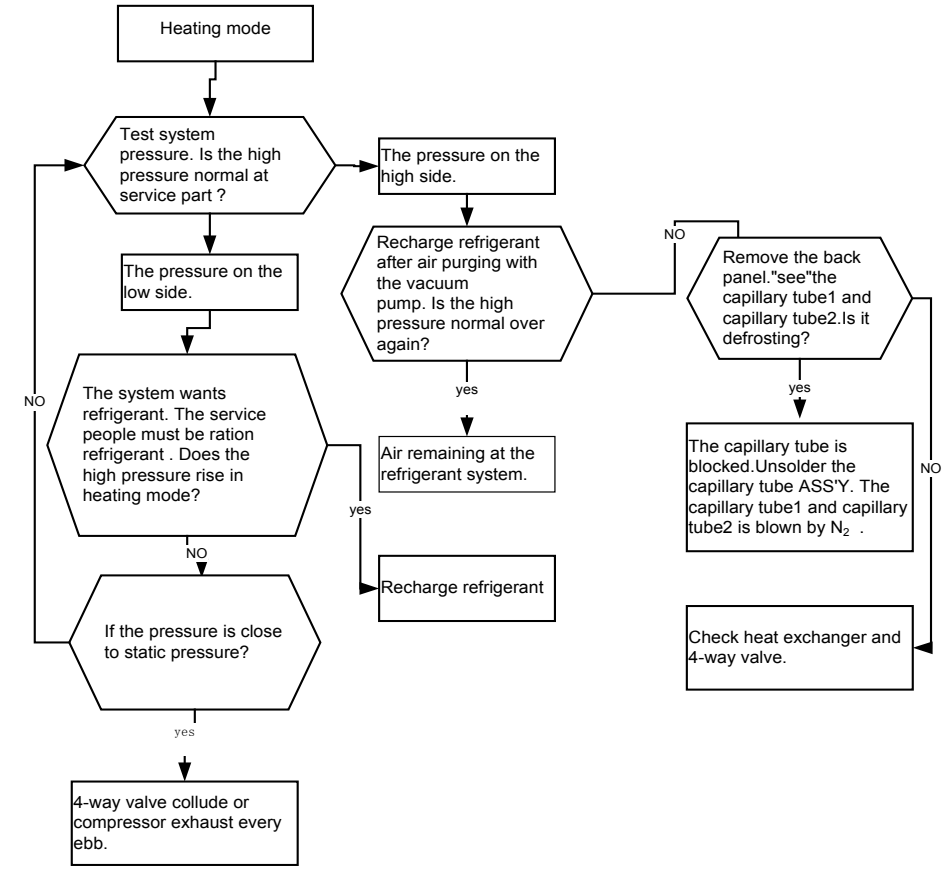
heating run



15. CHECKING COMPONENTS

Test system flow





15. CHECKING COMPONENTS

15.2 Check parts unit

1. Fan motor

18K

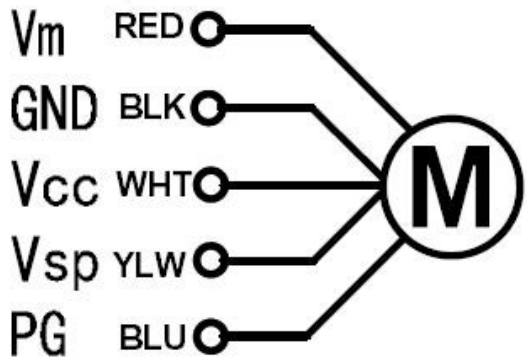
Model: ZWK511A805001

24K

Model: SIC-71FW-D8121-136K

36K/42K

Model: SIC-81FW-F1138-1



2. Compressor

Compressor examine and repair

18K

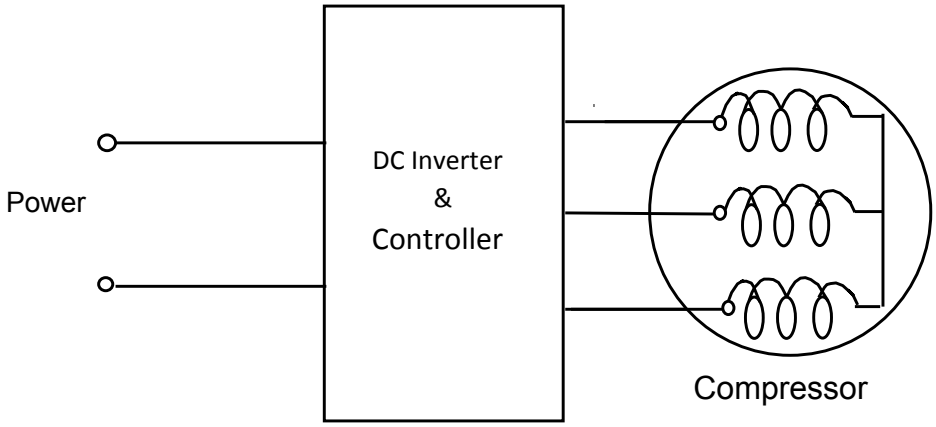
EATF200D22UMT

24K

Model: EATF250D22UMT

36K/42K

Model: EATF400D64UMTA



15. CHECKING COMPONENTS

Test in resistance.

TOOL: Multi-meter.

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

Familiar error:

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

Notes：

1) Don't put a compressor on its side or turn over.
2) Please assembly the compressor in your air conditioner rapidly after removing the plugs. Don't place the comp. In air for 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 decrease because of its rotor magnetic force decreasing.

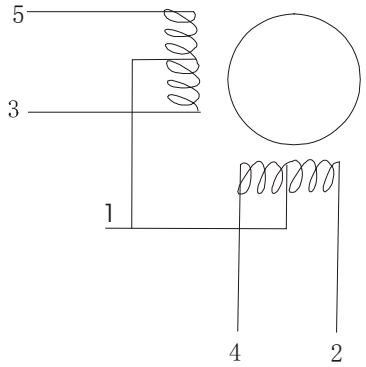
3. Inductance

Familiar error:

1）Sound abnormality

2）Insulation resistance disqualification.

4. Step motor



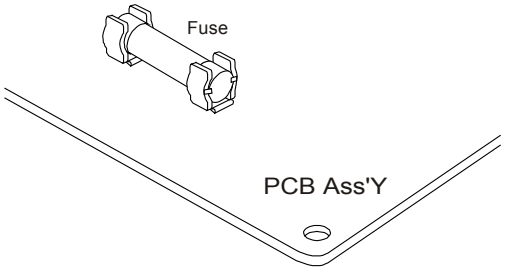
Test in resistance.
TOOL: Multimeter.
Test the resistance of winding. The stepper motor fails if the resistance of winding is 0 (short circuit) or ∞（open circuit）.

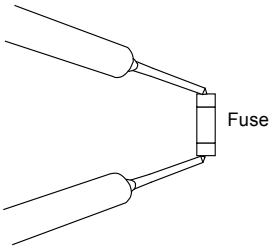
15. CHECKING COMPONENTS

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.Check for continuity by a multimeter as shown below.



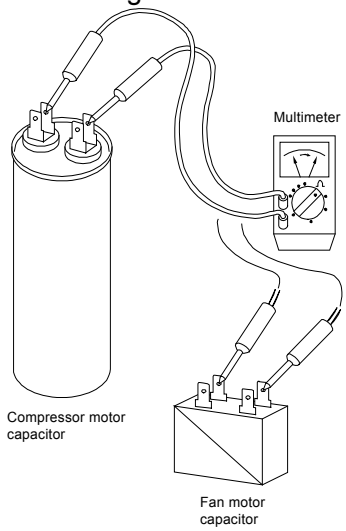


6. Capacitor

Remove the lead wires from the capacitor terminals, and then place a probe on the capacitor terminals as shown below.

Observe the deflection of the pointer, setting the resistance measuring range of the multimeter to the maximum value.

* The capacitor is "good" if the pointer bounces to a great extent and then gradually returns to its original position.
* The range of deflection and deflection time differ according to the capacity of the capacitor.

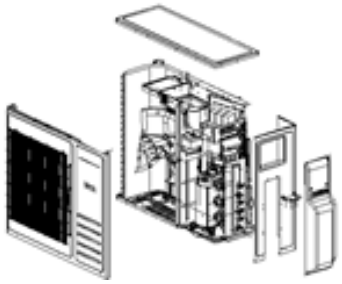
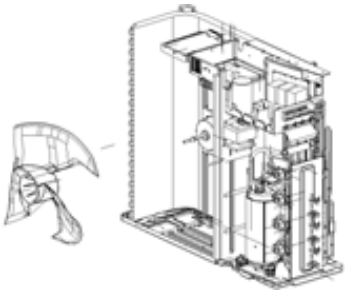
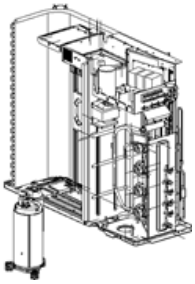
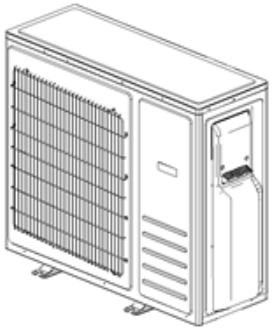


16. Disassembly and assembly for compressor and motor

The special tools for compressor & motor disassembly and assembly：

	Tool
1	Hexagon Screwdriver 
2	Hexagon Socket 

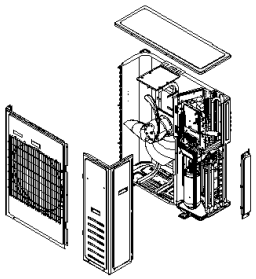
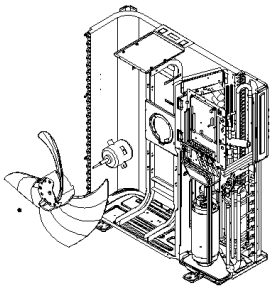
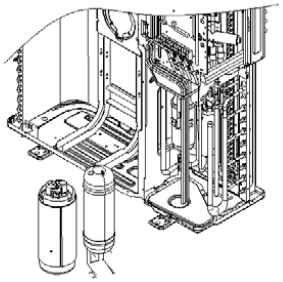
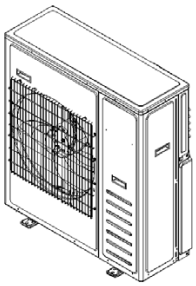
Outdoor unit
18K/24K

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		1. Remove the top cover, handle and valve cover; 2. Remove the outer case and right side plate.
2. Remove motor		1. Remove the blade nut and then remove the blade; 2. Remove the motor from motor supporter
3. Remove compressor		1. Reclaim the refrigerant from the entire system. 2. Unsolder the 4-way valve piping assy from compressor; 3. Remove the compressor mounting bolts; 4. Carefully remove the compressor from chassis.
4. Assemble unit		Assemble the unit in the reverse order of disassembly.

15. DISASSEMBLY AND ASSEMBLY FOR COMPRESSOR AND MOTOR

36K/42K

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		1. Remove the top cover, handle and valve cover; 2. Remove the outer case and right side plate.
2. Remove motor		1. Remove the blade nut and then remove the blade; 2. Remove the motor from motor supporter.
3. Remove compressor		1. Reclaim the refrigerant from the entire system. 2. Unsolder the 4-way valve piping assy from compressor; 3. Remove the compressor mounting bolts; Carefully remove the compressor from chassis.
4. Assemble unit		Assemble the unit in the reverse order of disassembly.

Hisense

Combination Table

AMW2-18U3SFA

Model	Cooling	Heating	Combination of Indoor Units	Cooling Capacity													Heating Capacity												
				A	B	C	D	Total Capacity (Btu/h)			Power Input(W)			(A)	SEER	EER		A	B	C	D	Total Capacity (Btu/h)			Power Input(Btu/h)			(A)	SCOP	COP	
				Btu/h	Btu/h	Btu/h	Btu/h	NOM	MIN	MAX	NOM	MIN	MAX			W/W		Btu/h	Btu/h	Btu/h	Btu/h	NOM	MIN	MAX	NOM	MIN	MAX			W/W	
Split Indoor			07+07	9000	9000			18000	7500	24000	1440	510	2610	6.5	22.0	3.66		9000	9000			18000	5800	28700	1530	450	3150	6.9	11.0	3.45	
			07+09	8500	9500			18000	7500	24000	1440	510	2610	6.5	22.0	3.66		8500	9500			18000	5800	28700	1530	450	3150	6.9	11.0	3.45	
			07+12	8000	10000			18000	7500	24000	1440	510	2610	6.5	22.0	3.66		8000	10000			18000	5800	28700	1530	450	3150	6.9	11.0	3.45	
			09+09	9000	9000			18000	7500	24000	1440	510	2610	6.5	22.0	3.66		9000	9000			18000	5800	28700	1530	450	3150	6.9	11.0	3.45	
			09+12	8500	9500			18000	7500	24000	1440	510	2610	6.5	22.0	3.66		8500	9500			18000	5800	28700	1530	450	3150	6.9	11.0	3.45	
			12+12	9000	9000			18000	7500	24000	1440	510	2610	6.5	22.0	3.66		9000	9000			18000	5800	28700	1530	450	3150	6.9	11.0	3.45	

Combination Table

AMW3-24U3SAA

Model	Cooling	Heating	Combination of Indoor Units	Cooling Capacity												Heating Capacity											
				A	B	C	D	Total Capacity (Btu/h)			Power Input(W)			(A)	SEER	EER		A	B	C	D	Total Capacity (Btu/h)			Power Input(Btu/h)			(A)	SCOP	COP	
				Btu/h	Btu/h	Btu/h	Btu/h	NOM	MIN	MAX	NOM	MIN	MAX			W/W		Btu/h	Btu/h	Btu/h	Btu/h	NOM	MIN	MAX	NOM	MIN	MAX			W/W	
Split Indoor			07+18	7000	16000			23000	7400	27500	1905	420	2640	8.7	19.00	3.54	2.58	7100	16400			23500	4600	28000	1905	420	3900	8.7	9.50	3.61	3.35
			09+18	8500	15000			23500	7600	28600	1920	420	2640	8.7	19.00	3.59	2.58	8700	15300			24000	4600	30000	1930	420	4020	8.8	10.00	3.64	
			12+12	10000	10000			20000	7600	28600	1915	400	2640	8.7	18.00	3.06	2.58	10000	10000			20000	4400	28000	1910	400	3700	8.7	9.50	3.07	
			12+18	9500	14500			24000	7800	29500	1920	420	2640	8.7	19.00	3.66	2.58	9500	14500			24000	4600	32000	1930	420	4020	8.8	10.00	3.64	
			18+18	12000	12000			24000	8000	30200	1940	440	2640	8.8	20.00	3.62		12000	12000			24000	4800	34000	1950	440	4020	8.9	10.00	3.61	
			07+07+07	7100	7100	7100		21300	8000	29000	1895	420	2640	8.6	22.00	3.29	2.58	7100	7100	7100		21300	5200	32000	1910	420	3800	8.7	11.00	3.27	
			07+07+09	7100	7100	8900		23100	8000	29500	1895	420	2640	8.6	22.00	3.57	2.58	7100	7100	8900		23100	5200	33000	1910	420	3850	8.7	11.00	3.54	
	7200		07+07+12	7000	7000	10000		24000	8000	30200	1920	420	2640	8.7	22.00	3.66	2.58	7000	7000	10000		24000	5200	34000	1920	420	3900	8.7	11.00	3.66	
			07+07+18	6100	6100	11800		24000	8000	30200	1920	440	2640	8.7	22.00	3.66		6100	6100	11800		24000	5200	37000	1920	440	4020	8.7	11.00	3.66	
			07+09+09	7000	8500	8500		24000	8000	30200	1920	420	2640	8.7	22.00	3.66	2.58	7000	8500	8500		24000	5200	36000	1920	420	4020	8.7	11.00	3.66	
			07+09+12	6400	7900	9700		24000	8000	30200	1920	420	2640	8.7	22.00	3.66	2.58	6400	7900	9700		24000	5200	37000	1920	420	4020	8.7	11.00	3.66	
			07+09+18	5500	6900	11600		24000	8000	30200	1920	440	2640	8.7	22.00	3.66		5500	6900	11600		24000	5200	37000	1920	440	4020	8.7	11.00	3.66	
			07+12+12	6000	9000	9000		24000	8000	30200	1920	420	2640	8.7	22.00	3.66	2.58	6000	9000	9000		24000	5200	37000	1920	420	4020	8.7	11.00	3.66	
			07+12+18	5500	7500	11000		24000	8000	30200	1920	440	2640	8.7	22.00	3.66		5500	7500	11000		24000	5200	37000	1920	440	4020	8.7	11.00	3.66	
			09+09+09	8000	8000	8000		24000	8000	30200	1920	420	2640	8.7	22.00	3.66	2.58	8000	8000	8000		24000	5200	37000	1920	420	4020	8.7	11.00	3.66	
			09+09+12	7400	7400	9200		24000	8000	30200	1920	420	2640	8.7	22.00	3.66	2.58	7400	7400	9200		24000	5200	37000	1920	420	4020	8.7	11.00	3.66	
			09+09+18	6200	6200	11600		24000	8000	30200	1920	440	2640	8.7	22.00	3.66		6200	6200	11600		24000	5200	37000	1920	440	4020	8.7	11.00	3.66	
			09+12+12	7000	8500	8500		24000	8000	30200	1920	420	2640	8.7	22.00	3.66	2.58	7000	8500	8500		24000	5200	37000	1920	420	4020	8.7	11.00	3.66	
			12+12+12	8000	8000	8000		24000	8000	30200	1920	420	2640	8.7	22.00	3.66	2.58	8000	8000	8000		24000	5200	37000	1920	420	4020	8.7	11.00	3.66	

AMW4-36U3STA

Model	Cooling	Heating	Combination of Indoor Units	Cooling Capacity													Heating Capacity												
				A	B	C	D	Total Capacity (Btu/h)			Power Input(W)			(A)	SEER	EER		A	B	C	D	Total Capacity (Btu/h)			Power Input(Btu/h)			(A)	SCOP	COP	
				Btu/h	Btu/h	Btu/h	Btu/h	NOM	MIN	MAX	NOM	MIN	MAX			W/W		Btu/h	Btu/h	Btu/h	Btu/h	NOM	MIN	MAX	NOM	MIN	MAX			W/W	
Split Indoor	4.09		07+09+18	6000	7800	15600		29400	12000	40500	2550	700	4800	10.9	20.00	3.38	2.77	6800	8700	17500		33000	8000	50000	3060	600	5750	12.9	10.00	3.16	3.37
			07+09+24	6100	6100	19800		32000	12000	39000	2560	700	4440	10.1	19.00	3.66		7000	7000	22000		36000	8000	46000	3060	600	5340	12.3	9.50	3.45	
			07+12+12	6600	11400	11400		29400	12000	38000	2500	700	4500	10.2	20.00	3.45	2.77	7400	12800	12800		33000	8000	47000	3030	600	5400	12.1	10.00	3.19	3.37
			07+12+18	6200	10000	15800		32000	12000	40000	2550	700	4800	10.5	20.00	3.68	2.77	6500	12000	17500		36000	8000	51400	3060	600	5950	12.5	10.00	3.45	3.37
			07+12+24	6000	10000	16000		32000	12000	42000	2580	700	5000	10.7	20.00	3.63		6000	10000	20000		36000	8000	52000	3060	600	6000	12.7	10.00	3.45	
			07+18+24	5000	12000	15000		32000	12000	42000	2580	700	5000	10.7	20.00	3.63		6000	14000	16000		36000	8000	52000	3060	600	6000	12.9	10.00	3.45	
			09+09+12	8900	8900	11900		29700	12000	38500	2500	700	4600	10.4	20.00	3.48	2.77	10000	10000	13400		33400	8000	47600	3030	600	5500	12.3	10.00	3.23	3.37
			09+09+18	7700	7700	15400		30800	12000	41000	2550	700	4900	11.0	20.00	3.54	2.77	8600	8600	17300		34500	8000	50800	3060	600	5900	13.0	10.00	3.30	3.37
			09+09+24	7000	7000	18000		32000	12000	42000	2570	700	5000	11.3	20.00	3.65		8000	8000	20000		36000	8000	52000	3060	600	6000	13.0	10.00	3.45	
			09+12+12	8400	11200	11200		30800	12000	40000	2500	700	4750	10.8	20.00	3.61	2.77	9400	12600	12600		34600	8000	49500	3030	600	5700	12.8	10.00	3.35	3.37
			09+12+18	7300	9700	14400		31400	12000	42000	2550	700	5000	11.0	20.00	3.61	2.77	8200	10900	16200		35300	8000	52000	3060	600	6000	13.0	10.00	3.38	3.37
			09+12+24	7000	10000	15000		32000	12000	42000	2570	700	5000	11.1	20.00	3.65		7000	10000	19000		36000	8000	52000	3060	600	6000	13.0	10.00	3.45	
			09+18+24	6000	11000	15000		32000	12000	42000	2600	700	5000	11.2	20.00	3.61		7000	13000	16000		36000	8000	52000	3060	600	6000	13.0	10.00	3.45	
			12+12+12	10400	10400	10400		31200	12000	42000	2500	700	5000	11.0	20.00	3.66	2.77	11700	11700	11700		35100	8000	52000	3030	600	6000	13.0	10.00	3.39	3.37
			12+12+18	9200	9200	13600		32000	12000	42000	2550	700	5000	11.0	20.00	3.68	2.77	10300	10300	15400		36000	8000	52000	3100	600	6000	13.0	10.00	3.40	3.37
			12+12+24	8000	8000	16000		32000	12000	42000	2520	700	5000	11.0	20.00	3.72		10000	10000	16000		36000	8000	52000	3100	600	6000	13.0	10.00	3.40	
			12+18+24	8000	10000	14000		32000	12000	42000	2520	700	5000	11.0	20.00	3.72		9000	12400	14600		36000	8000	52000	3100	600	6000	13.0	10.00	3.40	
			07+07+07+07	7100	7100	7100	7100	28400	12000	39000	2450	700	4650	10.7	21.00	3.40	2.77	8000	8000	8000	8000	32000	8000	48300	2970	600	5550	13.0	10.50	3.16	3.37
			07+07+07+09	7200	7200	7200	9400	31000	12000	39500	2500	700	4700	10.6	21.00	3.63	2.77	8100	8100	8100	10400	34700	8000	48900	3040	600	5650	13.0	10.50	3.34	3.37
			07+07+07+12	6700	6700	6700	11500	31600	12000	40500	2520	700	4850	11.0	21.00	3.67	2.77	7500	7500	7500	12900	35400	8000	50000	3060	600	5800	13.0	10.50	3.39	3.37
			07+07+07+18	5700	5700	5700	14900	32000	12000	42000	2520	700	5000	11.0	21.00	3.72	2.77	6500	6500	6500	16500	36000	8000	52000	3060	600	6000	13.0	11.00	3.45	3.37
			07+07+07+24	5300	5300	5300	16100	32000	12000	42000	2520	700	5000	11.0	21.00	3.72		5500	5500	5500	19500	36000	8000	52000	3060	600	6000	13.0	11.00	3.45	
			07+07+09+09	6900	6900	8900	8900	31600	12000	40500	2520	700	4850	11.0	21.00	3.67	2.77	7900	7900	9900	9900	35600	8000	50000	3060	600	5800	13.0	10.50	3.41	3.37
			07+07+09+12	6400	6400	8300	10900	32000	12000	41000	2520	700	4900	11.0	21.00	3.72	2.77	7200	7200	9200	12400	36000	8000	50800	3060	600	5850	13.0	11.00	3.45	3.37
			07+07+09+18	5400	5400	7100	14100	32000	12000	42000	2520	700	5000	11.0	21.00	3.72	2.77	6200	6200	7800	15800	36000	8000	52000	3060	600	6000	13.0	11.00	3.45	3.37
			07+07+09+24	5000	5000	6000	16000	32000	12000	42000	2520	700	5000	11.0	21.00	3.72		5300	5300	6000	19400	36000	800	52000	3060	600	6000	13.0	11.00	3.45	
			07+07+12+12	5900	5900	10100	10100	32000	12000	42000	2520	700	5000	11.0	21.00	3.72	2.77	6600	6600	11400	11400	36000	8000	52000	3060	600	6000	13.0	11.00	3.45	3.37
			07+07+12+18	5100	5100	8700	13100	32000	12000	42000	2520	700	5000	11.0	21.00	3.72	2.77	5700	5700	9800	14800	36000	8000	52000	3060	600	6000	13.0	11.00	3.45	3.37
			07+07+12+24	5000	5000	7600	14400	32000	12000	42000	2520	700	5000	11.0	21.00	3.72		5300	5300	6000	19400	36000	8000	52000	3060	600	6000	13.0	11.00	3.45	
			07+09+09+09	6500	8500	8500	8500	32000	12000	42000	2520	700	5000	11.0	21.00	3.72	2.77	7500	9500	9500	9500	36000	8000	52000	3060	600	6000	13.0	11.00	3.45	3.37
			07+09+09+12	6100	7800	7800	10300	32000	12000	42000	2520	700	5000	11.0	21.00	3.72	2.77	6800	8700	8700	11800	36000	8000	52000	3060	600	6000	13.0	11.00	3.45	3.37
			07+09+09+18	5200	6700	6700	13400	32000	12000	42000	2520	700	5000	11.0	21.00	3.72	2.77	5800	7600	7600	15000	36000	8000	52000	3060	600	6000	13.0	11.00	3.45	3.37
			07+09+09+24	5000	6500	6500	14000	32000	12000	42000	2520	700	500	11.0	21.00	3.72		5300	7000	7000	16700	36000	8000	52000	3060	600	6000	13.0	11.00	3.45	
			07+09+12+12	5600	7200	9600	9600	32000	12000	42000	2520	700	5000	11.0	21.00	3.72	2.77	6300	8100	10800	10800	36000	8000	52000	3060	600	6000	13.0	11.00	3.45	3.37
			07+09+12+18	4900	6300	8300	12500	32000	12000	42000	2520	700	5000	11.0	21.00	3.72	2.77	5500	7100	9400	14000	36000	8000	52000	3060	600	6000	13.0	11.00	3.45	3.37
			07+09+12+24	4800	5500	6000	15700	32000	12000	42000	2520	700	5000	11.0	21.00	3.72		5000	6200	9000	15800	36000	8000	52000	3060	600	6000	13.0	11.00	3.45	
			07+12+12+12	6200	8600	8600	8600	32000	12000	42000	2520	700	5000	11.0	21.00	3.72	2.77	5700	10100	10100	10100	36000	8000	52000	3060	600	6000	13.0	11.00	3.45	3.37
			07+12+12+18	4500	7900	7900	11700	32000	12000	42000	2520	700	5000	11.0	21.00	3.72	2.77	5200	8800	8800	13200	36000	8000	52000	3060	600	6000	13.0	11.00	3.45	3.37
			09+09+09+09	8000	8000	8000	8000	32000	12000	42000	2520	700	5000	11.0	21.00	3.72		9000	9000	9000	9000	36000	8000	52000	3060	600	6000	13.0	11.00	3.45	
			09+09+09+12	7400	7400	7400	9800	32000	12000	42000	2520	700	5000	11.0	21.00	3.72		8300	8300	8300	11100	36000	8000	52000	3060	600	6000	13.0	11.00	3.45	
			09+09+09+18	6400	6400	6400	12800	32000	12000	42000	2520	700	5000	11.0	21.00	3.72		7200	7200	7200	14400	36000	8000	52000	3060	600	6000	13.0	11.00	3.45	
			09+09+09+24	6000	6000	6000	14000	32000	12000	42000	2520	700	5000	11.0	21.00	3.72		6500	6500	6500	16500	36000	8000	52000	3060	600	6000	13.0	11.00	3.45	
			09+09+12+12	6800	6800	9200	9200	32000	12000	42000	2520	700	5000	11.0	21.00	3.72		7700	7700	10300	10300	36000	8000	52000	3060	600	6000	13.0	11.00	3.45	
			09+09+12+18	6000	6000	8000	12000	32000	12000	42000	2520	700	5000	11.0	21.00	3.72		6800	6800	8900	13500	36000	8000	52000	3060	600	6000	13.0	11.00	3.45	
			09+09+12+24	5500	5500	6000	15000	32000	12000	42000	2520	700	5000	11.0	21.00	3.72		6500	6500	7000	16000	36000	8000	52000	3060	600	6000	13.0	11.00	3.45	
			09+12+12+12	6500	8500	8500	8500	32000	12000	42000	2520	700	5000	11.0	21.00	3.72		7200	9600	9600	9600	36000	8000	52000	3060	600	6000	13.0	11.00	3.45	
			09+12+12+18	5600	7500	7500	11400	32000	12000	42000	2520	700	5000	11.0	21.00	3.72		6400	8400	8400	12800	36000	8000	52000	3060	600	6000	13.0	11.00	3.45	
			12+12+12+12	8000	8000	8000	8000	32000	12000	42000	2520	700	5000	11.0	21.00	3.72		9000	9000	9000	9000	36000	8000	52000	3060	600	6000	13.0	11.00	3.45	
			12+12+12+18	7100	7100	7100	10700	32000	12000	42000	2520	700	5000	11.0	21.00	3.72		8000	8000	8000	12000	36000	8000	52000	3060	600	6000	13.0	11.00	3.45	

AMW5-42U3STA

Model	Cooling	Heating	Combination of Indoor Units	Cooling Capacity														Heating Capacity												
				A	B	C	D	E	Total Capacity (Btu/h)			Power Input(Btu/h)			(A)	SEER	EER	A	B	C	D	E	Total Capacity (Btu/h)			Power Input(Btu/h)			(A)	SCOP	COP
				Btu/h	Btu/h	Btu/h	Btu/h	Btu/h	NOM	MIN	MAX	NOM	MIN	MAX			W/W	Btu/h	Btu/h	Btu/h	Btu/h	Btu/h	NOM	MIN	MAX	NOM	MIN	MAX			W/W
Split Indoor			7+18+24	6000	15400	20500			42000	9000	50000	4060	660	5550	17.5	18.00		6000	15400	20500			42000	9000	52000	3690	530	6450	16.0	9.00	2.97
			9+18+24	7500	14800	19700			42000	9000	50000	4060	660	5550	17.5	17.80		7500	14800	19700			42000	9000	52000	3690	530	6450	16.0	8.50	2.95
			12+18+24	7000	14600	18600			42000	9000	50000	4060	660	5550	17.5	17.50		7000	14600	18600			42000	9000	52000	3690	530	6450	16.0	8.40	2.93
			7+7+7+7	7000	7000	7000	7000		28000	9000	33000	2800	660	3700	12.5	18.50		7000	7000	7000	7000		28000	9000	35000	2700	530	6450	12.0	8.50	3.02
			7+7+7+9	7000	7000	7000	9000		30000	9000	35700	3000	660	3950	13.0	18.50		7000	7000	7000	9000		30000	9000	36000	2900	530	4600	12.5	8.50	3.02
			7+7+7+12	7000	7000	7000	12000		33000	9000	39000	3190	660	4360	13.8	18.50		7000	7000	7000	12000		33000	9000	37000	2900	530	5100	12.5	8.50	3.02
			7+7+7+18	7000	7000	7000	18000		39000	9000	46000	3770	660	5150	16.4	18.30		7000	7000	7000	18000		39000	9000	48000	3420	530	6000	14.8	8.60	2.99
			7+7+7+24	6500	6500	6500	22500		42000	9000	50000	4060	660	5550	17.5	18.00		6500	6500	6500	22500		42000	9000	52000	3690	530	6450	16.0	8.70	2.97
			7+7+9+9	7000	7000	9000	9000		32000	9000	38000	3190	660	4200	13.8	18.50		7000	7000	9000	9000		32000	9000	39000	2900	530	4900	12.5	8.50	3.02
			7+7+9+12	7000	7000	9000	12000		35000	9000	41000	3380	660	4600	14.7	18.50		7000	7000	9000	12000		35000	9000	43000	3070	530	5400	13.3	8.50	3.02
			7+7+9+18	7000	7000	9000	18000		41000	9000	48000	3960	660	5400	17.2	18.30		7000	7000	9000	18000		41000	9000	52000	3600	530	6300	15.6	8.60	2.98
			7+7+9+24	6200	6200	8100	21500		42000	9000	50000	4060	660	5550	17.5	18.00		6200	6200	8100	21500		42000	9000	52000	3690	530	6450	16.0	8.40	2.98
			7+7+12+12	7000	7000	12000	12000		38000	9000	46000	3770	660	5150	16.4	18.50		7000	7000	12000	12000		38000	9000	48000	3420	530	5800	14.8	8.50	3.02
			7+7+12+18	6600	6600	11500	17200		42000	9000	50000	4060	660	5550	17.5	18.30		6600	6600	11500	17200		42000	9000	52000	3690	530	6450	16.0	8.30	2.99
			7+7+12+24	6600	6600	11500	23000		42000	9000	50000	4060	660	5550	17.5	18.00		6600	6600	11500	23000		42000	9000	52000	3690	530	6450	16.0	8.90	2.98
			7+7+18+24	5200	5200	13600	18000		42000	9000	50000	4060	660	5550	17.5	18.00		5200	5200	13600	18000		42000	9000	52000	3690	530	6450	16.0	8.60	2.98
			7+9+9+9	7000	9000	9000	9000		34000	9000	39000	3190	660	4360	13.8	18.50		7000	9000	9000	9000		34000	9000	37000	2900	530	5200	12.5	8.50	3.02
			7+9+9+12	7000	9000	9000	12000		37000	9000	46000	3770	660	5150	16.4	18.50		7000	9000	9000	12000		37000	9000	48000	3420	530	5700	14.8	8.50	3.02
			7+9+9+18	7000	9000	9000	17000		42000	9000	50000	4060	660	5550	17.5	18.30		7000	9000	9000	17000		42000	9000	52000	3690	530	6450	16.0	8.60	2.98
			7+9+9+24	6500	7700	7700	20000		42000	9000	50000	4060	660	5550	17.5	18.20		6500	7700	7700	20000		42000	9000	52000	3690	530	6450	16.0	8.60	2.97
			7+9+12+12	7000	9000	12000	12000		40000	9000	46000	3770	660	5150	16.4	18.50		7000	9000	12000	12000		40000	9000	48000	3420	530	6150	14.8	8.50	3.02
			7+9+12+18	6400	8200	11000	16500		42000	9000	50000	4060	660	5550	17.5	18.30		6400	8200	11000	16500		42000	9000	52000	3690	530	6450	16.0	8.70	2.98
			7+9+12+24	5600	7300	9700	19000		42000	9000	50000	4060	660	5550	17.5	18.00		5600	7300	9700	19000		42000	9000	52000	3690	530	6450	16.0	8.70	2.97
			'7+9+18+24	5000	6500	13000	17400		42000	9000	50000	4060	660	5550	17.5	18.00		5000	6500	13000	17400		42000	9000	52000	3690	530	6450	16.0	8.90	2.98
			7+12+12+12	6900	11700	11700	11700		42000	9000	50000	4060	660	5550	17.5	18.50		6900	11700	11700	11700		42000	9000	52000	3690	530	6450	16.0	8.50	3.02
			7+12+12+18	6000	10200	10200	15500		42000	9000	50000	4060	660	5550	17.5	18.30		6000	10200	10200	15500		42000	9000	52000	3690	530	6450	16.0	8.54	22.98
			7+12+12+24	5300	9150	9150	18300		42000	9000	50000	4060	660	5550	17.5	18.00		5300	9150	9150	18300		42000	9000	52000	3690	530	6450	16.0	8.50	2.97
			7+12+18+24	4900	8200	12400	16500		42000	9000	50000	4060	660	5550	17.5	18.00		4900	8200	12400	16500		42000	9000	52000	3690	530	6450	16.0	8.60	2.97
			9+9+9+9	9000	9000	9000	9000		36000	9000	46000	3770	660	5150	16.4	18.50		9000	9000	9000	9000		36000	9000	48000	3420	530	5700	14.8	8.50	3.02
			9+9+9+12	9000	9000	9000	12000		39000	9000	46000	3770	660	5150	16.4	18.50		9000	9000	9000	12000		39000	9000	48000	3420	530	6000	14.8	8.50	3.02
			9+9+9+18	8400	8400	8400	16800		42000	9000	50000	4060	660	5550	17.5	18.30		8400	8400	8400	16800		42000	9000	52000	3690	530	6450	16.0	8.60	2.99
			9+9+9+24	7400	7400	7400	19800		42000	9000	50000	4060	660	5550	17.5	18.10		7400	7400	7400	19800		42000	9000	52000	3690	530	6450	16.0	8.60	2.97
			9+9+12+12	9000	9000	12000	12000		42000	9000	50000	4060	660	5550	17.5	18.50		9000	9000	12000	12000		42000	9000	52000	3690	530	6450	16.0	8.50	3.02
			9+9+12+18	7850	7850	10500	15800		42000	9000	50000	4060	660	5550	17.5	18.30		7850	7850	10500	15800		42000	9000	52000	3690	530	6450	16.0	8.70	2.97
			9+9+12+24	7000	7000	9300	18700		42000	9000	50000	4060	660	5550	17.5	18.10		7000	7000	9300	18700		42000	9000	52000	3690	530	6450	16.0	8.75	2.97
			9+9+18+24	6300	6300	12600	16800		42000	9000	50000	4060	660	5550	17.5	18.00		6300	6300	12600	16800		42000	9000	52000	3690	530	6450	16.0	8.76	2.97
			9+12+12+12	8400	11200	11200	11200		42000	9000	50000	4060	660	5550	17.5	18.50		8400	11200	11200	11200		42000	9000	52000	3690	530	6450	16.0	8.60	3.02
			9+12+12+18	7400	9900	9900	14800		42000	9000	50000	4060	660	5550	17.5	18.30		7400	9900	9900	14800		42000	9000	52000	3690	530	6450	16.0	8.70	2.97
			9+12+12+24	6500	8700	8700	17400		42000	9000	50000	4060	660	5550	17.5	18.10		6500	8700	8700	17400		42000	9000	52000	3690	530	6450	16.0	8.60	2.97
			9+12+18+24	6000	8000	12000	16000		42000	9000	50000	4060	660	5550	17.5	18.00		6000	8000	12000	16000		42000	9000	52000	3690	530	6450	16.0	8.70	2.96
			12+12+12+12	10500	10500	10500	10500		42000	9000	50000	4060	660	5550	17.5	18.50		10500	10500	10500	10500		42000	9000	52000	3690	530	6450	16.0	8.50	3.02
			12+12+12+18	9300	9300	9300	14000		42000	9000	50000	4060	660	5550	17.5	18.30		9300	9300	9300	14000		42000	9000	52000	3690	530	6450	16.0	8.50	2.99
			7+7+7+7+7	7000	7000	7000	7000	7000	35000	9000	41000	3380	660	4600	14.7	19.00		7000	7000	7000	7000	7000	35000	9000	43000	3070	530	5400	13.3	9.00	3.12
			7+7+7+7+9	7000	7000	7000	7000	9000	37000	9000	46000	3770	660	5150	16.4	19.00		7000	7000	7000	7000	9000	37000	9000	48000	3420	530	5700	14.8	9.00	3.12
			7+7+7+7+12	7000	7000	7000	7000	12000	41000	9000	48000	3960	660	5400	17.2	19.00		7000	7000	7000	7000	12000	41000	9000	52000	3600	530	6300	15.6	9.00	3.12
			7+7+7+7+18	6400	6400	6400	6400	16400	42000	9000	50000	4060	660	5550	17.5	18.80		6400	6400	6400	6400	16400	42000	9000	52000	3690	530	6450	16.0	8.80	3.11
			7+7+7+9+9	7000	7000	7000	9000	9000	39000	9000	46000	3770	660	5150	16.4	19.00		7000	7000	7000	9000	9000	39000	9000	48000	3420	530	6000	14.8	9.00	3.12
			7+7+7+9+12	7000	7000	7000	9000	12000	42000	9000	50000	4060	660	5550	17.5	19.00		7000	7000	7000	9000	12000	42000	9000	52000	3690	530	6450	16.0	9.00	3.12
			7+7+7+9+18	6100	6100	6100	7800	15900	42000	9000	50000	4060	660	5550	17.5	18.90		6100	6100	6100	7800	15900	42000	9000	52000	3690	530	6450	16.0	8.90	3.09
			7+7+7+9+24	5500	5500	5500	7000	18500	42000	9000	50000	4060	660	5550	17.5	18.70		5500	5500	5500	7000	18500	42000	9000	52000	3690	530	6450	16.0	8.70	3.07
			7+7+7+12+12	6500	6500	6500	11200	11200	42000	9000	50000	4060	660	5550	17.5	19.50		6500	6500	6500	11200	11200	42000	9000	52000	3690	530	6450	16.0	9.50	3.13
			7+7+7+12+18	5750	5750	5750	9800	14800	42000	9000	50000	4060	660	5550	17.5	19.40		5750	5750	5750	9800	14800	42000	9000	52000	3690	530	6450	16.0	9.40	3.11
			7+7+9+9+9	7000	7000	9000	9000	9000	41000	9000	48000	3960	660	5400	17.2	19.60		7000	7000	9000	9000	9000	41000	9000	52000	3600	530	6300	15.6	9.60	3.13
			7+7+9+9+12	6700	6700	8590	8590	11450	42000	9000	50000	4060	660	5550	17.5	19.60		6700	6700	8590	8590	11450	42000	9000	52000	3690	530	6450	16.0	9.60	3.13
			7+7+9+9+18	5880	5880	7560	7560	15120	42000	9000	50000	4060	660	5550	17.5	19.40		5880	5880	7560	7560	15120	42000	9000	52000	3690	530	6450	16.0	9.40	3.11
			7+7+9+12+12	6250	6250	8040	10700	10700	42000	9000	50000	4060	660	5550	17.5	19.60		6250	6250	8040	10700	10700	42000	9000	52000	3690	530	6450	16.0	9.60	3.13
			7+7+12+12+12	5880	5880	10080	10080	10080	42000	9000	50000	4060	660	5550	17.5	19.70		5880	5880	10080	10080	10080	42000	9000	52000	3690	530	6450	16.0	9.70	3.14
			7+9+9+9+9	6830	8790	8790	8790	8790	42000	9000	50000	4060	660	5550	17.5	19.80		6830	8790	8790	8790	8790	42000	9000	52000	3690	530	6450	16.0	9.80	3.14
			7+9+9+9+12	6400	8200	8200	8200	11000	42000	9000	50000	4060	660	5550	17.5	19.70		6400	8200	8200	8200	11000	42000	9000	52000	3690	530	6450	16.0	9.70	3.12
			7+9+9+9+18	5650	7250	7250	7250	14530	42000	9000	50000	4060	660	5550	17.5	19.50		5650	7250	7250	7250	14530	42000	9000	52000	3690	530	6450	16.0	9.50	3.07
			7+9+9+12+12	6000	7700	7700	10300	10300	42000	9000	50000	4060	660	5550	17.5	19.80		6000	7700	7700	10300	10300	42000	9000	52000	3690	530	6450	16.0	9.80	3.14
			7+9+12+12+12	5650	7250	9700	9700	9700	42000	9000	50000	4060	660	5550	17.5	19.80		5650	7250	9700	9700	9700	42000	9000	52000	3690	530	6450	16.0	9.80	3.14
			9+9+9+9+9	8400	8400	8400	8400	8400	8400	9000	50000	4060	660	5550	17.5	20.00		8400	8400	8400	8400	8400	42000	9000	52000	3690	530	6450	16.0	10.00	3.24
			9+9+9+9+12	7875	7875	7875	7875	10500	42000	9000	50000	4060	660	5550	17.5	19.90		7875	7875	7875	7875	10500	42000	9000	52000	3690	530	6450	16.0	9.90	3.17
			9+9+9+9+18	7000	7000	7000	7000	14000	42000	9000	50000	4060	660	5550	17.5	19.80		7000	7000	7000	7000	14000	42000	9000	52000	3690	530	6450	16.0	9.80	3.12
			9+9+9+12+12	7400	7400	7400	9900	9900	42000	9000	50000	4060	660	5550	17.5	19.90		7400	7400	7400	9900	9900	42000	9000	52000	3690	530	6450	16.0	9.90	3.17
			9+9+12+12+12	7000	7000	9330	9330	9330	42000	9000	50000	4060	660	5550	17.5	19.90		7000	7000	9330	9330	9330	42000	9000	52000	3690	530	6450	16.0	9.90	3.17

Model	Combination of Indoor Units	Heating Capacity												
		A	B	C	D	Total Capacity (Btu/h)			Power Input(Btu/h)			(A)	SCOP	COP
		Btu/h	Btu/h	Btu/h	Btu/h	NOM	MIN	MAX	NOM	MIN	MAX			W/W
Split Indoor	07+09+18	6800	8700	17500		33000	8000	50000	3060	600	5750	12.9	10.00	3.16
	07+09+24	7000	7000	22000		36000	8000	46000	3060	600	5340	12.3	9.50	3.45
	07+12+12	7400	12800	12800		33000	8000	47000	3030	600	5400	12.1	10.00	3.19
	07+12+18	6500	12000	17500		36000	8000	51400	3060	600	5950	12.5	10.00	3.45
	07+12+24	6000	10000	20000		36000	8000	52000	3060	600	6000	12.7	10.00	3.45
	07+18+24	6000	14000	16000		36000	8000	52000	3060	600	6000	12.9	10.00	3.45
	09+09+12	10000	10000	13400		33400	8000	47600	3030	600	5500	12.3	10.00	3.23
	09+09+18	8600	8600	17300		34500	8000	50800	3060	600	5900	13.0	10.00	3.30
	09+09+24	8000	8000	20000		36000	8000	52000	3060	600	6000	13.0	10.00	3.45
	09+12+12	9400	12600	12600		34600	8000	49500	3030	600	5700	12.8	10.00	3.35
	09+12+18	8200	10900	16200		35300	8000	52000	3060	600	6000	13.0	10.00	3.38
	09+12+24	7000	10000	19000		36000	8000	52000	3060	600	6000	13.0	10.00	3.45
	09+18+24	7000	13000	16000		36000	8000	52000	3060	600	6000	13.0	10.00	3.45
	12+12+12	11700	11700	11700		35100	8000	52000	3030	600	6000	13.0	10.00	3.39
	12+12+18	10300	10300	15400		36000	8000	52000	3100	600	6000	13.0	10.00	3.40
	12+12+24	10000	10000	16000		36000	8000	52000	3100	600	6000	13.0	10.00	3.40
	12+18+24	9000	12400	14600		36000	8000	52000	3100	600	6000	13.0	10.00	3.40
	07+07+07+07	8000	8000	8000	8000	32000	8000	48300	2970	600	5550	13.0	10.50	3.16
	07+07+07+09	8100	8100	8100	10400	34700	8000	48900	3040	600	5650	13.0	10.50	3.34
	07+07+07+12	7500	7500	7500	12900	35400	8000	50000	3060	600	5800	13.0	10.50	3.39
	07+07+07+18	6500	6500	6500	16500	36000	8000	52000	3060	600	6000	13.0	11.00	3.45
	07+07+07+24	5500	5500	5500	19500	36000	8000	52000	3060	600	6000	13.0	11.00	3.45
	07+07+09+09	7900	7900	9900	9900	35600	8000	50000	3060	600	5800	13.0	10.50	3.41
	07+07+09+12	7200	7200	9200	12400	36000	8000	50800	3060	600	5850	13.0	11.00	3.45
	07+07+09+18	6200	6200	7800	15800	36000	8000	52000	3060	600	6000	13.0	11.00	3.45
	07+07+09+24	5300	5300	6000	19400	36000	800	52000	3060	600	6000	13.0	11.00	3.45
	07+07+12+12	6600	6600	11400	11400	36000	8000	52000	3060	600	6000	13.0	11.00	3.45
	07+07+12+18	5700	5700	9800	14800	36000	8000	52000	3060	600	6000	13.0	11.00	3.45
	07+07+12+24	5300	5300	6000	19400	36000	8000	52000	3060	600	6000	13.0	11.00	3.45
	07+09+09+09	7500	9500	9500	9500	36000	8000	52000	3060	600	6000	13.0	11.00	3.45
	07+09+09+12	6800	8700	8700	11800	36000	8000	52000	3060	600	6000	13.0	11.00	3.45
	07+09+09+18	5800	7600	7600	15000	36000	8000	52000	3060	600	6000	13.0	11.00	3.45
	07+09+09+24	5300	7000	7000	16700	36000	8000	52000	3060	600	6000	13.0	11.00	3.45
	07+09+12+12	6300	8100	10800	10800	36000	8000	52000	3060	600	6000	13.0	11.00	3.45
	07+09+12+18	5500	7100	9400	14000	36000	8000	52000	3060	600	6000	13.0	11.00	3.45
	07+09+12+24	5000	6200	9000	15800	36000	8000	52000	3060	600	6000	13.0	11.00	3.45
	07+12+12+12	5700	10100	10100	10100	36000	8000	52000	3060	600	6000	13.0	11.00	3.45
	07+12+12+18	5200	8800	8800	13200	36000	8000	52000	3060	600	6000	13.0	11.00	3.45
	09+09+09+09	9000	9000	9000	9000	36000	8000	52000	3060	600	6000	13.0	11.00	3.45
	09+09+09+12	8300	8300	8300	11100	36000	8000	52000	3060	600	6000	13.0	11.00	3.45
	09+09+09+18	7200	7200	7200	14400	36000	8000	52000	3060	600	6000	13.0	11.00	3.45
	09+09+09+24	6500	6500	6500	16500	36000	8000	52000	3060	600	6000	13.0	11.00	3.45
	09+09+12+12	7700	7700	10300	10300	36000	8000	52000	3060	600	6000	13.0	11.00	3.45
	09+09+12+18	6800	6800	8900	13500	36000	8000	52000	3060	600	6000	13.0	11.00	3.45
	09+09+12+24	6500	6500	7000	16000	36000	8000	52000	3060	600	6000	13.0	11.00	3.45
	09+12+12+12	7200	9600	9600	9600	36000	8000	52000	3060	600	6000	13.0	11.00	3.45
	09+12+12+18	6400	8400	8400	12800	36000	8000	52000	3060	600	6000	13.0	11.00	3.45
	12+12+12+12	9000	9000	9000	9000	36000	8000	52000	3060	600	6000	13.0	11.00	3.45
	12+12+12+18	8000	8000	8000	12000	36000	8000	52000	3060	600	6000	13.0	11.00	3.45