AIR-CON

R410A
Refrigerant

TECHNICAL & SERVICE MANUAL V2.0

—DC-INVERTER AIR CONDITIONERS

MODEL:

Heat pump type

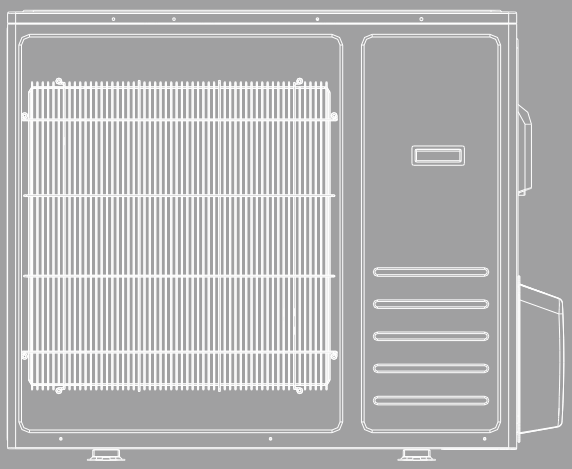
<Indoor Units>

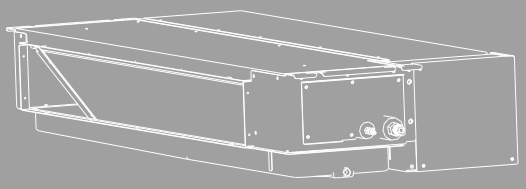
Duct
ASLEK4H4S09
ASLEK4H4S12
ASLEK4H4S18

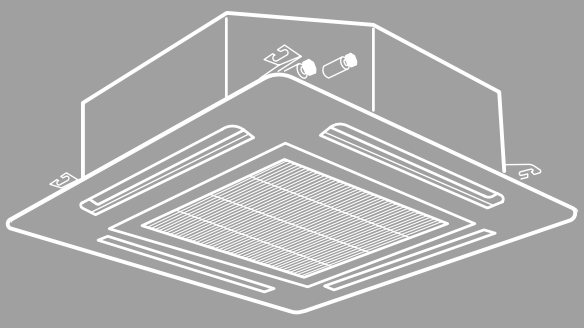
Cassette
ASLEC4H4S09
ASLEC4H4S12
ASLEC4H4S18
ASLEC4H4S24
ASLEC4H4S36

<Outdoor Units>

ASLCI4H4S24
ASLCI4H4S36







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

⚠CAUTION

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

NOTE

- It is recommended that the room be ventilated every 3 to 4 hours.
- The air conditioner may not work properly under the following circumstances.
  The power transformer provides the same power 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.***

DC-Inverter Air Conditioner Technical & Service Manual

Table of Contents

NOTE:
Heating function is not available for cooling only models.

1. GENERAL

1. General

1.1 Features

Duct Type Air Conditioner

Features

- **Save Installation Space**

  The indoor unit can be installed inside the ceiling conveniently.

- **Optional Static Pressure**

  Optional ESP, a variety of optional installation methods.

- **24-hour Timer ON and OFF**

  This Timer can be set to automatically turn the unit on or off within a 24-hour period.

- **Mute Operation**

  The excellent fan design enables smooth airflow with minimum noise.

- **Meeting Various Installation Requirements**

  The back-air-inlet type should be adopted according to the actual installation space. The unit is also installed with down-air-inlet type and the noise will increase by 5-6dB.

- **Auto re-start from Power Break**

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

- **Fault Self-diagnose Function**

  When there is a problem in the air-conditioner, the microcomputer could diagnose the faults, which can be read from the display and is convenient for maintenance.

1. GENERAL

Cassette Type Air Conditioner

Features

- **Save Installation Space**

  The indoor unit can be installed inside the ceiling conveniently.

- **24-hour Timer ON and OFF**

  This Timer can be set to automatically turn the unit on or off within a 24-hour period.

- **Mute Operation**

  The excellent fan design enables smooth airflow with minimum noise.

- **Auto re-start from Power Break**

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

- **Fault Self-diagnose Function**

  When there is a problem in the air-conditioner, the microcomputer can diagnose the faults, which can be read from the display and is convenient for maintenance.

1. GENERAL

1.2 Product lineup

Model (Btu/h) / Type	9K	12K	18K	24K	30K	36K	42K	48K	60K
Duct	●	●	●						
Cassette	●	●	●	●		●			

● --- available model

1.3 Nomenclature

1.4 Unit installation

1:1 system is the only compatible combination.

(Only one indoor unit can be connected with 1 outdoor unit.)

1.5 Working range

Power Supply

Working Voltage	Cassette(24K/36K) :176V ~ 253V Cassette(9K/12K/18K), Duct(9K/12K/18K) : 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 [°F(°C)]**	
		maximum	**minimum**
DC-Inverter Split Air Conditioner (Heat pump type) -- Cassette(24K/36K)	Cooling Operation	118(48)	5(-15)
	Heating Operation	75(24)	-4(-20)

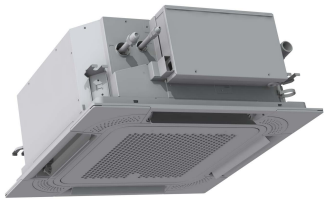
Storage condition: Temperature: -13~140°F (-25~60℃)
Humidity: 30%~80%

1.6 Product appearance

Duct type

Model (Btu/h)	Indoor Unit
9K/12K	
18K	

Cassette type

Model (Btu/h)	Indoor Unit
9K/12K	
18K	

1. GENERAL

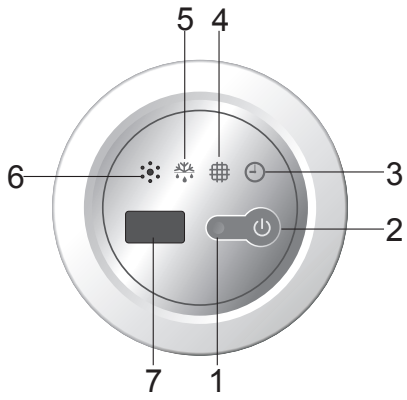
Cassette type

Model (Btu/h)	Indoor Unit	Outdoor Unit
24K		
36K		

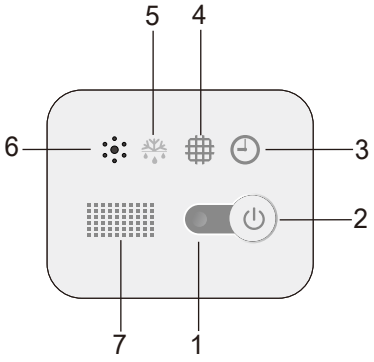
1. GENERAL

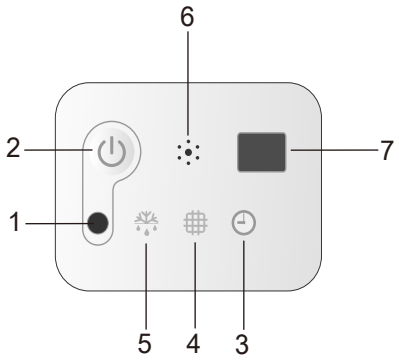
Display panel

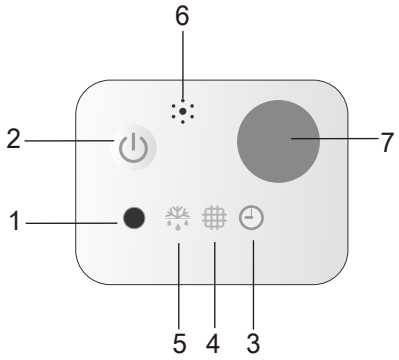
Duct Type



Cassette Type







Description

1 Run indicator (Red)
It lights on during operation. It lights off during SLEEP mode.

2 Emergency switch
The filter clean indicator is reset when the switch is pressed. The unit will be started or stopped when the switch is pressed. The unit will be operated in forced cooling mode if press the switch continuously for more than 5s, the unit will operate in cooling mode.

3 Timer indicator (Green)
It lights on when timer is in use. It lights off when timer finishes.

4 Filter clean (Yellow)
It lights on when the filter should be cleaned.

5 Defrost indicator (Green)
It lights on during defrosting It lights off when defrosting is finished.

6 Buzzer
It beeps when the signal from remote controller is received.

7 Infrared receiver
Receives signal from the remote controller.

- ***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.***

2.SPECIFICATIONS

2. Specifications

2.1 Duct type

Indoor model		**ASLEK4H4S09**	**ASLEK4H4S12**	**ASLEK4H4S18**
Cooling capacity	Btu/h	9000	12000	18000
Heating capacity	Btu/h	10000	12500	19000
Power	V/Hz/f	208~230/60/1	208~230/60/1	208~230/60/1
Power input	W	40	40	60
Rated current	A	0.25	0.25	0.33
Anti electric shock		Class I	Class I	Class I
Degrees of protection		IPX0	IPX0	IPX0
Air flow	m^3/h	520	600	900
	CFM	306	353	529
Noise Level(Sound Pressure)	dB(A) (Max/Min)	29/26	32/27	34/30
Net Dimension (W×H×D)	mm	910×190×447	910×190×447	1180×190×447
	inch	35-7/8×7-7/16×17-1/2	35-7/8×7-7/16×17-1/2	46-7/16×7-7/16×17-1/2
Net Weight	kg	18	18	22.5
	lbs	39.7	39.7	49.6
Package Dimension(W×H×D)	mm	1080×285×565	1080×285×565	1350×285×565
	inch	42-1/2×11-1/4×22-1/4	42-1/2×11-1/4×22-1/4	53-1/8×11-1/4×22-1/4
Gross Weight	kg	21	21	25.5
	lbs	46.3	46.3	56.2
Diameter(Liquid)	mm	6.35	6.35	6.35
	inch	1/4	1/4	1/4
Diameter(Gas)	mm	9.52	9.52	12.7
	inch	3/8	3/8	1/2

NOTE:

1. Test conditions：

   Cooling: Indoor: DB80°F(26.7℃)/ WB67°F(19.4℃) Outdoor: DB95°F(35℃)/ WB75°F(23.9℃)
   Heating: Indoor: DB70°F(21.1℃)/ WB60°F(15.6℃) Outdoor: DB47°F(8.3℃)/ WB43°F(6.1℃)

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

   Indoor unit：

   Duct:

   Measure the noise value of the point 4.6ft(1.4m) below the unit and 3.3ft(1.0m) high from the ground.

3. The above data was measured in an anechoic chamber. Please take into consideration reflected sound of your specific application environment.

4. All specifications are subjected to change by the manufacturer without prior notice.

2.SPECIFICATIONS

2.2 Cassette type

Model			ASLCI/EC4H4S24	ASLCI/EC4H4S36
Indoor model			ASLEC4H4S24	ASLEC4H4S36
Outdoor model			ASLCI4H4S24	ASLCI4H4S36
Power supply		V/ph/Hz	208~230/1/60	208~230/1/60
Cooling	Capacity	Btu/h	24000	36000
	Capacity(min-max)	Btu/h	8600-25200	12600-36800
	Input	W	1920	3380
	Current	A	8.6	15
	EER	W/W	3.66	3.12
	SEER	Btu/h/w	19	19.5
Heating	Capacity	Btu/h	24000	36000
	Capacity(min-max)	Btu/h	7600-28400	15000-42600
	Input	W	1950	3190
	Current	A	8.7	14.0
	COP	W/W	3.61	3.31
	HSPF	Btu/h/w	10.00	10.50
Capacity heating (rated) @47°F		Btu	24000	42600
Capacity heating (rated) @17°F		Btu	19600	27300
Moisture removal		Pts/h	5.07	7.61
MIN. Ampacity		A	23	27
MAX. TD fuse/Breaker		A	30	50
Power and communication cable		No. x AWG	3×12/4×16	3×10/4×16
Indoor air flow Rated(Hi/Med/Lo)		m^3/h	1100/900/680	1600/1350/1150
Indoor air flow Rated(Hi/Med/Lo)		CFM	647/530/400	941//794/676
Indoor noise level(Hi/Med/Lo)		dB(A)	43/39/36	49/43/39
Throttle type			NA	NA
Indoor unit	Dimension(W×H×D)	mm	840×248×840	840×298×840
		inch	33-1/16×9-3/4×33-1/16	33-1/16×11-3/4×33-1/16
	Packing(W×H×D)	mm	996×370×956	996×420×956
		inch	39-1/4×14-1/2×37-5/8	39-1/4×16-1/2×37-5/8
	Net/Gross weight	kg	27/36	32/41
		lbs	59.5/79.5	70.5/90.4
Design pressure	H/L	MPa	3.8/1.6	3.8/1.6
Drainage water pipe diameter		mm(inch)	dΦ32(1-1/4)	dΦ32(11/4)
Refrigerant piping	Liquid side/Gas side	mm(inch)	Φ9.52/Φ15.88(3/8'/5/8')	Φ9.52/Φ19.05(3/8'/3/4')
Controller			Remote control	Remote control
Operation temperature		℃	16-30	16-30
		℉	61-86	61-86
Outdoor noise level(sound pressure) Hi		dB(A)	54	61
Throttle type			EEV	EEV
COMPRESSOR Model			EATF250D22UMT	ATF310D43UMT
COMPRESSOR Type			ROTARY	ROTARY

2.SPECIFICATIONS

Model			**ASLCI/EC4H4S24**	**ASLCI/EC4H4S36**
Indoor model			ASLEC4H4S24	ASLEC4H4S36
Outdoor model			ASLCI4H4S24	ASLCI4H4S36
Refrigerant charge		oz	91.7	111.2
Factory precharge		ft	25	25
Outdoor unit	Dimension(WxHxD)	mm	950×840×340	950×1050×340
		inch	37-3/8×33×13-3/8	37-3/8×41-5/16×13-3/8
	Packing(WxHxD)	mm	1110×920×460	1110×1200×460
		inch	43-3/4×36-1/4×18-1/8	43-3/4×47-1/4×18-1/8
	Net/Gross weight	kg	70.5/75.5	87/97
		lbs	155.1/166.4	192.0/214.5
Design pressure	H/L	MPa	3.8/1.6	3.8/1.6
Refrigerant piping	Liquid side/Gas side	mm(inch)	Φ9.52/Φ15.88(3/8'/5/8')	Φ9.52/Φ19.05(3/8'/3/4')
	Max.pipe length	m	50	50
		ft	164	164
	Max.difference in level	m	30	30
		ft	98	98
Operating temperature range	Cooling	℉	5-118	5-118
		℃	-15-48	-15-48
	Heating	℉	-4-75	-4-75
		℃	-20-24	-20-24

NOTE:

1. Test conditions：
   Cooling: Indoor: DB80°F(26.7℃)/ WB67°F(19.4℃) Outdoor: DB95°F(35℃)/ WB75°F(23.9℃)
   Heating: Indoor: DB70°F(21.1℃)/ WB60°F(15.6℃) Outdoor: DB47°F(8.3℃)/ WB43°F(6.1℃)
2. The Sound Pressure Level is based on the following conditions:
   Outdoor unit：
   Measure the noise value of 3 points，the points are1 meter 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.
   Indoor unit：
   Cassette:
   Measure the noise value of the point 4.6ft(1.4m) below the unit and 3.3ft(1.0m) high from the ground.
3. The above data was measured in an anechoic chamber. Please take into consideration reflected sound of your specific application environment.
4. All specifications are subjected to change by the manufacturer without prior notice.

2.SPECIFICATIONS

Indoor model		ASLEC4H4S09	ASLEC4H4S12	ASLEC4H4S18
Cooling capacity	Btu/h	9000	12000	18000
Heating capacity	Btu/h	10200	13500	19000
Power	V/Hz/f	208~230/60/1	208~230/60/1	208~230/60/1
Power input	W	44	70	80
Rated current	A	0.2	0.3	0.34
Anti electric shock		Class I	Class I	Class I
Degrees of protection		IPX4	IPX4	IPX4
Air flow	m^3/h	520	600	950
	CFM	306	353	559
Noise Level (Sound Pressure)	dB(A) (Max/Min)	40/28	42/34	40/28
Net Dimension (WxHxD)	mm	570×215×570	570×215×570	840×248×840
	inch	22-7/16×8-7/16×22-7/16	22-7/16×8-7/16×22-7/16	33×9-3/4×33
Net Weight	kg	14.5	15.5	22.5
	lbs	32	34	56
Package Dimension (W×H×D)	mm	730×292×668	730×292×668	996×956×370
	inch	28-3/4×11-1/2×26-5/16	28-3/4×11-1/2×26-5/16	39-1/4×37-1/16×14-9/16
Gross Weight	kg	17.5	18.5	33.5
	lbs	38.5	40.5	73.8
Diameter(Liquid)	mm	6.35	6.35	6.35
	inch	1/4	1/4	1/4
Diameter(Gas)	mm	9.52	9.52	12.7
	inch	3/8	3/8	1/2

NOTE:

1．Test conditions：

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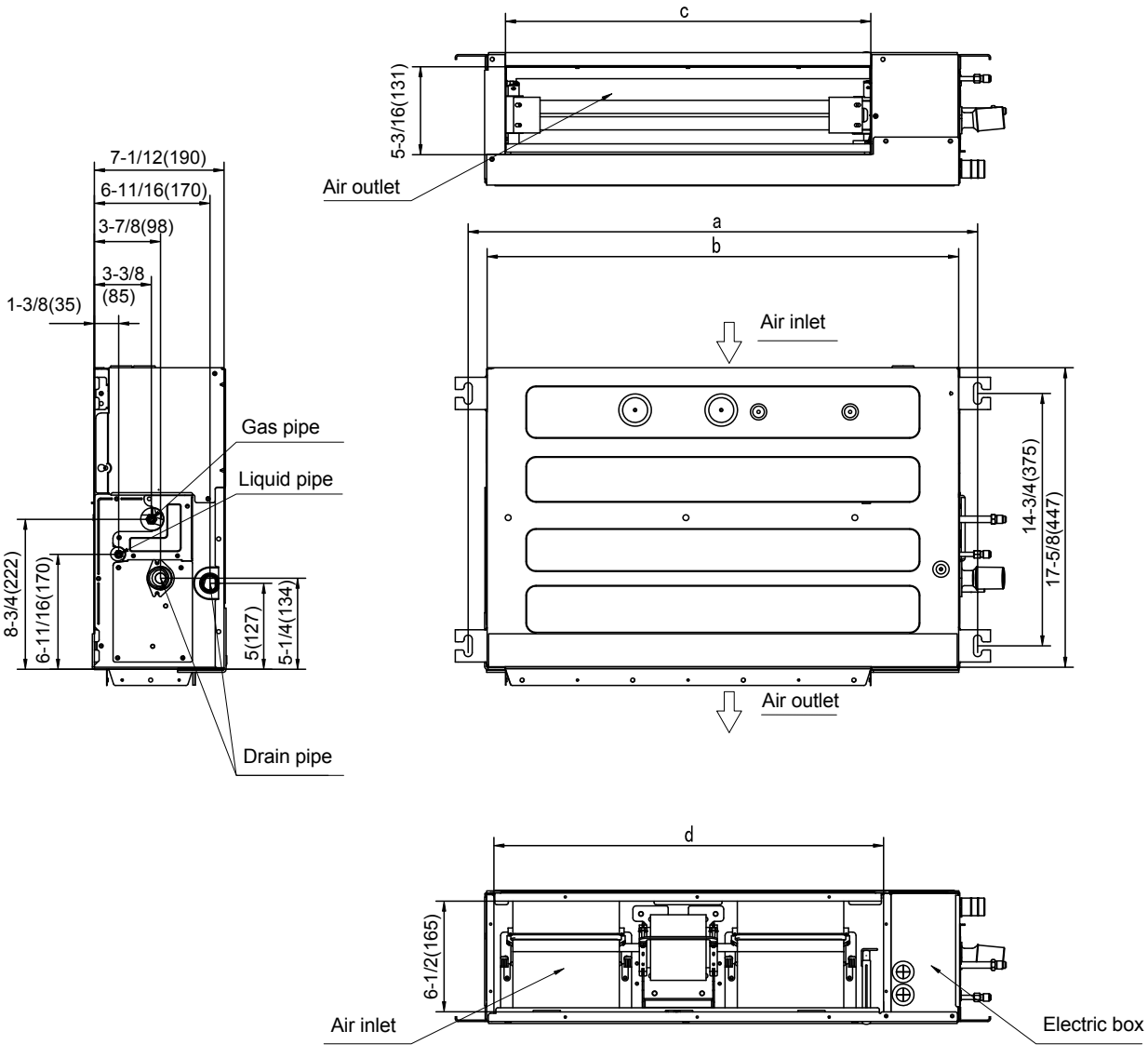
3. Outlines and dimensions

3.1 Indoor units

Duct

Unit : in.(mm)

9K/12K/18K



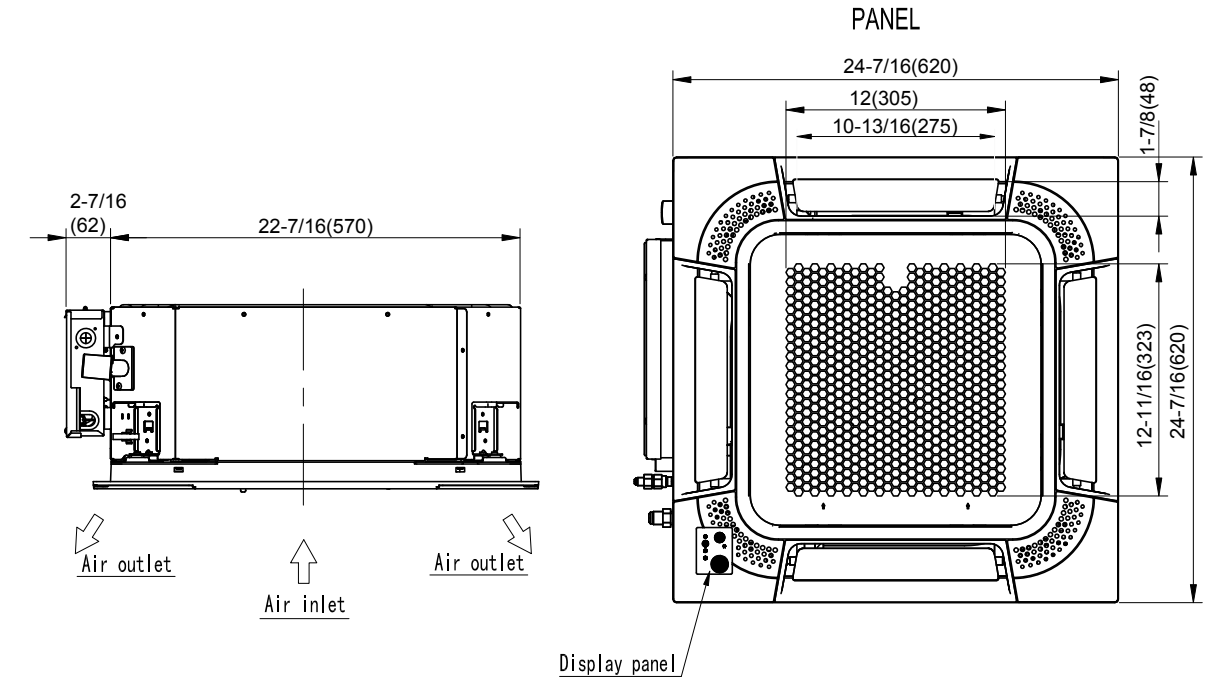
Model (Btu/h)	a	b	c	d
9K/12K	37-13/16 (961)	35-13/16 (910)	29-1/2 (749)	30 (786)
18K	48-7/16 (1231)	46-7/16 (1180)	40-1/8 (1019)	41-5/8 (1056)

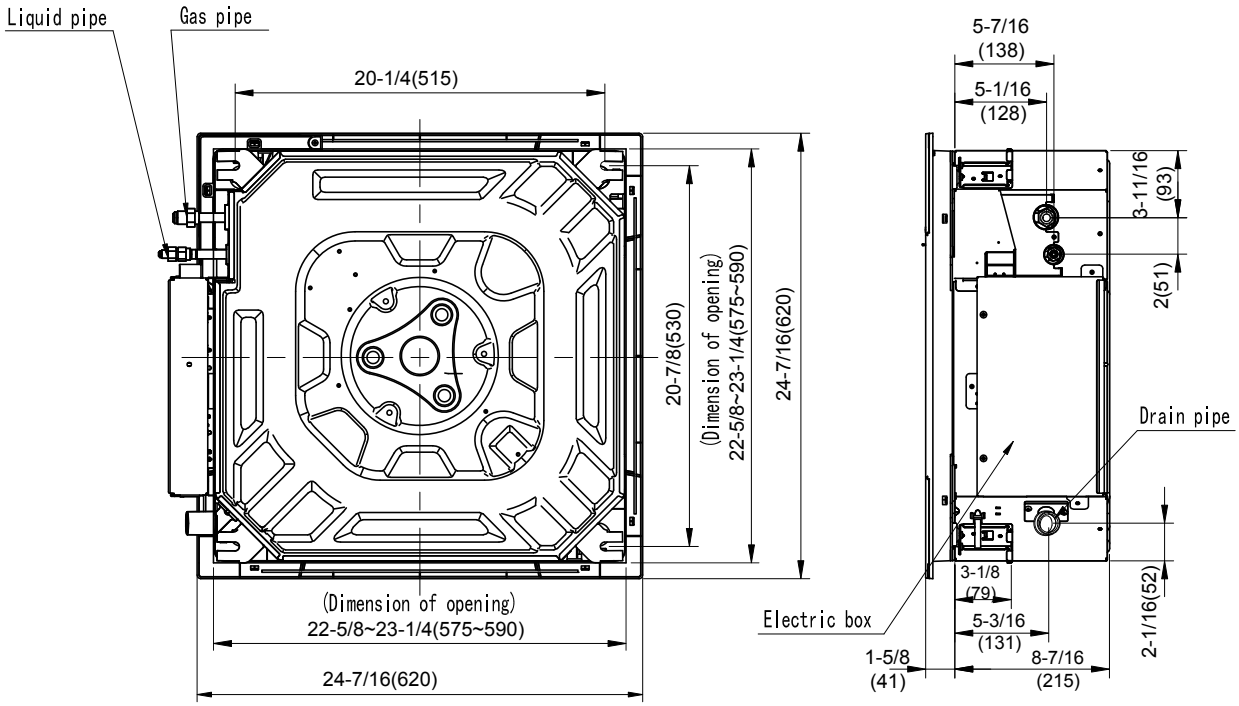
3. OUTLINES AND DIMENSIONS

Cassette

9K/12K

Unit : in.(mm)

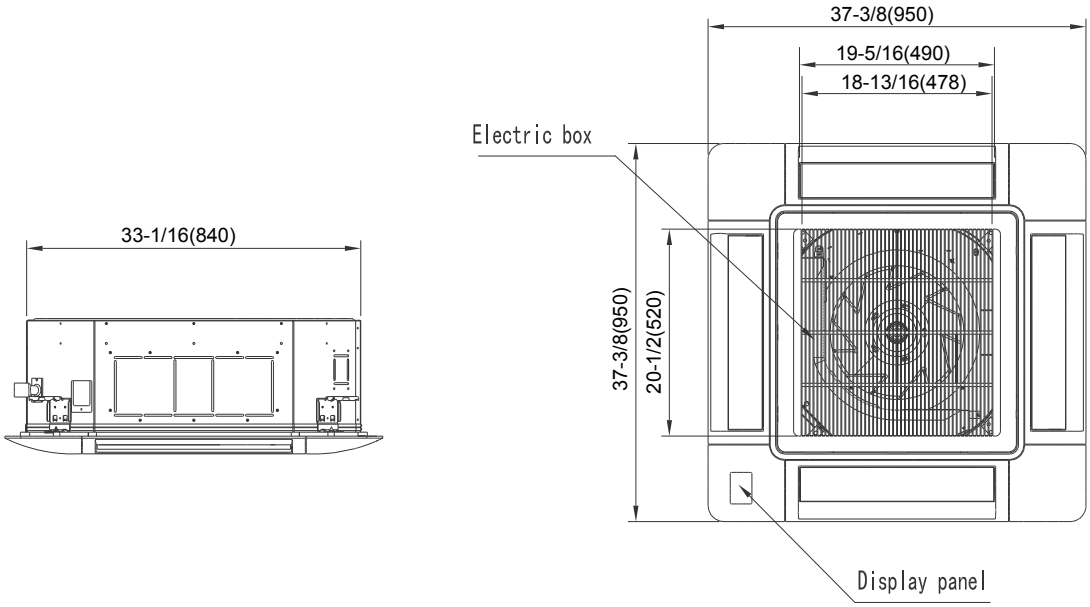


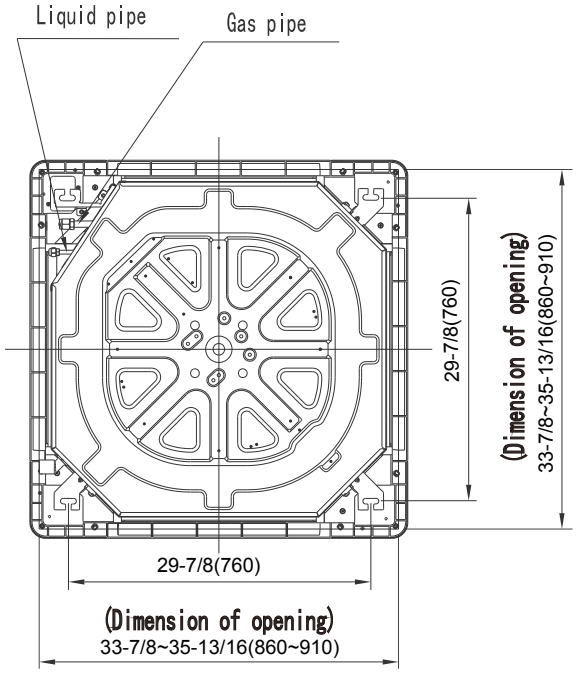


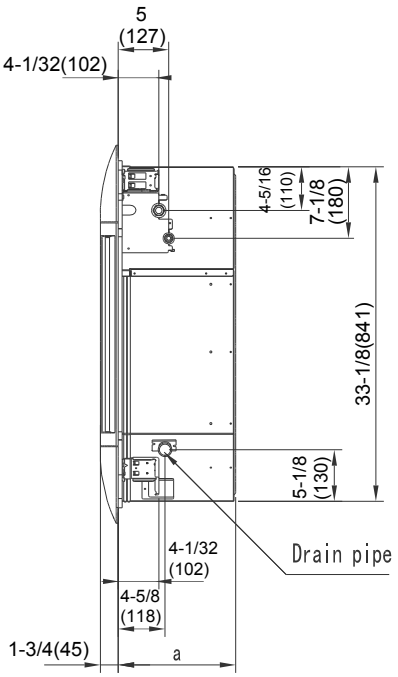
3. OUTLINES AND DIMENSIONS

18K/24K/36K

Unit : in.(mm)







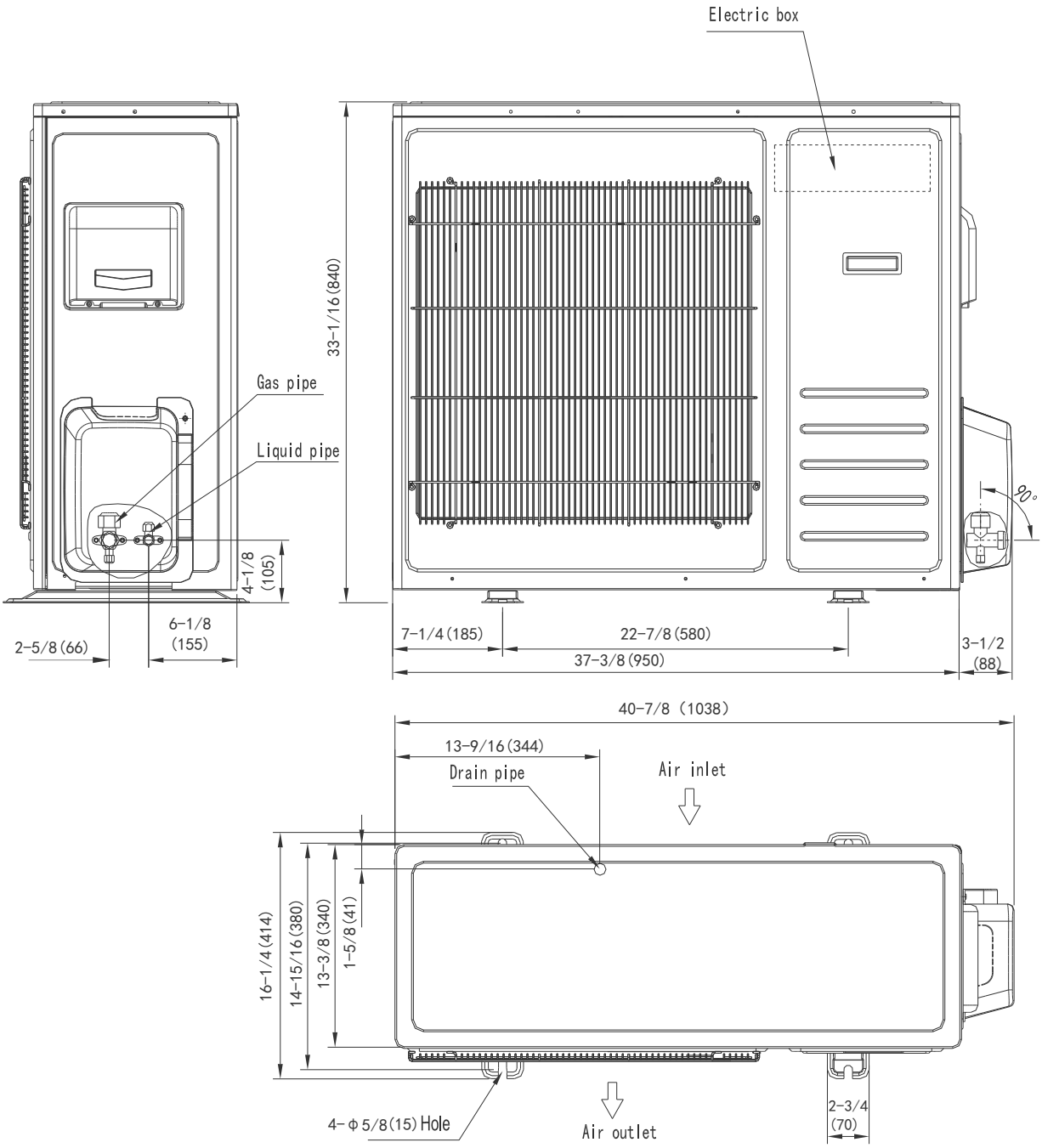
Model	a
18K/24K	9-3/4(248)
36K	11-3/4(298)

3. OUTLINES AND DIMENSIONS

3.2 Outdoor units

24K

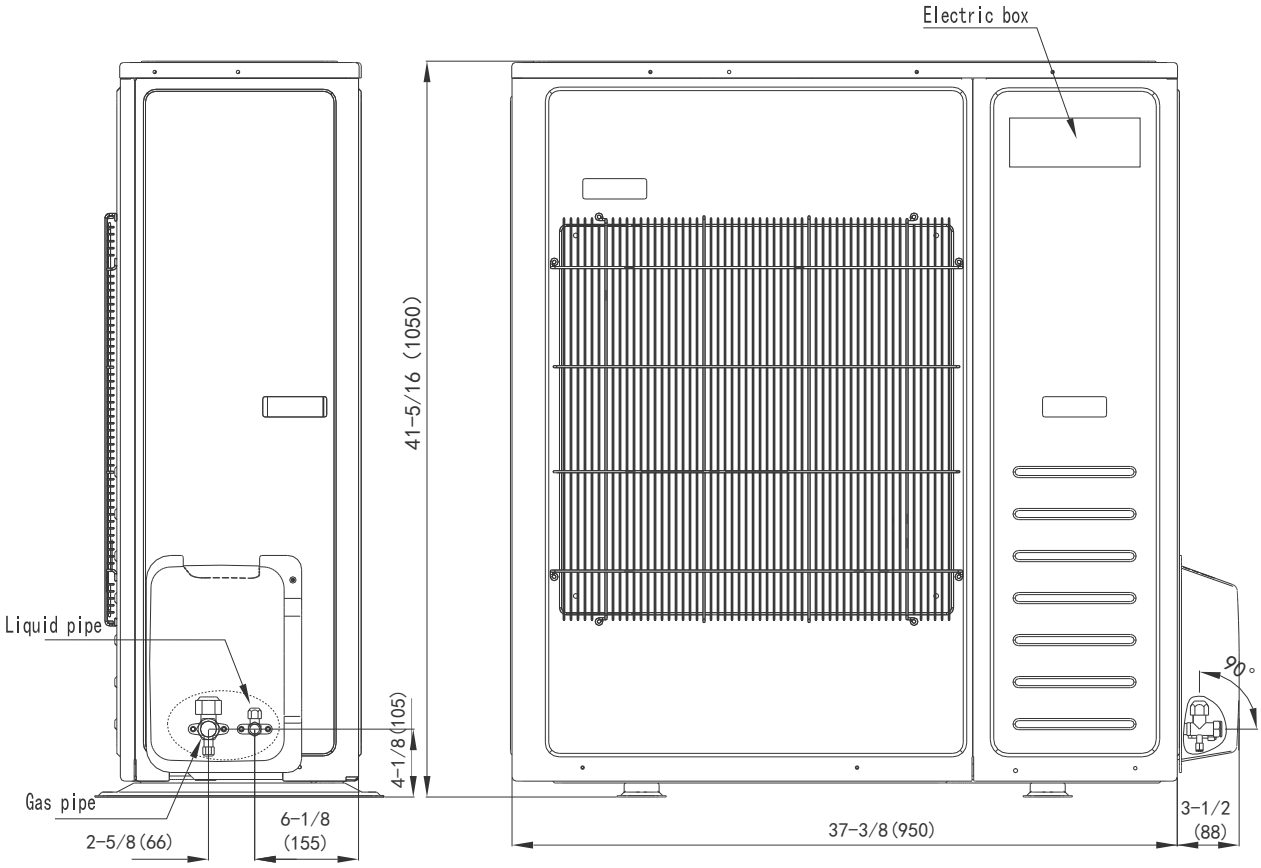
Unit : in.(mm)

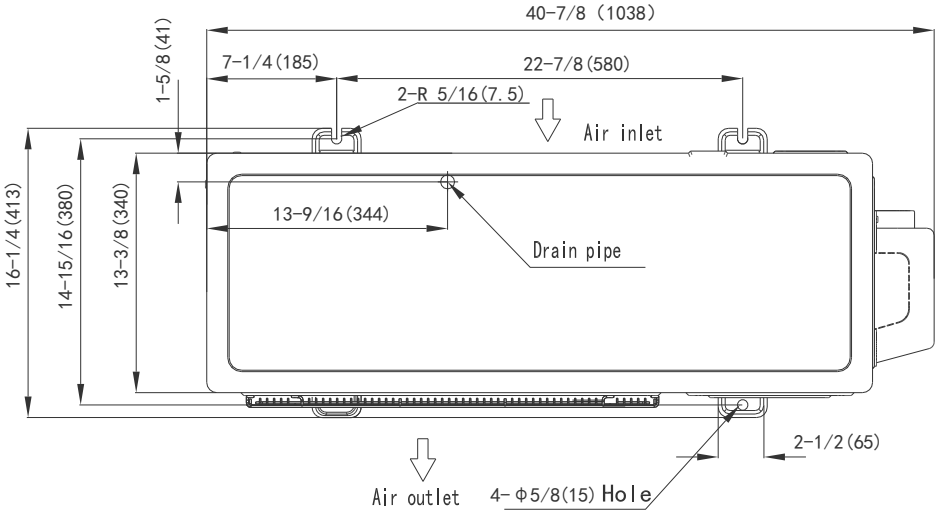


3. OUTLINES AND DIMENSIONS

36K

Unit : in.(mm)





4. ELECTRICAL DATA

4. Electrical data

Outdoor unit	Power supply			Applicable voltage		ELB	
	Voltage	PH	Frequency (Hz)	Umin(V)	Umax(V)	Nominal Current(A)	Nominal Sensitive Current(mA)
9K/12K/18K	208/230V ~	1	60	198	253	-	-
24K/36K	208/230V ~	1	60	176	253	40	30

NOTE:

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

5. CAPACITIES AND SELECTION DATA

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 : 24.6 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.

Cassette

24K

COOLING CAPACITY (BTU/h)

Indoor temperature		Outdoor temperature [℉(℃) DB]						
℉(℃)WB	℉(℃)DB	68(20)	77(25)	89.6(32)	95(35)	104(40)	109.4(43)	118.4(48)
57.2(14)	68(20)	21120	20640	19200	18720	17280	16800	14400
60.8(16)	71.6(22)	23040	22080	21600	20160	18720	18240	16800
64.4(18)	77(25)	24000	23040	23520	22080	21120	20640	17760
66.2(19)	80.6(27)	25920	24960	24480	24000	23040	22800	20160
67.1(19.5)	80.6(27)	26400	25440	24960	24480	23520	23280	20640
71.6(22)	86(30)	30240	28320	27360	26400	25440	24720	21600
75.2(24)	89.6(32)	32640	31680	30720	29280	28320	27120	22080

°F(℃) DB : Dry Bulb Temperature

°F(℃) WB : Wet Bulb Temperature

HEATING CAPACITY (BTU/h)

Outdoor temperature		Indoor temperature [℉(℃) DB]						
℉(℃)WB	℉(℃)DB	60.8(16)	64.4(18)	68(20)	69.8(21)	71.6(22)	75.2(24)	78.8(26)
3.2(-16)	5(-15)	14557	14557	13770	13770	12984	12984	12984
12.2(-11)	14(-10)	16131	16131	15344	15344	14557	14557	14557
21.2(-6)	23(-5)	18885	18885	18098	18098	18098	17311	17311
30.2(-1)	32(0)	21639	21639	20459	20459	19672	19672	19672
41(5)	42.8(6)	24393	24000	24000	24000	24000	24000	23213
48.2(9)	50(10)	24787	24393	24393	24393	24393	24393	24000
57.2(14)	59(15)	25574	24787	24787	24787	24787	24787	24393

°F(℃) DB : Dry Bulb Temperature

°F(℃) WB : Wet Bulb Temperature

5. CAPACITIES AND SELECTION DATA

36K

COOLING CAPACITY (BTU/h)

Indoor temperature		Outdoor temperature [℉(℃) DB]						
℉(℃WB)	℉(℃DB)	68(20)	77(25)	89.6(32)	95(35)	104(40)	109.4(43)	118.4(48)
57.2(14)	68(20)	31680	30960	28800	28080	25920	25200	21600
60.8(16)	71.6(22)	34560	33120	32400	30240	28080	27360	25200
64.4(18)	77(25)	36000	34560	35280	33120	31680	30960	26640
66.2(19)	80.6(27)	38880	37440	36720	36000	34560	34200	30240
67.1(19.5)	80.6(27)	39600	38160	37440	36720	35280	34920	30960
71.6(22)	86(30)	45360	42480	41040	39600	38160	37080	32400
75.2(24)	89.6(32)	48960	47520	46080	43920	42480	40680	33120

°F(℃) DB : Dry Bulb Temperature

°F(℃) WB : Wet Bulb Temperature

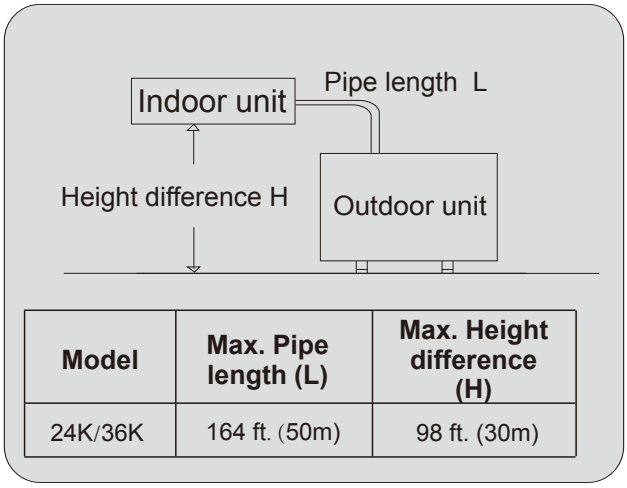
HEATING CAPACITY (BTU/h)

Outdoor temperature		Indoor temperature [℉(℃) DB]						
℉(℃WB)	℉(℃DB)	60.8(16)	64.4(18)	68(20)	69.8(21)	71.6(22)	75.2(24)	78.8(26)
3.2(-16)	5(-15)	21836	21836	20656	20656	19475	19475	19475
12.2(-11)	14(-10)	24197	24197	23016	23016	21836	21836	21836
21.2(-6)	23(-5)	28328	28328	27148	27148	27148	25967	25967
30.2(-1)	32(0)	32459	32459	30689	30689	29508	29508	29508
41(5)	42.8(6)	36590	36000	36000	36000	36000	36000	34820
48.2(9)	50(10)	37180	36590	36590	36590	36590	36590	36000
57.2(14)	59(15)	38361	37180	37180	37180	37180	37180	36590

°F(℃) DB : Dry Bulb Temperature

°F(℃) WB : Wet Bulb Temperature

5.2 Piping length correction factor



Model	Max. Pipe length (L)	Max. Height difference (H)
24K/36K	164 ft. (50m)	98 ft. (30m)

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 (ft. / m).

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

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

L:

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

EL: Equivalent one-way piping length between indoor unit and outdoor unit (ft. / m).

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

Cooling

EL[ft. (m)] / Model	24.9 (7.6)	32.8 (10)	49.2 (15)	65.5 (20)	82 (25)	98.4 (30)	114.8 (35)	131.2 (40)	147.6 (45)	164 (50)
24K	1.0	0.99	0.98	0.97	0.96	0.94	0.93	0.92	0.90	0.89
36K	1.0	0.96	0.93	0.90	0.88	0.84	0.82	0.80	0.77	0.73

5. CAPACITIES AND SELECTION DATA

Heating

EL[ft. (m)] / Model	24.9 (7.6)	32.8 (10)	49.2 (15)	65.5 (20)	82 (25)	98.4 (30)	114.8 (35)	131.2 (40)	147.6 (45)	164 (50)
24K	1.0	0.99	0.97	0.94	0.92	0.90	0.87	0.85	0.82	0.80
36K	1.0	0.97	0.92	0.88	0.84	0.82	0.78	0.75	0.72	0.69

The correction factor of height between indoor unit and outdoor unit

Height difference[ft. (m)]	16.4(5)	32.8(10)	98.4(30)
Factor	0.01	0.02	0.025

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

NOTE:

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

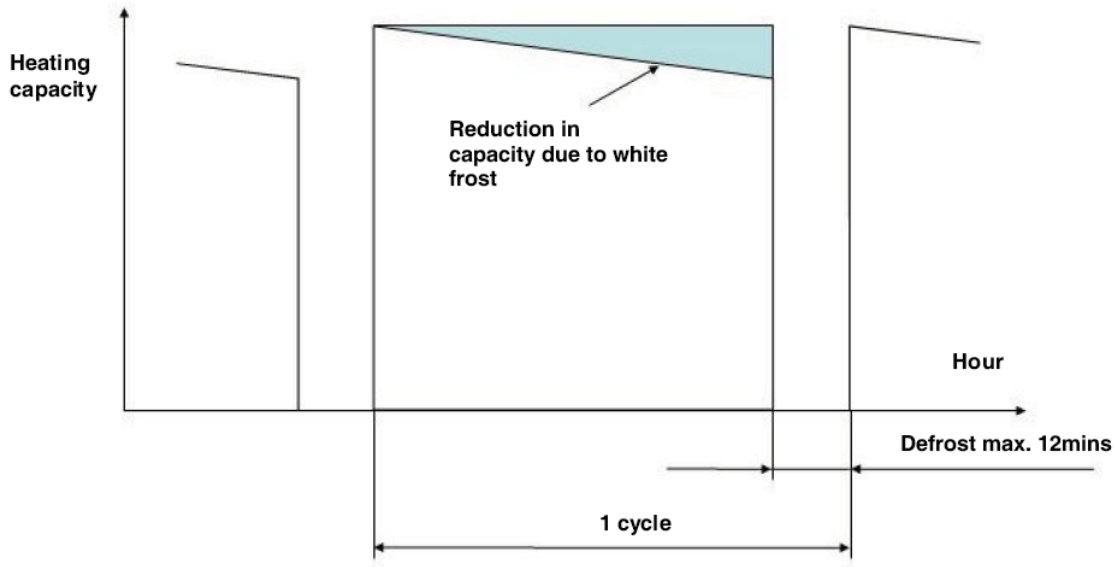
5.3 Correction factors according to defrosting operation

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

Corrected heating capacity = Defrost Correction factor x unit capacity

OUTDOOR TEMPERATURE [℉(℃)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.

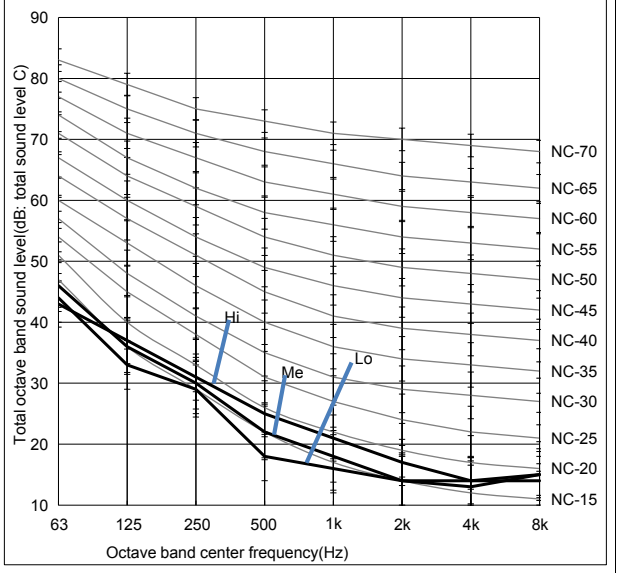
6. SOUND PRESSURE DATA

6. Sound pressure data

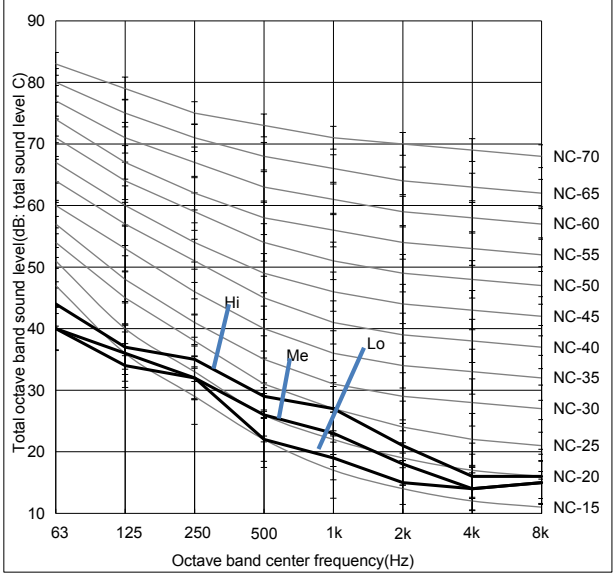
Indoor unit

Duct

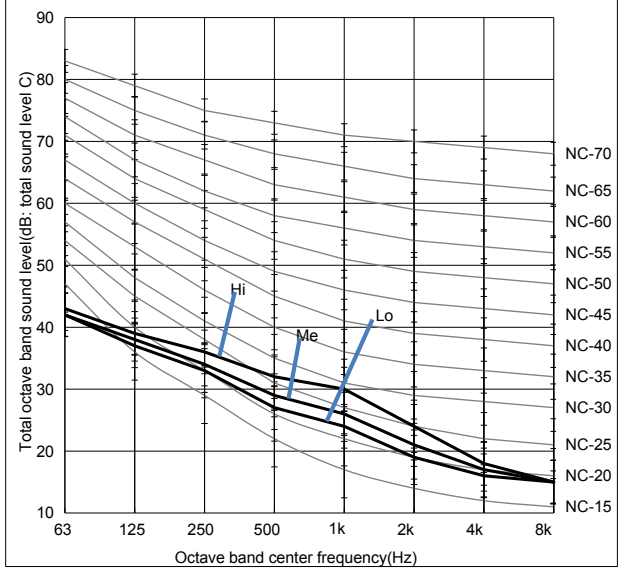
Model	9K
Test condition	4.6ft(1.4m) under the unit; 3.3ft(1.0m) high from the ground



Model	12K
Test condition	4.6ft(1.4m) under the unit; 3.3ft(1.0m) high from the ground



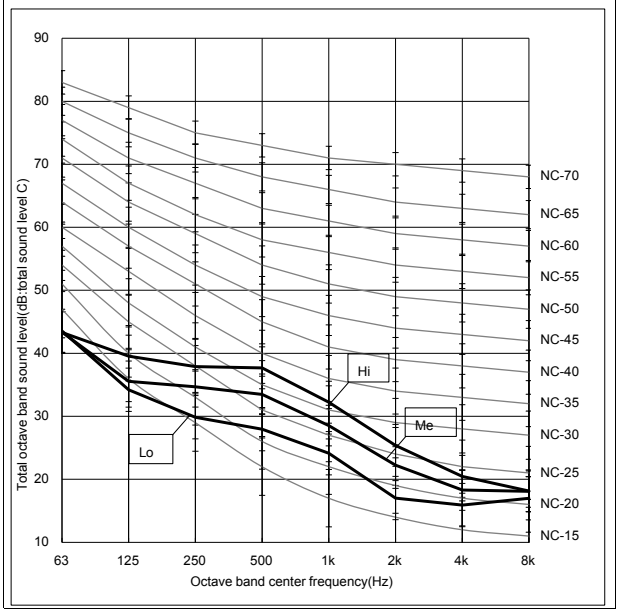
Model	18K
Test condition	4.6ft(1.4m) under the unit; 3.3ft(1.0m) high from the ground



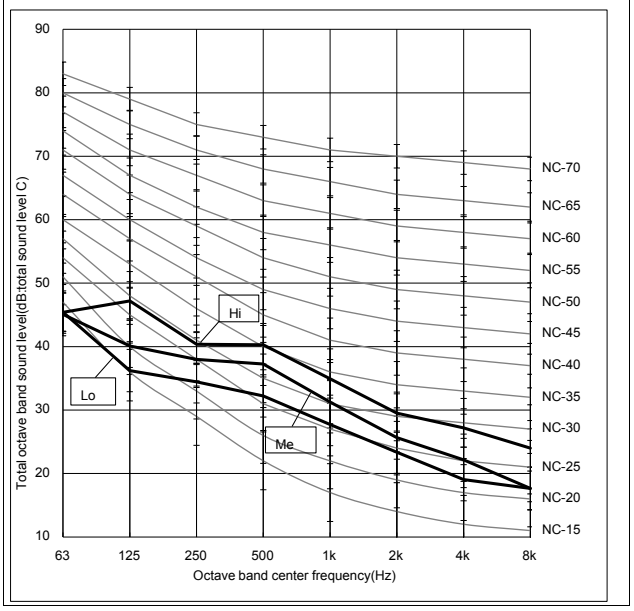
6. SOUND PRESSURE DATA

Cassette

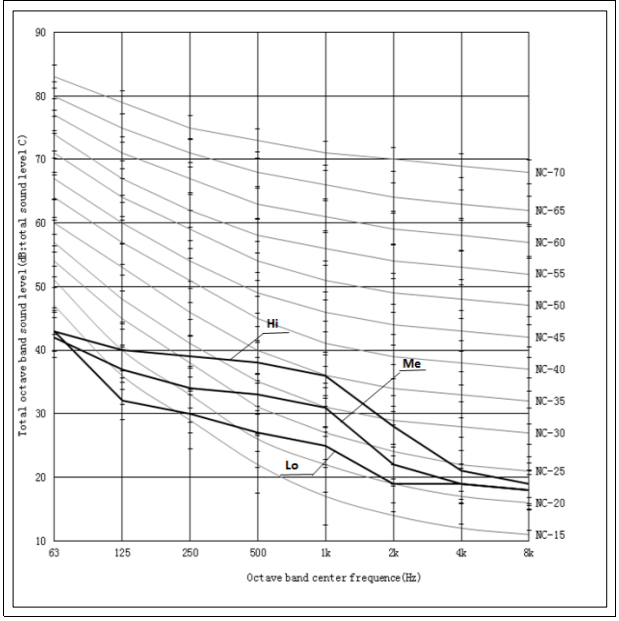
Model	9K
Test condition	4.6ft(1.4m) under the unit; 3.3ft(1.0m) high from the ground



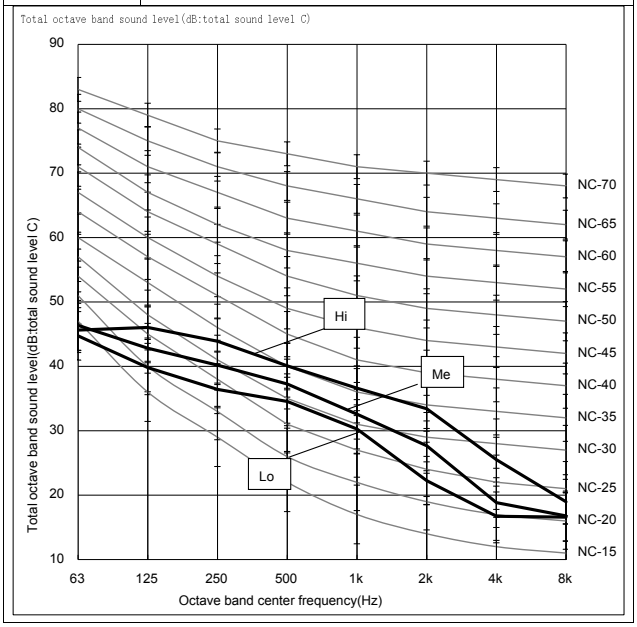
Model	12K
Test condition	4.6ft(1.4m) under the unit; 3.3ft(1.0m) high from the ground



Model	18K
Test condition	4.6ft(1.4m) under the unit; 3.3ft(1.0m) high from the ground



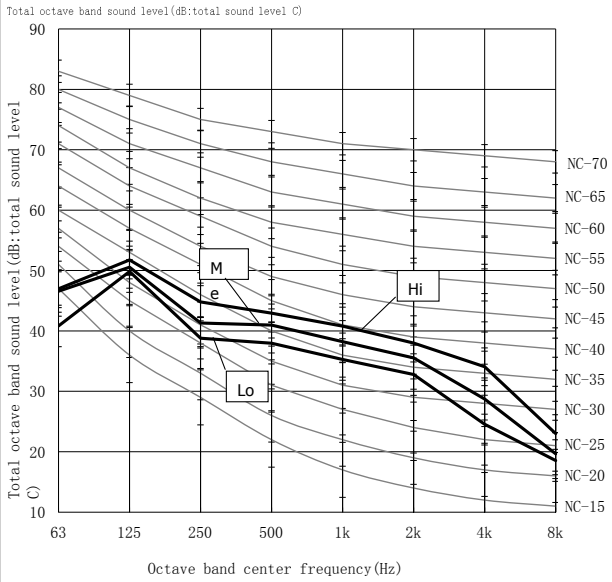
Model	24K
Test condition	4.6ft(1.4m) under the unit; 3.3ft(1.0m) high from the ground



6. SOUND PRESSURE DATA

Cassette

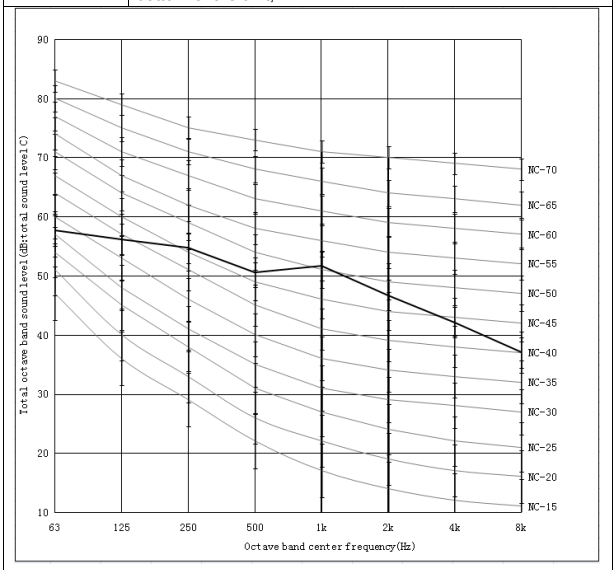
Model	36K
Test condition	4.6ft(1.4m) under the unit; 3.3ft(1.0m) high from the ground



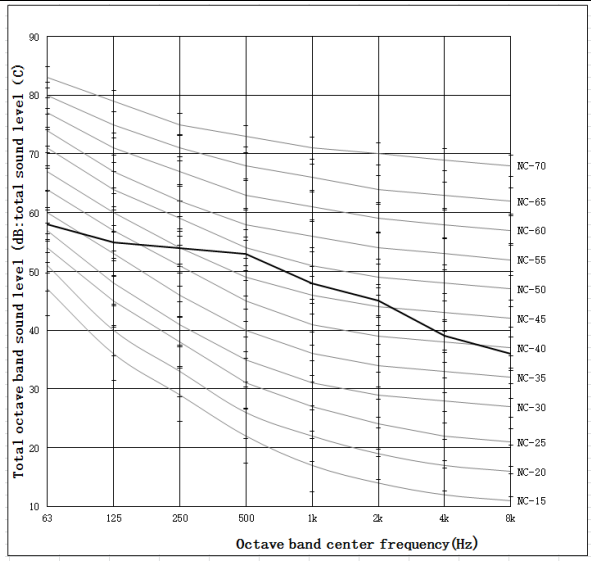
6. SOUND PRESSURE DATA

Outdoor unit

Model	24K
Test condition	3.3ft(1m) ahead of the unit; 2.7ft(0.83m) high from the bottom of the unit;



Model	36K
Test condition	3.3ft(1m) ahead of the unit; 3.3ft (1m) high from the ground;



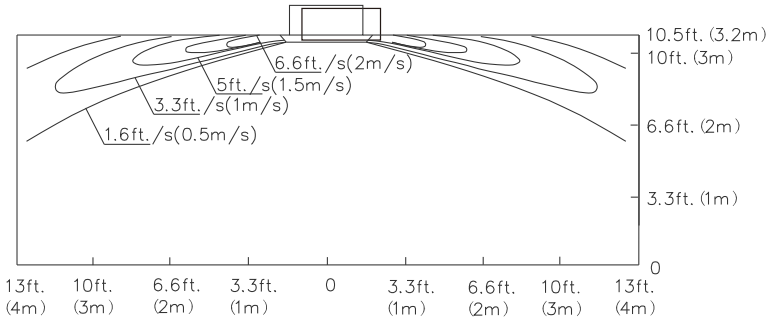
7. AIR FLOW DISTRIBUTION

7. Air flow distribution

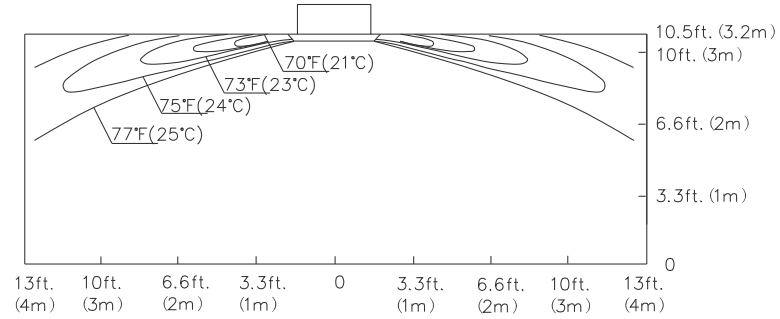
Cassette type

24K

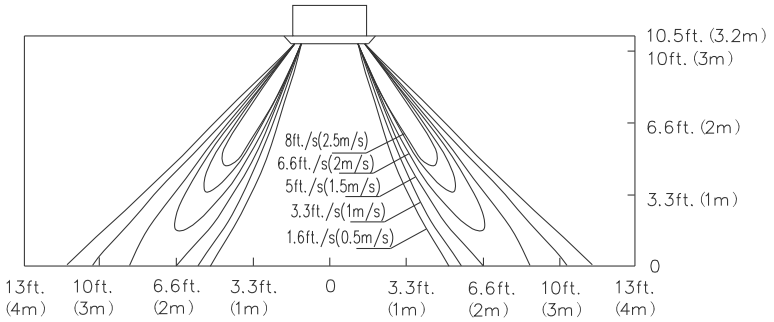
1) Cooling/ Air Velocity Distribution



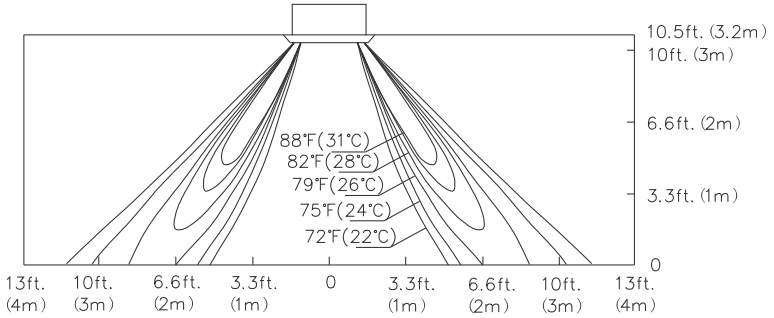
2) Cooling/ Air Temperature Distribution



3) Heating/ Air Velocity Distribution



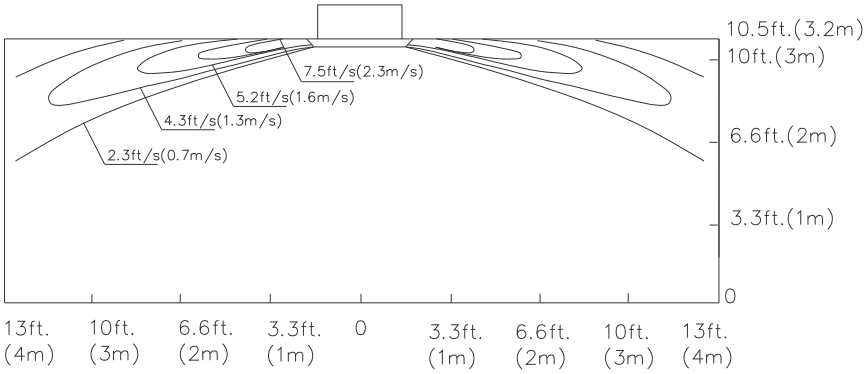
4) Heating/ Air Temperature Distribution



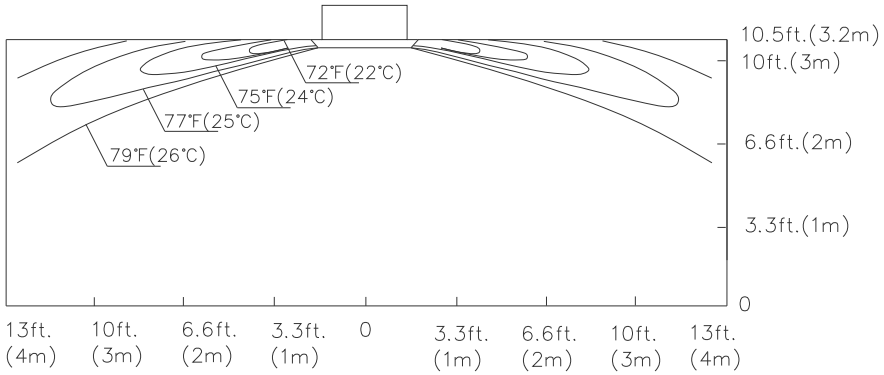
7. AIR FLOW DISTRIBUTION

36K

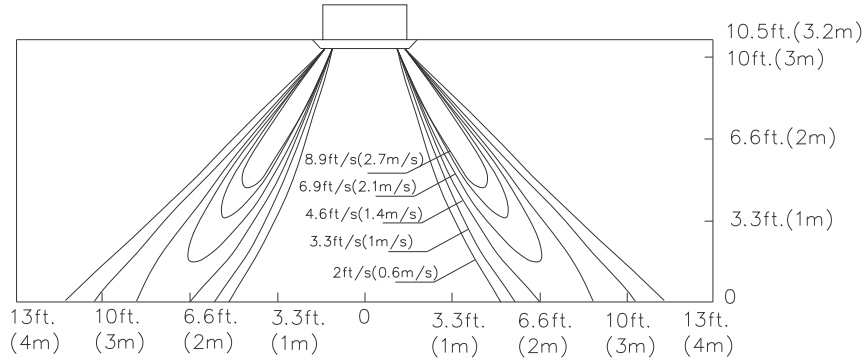
1) Cooling/ Air Velocity Distribution



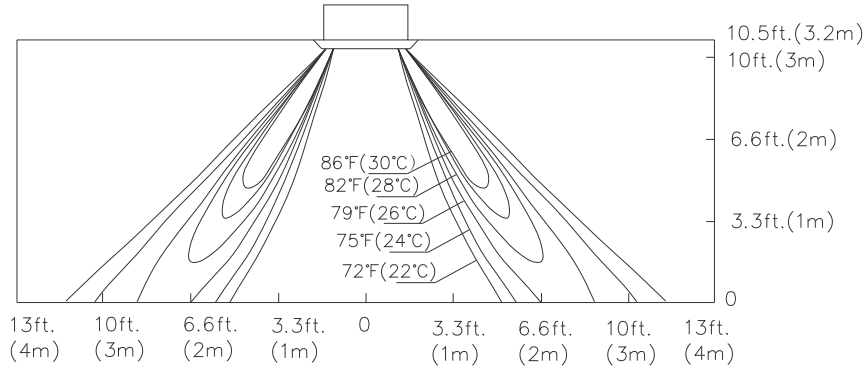
2) Cooling/ Air Temperature Distribution



3) Heating/ Air Velocity Distribution



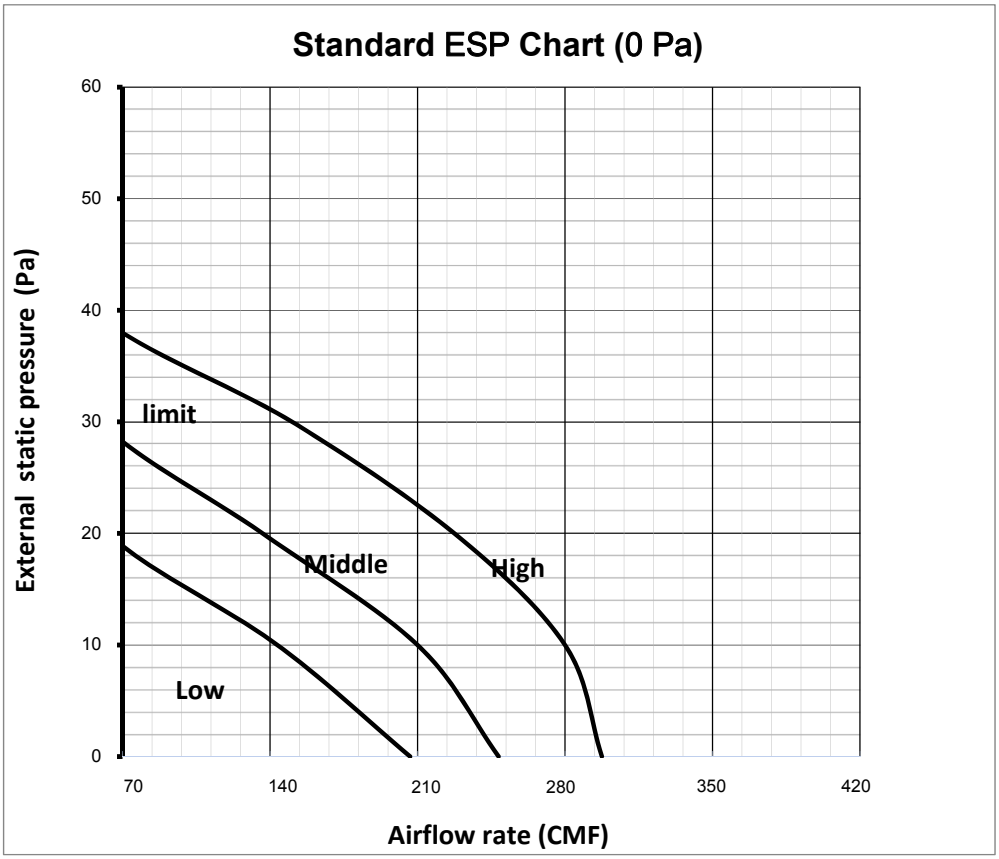
4) Heating/ Air Temperature Distribution

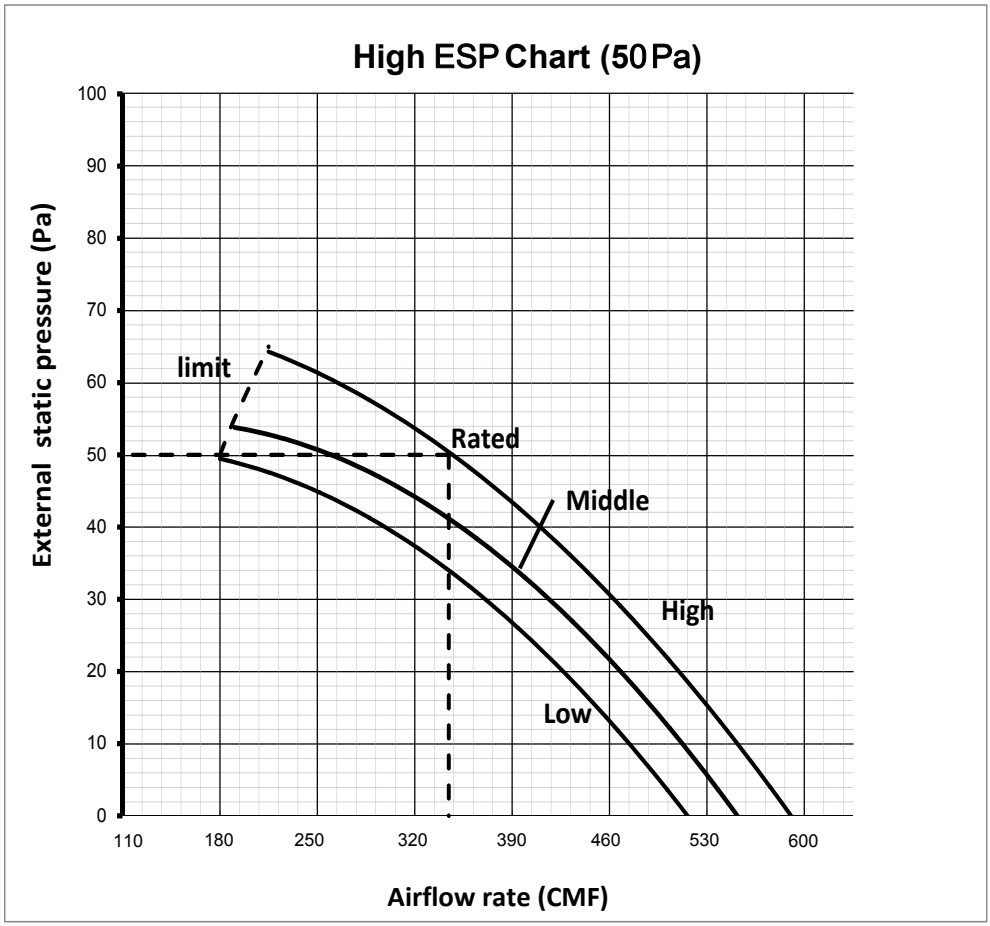


8. ESP (EXTERNAL STATIC PRESSURE) CHART (DUCT TYPE)

8. ESP (External static pressure) chart (Duct type)

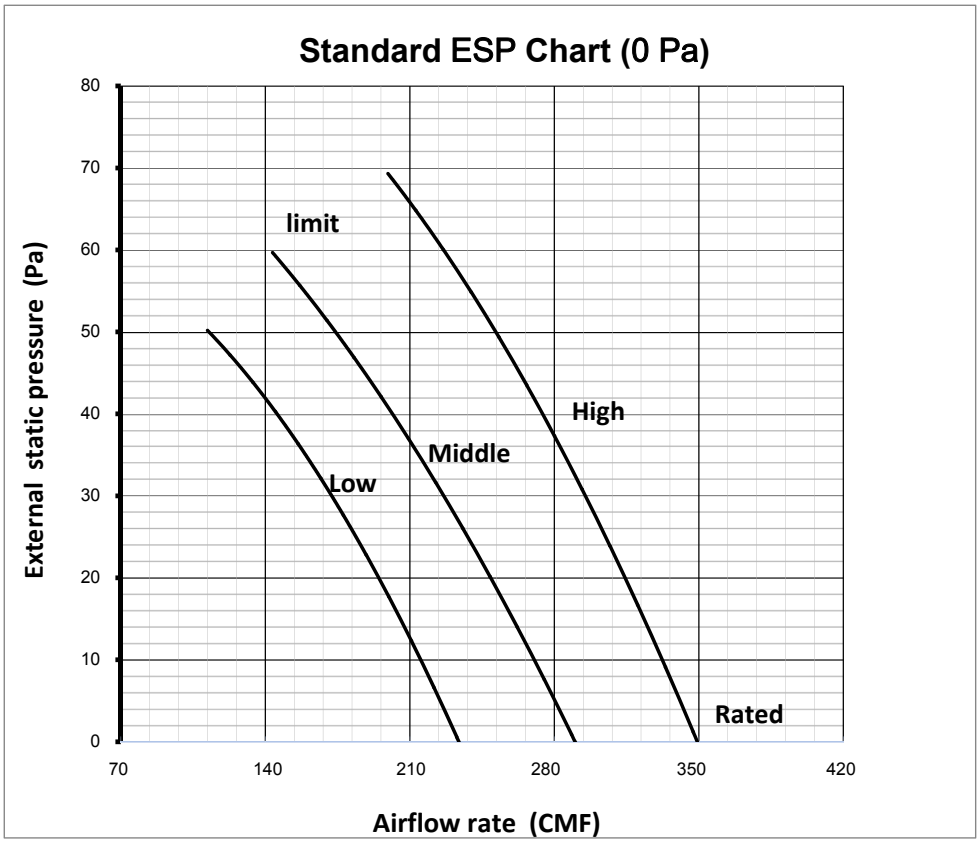
9K

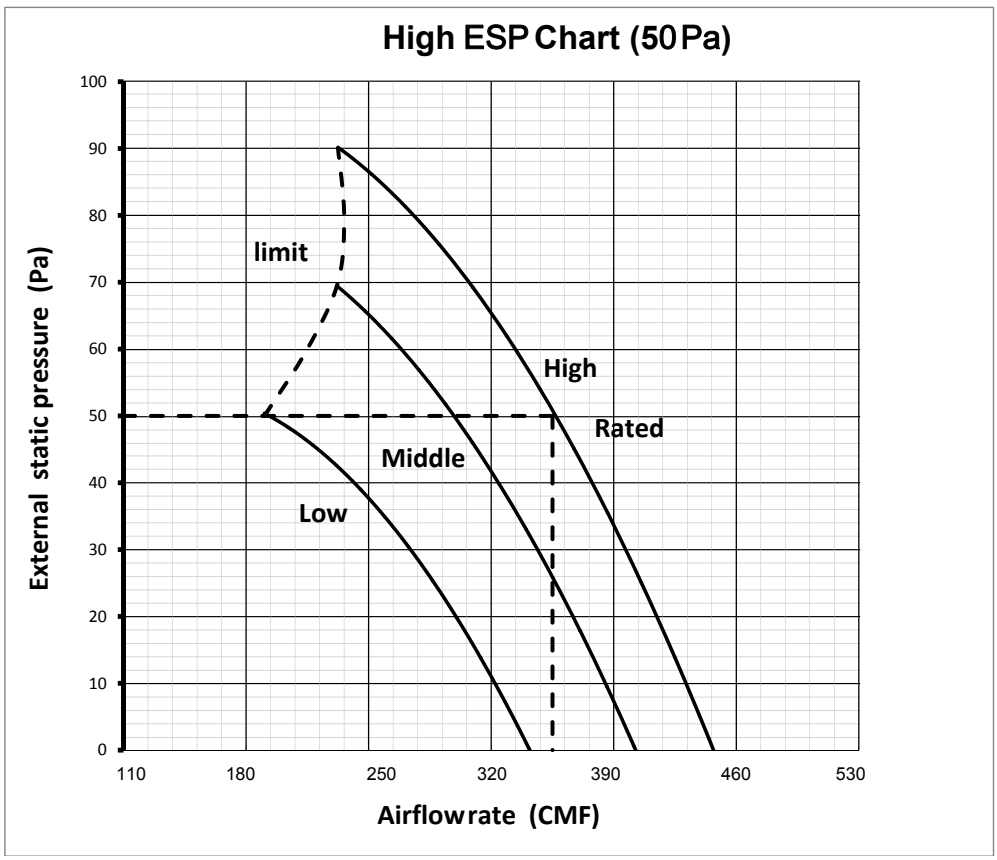




8. ESP (EXTERNAL STATIC PRESSURE) CHART (DUCT TYPE)

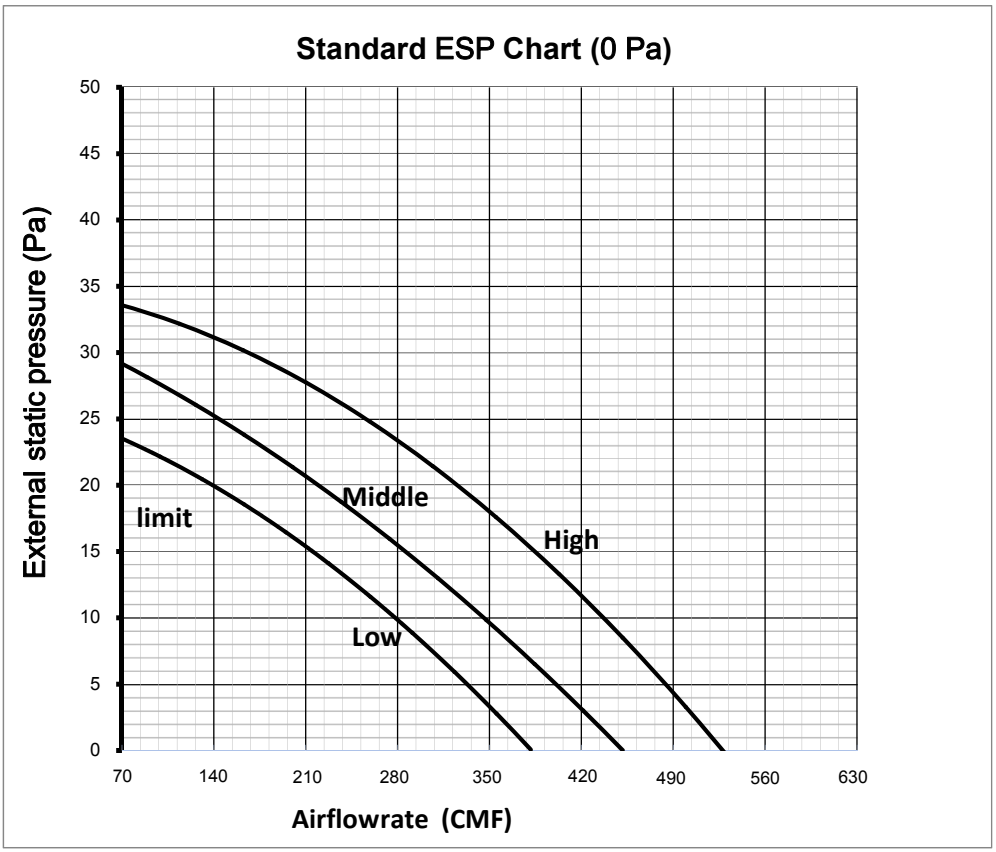
12K

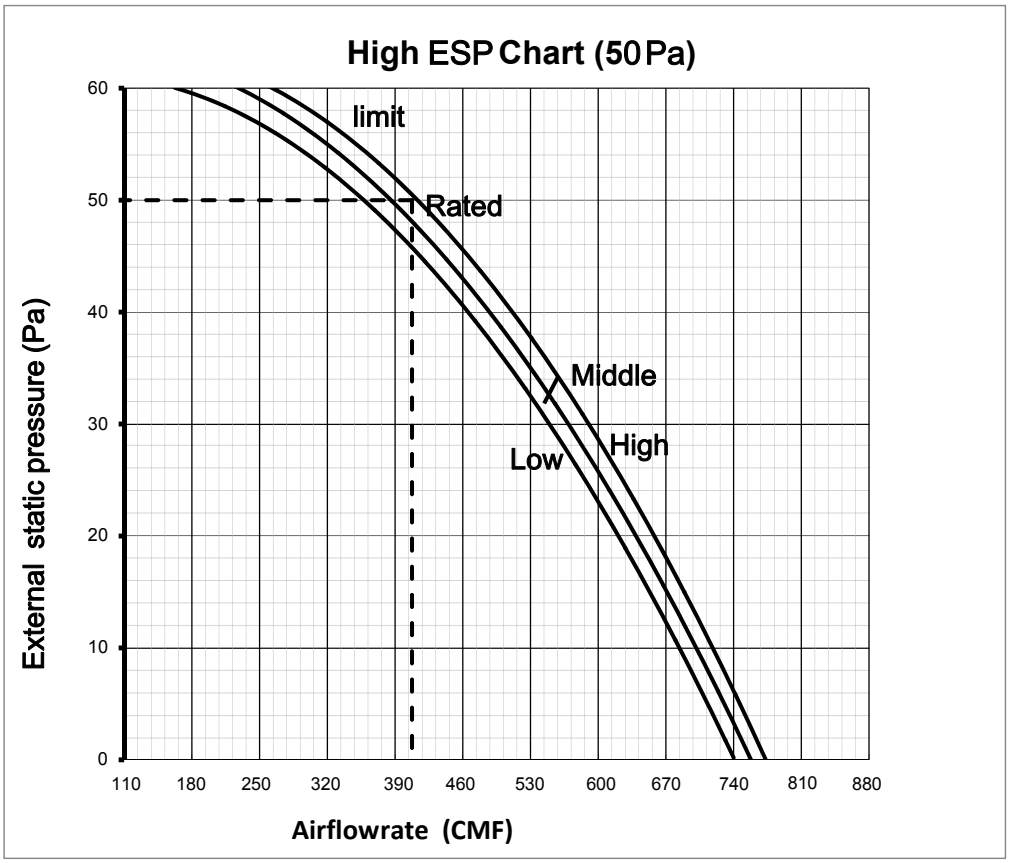




8. ESP (EXTERNAL STATIC PRESSURE) CHART (DUCT TYPE)

18K

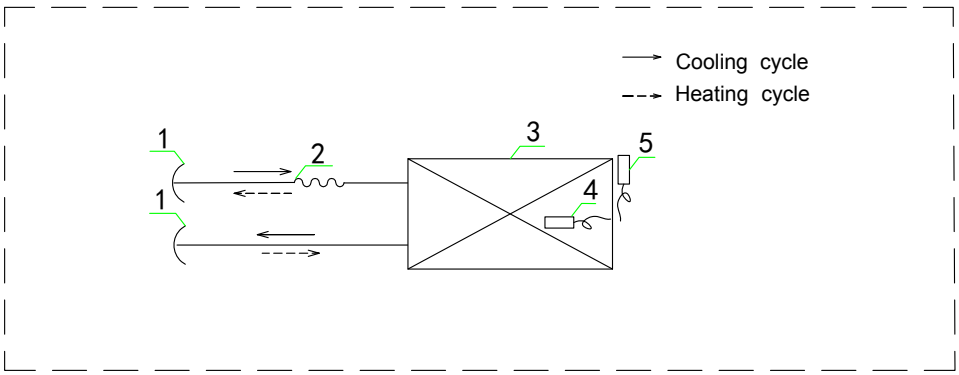




9. REFRIGERANT CYCLE

9. Refrigerant cycle

Indoor unit

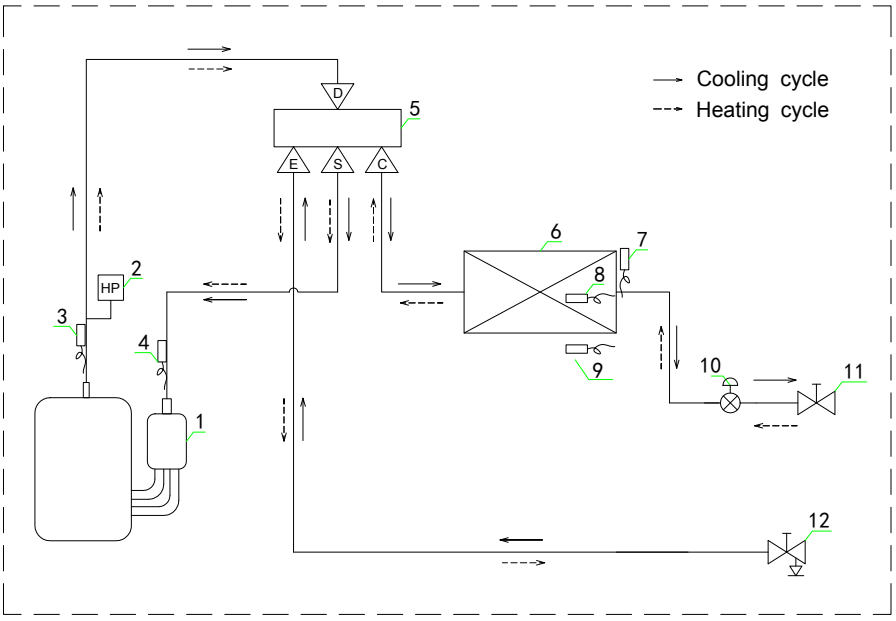


List of components			
1	Hexagon nut	4	Ambient temperature sensor
2	Split capillary	5	Coil temperature sensor
3	Indoor heat exchanger		

9. REFRIGERANT CYCLE

Outdoor unit

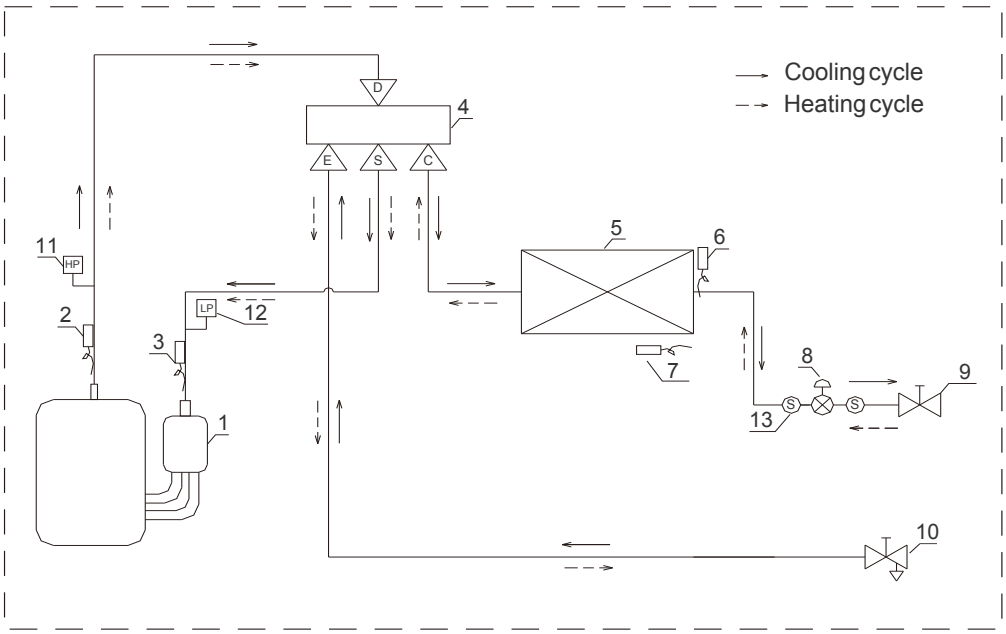
24K



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

9. REFRIGERANT CYCLE

36K



List of component names			
1	Compressor	8	Electronic expansion value
2	Discharge temperature sennor	9	Stop valve
3	Suction temperature sennor	10	Stop valve
4	4-Way valve	11	High pressure switch
5	Outdoor heat excharge	12	Low pressure switch
6	Coil temperature sennor	13	Strainer
7	Ambient temperature sennor		

10. Fresh air intake function

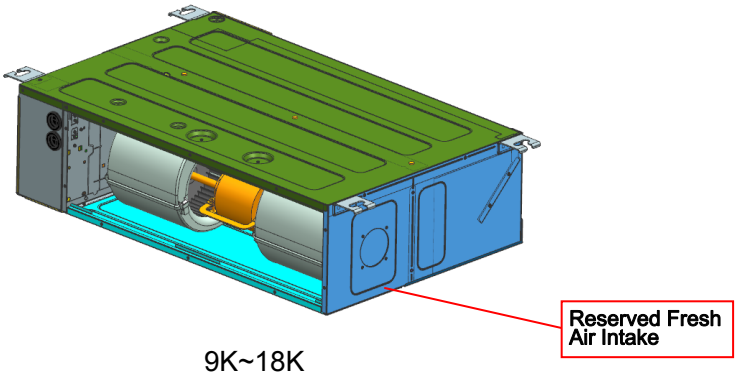
Duct (9K~18K)

Indoor unit can take fresh air from the reserved fresh air intake, the size of the fresh air intake hole is Φ2-1/2 in.(Φ65mm) (9K~18K).

Please follow the steps below when needed.

1) Cut off the reserved metal circular hole on the base board.

2) Connect air duct with the fresh air intake.



9K~18K

Cassette

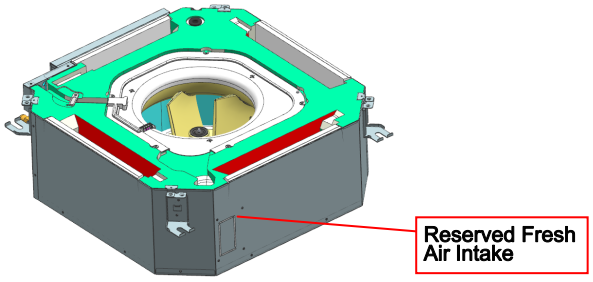
It is possible to inhale fresh air to indoor unit from the reserved fresh air intake, the size of the fresh air intake hole is 3-1/4in. × 1-11/16in. (83mm×43mm) (9K/12K)，3in. × 2-1/16in. (75mm×53mm) (18K/24K/36K).

Please follow the steps below when needed.

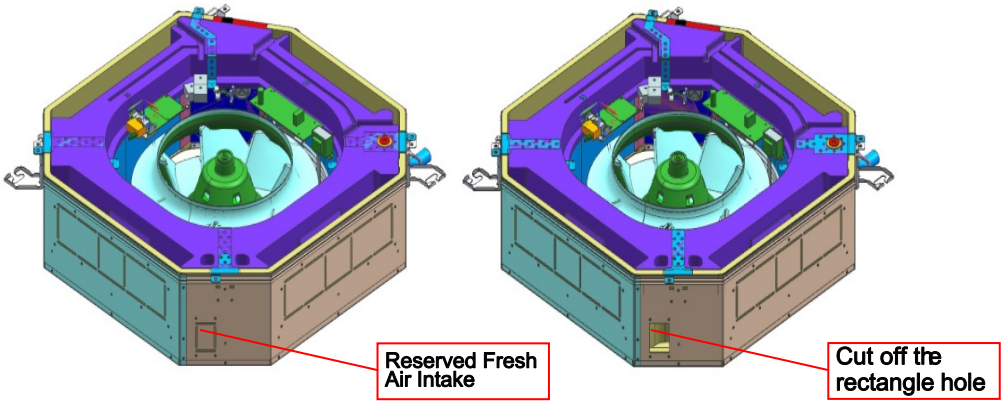
1) Cut off the reserved metal rectangular hole on the base board.

2) Cut off the foam material on the a rectangular hole

3) Connect air duct with the fresh air intake.



9K~12K



18K/24K/36K

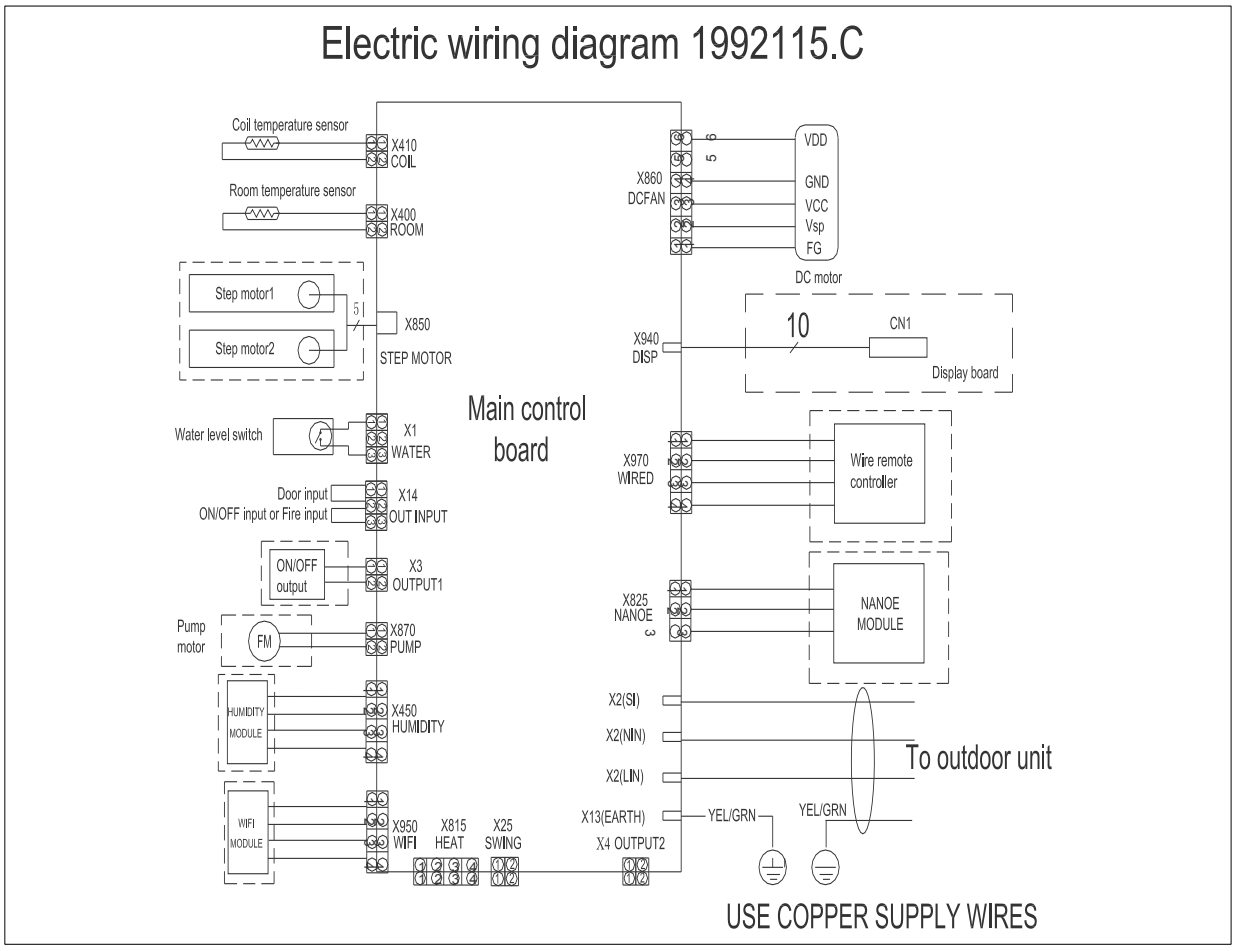
11. WIRING DIAGRAM

11. Wiring diagram

11.1 Electrical wiring diagram

Indoor unit

Duct type (9K~18K)



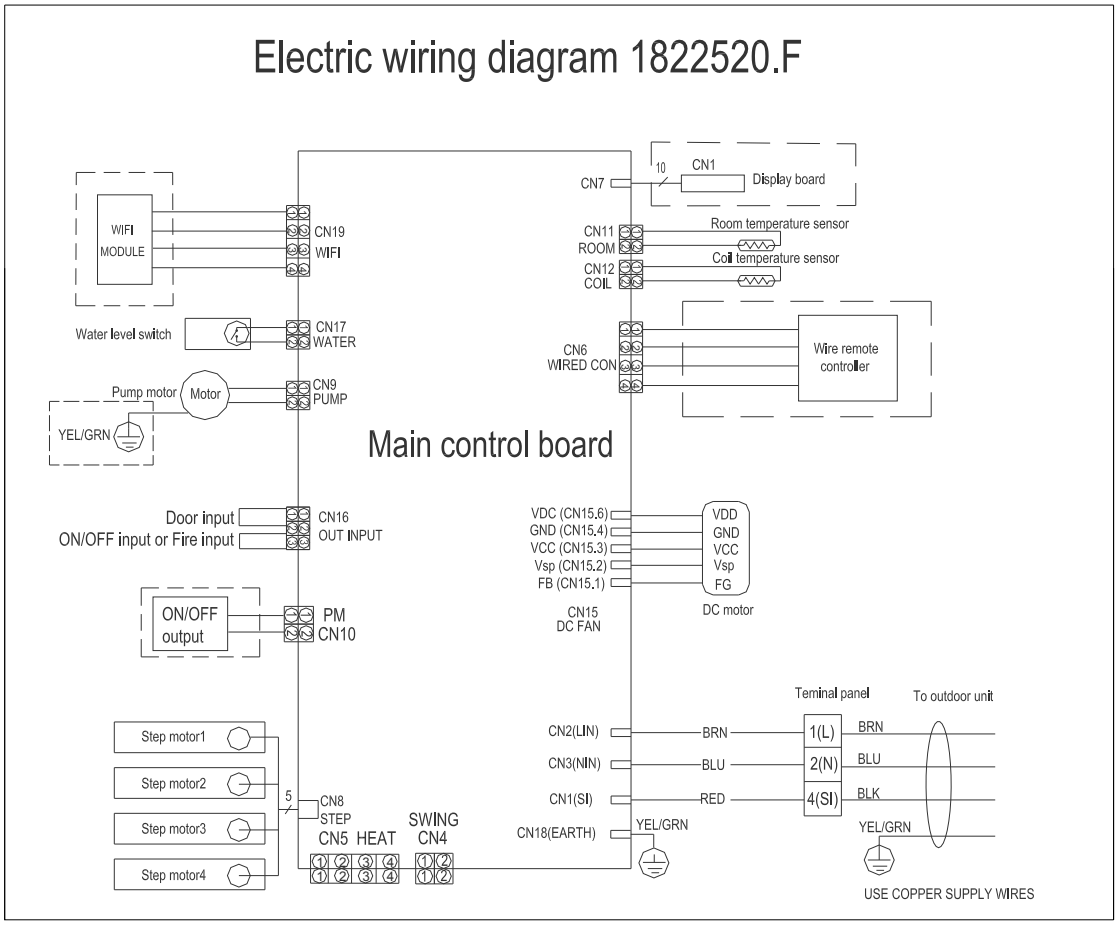
Remark:
Dashed parts are not available in some models.
Details see the table below.

Duct	Indoor units model	Step motor	Pump motor	Humidity	WIFI Module	NANOE Module	Display board	Wired remote controller	ON/OFF output
	9K~18K							●	●

●--available part

11. WIRING DIAGRAM

Cassette type
(9K~36K)



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

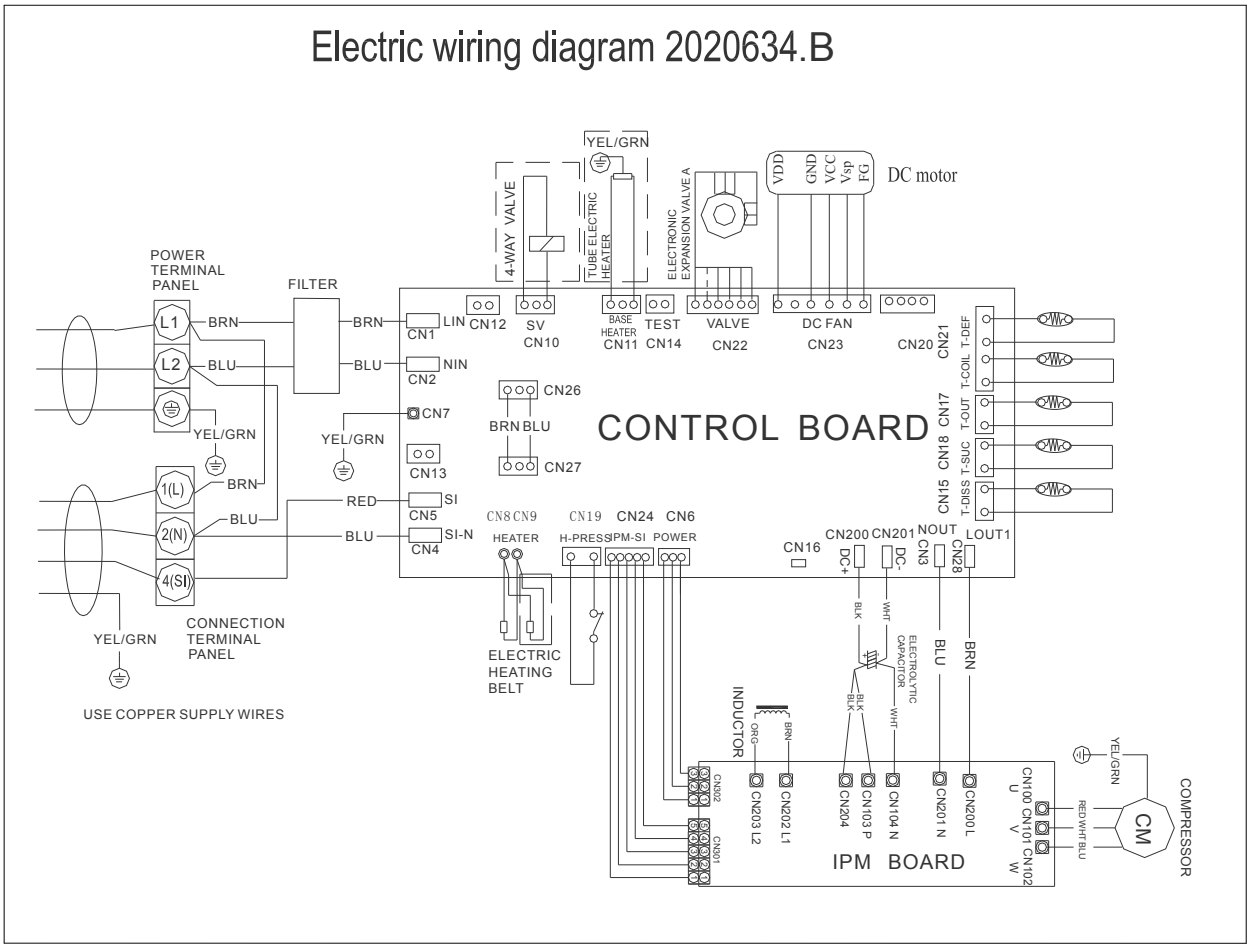
	Indoor units model	Step motor	Pump motor	WIFI module	Display board	Wire remote controller	ON/OFF output
Cassette	9K~36K	●	●		●		

●--available part

11. WIRING DIAGRAM

Outdoor unit

24K



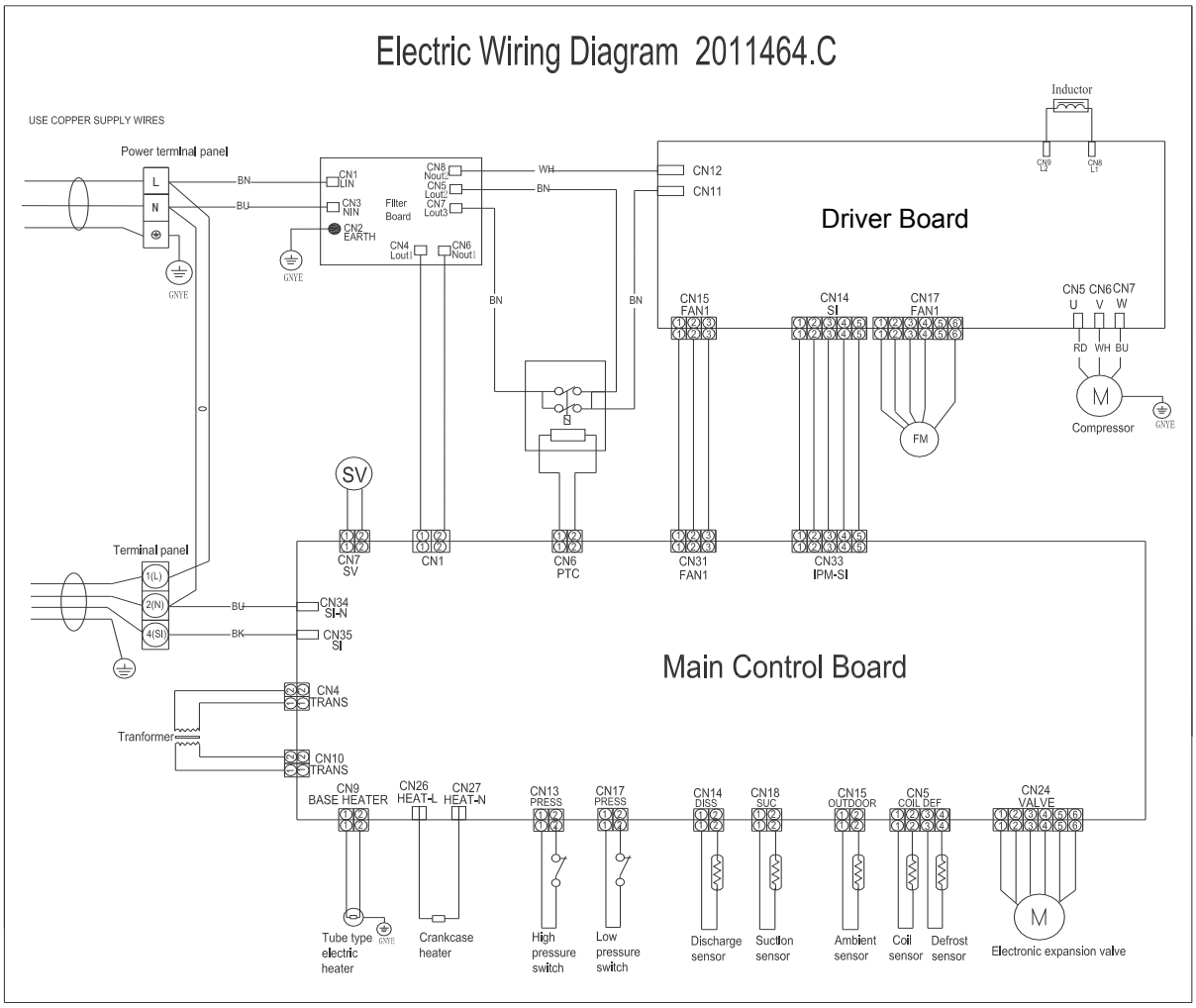
Remark:
Dashed parts are not available in some models.
Details see the table below.

Outdoor unit model	4-way valve	Tube electric heater	Electric heating belt
24K	●	●	●

●--available part

11. WIRING DIAGRAM

36K

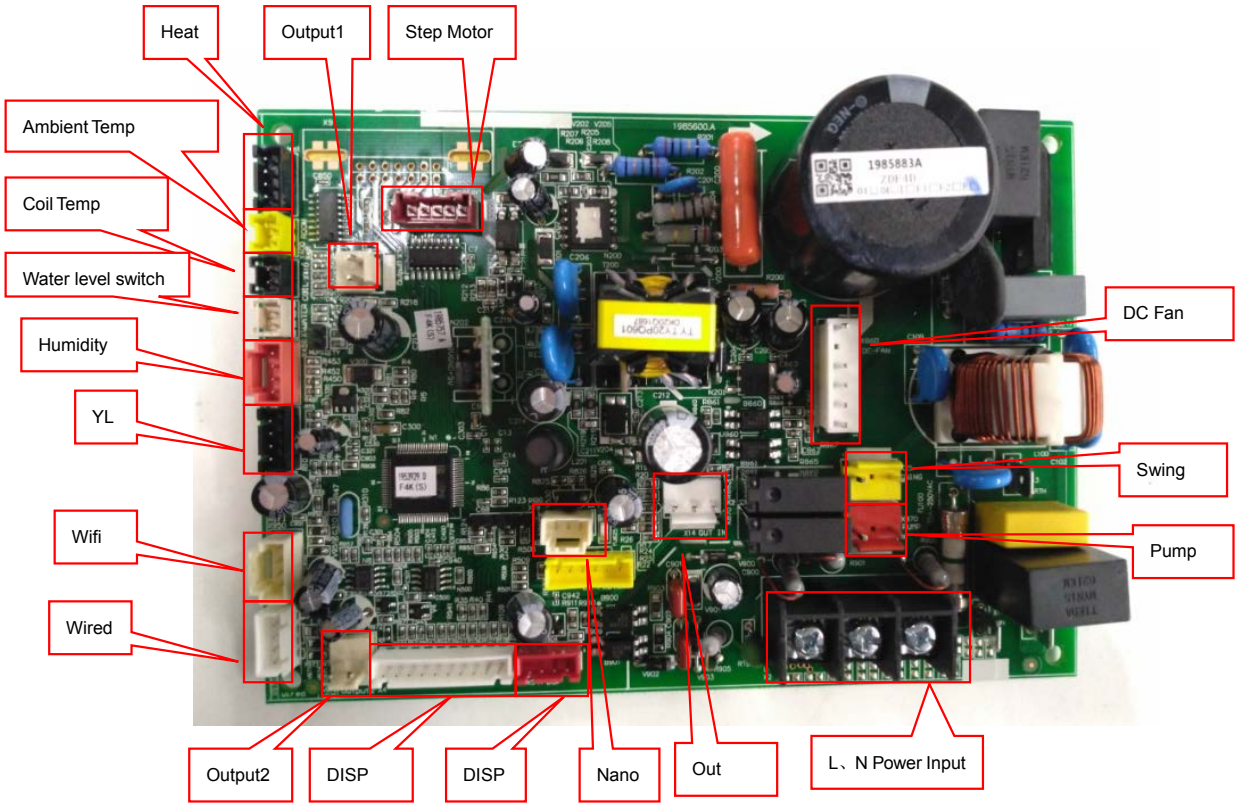


11. WIRING DIAGRAM

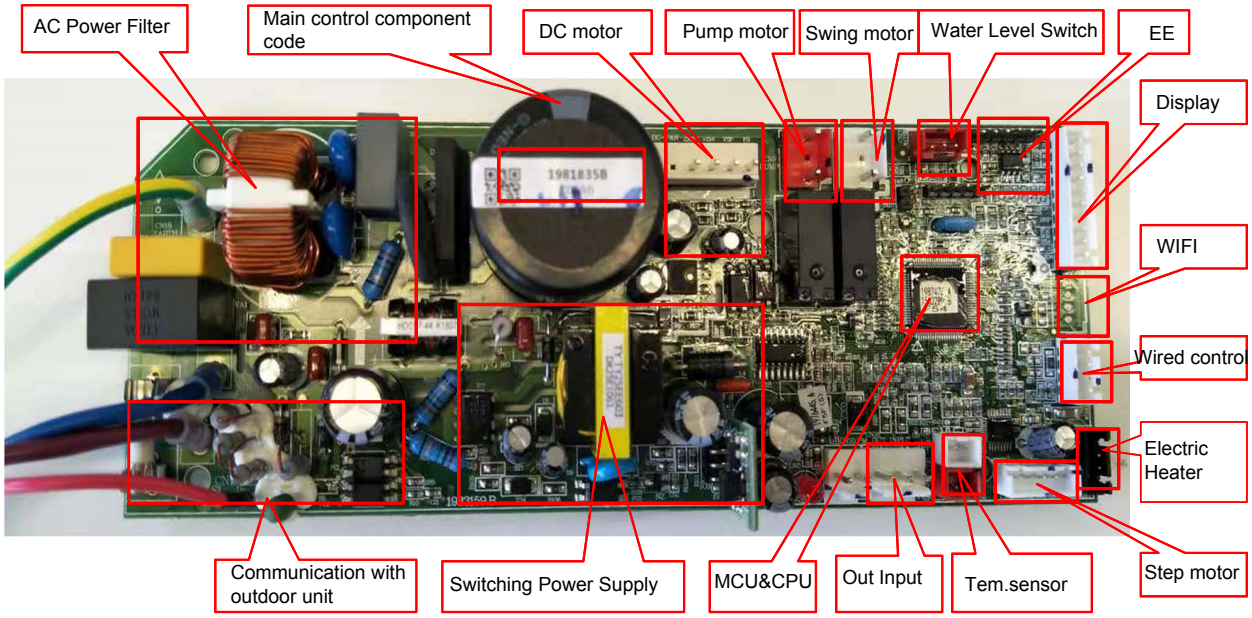
11.2 Control board picture

Indoor unit

Duct
9K~18K



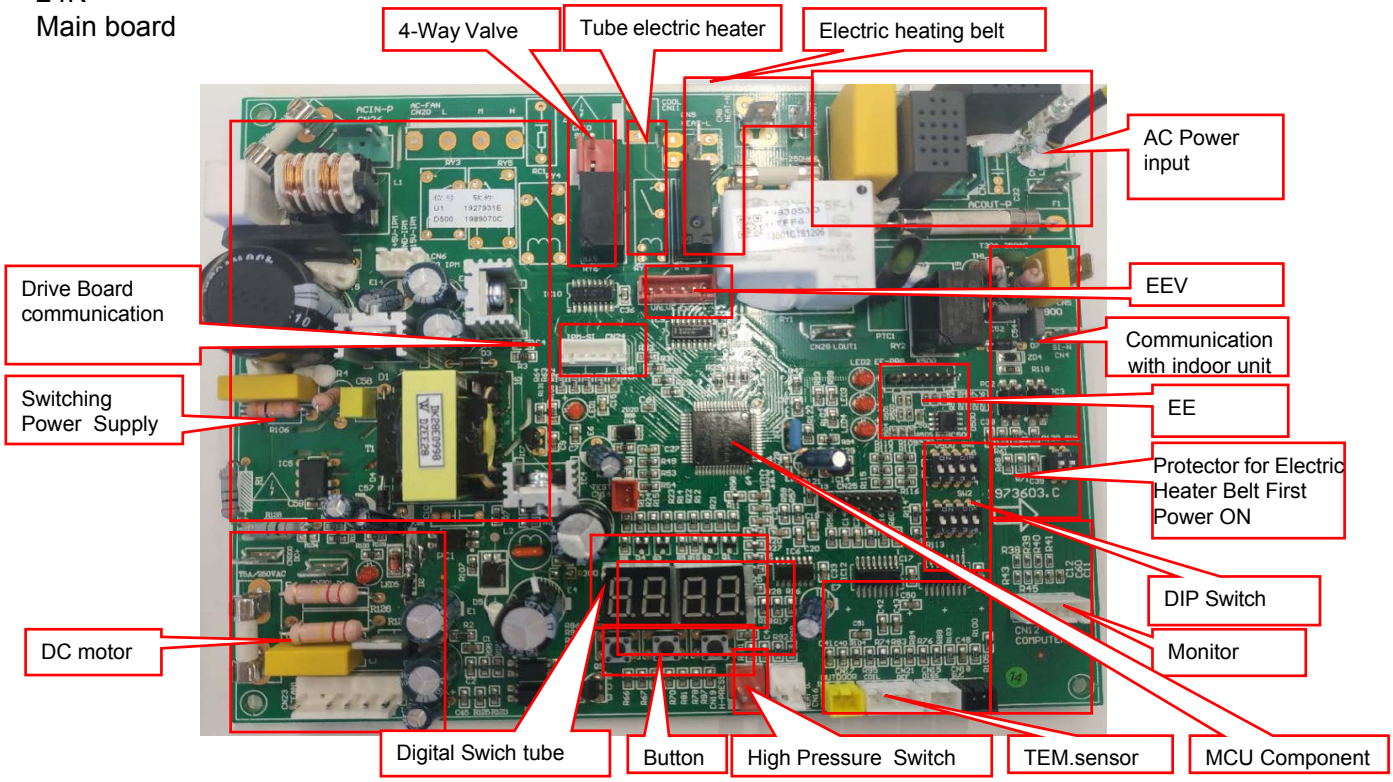
Cassette
9K~36K



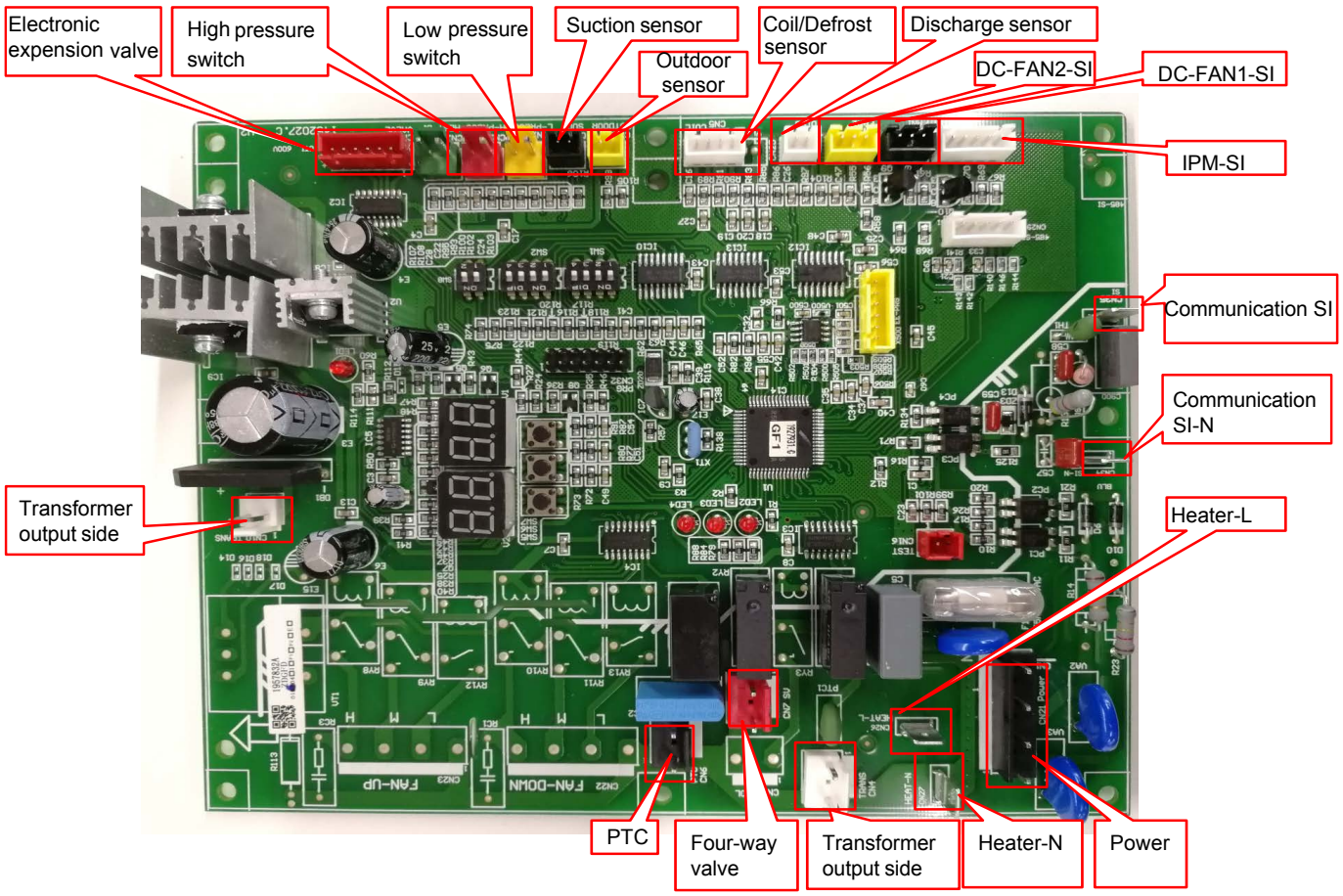
11. WIRING DIAGRAM

Outdoor unit

24K
Main board

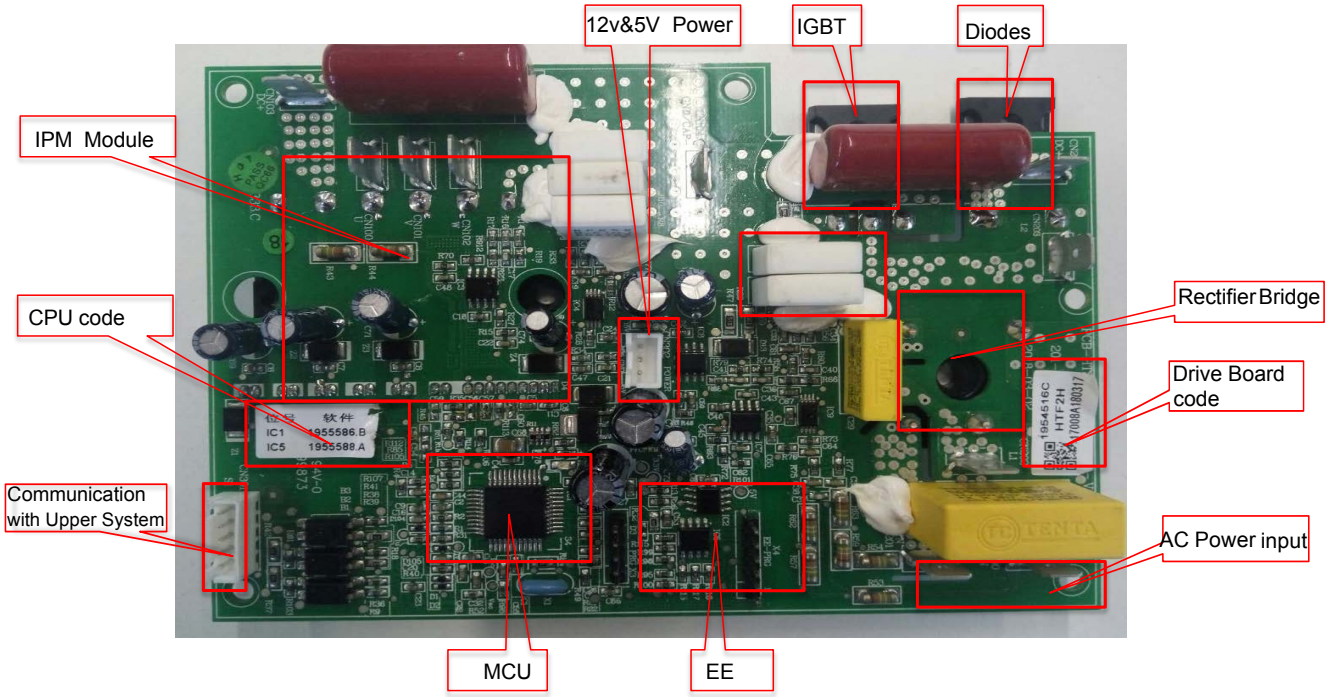


36K
Main board

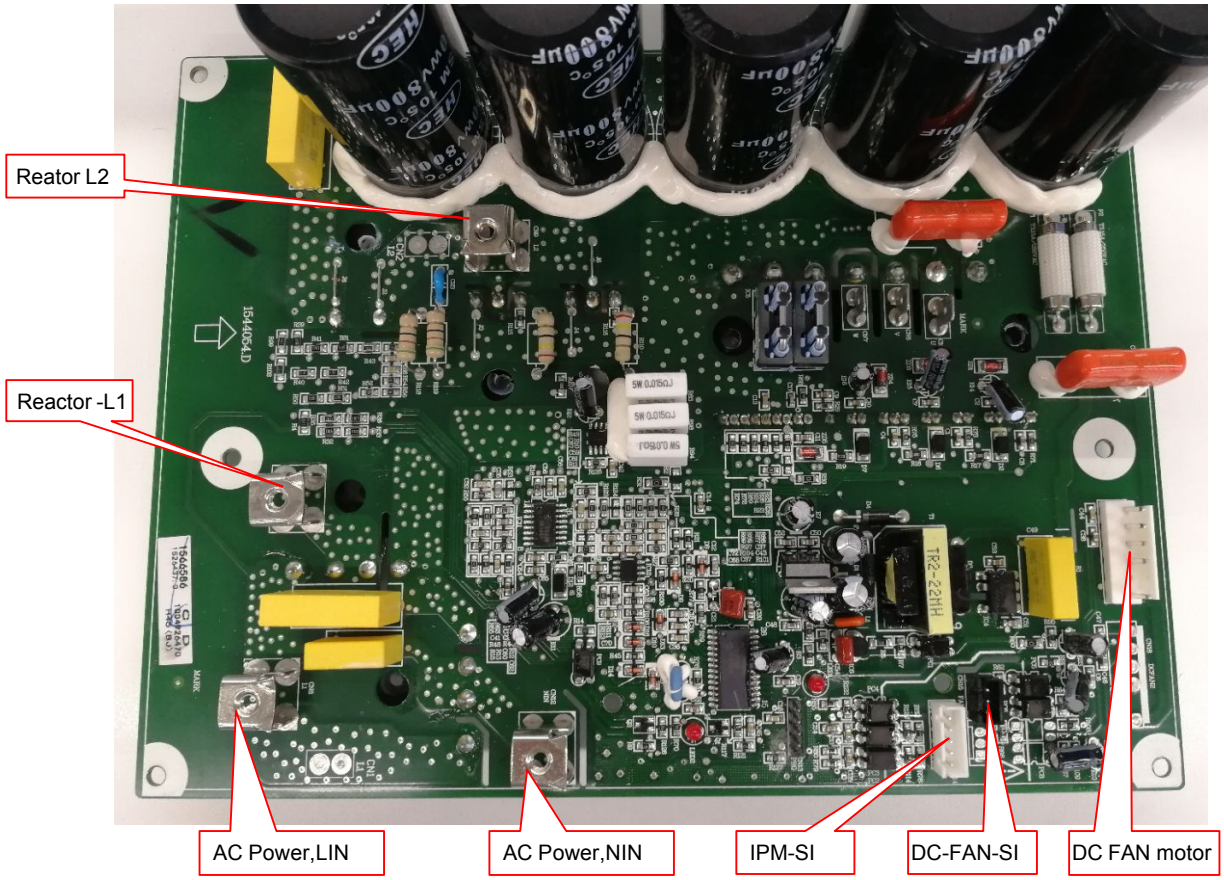


11. WIRING DIAGRAM

24K
Drive board



36K
Drive board



11. WIRING DIAGRAM

11.3 Common wiring

Recommend Wire Size

Model (Capacity)	Power Supply	ELB		Power Source Cable Size	Transmitting Cable Size
		Rated Current (A)	Nominal Sensitive Current (mA)		
9K/12K/18K	-	-	-	-	4×16AWG
24K	208/230V ~/ 60Hz	40	30	3×12AWG	4×16AWG
36K	208/230V ~/ 60Hz	40	30	3×10AWG	4×16AWG

Max. Running Current (A): REFER TO NAMEPLATE

- Use an ELB (Electric Leakage Breaker).
- Do not operate the system until all the check points have been cleared.

(A) Check to ensure that the insulation resistance is more than 2 Mega Ohm,by measuring the resistance between ground and the terminal of the electrical parts. If not, do not operate the system until the electrical leakage is found and repaired.

(B) Check to ensure that the stop valves of the outdoor unit are fully opened and then start the system.

- Pay attention to the following items while the system is running.

Do not touch any of the parts by hand at the discharge gas side, since the compressor chamber and the pipes at the discharge side are heated higher than 194°F(90℃).

Note:

(1) Follow local codes and regulations when select field wires, and all the above are the minimum wire size.

(2) Use copper supply wires.

(3) When transmitting cable length is more than 49ft.(15m), a larger wire size should be selected.

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

12. Field setting

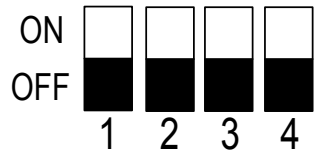
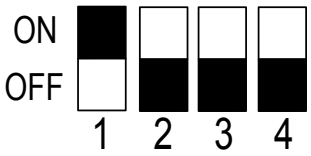
12.1 Outdoor unit DIP switch

Dip Switch Setting of Outdoor Unit

Turn off all power sources before setting. Without turning off, the switches settings are not refreshed and might be invalid. Mark of "■" indicates the position of dip switches.

SW2	Refrigerant Piping Length Setting

Setting is required

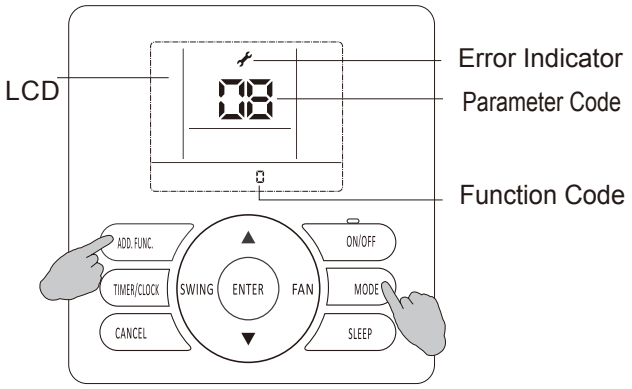
Actual Piping Length L(m)	
L<15	15⩽L⩽Max.Length allowed
Setting before Shipment 	

After set refrigerant piping length dip switch, cooling/heating performance could be improved.

12. FIELD SETTING

12.2 ESP setting (Duct type only)

The static pressure can be freely adjusted by using specific wire remote controller.



YXE-C01U(E)/YXE-C02U(E)

Model (Capacity Btu/h)	The range of static pressure	Function code set
9K/12K/18K	0-0.015 in.Hg (0-50Pa)	0-50, more than 50 is 0.015 in.Hg (50 Pa), [default: 0 (0 in.Hg or 0Pa)]

Static pressure setting:

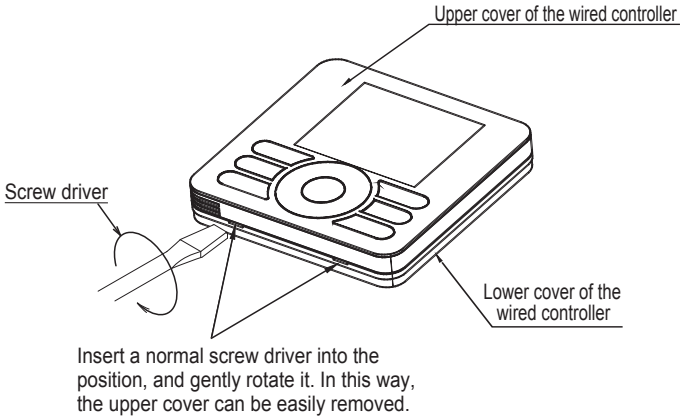
1. Hold down both“MODE”button and“ADD.FUNC.”button for 3 seconds, symbol and parameter code blinking at the same time.
2. Press“▲/▼”button to adjust parameter number until display “17”, and press “ENTER”button to entering system parameter adaption state, symbol stop blinking.
3. Select desired parameter code 10 by pressing “▲/▼ ” button , and press "ENTER" button to confirm.
4. Select desired function code to rewrite the parameter values by pressing “▲/▼”button , and press "ENTER" button to confirm.
5. Press “ON/OFF”button or “CANCEL”button to quit.

12. FIELD SETTING

12.3 Indoor unit parameter revision

1. Connect wire remote controller with indoor unit

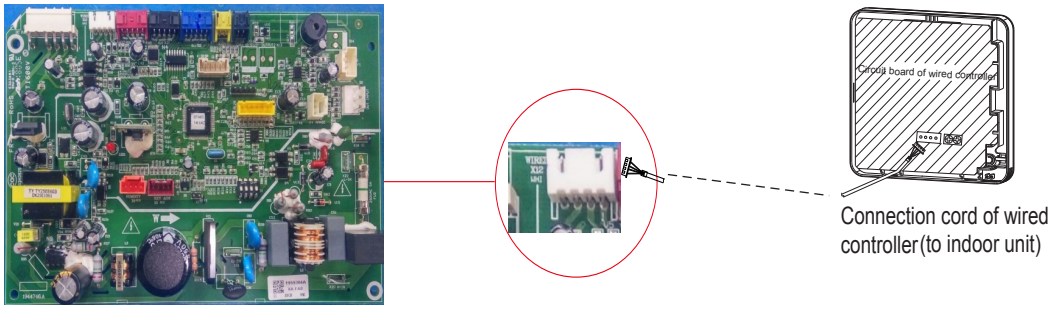
Step 1: Removing the upper cover of the wired controller



Note:

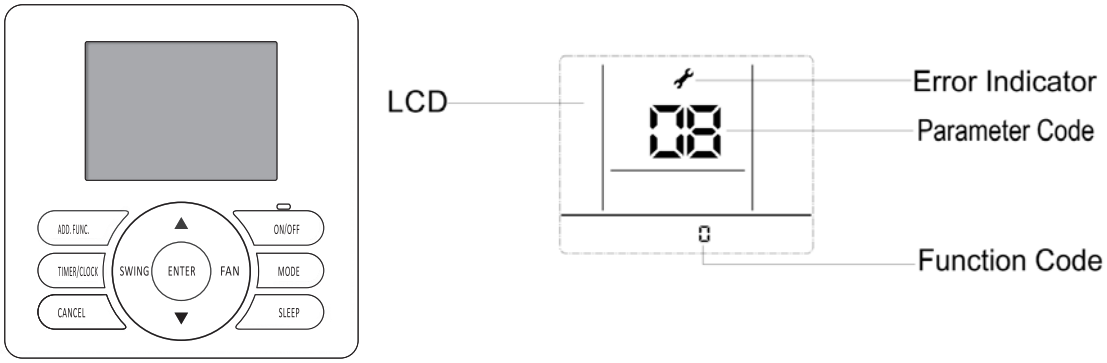
Control board of the remote controller is placed on upper cover. Please protect it from being scratched during removal and installation!

Step 2: Connecting wired controller with indoor unit



Indoor unit control board **marked with:wired** **Wire remote controller**

2. Changing system parameter



OPERATION:

① Hold down both “MODE” button and “ADD.FUNC.” button for 3 seconds, symbol and parameter number blinking at the same time.

② Press“ ▲ ” “ ▼ ”button to adjust parameter number until display“17”.
And press“ENTER”button to entering system parameter adaption st ate, symbol stop blinking, parameter number blink.

③ Select desired parameter code by pressing “▲”/ “ ▼”button following the table below, and press “ENTER” button to confirm.

④ Select desired function code by pressing “▲”/ “▼”button, and press "ENTER" button to confirm.

12. FIELD SETTING

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

12. FIELD SETTING

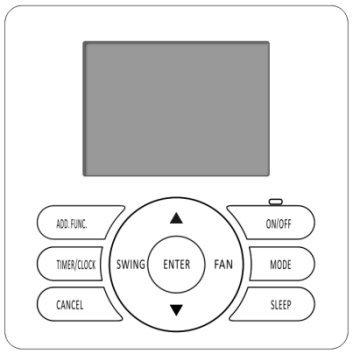
12.4 Running parameter query

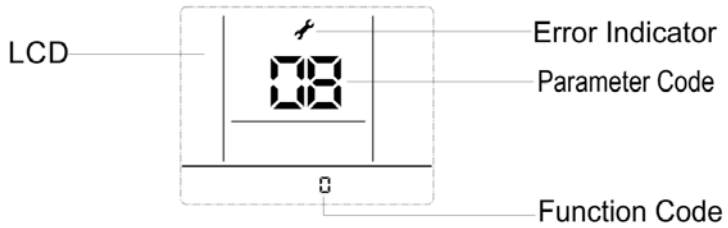
Running parameter can be referred by digital tube switch or specified wire remote controller.

Query by wire remote controller (YXE-C01U,YXE-C02U,YXE-D01U)

Operation:

1. Connect wire remote controller with indoor unit(same method as Indoor unit parameter revise)
2. Changing system parameter





OPERATION:

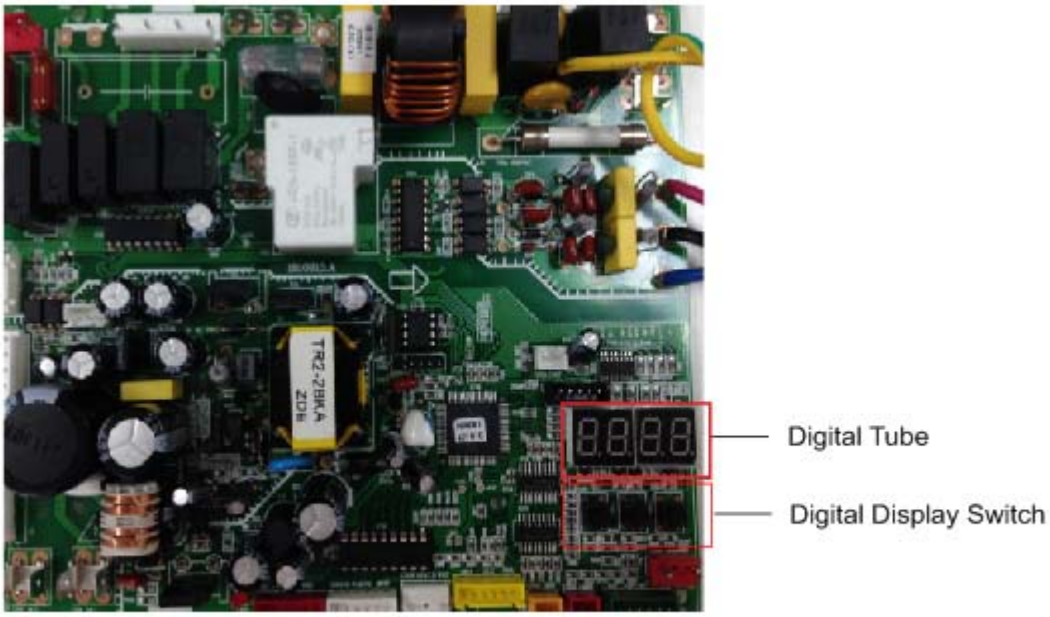
① **Hold down both "MODE" button and "ADD.FUNC." button for 3 seconds, symbol and parameter number blinking at the same time.**

② **Press "▲" "▼"button to select parameter number as you need, parameter value will be displayed on the LCD.**

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

12. FIELD SETTING

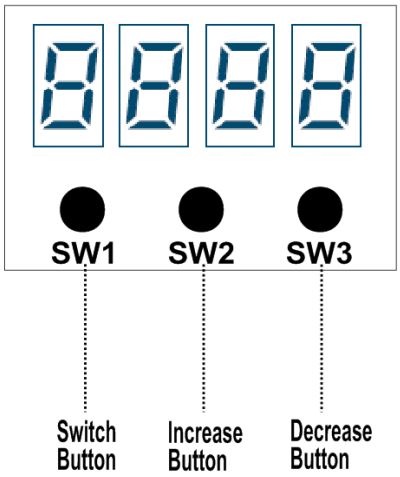
Query by digital tube switch



DC-Inverter outdoor control board

Digital Display Switch Introduction

It can be used to check outdoor running parameters.



There are 3 buttons on the digital display board：

1) SWITCH button：Indoor parameters and outdoor parameters can be selected in turn by pressing it.
"P."-outdoor unit parameter ,"H."-indoor unit parameter；

2) INCREASE button：Each time it is pressed, the number rises by 1,hold down it, the number will be rapidly increase;

3) DECREASE button：Each time it is pressed, the number lowers by 1,hold down it, the number will rapidly decreased.

4) The parameters will be displayed after 3s when the checking numbers are selected.

12. FIELD SETTING

Parameters can be checked as following table below.

Parameter code	Descriptions
0	Protect Code or Fault code
P.1	Target Frequency
P.2	Driving Frequency
P.4	Outdoor EEV Opening
P.5	Outdoor EEV Target Opening
P.6	Upper DC Motor Revolving Speed
P.8	AC Input Voltage
P.9	Current
P.10	Modular Temperature
P.11	Capacity Needed
P.12	Modular Fault
P.20	Outdoor Ambient Temperature
P.21	Outdoor Coil Temperature
P.22	Outdoor Defrost Temperature
P.23	Suction Temperature
P.24	Discharge Temperature
H.1	Indoor Unit Fault
H.2	Indoor Ambient Temperature
H.3	Indoor Coil Temperature
H.4	Indoor Setting Temperature

12. FIELD SETTING

12.5 Instructions for the function setting of access control, fire protection, ON/OFF

1. Factory setting

ON/OFF function is disabled as factory default while both the access control and fire protection functions are enabled.

To use or cancel the access control / fire protection / (ON/OFF) function, use the wired controller to modify the parameters of indoor unit.

Note:

Please refer to “Indoor unit parameter revise” section in TC Manual for how to use the wired controller to modify the parameters of indoor unit.

2. Function introduction

(1) Access control:

Control mode to control the machine startup & shutdown based on the ON and OFF state of the access control port.

(2) Fire protection:

Control mode to control the machine startup & shutdown based on the ON and OFF state of the fire protection port.

(3) ON/OFF:

Special control mode to achieve the control of indoor unit startup & shutdown based on the input state of the fire protection port of the indoor unit (no other way can control startup & shutdown) and output the fault status of indoor unit through OUT INPUT port.

3. Function setting

(1) Hardware connection

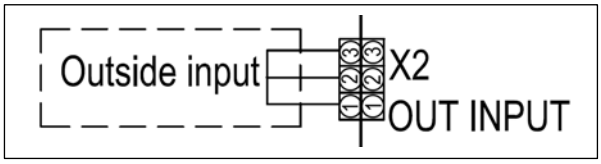


Figure 1 electrical wiring diagram

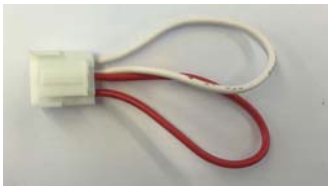


Figure 2 short wiring

Figure 3 main control board

3 pins of the OUT INPUT X2 socket shown in the electrical wiring diagram of Figure 1 will be in short circuited state by default factory setting (an external short circuit plug shown in Figure 2, and the OUT INPUT X2 socket of main control board as shown in Figure 3).

(Note: the socket number in circuit is subject to the actual serial number of PCB.)

12. FIELD SETTING

1) When using the door lock function, the red wire should be cut and connected to the door lock control switch attached to it (supplied by user), and the connecting wire should be 22AWG or above. In normal conditions, the unit operates normally once the switch is closed and shuts down once the switch is off.
2) When using the fire protection function, the red wire should be cut and connected to the fire protection lock control switch attached to it (supplied by user), and the connecting wire should be 22AWG or above.
   In normal conditions, the unit operates normally once the switch is closed and shuts down once the switch is off.
3) When using the ON/OFF function, the red wire should be cut and connected to the door lock control switch attached to it (supplied by user), and the connecting wire should be 22AWG or above. In normal conditions, the unit operates normally once the switch is closed and shuts down once the switch is off.

(2) **Timing sequence description**

- Access control

1) Control of entrance card disconnection: the air conditioner will shut down if the access control signal is disconnected for 30 seconds. In this state, the indoor unit cannot start. If the user performs start operation, the wired controller will not respond and displays power-off status.
2) Control of entrance card connection: after the closed circuit of entrance card interface, power-on restrictions are released, the wired controller maintains power-off and the startup & shutdown control is enabled.

- Fire protection

1) Access to fire protection: the air conditioner will shut down and stop blowing air after the access control signal is disconnected for 3 seconds. In this state, the indoor unit cannot be started. If the user performs start operation, the wired controller shall not respond and displays power-off status.
2) Cancellation of fire protection: after the short circuit of fire protection signal, release power-on restrictions, the wired controller maintains power-off status and the startup & shutdown control is enabled.

- ON/OFF

1) In the situation where ON/OFF function is enabled, the port is closed and in short circuit, the indoor unit starts; the indoor unit shuts down once the port is disconnected;
2) Other operation information (such as mode, air speed, air door, and so on.) except for startup & shutdown can be set through the wired controller, remote-controller and WIFI module, priority is given to the latest command received.
3) In the mode of ON/OFF function, wired controller, remote-controller, WIFI module and access control cannot control the unit startup & shutdown, neither the operation mode, timer or sleeping mode.
4) There will be 12V signal output when machine fault occurs.

(3) Relative priorities of instructions

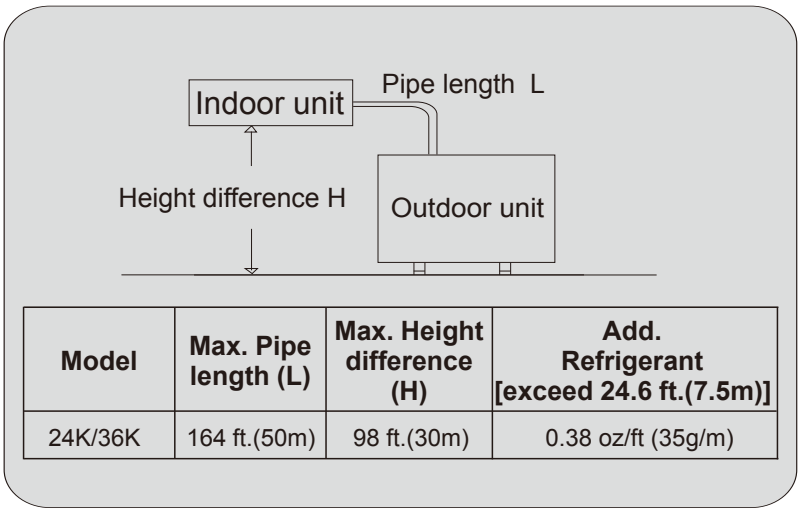
ON/OFF has the highest priority. The access control function shall be disabled when ON/OFF is enabled. Access control and fire prevention functions shall not affect each other.

NOTE:

Figures in the manual are only simple representation of the control board, it's may not comply with the appearance that you purchased.

13. Piping work and refrigerant charge

13.1 MAX. length allowed

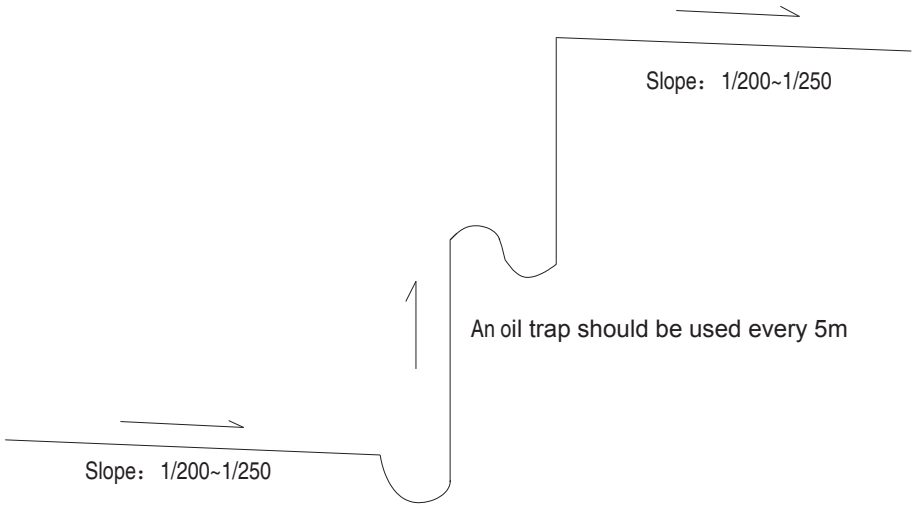


Model	Max. Pipe length (L)	Max. Height difference (H)	Add. Refrigerant [exceed 24.6 ft.(7.5m)]
24K/36K	164 ft.(50m)	98 ft.(30m)	0.38 oz/ft (35g/m)

Refrigerant Additional Charge
The unit has been filled with refrigerant, but if exceeds 24.6 ft.(7.5m), additional refrigerant (R410A) change is required.
For 24K~36K: Additional refrigerant charge =(L-24.6) ft.×0.38 oz/ft.

13.2 Oil trap

When the indoor unit is lower than outdoor unit and height is larger than 16ft.(5m), an oil trap should be employed for every 16ft.(5m)



13. PIPING WORK AND REFRIGERANT CHARGE

NOTE:

1. When the indoor unit is lower than outdoor unit for more than 16ft.(5m), an oil bend should be employed on suction piping.

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

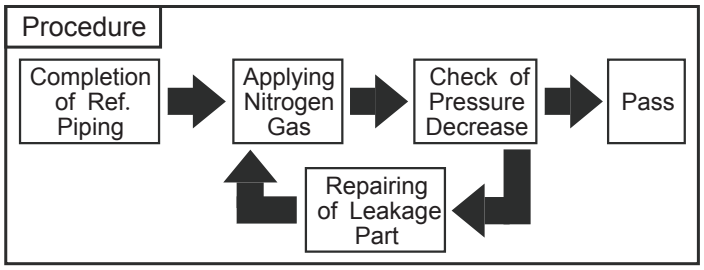
2. The horizontal piping should be slop down along the refrigerant flow direction, to bring the oil back to compressor, the slop is about 1/200 to1/250.

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

13.3 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 550psig (3.8MPa).Check for any gas leakage at the flare nut connections, or brazed parts by gas leak detector or foaming agent. Gas pressure does not decrease is OK. After the air tight test, release nitrogen gas.



Air tight procedure

13.4 Additional refrigerant charge

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

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

Refrigerant charge before shipment (W_0 (kg))

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(W_0(g))**	**Total refrigerant pipe length**	
		0ft.~24.6ft. (0m～7.5m)	**Long than 24.6ft.(5m)**
24K	2600	0g	Xg = 0.38oz/ft.×(Total pipe length(ft.)-24.6)
36K	3150	0g	

14. CONTROL MODE

14. Control mode

14.1 Indoor unit mode control

1. Main general technical parameters

(1) Remote receiver distance: 26 ft.(8 m).

(2) Remote receiver angle: Less than 80 degrees.

(3) Temperature control accuracy: ±33.8°F(1℃).

(4) Time error: Less than 1%.

2. Functions of the control function

2.1 Emergency switch

Press the emergency button can realize the starting or closing Machine, starting up according to the automatic mode of operation.

Press this button to turn ON the unit, the machine will run in auto mode, and press it again to turn off.

When the machine is OFF, press and hold the emergency switch for 5 seconds, with 3 beeps, the indoor unit would turn to emergency running. In such situation, machine would be forced to turn to cooling operation with high speed, the flaps sweeping and the machine's operation is irrelevant with room temperatures.

If a remote signal has been received during the emergency run, the machine will operate upon the command of such a remote signal.

2.2 Operator-machine communication

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

2.3 Timer function

(1) Timer on

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

(2) Timer off

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

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

2.4 Sleep

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

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

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

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

2.5 Highly efficient run function (only for some remote controller)

In Cooling, Dehumidification, Fan mode, press the "HIGH POWER " to enter the refrigeration mode, set the temperature automatically adjust to lowest temp; the Fan speed is powerful speed; frequency of high frequency operation.

In heating mode, press the "HIGH POWER" to enter the refrigeration mode, set the temperature automatically adjust to highest temp.; the Fan speed is automatic speed; frequency is high frequency operation.

Mute function (only for some remote controller)

In the indoor unit operation mode, you may turn on or turn off mute function with mute key. The air conditioner will run with mute fan speed in mute mode.

2.6 Prevent cooling wind mode

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

2.7 Blow waste heating and waste cooling function

The heating mode, remote shutdown, such as indoor heat exchanger temperature is higher, the wind blowing out opportunities continue to run the waste heat.

Cool and dehumidification mode, after the compressor stops, indoor unit will continue to set the speed of operation for a period of time.

2.8 Dehumidifying method:

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

2.9 Auto re-start from of Power Break

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

How to set/cancel:

It can be set /cancel with wired remote controller.

For details, see internal control parameter adjustment.

14. CONTROL MODE

2.10 Fault code

The fault code can be shown by digital tube on the indoor panel.

2.11 Filter clean

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

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

For details, see internal control parameter adjustment.

14. CONTROL MODE

14.2 Outdoor unit mode control

Control function

1. Cooling Anti-Freeze Protection

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

2. Overload Protection

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

3. Exhaust temperature protection

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

4. Oil-return Control

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

5. Operation Mode

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

6. Four-way Valve Control

Four-way valve of the outdoor unit shuts down when cooling and defrosting but starts when heating. During the heating process, the four-way valve stops working for a period of time after compressor disconnects.

7. Start-up Protection

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

8. Pressure Protection

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

15. SENSOR PARAMETER

15. 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 [°F]	T [℃]	Rmin [KΩ]	Rnom [KΩ]	Rmax [KΩ]	DR(MIN)%	DR(MAX)%
-22	-30	908.2603	985.5274	1065.1210	-7.84	7.47
-20	-29	855.3955	927.6043	1001.9150	-7.78	7.42
-18	-28	805.9244	873.4324	924.8368	-7.73	5.56
-17	-27	759.6097	822.7471	887.5944	-7.67	7.31
-15	-26	716.2320	775.3041	835.9165	-7.62	7.25
-13	-25	675.5881	730.8775	787.5529	-7.56	7.20
-11	-24	637.4902	689.2583	742.2720	-7.51	7.14
-9	-23	601.7645	650.2533	699.8601	-7.46	7.09
-8	-22	568.2499	613.6835	660.1191	-7.40	7.03
-6	-21	536.7970	579.3832	622.8658	-7.35	6.98
-4	-20	507.2676	547.1989	587.9307	-7.30	6.93
-2	-19	497.5332	516.9882	555.1565	-3.76	6.88
0	-18	453.4748	488.6192	524.3977	-7.19	6.82
1	-17	428.9819	461.9693	495.5191	-7.14	6.77
3	-16	405.9517	436.9251	486.3954	-7.09	10.17
5	-15	384.2888	413.3808	442.9105	-7.04	6.67
7	-14	363.9047	391.2386	418.9563	-6.99	6.62
9	-13	344.7169	370.4072	396.4325	-6.94	6.56
10	-12	326.6497	350.8019	375.2461	-6.88	6.51
12	-11	309.6286	332.3441	355.3104	-6.83	6.46
14	-10	293.5903	314.9620	336.5448	-6.79	6.41
16	-9	278.4719	298.5822	318.3744	-6.74	6.22
18	-8	264.2156	283.1464	302.2294	-6.69	6.31
19	-7	250.7678	268.5936	286.5448	-6.64	6.26
21	-6	238.0783	254.8686	271.7603	-6.59	6.22
23	-5	226.1003	241.9200	257.8193	-6.54	6.17
25	-4	214.7903	229.6997	244.6593	-6.49	6.11
27	-3	204.1073	218.1630	232.2612	-6.44	6.07
28	-2	194.0135	207.2681	220.5495	-6.39	6.02
30	-1	184.4732	196.9759	209.4913	-6.35	5.97
32	0	175.4533	187.2500	199.0468	-6.30	5.93
34	1	166.8952	178.0255	189.1529	-6.25	5.88
36	2	158.8023	169.3067	179.8058	-6.20	5.84
37	3	151.1467	161.0633	170.9724	-6.16	5.80
39	4	143.9026	153.2667	162.6216	-6.11	5.75
41	5	137.0455	145.8905	154.7246	-6.06	5.71
43	6	130.5528	138.9097	147.2544	-6.02	5.67
45	7	124.4033	132.3011	140.1856	-5.97	5.62
46	8	118.5769	126.0429	133.4946	-5.92	5.58
48	9	113.0550	120.1146	127.1591	-5.88	5.54
50	10	107.8202	114.4973	121.1586	-5.83	5.50
52	11	102.8560	109.1728	115.4734	-5.79	5.46
54	12	98.1470	104.1246	110.0855	-5.74	5.41
55	13	93.6787	99.3367	104.9778	-5.70	5.37
57	14	89.4378	94.7946	100.1342	-5.65	5.33
59	15	85.4114	90.4842	95.5398	-5.61	5.29
61	16	81.5875	86.3926	91.1805	-5.56	5.25
63	17	77.9551	82.5076	87.0430	-5.52	5.21
64	18	74.5034	78.8177	83.1150	-5.47	5.17

15. SENSOR PARAMETER

T [°F]	T [℃]	Rmin [KΩ]	Rnom [KΩ]	Rmax [KΩ]	DR(MIN)%	DR(MAX)%
66	19	71.2227	75.3122	79.3848	-5.43	5.13
68	20	68.1036	71.9808	75.8414	-5.39	5.09
70	21	65.1373	68.8141	72.4746	-5.34	5.05
72	22	62.3155	65.8032	69.2746	-5.30	5.01
73	23	59.6306	62.9395	66.2324	-5.26	4.97
75	24	57.0752	60.2152	63.3395	-5.21	4.93
77	25	54.6424	57.6227	60.5877	-5.17	4.89
79	26	52.3258	55.1551	57.9695	-5.13	4.85
81	27	50.1192	52.8058	55.4778	-5.09	4.82
82	28	48.0168	50.5684	53.1058	-5.05	4.78
84	29	46.0133	48.4371	50.8472	-5.00	4.74
86	30	44.1034	46.4046	48.6960	-4.96	4.71
88	31	42.2825	44.4711	46.6466	-4.92	4.66
90	32	40.5458	42.6261	44.6937	-4.88	4.63
91	33	38.8891	40.8668	42.8323	-4.84	4.59
93	34	37.3084	39.1890	41.0576	-4.80	4.55
95	35	35.7998	37.5883	39.3653	-4.76	4.51
97	36	34.3596	36.0609	37.7511	-4.72	4.48
99	37	32.9844	34.6030	36.2109	-4.68	4.44
100	38	31.6710	33.2113	34.7412	-4.64	4.40
102	39	30.4164	31.8823	33.3383	-4.60	4.37
104	40	29.2176	30.6130	31.9988	-4.56	4.33
106	41	28.0718	29.4004	30.7197	-4.52	4.29
108	42	26.9765	28.2417	29.4979	-4.48	4.26
109	43	25.9293	27.1342	28.3306	-4.44	4.22
111	44	24.9277	26.0755	27.2150	-4.40	4.19
113	45	23.9697	25.0632	26.1488	-4.36	4.15
115	46	23.0530	24.0950	25.1293	-4.32	4.12
117	47	22.1757	23.1688	24.1545	-4.29	4.08
118	48	21.3360	22.2826	23.2221	-4.25	4.05
120	49	20.5321	21.4345	22.3301	-4.21	4.01
122	50	19.7623	20.6226	21.4766	-4.17	3.98
124	51	19.0261	19.8468	20.6612	-4.14	3.94
126	52	18.3211	19.1040	19.8808	-4.10	3.91
127	53	17.6458	18.3926	19.1338	-4.06	3.87
129	54	16.9986	17.7113	18.4185	-4.02	3.84
131	55	16.3784	17.0537	17.7335	-3.96	3.83
133	56	15.7839	16.4332	17.0774	-3.95	3.77
135	57	15.2139	15.8338	16.4488	-3.92	3.74
136	58	14.6673	15.2592	15.8464	-3.88	3.71
138	59	14.1430	14.7083	15.2690	-3.84	3.67
140	60	13.6400	14.1799	14.7154	-3.81	3.64
142	61	13.1573	13.6730	14.1846	-3.77	3.61
144	62	12.6941	13.1868	13.6756	-3.74	3.57
145	63	12.2494	12.7202	13.1872	-3.70	3.54
147	64	11.8224	12.2723	12.7186	-3.67	3.51
149	65	11.4124	11.8424	12.2690	-3.63	3.48
151	66	11.0185	11.4295	11.8373	-3.60	3.45
153	67	10.6401	11.0331	11.4230	-3.56	3.41
154	68	10.2765	10.6522	11.0251	-3.53	3.38
156	69	9.9271	10.2863	10.6429	-3.49	3.35
158	70	9.5912	9.9348	10.2756	-3.46	3.32
160	71	9.2682	9.5968	9.9231	-3.42	3.29
162	72	8.9576	9.2720	9.5841	-3.39	3.26
163	73	8.6589	8.9597	9.2583	-3.36	3.23
165	74	8.3716	8.6594	8.9451	-3.32	3.19

15. SENSOR PARAMETER

T [°F]	T [°C]	Rmin [KΩ]	Rnom [KΩ]	Rmax [KΩ]	DR(MIN)%	DR(MAX)%
167	75	8.0951	8.3705	8.6440	-3.29	3.16
169	76	7.8290	8.0926	8.3544	-3.26	3.13
171	77	7.5730	7.8252	8.0758	-3.22	3.10
172	78	7.3264	7.5679	7.8078	-3.19	3.07
174	79	7.0891	7.3202	7.5499	-3.16	3.04
176	80	6.8605	7.0818	7.3018	-3.12	3.01
178	81	6.6403	6.8522	7.0629	-3.09	2.98
180	82	6.4282	6.6311	6.8329	-3.06	2.95
181	83	6.2239	6.4182	6.6115	-3.03	2.92
183	84	6.0269	6.2131	6.3982	-3.00	2.89
185	85	5.8371	6.0154	6.1928	-2.96	2.86
187	86	5.6542	5.8249	5.9949	-2.93	2.84
189	87	5.4777	5.6413	5.8042	-2.90	2.81
190	88	5.3076	5.4644	5.6205	-2.87	2.78
192	89	5.1435	5.2937	5.4433	-2.84	2.75
194	90	4.9853	5.1292	5.2726	-2.81	2.72
196	91	4.8326	4.9705	5.1079	-2.77	2.69
198	92	4.6852	4.8174	4.9492	-2.74	2.66
199	93	4.5430	4.6697	4.7960	-2.71	2.63
201	94	4.4058	4.5272	4.6483	-2.68	2.61
203	95	4.2733	4.3896	4.5058	-2.65	2.58
205	96	4.1453	4.2568	4.3683	-2.62	2.55
207	97	4.0218	4.1287	4.2355	-2.59	2.52
208	98	3.9024	4.0049	4.1074	-2.56	2.50
210	99	3.7872	3.8854	3.9837	-2.53	2.47
212	100	3.6758	3.7700	3.8643	-2.50	2.44
214	101	3.5661	3.6585	3.7512	-2.53	2.47
216	102	3.4601	3.5509	3.6419	-2.56	2.50
217	103	3.3577	3.4468	3.5362	-2.59	2.53
219	104	3.2588	3.3463	3.4341	-2.61	2.56
221	105	3.1632	3.2491	3.3353	-2.64	2.58
223	106	3.0708	3.1551	3.2398	-2.67	2.61
225	107	2.9816	3.0643	3.1475	-2.70	2.64
226	108	2.8953	2.9765	3.0582	-2.73	2.67
228	109	2.8118	2.8915	2.9717	-2.76	2.70
230	110	2.7311	2.8093	2.8881	-2.78	2.73
232	111	2.6531	2.7299	2.8072	-2.81	2.75
234	112	2.5776	2.6530	2.7289	-2.84	2.78
235	113	2.5046	2.5785	2.6531	-2.87	2.81
237	114	2.4340	2.5065	2.5798	-2.89	2.84
239	115	2.3656	2.4368	2.5087	-2.92	2.87
241	116	2.2995	2.3693	2.4400	-2.95	2.90
243	117	2.2354	2.3040	2.3733	-2.98	2.92
244	118	2.1734	2.2407	2.3088	-3.00	2.95
246	119	2.1134	2.1795	2.2463	-3.03	2.97
248	120	2.0553	2.1201	2.1858	-3.06	3.01
250	121	1.9991	2.0626	2.1271	-3.08	3.03
252	122	1.9446	2.0070	2.0702	-3.11	3.05
253	123	1.8918	1.9530	2.0151	-3.13	3.08
255	124	1.8406	1.9007	1.9617	-3.16	3.11
257	125	1.7911	1.8500	1.9099	-3.18	3.14
259	126	1.7430	1.8009	1.8597	-3.22	3.16
261	127	1.6965	1.7533	1.8110	-3.24	3.19
262	128	1.6514	1.7071	1.7638	-3.26	3.21
264	129	1.6076	1.6623	1.7180	-3.29	3.24
266	130	1.5652	1.6189	1.6736	-3.32	3.27

15. SENSOR PARAMETER

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

（R_0=15K±2%；B0/100=3450K±2%）

T [°F]	T [℃]	Rmin [KΩ]	Rnom [KΩ]	Rmax [KΩ]	DR(MIN)%	DR(MAX)%
-22	-30	60.78	64.77	68.99	-6.16	6.12
-20	-29	57.75	61.36	65.16	-5.88	5.83
-18	-28	54.89	58.15	61.58	-5.61	5.57
-17	-27	52.19	55.14	58.23	-5.35	5.31
-15	-26	49.63	52.30	55.08	-5.11	5.05
-13	-25	47.21	49.62	52.13	-4.86	4.81
-11	-24	44.92	47.10	49.37	-4.63	4.60
-9	-23	42.76	44.73	46.78	-4.40	4.38
-8	-22	40.71	42.49	44.34	-4.19	4.17
-6	-21	38.77	40.38	42.05	-3.99	3.97
-4	-20	36.93	38.39	39.90	-3.80	3.78
-2	-19	35.18	36.51	37.87	-3.64	3.59
0	-18	33.53	34.74	35.97	-3.48	3.42
1	-17	31.96	33.06	34.17	-3.33	3.25
3	-16	30.48	31.47	32.49	-3.15	3.14
5	-15	29.07	29.97	30.89	-3.00	2.98
7	-14	27.73	28.56	29.39	-2.91	2.82
9	-13	26.46	27.22	27.98	-2.79	2.72
10	-12	25.26	25.95	26.64	-2.66	2.59
12	-11	24.11	24.75	25.38	-2.59	2.48
14	-10	23.03	23.61	24.19	-2.46	2.40
16	-9	21.99	22.53	23.06	-2.40	2.30
18	-8	21.01	21.51	22.00	-2.32	2.23
19	-7	20.08	20.54	20.99	-2.24	2.14
21	-6	19.19	19.62	20.04	-2.19	2.10
23	-5	18.35	18.74	19.14	-2.08	2.09
25	-4	17.55	17.92	18.29	-2.06	2.02
27	-3	16.78	17.13	17.48	-2.04	2.00
28	-2	16.06	16.38	16.71	-1.95	1.97
30	-1	15.36	15.67	15.98	-1.98	1.94
32	0	14.70	15.00	15.29	-2.00	1.90
34	1	14.08	14.36	14.64	-1.95	1.91
36	2	13.48	13.75	14.02	-1.96	1.93
37	3	12.91	13.17	13.43	-1.97	1.94
39	4	12.36	12.62	12.87	-2.06	1.94
41	5	11.85	12.09	12.34	-1.99	2.03
43	6	11.35	11.59	11.83	-2.07	2.03
45	7	10.88	11.11	11.35	-2.07	2.11
46	8	10.43	10.66	10.89	-2.16	2.11
48	9	9.999	10.230	10.450	-2.26	2.11
50	10	9.590	9.816	10.040	-2.30	2.23
52	11	9.199	9.422	9.647	-2.37	2.33
54	12	8.826	9.047	9.269	-2.44	2.40
55	13	8.470	8.689	8.910	-2.52	2.48
57	14	8.129	8.347	8.567	-2.61	2.57
59	15	7.804	8.021	8.240	-2.71	2.66
61	16	7.493	7.709	7.928	-2.80	2.76
63	17	7.196	7.412	7.630	-2.91	2.86
64	18	6.912	7.127	7.346	-3.02	2.98
66	19	6.640	6.855	7.074	-3.14	3.10
68	20	6.381	6.595	6.815	-3.24	3.23
70	21	6.132	6.347	6.567	-3.39	3.35
72	22	5.894	6.109	6.330	-3.52	3.49

15. SENSOR PARAMETER

T [°F]	T [°C]	Rmin [KΩ]	Rnom [KΩ]	Rmax [KΩ]	DR(MIN)%	DR(MAX)%
73	23	5.667	5.882	6.103	-3.66	3.62
75	24	5.449	5.664	5.886	-3.80	3.77
77	25	5.240	5.456	5.678	-3.96	3.91
79	26	5.048	5.260	5.478	-4.03	3.98
81	27	4.864	5.072	5.286	-4.10	4.05
82	28	4.687	4.891	5.101	-4.17	4.12
84	29	4.517	4.717	4.924	-4.24	4.20
86	30	4.355	4.550	4.753	-4.29	4.27
88	31	4.198	4.390	4.589	-4.37	4.34
90	32	4.048	4.236	4.431	-4.44	4.40
91	33	3.904	4.089	4.280	-4.52	4.46
93	34	3.766	3.946	4.134	-4.56	4.55
95	35	3.663	3.810	3.994	-3.86	4.61
97	36	3.506	3.679	3.859	-4.70	4.66
99	37	3.383	3.552	3.729	-4.76	4.75
100	38	3.265	3.431	3.604	-4.84	4.80
102	39	3.152	3.314	3.484	-4.89	4.88
104	40	3.043	3.202	3.368	-4.97	4.93
106	41	2.938	3.094	3.257	-5.04	5.00
108	42	2.838	2.990	3.149	-5.08	5.05
109	43	2.741	2.890	3.046	-5.16	5.12
111	44	2.648	2.793	2.946	-5.19	5.19
113	45	2.558	2.701	2.850	-5.29	5.23
115	46	2.472	2.611	2.758	-5.32	5.33
117	47	2.389	2.525	2.669	-5.39	5.40
118	48	2.309	2.443	2.583	-5.49	5.42
120	49	2.232	2.363	2.500	-5.54	5.48
122	50	2.158	2.286	2.421	-5.60	5.58
124	51	2.087	2.212	2.344	-5.65	5.63
126	52	2.018	2.140	2.269	-5.70	5.69
127	53	1.952	2.072	2.198	-5.79	5.73
129	54	1.888	2.005	2.129	-5.84	5.82
131	55	1.827	1.941	2.062	-5.87	5.87
133	56	1.767	1.880	1.998	-6.01	5.91
135	57	1.710	1.820	1.936	-6.04	5.99
136	58	1.655	1.763	1.876	-6.13	6.02
138	59	1.602	1.707	1.818	-6.15	6.11
140	60	1.551	1.654	1.762	-6.23	6.13
142	61	1.502	1.602	1.709	-6.24	6.26
144	62	1.452	1.553	1.657	-6.50	6.28
145	63	1.409	1.505	1.606	-6.38	6.29
147	64	1.364	1.458	1.558	-6.45	6.42
149	65	1.322	1.413	1.511	-6.44	6.49
151	66	1.280	1.370	1.466	-6.57	6.55
153	67	1.241	1.328	1.422	-6.55	6.61
154	68	1.202	1.288	1.379	-6.68	6.60
156	69	1.165	1.249	1.339	-6.73	6.72
158	70	1.129	1.211	1.299	-6.77	6.77
160	71	1.095	1.175	1.261	-6.81	6.82
162	72	1.061	1.140	1.224	-6.93	6.86
163	73	1.029	1.106	1.188	-6.96	6.90
165	74	0.9977	1.073	1.153	-7.02	6.94
167	75	0.9676	1.041	1.120	-7.05	7.05
169	76	0.9385	1.011	1.088	-7.17	7.08
171	77	0.9104	0.9810	1.056	-7.20	7.10
172	78	0.8833	0.9523	1.026	-7.25	7.18

15. SENSOR PARAMETER

T [°F]	T [℃]	Rmin [KΩ]	Rnom [KΩ]	Rmax [KΩ]	DR(MIN)%	DR(MAX)%
174	79	0.8570	0.9246	0.9971	-7.31	7.27
176	80	0.8316	0.8977	0.9687	-7.36	7.33
178	81	0.8071	0.8717	0.9412	-7.41	7.38
180	82	0.7834	0.8466	0.9146	-7.47	7.43
181	83	0.7604	0.8223	0.8888	-7.53	7.48
183	84	0.7382	0.7987	0.8639	-7.57	7.55
185	85	0.7167	0.7759	0.8397	-7.63	7.60
187	86	0.6958	0.7537	0.8161	-7.68	7.65
189	87	0.6755	0.7322	0.7933	-7.74	7.70
190	88	0.6560	0.7114	0.7712	-7.79	7.75
192	89	0.6371	0.6913	0.7498	-7.84	7.80
194	90	0.6188	0.6718	0.7291	-7.89	7.86
196	91	0.6011	0.6530	0.7051	-7.95	7.39
198	92	0.5840	0.6348	0.6897	-8.00	7.96
199	93	0.5674	0.6171	0.6709	-8.05	8.02
201	94	0.5514	0.6000	0.6527	-8.10	8.07
203	95	0.5359	0.5835	0.6350	-8.16	8.11
205	96	0.5209	0.5675	0.6179	-8.21	8.16
207	97	0.5064	0.5519	0.6014	-8.24	8.23
208	98	0.4923	0.5369	0.5853	-8.31	8.27
210	99	0.4787	0.5224	0.5698	-8.37	8.32
212	100	0.4655	0.5083	0.5547	-8.42	8.36
214	101	0.4528	0.4946	0.5401	-8.45	8.42
216	102	0.4404	0.4814	0.5259	-8.52	8.46
217	103	0.4284	0.4685	0.5121	-8.56	8.51
219	104	0.4168	0.4561	0.4988	-8.62	8.56
221	105	0.4056	0.4440	0.4859	-8.65	8.62
223	106	0.3947	0.4323	0.4733	-8.70	8.66
225	107	0.3841	0.4210	0.4611	-8.76	8.70
226	108	0.3739	0.4100	0.4493	-8.80	8.75
228	109	0.3640	0.3993	0.4379	-8.84	8.81
230	110	0.3544	0.3890	0.4267	-8.89	8.84
232	111	0.3450	0.3789	0.4159	-8.95	8.90
234	112	0.3360	0.3692	0.4055	-8.99	8.95
235	113	0.3272	0.3597	0.3953	-9.04	9.01
237	114	0.3187	0.3505	0.3854	-9.07	9.06
239	115	0.3104	0.3416	0.3758	-9.13	9.10
241	116	0.3024	0.3330	0.3665	-9.19	9.14
243	117	0.2947	0.3246	0.3574	-9.21	9.18
244	118	0.2871	0.3164	0.3468	-9.26	8.77
246	119	0.2798	0.3085	0.3401	-9.30	9.29
248	120	0.2727	0.3008	0.33	-9.34	9.34

16. TROUBLESHOOTING

16. Troubleshooting

16.1 Trouble guide

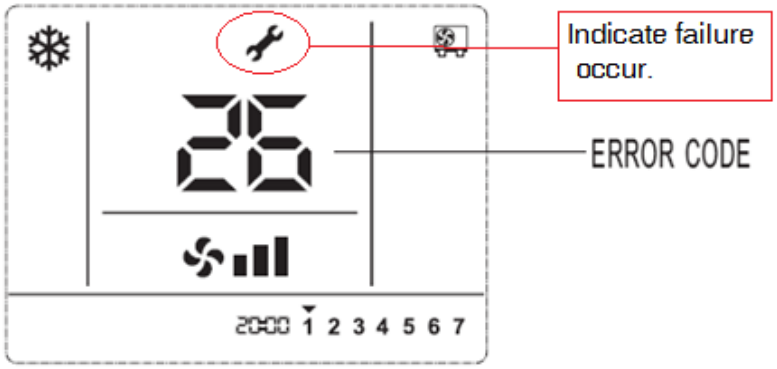
When the air conditioner failure occurs, the fault code will displays on control board, wire remote controller or display panel.

How to check fault codes

Indoor Unit

(1) Fault codes indicated by wire remote controller (see figure below)

MODEL:YXC-C01U/YXE-C01U/YXC-D01U/YXE-D01U(E)



When the airconditioner is malfuction, will display on the LCD,and error codes will appear and blink.

FIG1. FAULT CODE DISPLAY ON WIRE REMOT CONTROLLER

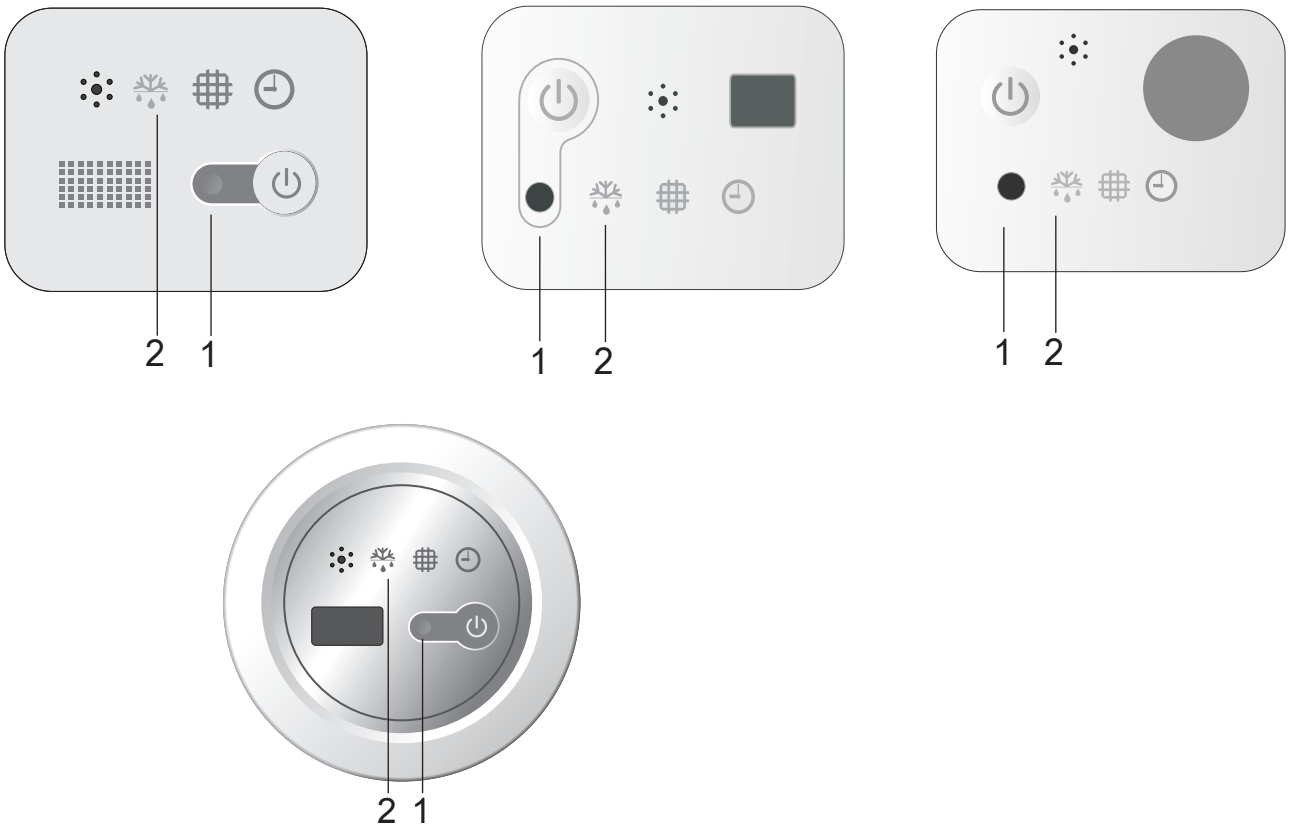
16. TROUBLESHOOTING

(2) Fault codes indicated by LED lamps on display panel

Lamp RUN(LED2 ,red) and Lamp DEFROST（LED5 ,green）flashing，Lamp RUN display fault code ten digit number, lamp DEFROST display fault code single digit number (as shown fig. below).

For example，fault code 36: led RUN& defrost flash 3 times at the same time, and led DEFROST continue flash 3 times,reports No. 36 fault.

Display panel



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

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

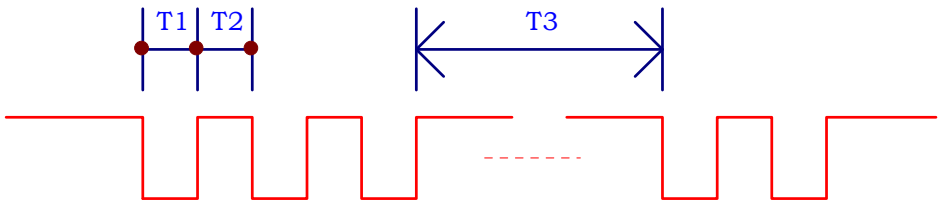


FIG.2 LED flash control

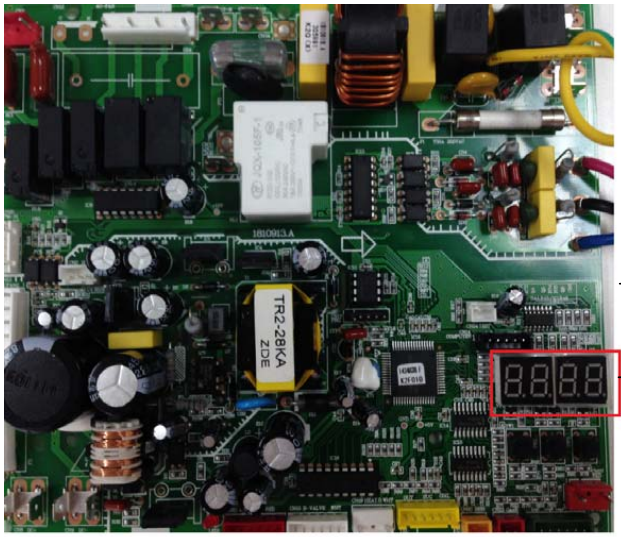
16. TROUBLESHOOTING

Outdoor Unit

24K/36K

Main control fault display

Fault code will display on digital tube board.



Outdoor Control Board

Digital Tube

E shows failure occur

Display ERROR Code

Drive fault code display

The lamp of drive board flash shows failure occur.

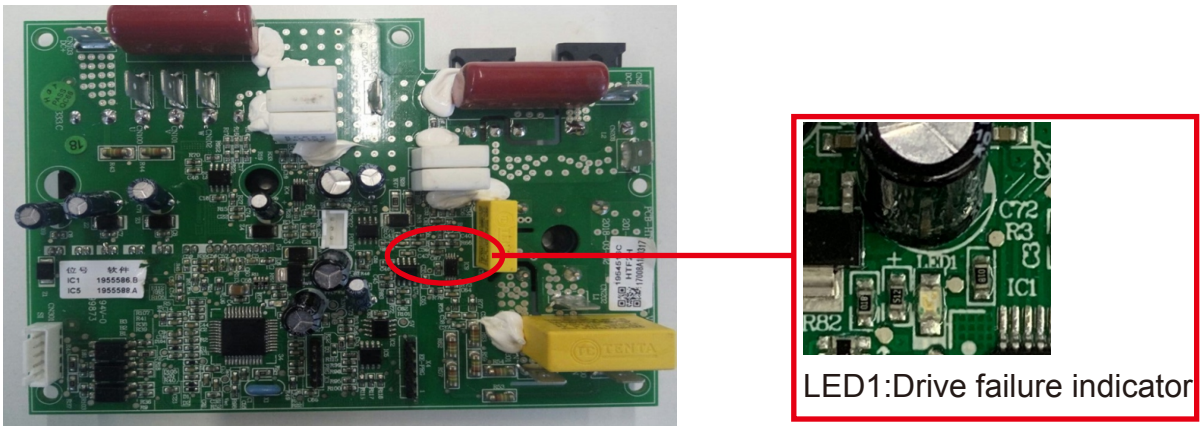
16. TROUBLESHOOTING

Drive fault code display

The lamp of drive board flash shows failure occur.

The drive failure lamp flicking times shows the failure code.

Single phase models:



16. TROUBLESHOOTING

16.2 Fault codes

The following is the fault code table of outdoor.

Sheet 1 Outdoor Fault Code

Fault code	Fault Description	Possible Reason of Abnormality	How to Deal With	REMARKS
1	Outdoor ambient temperature sensor fault	1.The outdoor ambient temperature sensor connect loose; 2.The outdoor ambient temperature sensor is failure; 3.The sampling circuit is failure	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 connect loose; 2.The outdoor coil temperature sensor is failure; 3.The sampling circuit is failure	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 is failure; 2. The current is over high because of the supply voltage is too low 3. The compressor is blocked 4. Overload in cooling mode 5. Overload in heating mode	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 is failure; 2.EE components control circuit failure; 3.EE components insert incorrect	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 standard installed, air inlet is too near with air outlet .	1.Check the indoor fan, indoor fan motor and evaporator whether normally; 2. Normally protection; 3.Clean the filter; 4.Check the volume control valve, duct length etc.; 5.Set the speed with high speed; 6.Reinstall the indoor unit refer to the user manual to change the distance between the indoor unit and the wall or ceiling.	
7	The communication fault between the indoor unit and outdoor unit	1.The connection cable connect wrong between the indoor unit and outdoor unit; 2.The communication cable connect loose; 3.The communication cable is fault; 4.The indoor control board is fault; 5.The outdoor control board is fault; 6.Communication circuit fuse open; 7.The specification of communication cable is incorrect.	1.Reconnect the connection cable refer to the wiring diagram; 2.Reconnect the communication cable; 3.Replace the communication cable; 4.Replace the indoor control board; 5.Replace the outdoor control board; 6.Check the communication circuit, adjust the DIP switch and the short-circuit fuse. 7.Choose suitable communication cable refer to the user manual	

16. TROUBLESHOOTING

Fault code	Fault Description	Possible Reason of Abnormality	How to Deal With	REMARKS
12	voltage absent phase	Three-phase power is abnormal; The outdoor wiring connect wrong; The outdoor control board is failure.	1. Normally protection 2. Check the wiring connection refer to the wiring diagram; 3. Replace the outdoor control board	Application of three-phase power supply models
13	Compressor overheat protector device	1. The wiring of the overload protector connect loose. 2. The overload protector is failure . 3. The refrigerant is not enough; 4. The installation pipe is too long than normal, but not add the enough refrigerant; 5. The expansion valve is failure; 6. The outdoor control board is failure	1. Reconnect the wiring of the overload protector; 2. Replace the overload protector; 3. Check the welding point of the unit to confirm whether it is leakage, and then recharge the refrigerant; 4. Add the refrigerant; 5. Replace expansion valve; 6. Replace the outdoor control board.	
14	the high pressure switch operate or the unit turn off for high pressure protection	1.The wiring of the high pressure protector connect loose; 2.The high pressure protector is failure; 3.The outdoor control board is abnormal; 4. Overload in cooling; 5. Overload in heating.	1.Reconnect the wiring the high pressure protector; 2. Replace the high pressure protector; 3. Replace the outdoor control board; 4. Please refer to the Note 3; 5. Please refer to the Note 4.	Applied to models with high pressure switch or pressure sensor
15	the low pressure switch protection or the unit turn off for low pressure protection	1. The wiring of the low pressure switch connect loose; 2. The low pressure switch is failure; 3.The refrigerant is not enough; 4.The expansion valve failure in heating mode; 5.The outdoor control board is abnormal.	1. Reconnect the wiring of the low pressure switch; 2. Replace the low pressure switch; 3.Check the welding point to confirm whether the unit is leakage, and then add some refrigerant; 4. Replace the expansion valve; 5. Replace the outdoor control board.	Applied to models with low pressure switch or pressure sensor
16	overload protection in cooling mode	System overload	Please refer to the Note 3.	
17	Discharge temperature sensor fault	1.The wiring of the discharge temperature sensor connect loose; 2.The discharge temperature sensor is failure; 3.The sampling circuit is abnormal.	1.Reconnect the wiring of the discharge temperature sensor; 2.Replace the discharge temperature sensor; 3.Replace the outdoor control board.	
18	AC voltage is abnormal	1.The AC voltage>275V or <160V. 2.The AC voltage of sampling circuit on the driver board is abnormally	1. Normally protection, please check the supply power; 2. Replace the driver board.	
19	Suction temperature sensor fault	1.The wiring of the suction temperature sensor connect loose; 2. The suction temperature sensor is failure; 3. The sampling circuit is abnormally	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 connect loose; 2.The defrosting sensor is failure; 3.The sampling circuit is abnormally	1. Reconnect the wiring of the defrosting sensor; 2. Replace the defrosting sensor; 3. Replace the outdoor control board.	
45	IPM fault	There are many reasons for this failure, If you need further analysis, fault code of the driver board is needed by watching the driver board fault led. Analysis can be further to know why and how to operate. Specific see table 5, table 6.	See attached "analysis of the driving board fault".	

16. TROUBLESHOOTING

Fault code	Fault Description	Possible Reason of Abnormality	How to Deal With	REMARKS
46	IPM and control board communication fault	1.The cable between the control board and the driver board connect loose; 2.The cable between the control board and the driver board is failure; 3.The driver board is failure ; 4.The control board is failure.	1.Reconnect the cable between the control board and the driver board; 2.Replace the communication cable between the control board and the driver board; 3.Replace the driver board; 4.Replace the control board.	
47	Discharge temperature too high fault	1. The refrigerant of the unit is not enough; 2.The refrigerant of the unit is not enough due to add the length of the installation pipe 3.Throttling service is failure; 4.The outdoor ambient temperature is too high	1.Check the welding point to confirm whether the unit has exist leakage point, and then add some refrigerant. 2.Add some refrigerant refer to the installation user manual; 3.Replace the throttling service (such as capillary, expansion valve) 4. Normally protection.	
48	the outdoor DC fan motor fault (upper fan motor)	1.The wiring of the up DC fan motor connect loose; 2. The cord of the up DC fan motor is failure; 3.The up DC fan motor is failure; 4. The drive circuit of the up DC fan motor is failure; 5. The outdoor fan has been blocked.	1.Reconnect the wiring of the up DC fan motor; 2.Replace the up DC fan motor; 3. Replace the up DC fan motor; 4.Replace the driver board of the fan motor; 5. Check the outdoor fan and ensure the outdoor fan can run normally.	
49	the outdoor DC fan motor fault (down fan motor)	1.The wiring of the down DC fan motor connect loose; 2.The cord of the down DC fan motor is failure; 3. The down DC fan motor is failure; 4. The drive circuit of the down DC fan motor is failure; 5. The outdoor fan has been blocked.	1. Reconnect the wiring of the down DC fan motor; 2. Replace the down DC fan motor; 3. Replace the down DC fan motor; 4. Replace the driver board of the fan motor; 5. Check the outdoor fan and ensure the outdoor fan can run normally.	
91	The unit turn off due to the IPM board over heating fault	1.The outdoor ambient is too high; 2.The speed of the out fan motor is too low if the fan motor is AC fan motor; 3.The outdoor unit has been installed without standard; 4.The supply power is too low.	1. Normally protection; 2. Check the fan capacitor, and replace the fan capacitor if it is failure; 3. Reinstalled the outdoor unit refer to the installation user manual; 4.Normally protection.	
96	the refrigerant of the unit is not enough fault	The refrigerant of the unit is not enough	Discharge the refrigerant and charge the refrigerant refer to the rating label	
97	4-way valve commutation failure fault	1.The wiring of the 4-way valve coil connect loose; 2.The 4-way valve coil is failure; 3.The 4-way valve is failure; 4.The driver board of the 4-way valve is failure	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.	

16. TROUBLESHOOTING

The following is the fault code table of indoor.

Sheet 2 Indoor Fault code

Fault code	Fault Description	Possible Reason of Abnormality	How to Deal With	Remarks
51	Drainage protection	1. The water level of the drain pan exceed safe level; 2. The cable of the water level switch connect loose; 3.The water level switch is failure; 4. The control board is failure.	1.1 Check whether there are something to block the drain hose or the height of the drain hose is too high; 1.2 Check the water pump and replace the water pump if the water pump is failure; 2. Reconnect the cable of the water level switch refer to the wiring diagram; 3. Replace the water level switch; 4. Replace the control board.	
55	Mode Conflict Fault	The user set the conflicting mode for more than two indoor units	Reset the operate mode for the indoor unit, for the one outdoor unit, the user should avoid to set the conflicting operate mode with the indoor units.	
64	Communication between Indoor & Outdoor unit Fault	1. The connection cable between the indoor unit and the outdoor unit connect wrong; 2. The communication cable connect loose; 3.The communication cable between the indoor unit and the outdoor unit is failure or the cable between the indoor control board to terminal is failure or the cable between the outdoor control board to the terminal is failure; 4. The indoor control board is failure; 5. The outdoor control board is failure.	1. Reconnect the connection cable refer to the indoor and outdoor wiring diagram; 2. Reconnect the communication cable refer to the indoor and outdoor wiring diagram; 3. Replace the communication cable refer to the indoor and outdoor wiring diagram; 4. Replace the indoor control board; 5. Replace the outdoor control board.	
72	Indoor fan motor fault	1.The cable of the indoor fan motor connect loose; 2.The cable of the indoor fan motor is failure; 3.The indoor fan motor is failure; 4.The indoor control board is failure.	1.Reconnect the cable of the fan motor; 2.Replace the cable of the fan motor; 3.Replace the fan motor; 4.Replace the indoor control board; 5.Check the indoor fan and ensure the indoor fan can run normally.	
73	Indoor EEPROM Data 1 fault	1.Indoor EE components is failure; 2.The control circuit of the EE components is failure; 3. The EE components has been inserted with opposite direction.	1. Replace the EE components; 2. Replace the indoor control board; 3. Reassembly the EE components of the indoor control board.	

16. TROUBLESHOOTING

Fault code	Fault Description	Possible Reason of Abnormality	How to Deal With	Remarks
74	Indoor EEPROM Data 2 error	EE in MCU is failure, the unit can run, but the function user has set is ineffective.	Replace EE data in MCU.	
81	Indoor ambient Temperature Sensor Fault	1. The cable of the room temperature sensor connect loose; 2. The room temperature sensor is failure; 3. The sampling circuit is abnormally	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 is failure; 2. The coil temperature sensor of the evaporator is failure; 3. The sampling circuit is abnormally	1. Reconnect the cable of the coil temperature sensor of the evaporator; 2. Replace the coil temperature sensor of the evaporator; 3. Replace the indoor control board.	
FE (254)	Communication between main control board &Wiring remote controller Fault (display on wiring remote controller)	1. The wiring between the wiring controller to the indoor control board connect loose; 2. The sequence of the wiring between the wiring controller to the indoor control board is wrong; 3. The wiring between the wiring controller to the indoor control board is failure; 4.The wiring controller is failure; 5. The indoor control board is abnormally.	1.Reconnect the wiring between the wiring controller to the indoor control board; 2. Replace the wiring between the wiring controller to the indoor control board; 3. Replace the wiring between the wiring controller to the indoor control board; 4. Replace the wiring controller; 5. Replace the indoor control Board.	
ER	Communication between main control board &display board Fault (displays on display board)	1.The wiring between the display board to the indoor control board connect loose; 2.The sequence of the wiring between the display board to the indoor control board is wrong; 3.The wiring between the display board to the indoor control board is failure; 4. The display board is failure; 5. The indoor control board is failure.	1. Reconnect the between the display board to the indoor control board; 2. Replace the wiring between the display board to the indoor control board; 3. Replace the wiring between the display board to the indoor control board; 4. Replace the display board; 5. Replace the indoor control board.	

16. TROUBLESHOOTING

Note 1:

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

Note 2:

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

Note 3:Overload in cooling mode

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

Note 4:Over load in heating mode

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

16. TROUBLESHOOTING

Sheet 5 Drive Fault Code (24K/36K)

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

16. TROUBLESHOOTING

Fault code	Fault Description	Possible Reason of Abnormality	How to Deal With
16	DC voltage is too low	1. Voltage input 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.

17. CHECKING COMPONENTS

17. Checking components

17.1 Check refrigerant system

TEST SYSTEM FLOW

Conditions: ① Compressor is running.

② The air condition should be installed in good ventilation.

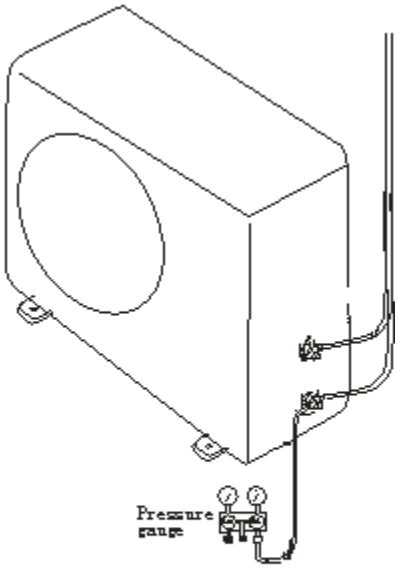
Tool: Pressure Gauge

Technique: ① see ② feel ③ test

SEE ----- Tube defrost.

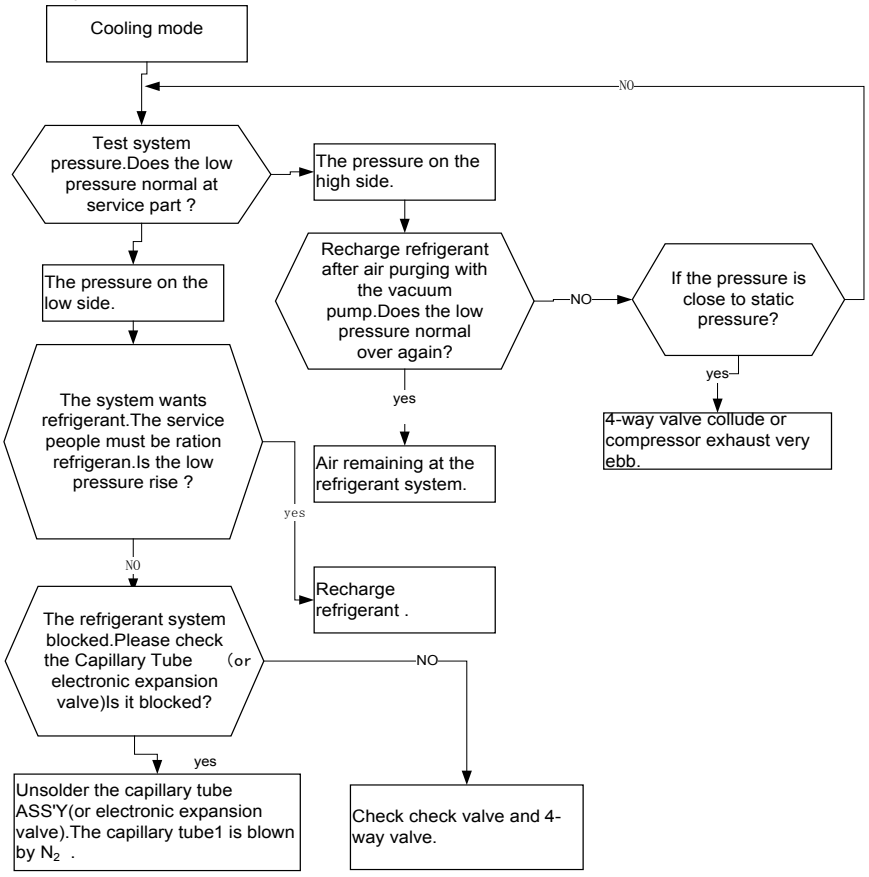
FEEL ----- The difference between tube's temperature.

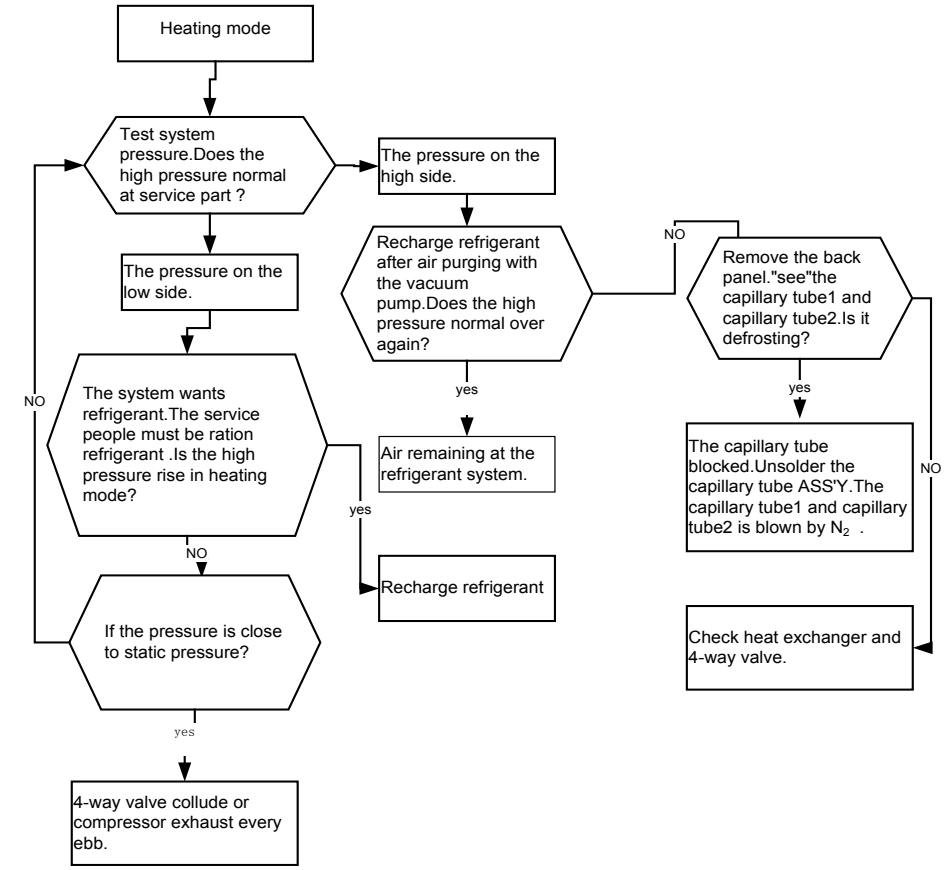
TEST ----- Test pressure.



17. CHECKING COMPONENTS

Test system flow





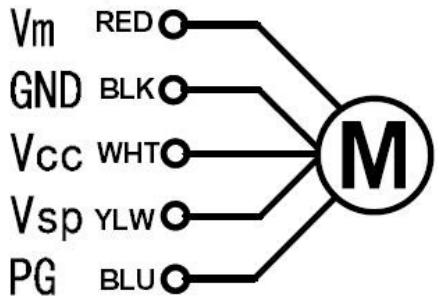
17. CHECKING COMPONENTS

17.2 Check parts unit

1. Indoor unit fan motor

Duct motor model (DC motor)
9K/12K/18K: SIC-68CVL-F160-2

Cassette motor model(DC motor)
9K/12K:SIC-62FW-D857-15
18K/24K: EHDS50AQH
36K:SIC-72FW-D8124-2B



Test in resistance.
TOOL: Multimeter.
Test the resistance of the main winding. The indoor fan motor is fault if the resistance of main winding 0(short circuit)or∞（open circuit）.
Test in voltage
TOOL: Multimeter.
Insert screwdriver into to rotate indoor fan motor slowly for 1 revolution or over, and measure voltage "YELLOW" and "GND" on motor. The voltage repeat 0V DC and 5V DC.
Notes:
Please don't hold motor by lead wires.
Please don't plug IN/OUT the motor connector while power ON.
Please don't drop hurl or dump motor against hard material. Malfunction may not be observed at early stage after such shock. But it may be found later, this type of mishandling void our warranty.

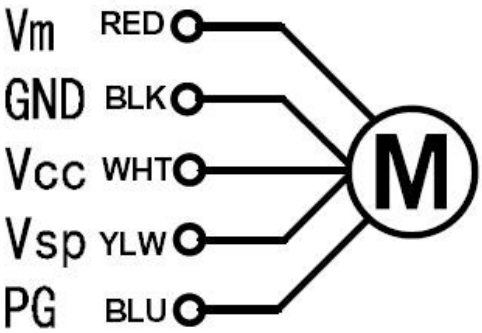
17. CHECKING COMPONENTS

2. Outdoor unit fan motor

DC motor

24K:SIC-71FW-D8121-1

36K:SIC-81FW-F1138-1

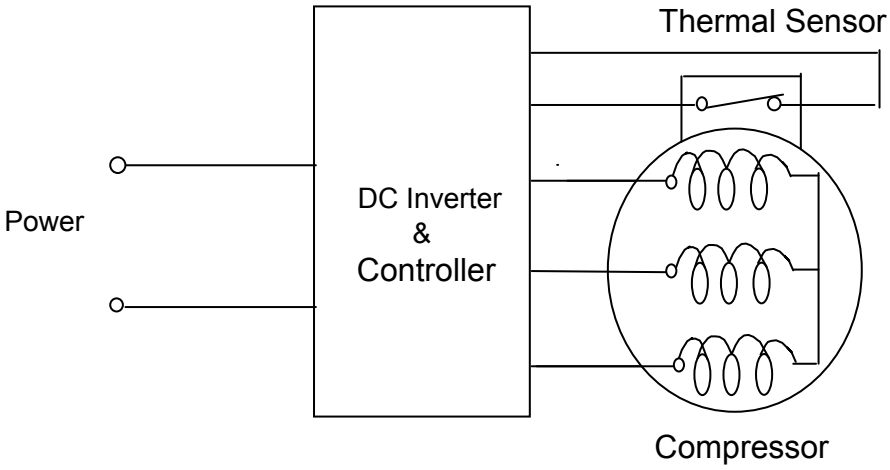


3. Compressor

COMPRESSOR EXAMINE AND REPAIR

24K: EATF250D22UMT

36K: ATF310D43UMT



17. CHECKING COMPONENTS

Test in resistance.

TOOL: Multi-meter.

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

Familiar error:

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

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 below because of its rotor magnetic force decreasing.

17. CHECKING COMPONENTS

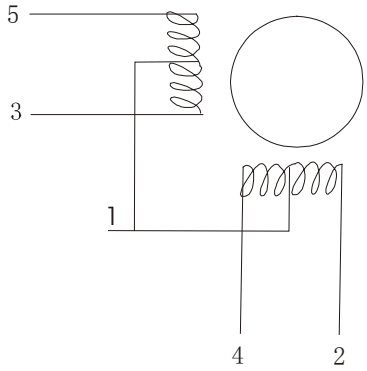
4. INDUCTANCE

Familiar error:

1）Sound abnormality

2）Insulation resistance disqualification.

5. STEP MOTOR



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

6. FUSE

Checking continuity of fuse on PCB ASS'Y.

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

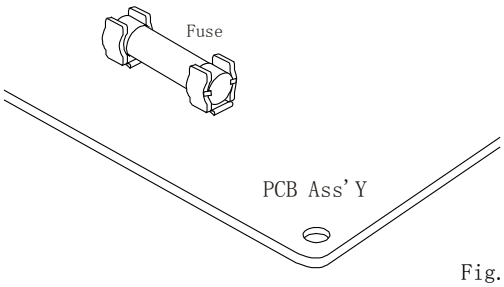


Fig. 1

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

17. CHECKING COMPONENTS

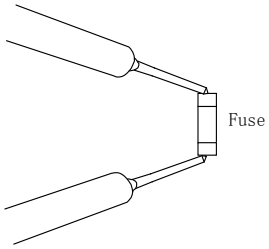


Fig. 2

7.CAPACITOR

Remove the lead wires from the capacitor terminals, and then place a probe on the capacitor terminals as shown in Fig.3.

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.

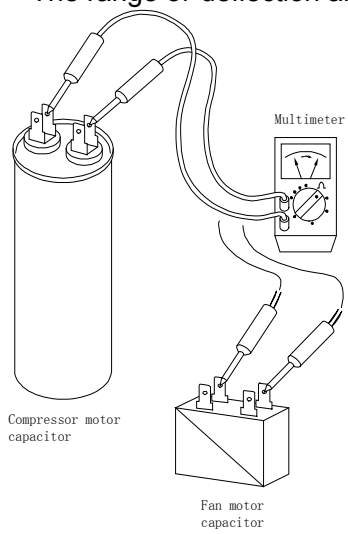


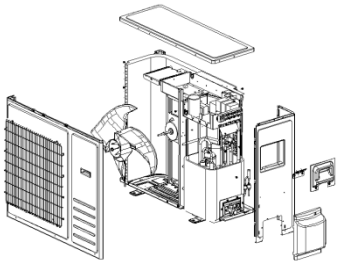
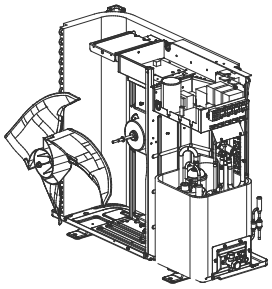
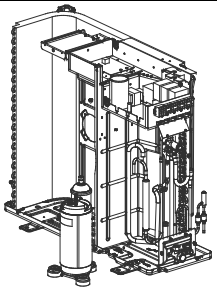
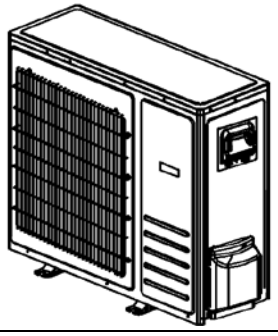
Fig. 3

18. Disassembly and assembly for compressor and motor

The special tools for compressor & motor disassembly and assembly：

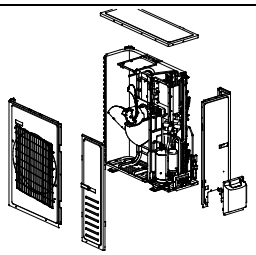
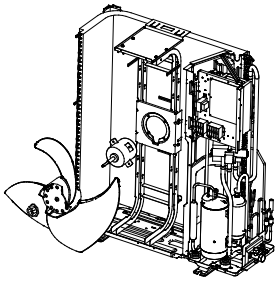
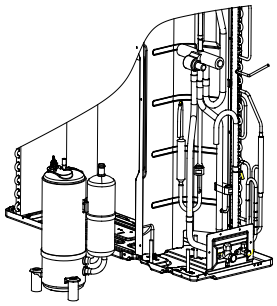
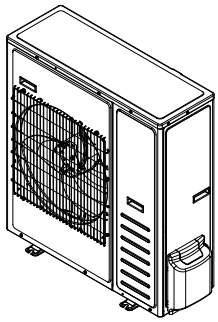
	Tool
1	Hexagon Screwdriver 
2	Hexagon Socket 

Outdoor unit
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; Carefully remove the compressor from chassis.
4.Assemble unit		Assemble the unit in the reverse order of disassembly.

18. DISASSEMBLY AND ASSEMBLY FOR COMPRESSOR AND MOTOR

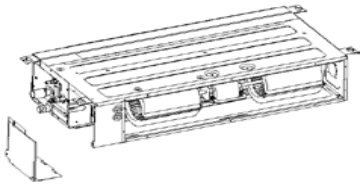
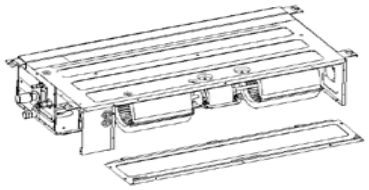
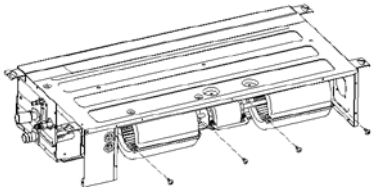
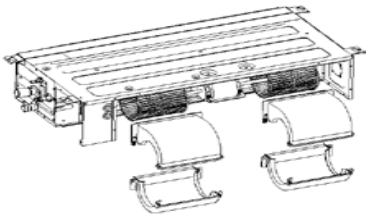
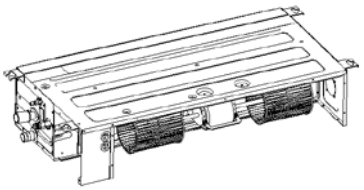
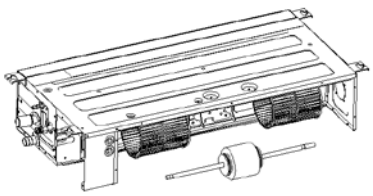
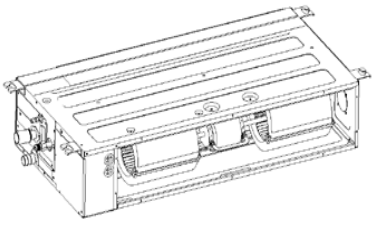
36K

Important: Before disassembly and assembly, make sure that the power to the system has been disconnected and verified as voltage free.		
Step	Illustration	Handling Instruction
1.Remove external casing		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 refrrigerant 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.

18. DISASSEMBLY AND ASSEMBLY FOR COMPRESSOR AND MOTOR

Duct type

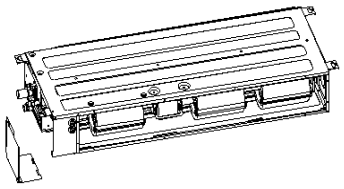
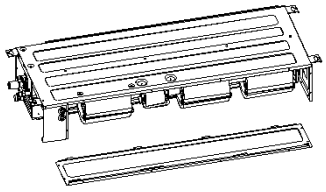
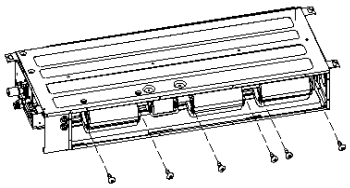
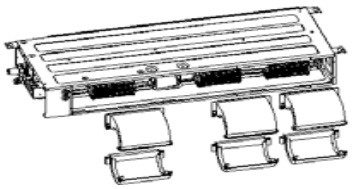
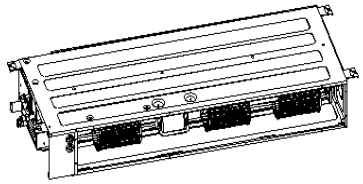
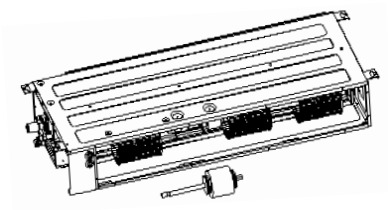
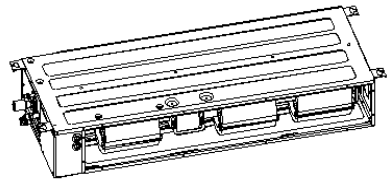
9K/12K

Removal and Assembly of Fan Motor		
Important: Before removing the fan, make sure power to the system is disconnected.		
Step	Illustration	Handling Instruction
1. Unplug the motor cables.		Use screwdriver to remove the electric box cover and unplug the motor cables in electric box.
2. Remove the base board.		Loose and take out the screws fixing the base board, then remove the base board.
3. Remove the screws on fan sub-assembly.		Remove the screws on fan sub-assembly.
4. Removing the fan cage enclosure.		Rotate the fan cage housing toward supply opening and remove.
5. Loosen the fan and motor.		Use a hex wrench to loosen the screws holding the fan cage to the motor shaft. Remove outer housing holding motor in place.
6. Replace the motor.		Remove the motor from the support bracket. Then remove the fan cages from the motor shafts. Remove the motor from the air inlet and replace with new motor. Be sure to tighten the cages onto the motor shafts.
7. Reassembly of the unit.		Reassemble the unit in the reverse order of disassembly and test operation.

18. DISASSEMBLY AND ASSEMBLY FOR COMPRESSOR AND MOTOR

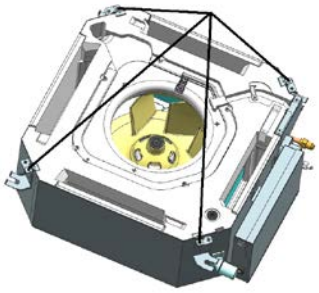
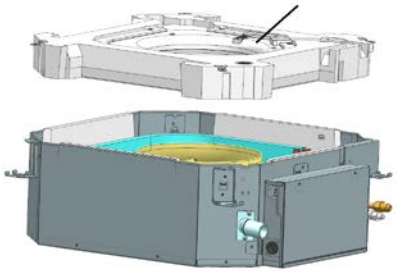
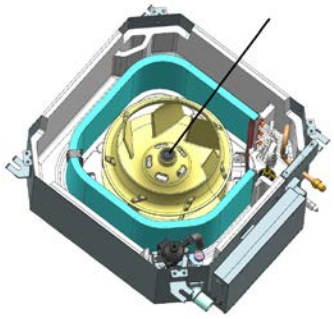
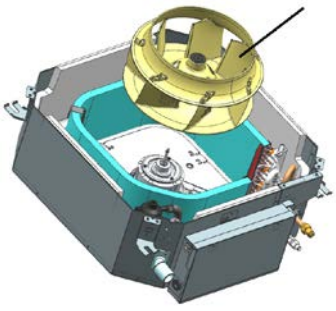
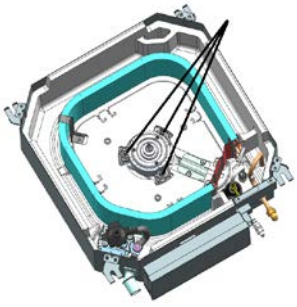
Duct type

18K

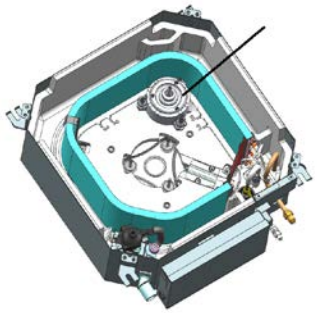
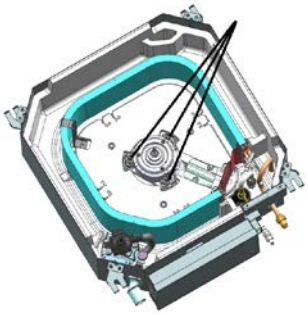
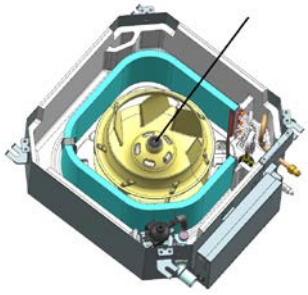
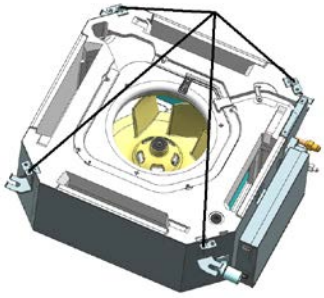
Removal and Assembly of Fan Motor		
Important: Before removing the fan, make sure power to the system is disconnected.		
Step	Illustration	Handling Instruction
1. Unplug the motor cables		Use screwdriver to remove the electric box cover and unplug the motor cables in electric box.
2. Remove the base board		Loose and take out the screws fixing the base board, then remove the base board.
3. Remove the screws on fan sub-assembly.		Remove the screws on fan sub-assembly.
4. Removing the fan cage enclosure		Rotate the fan cage housing toward supply opening and remove.
5. Loosen the fan、crosshead and motor.		Use a hex wrench to loosen the screws holding the fan cage to the motor shaft, and the screws holding the crosshead to the motor shaft. Remove outer housing holding motor in place.
6. Replace the motor		Remove the motor from the support bracket. Then remove the fan cages from the motor shafts. Remove the motor from the air inlet and replace with new motor. Be sure to tighten the cages onto the motor shafts.
7. Reassembly of the unit		Reassemble the unit in the reverse order of disassembly and test operation.

18. DISASSEMBLY AND ASSEMBLY FOR COMPRESSOR ANDMOTOR

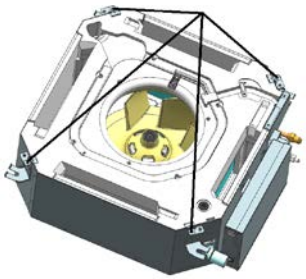
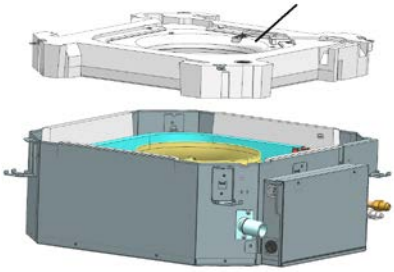
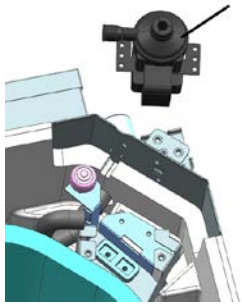
Cassette type
9K/12K/18K

Replacement of Fan Motor		
Step	Illustration	Handling Instruction
1. Loosen the screws holding condensate pan.		Use screwdriver to loosen the screws holding the drain pan in place.
2. Remove the condensate pan		Carefully remove the condensate pan.
3. Loosen the bolt holding the fan blade in place		Use a wrench or socket to carefully remove the fan blade bolt.
4. Remove the fan blade		The fan blade can now be removed.
5. Loosen the bolts holding the motor in place		Use a wrench or socket to carefully remove the motor bolts.

18. DISASSEMBLY AND ASSEMBLY FOR COMPRESSOR ANDMOTOR

Replacement of Fan Motor		
Step	Illustration	Handling Instruction
6. Remove the motor and replace it		Remove the motor and replace it.
7. Tighten the bolts holding the motor		Use a wrench or socket to carefully tighten the motor bolts.
8. Mount the fan blade and tighten the bolt		Mount the fan blade and use a wrench or socket to carefully tighten the bolt holding the fan blade in place. Do not overtighten as damage may occur.
9. Reinstall the condensate pan and tighten the screws		Use a screwdriver to carefully tighten the screws holding the condensate pan in place. Take care to not overtighten as damage to pan will occur.

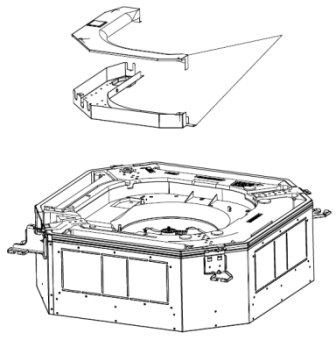
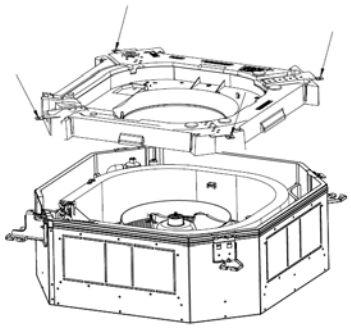
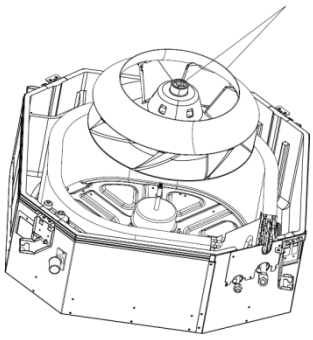
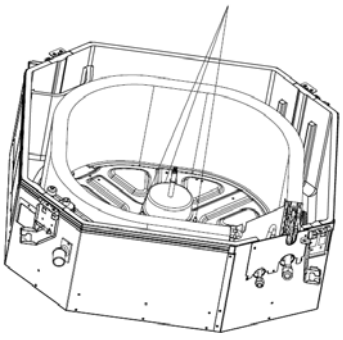
18. DISASSEMBLY AND ASSEMBLY FOR COMPRESSOR ANDMOTOR

Removal and Installation of Condensate Pump		
Step	Illustration	Handling Instruction
1. Loosen the screws holding condensate pan.		Use screwdriver to loosen the screws holding the drain pan in place.
2. Remove the condensate pan.		Carefully remove the condensate pan.
3. Pull out the water outlet pipe.		Pull out the water outlet Pipe.
4. Loosen the screws holding the condensate pump.		Loosen the screws holding the condensate pump.
5. Take out the pump and replace it.		Take out the pump and replace it.

18. DISASSEMBLY AND ASSEMBLY FOR COMPRESSOR AND MOTOR

Cassette type

24K/36K

Step	Illustration	Handling Instruction
1.Loosen the screws holding the electric box cover and electric box.		Use screwdriver to loosen the Electric box.
2. Loosen the screws holding condensate pan and Remove the condensate pan.		Use screwdriver to loosen the screws holding the drain pan in place.
3. Loosen the bolts holding the fan blades in place and Remove the fan blade.		Use a wrench or socket to carefully remove the fan blade bolts.
4. Loosen the screws holding the motor in place and Remove the motor and replace it.		Use screwdriver to loosen the screws holding the motor.

19. CONTORL LOGIC DESCRIPTION

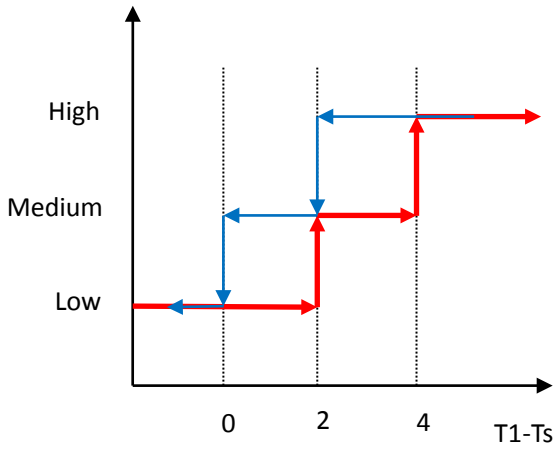
19. Control logic description

19.1 Fan Only Mode

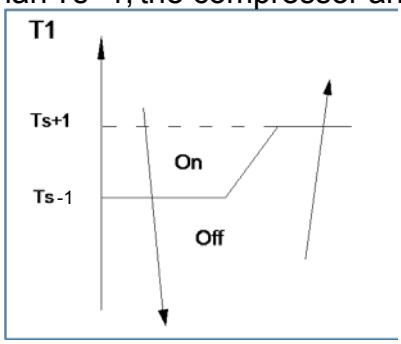
(1) Outdoor fan and compressor stop.
(2) Temperature setting function is disabled, and no setting temperature is displayed.
(3) Indoor fan can be set to high/medium/low, but can not be set to auto.

19.2 Cooling Mode

Indoor fan running rules:
In cooling mode, indoor fan runs all the time and the speed can be selected as high,(medium), low and auto.
The auto fan:
T1 is indoor room temperature. Ts is setting temperature.

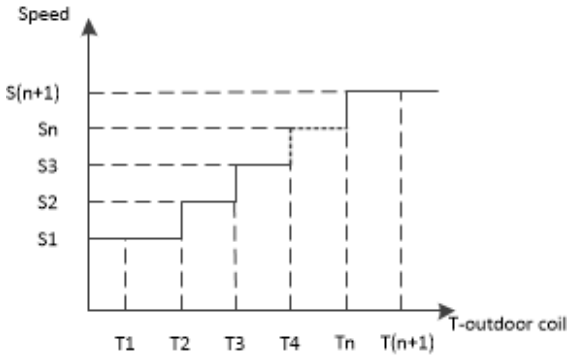


Inverter outdoor unit：
Compressor and outdoor fan running rules:
Once the compressor starts up, it will follow the below rules:
When indoor room temp.T1 is lower than Ts, the compressor and outdoor fan will shut off. When T1 is higher than Ts+1, the compressor and outdoor fan will start up.



Outdoor fan running rules:
Once the outdoor fan start up, it will follow the below rules:
Single outdoor fan: First, it will run in an invariable speed for a short time; Then it will regulate the speed by the outdoor-coil temperature.
Double outdoor fan: If it has two outdoor fans, the upper fan regulates the speed by the rules, and the downer fan speed lower than the upper fan speed for 30rpm~60rpm.

19. CONTORL LOGIC DESCRIPTION



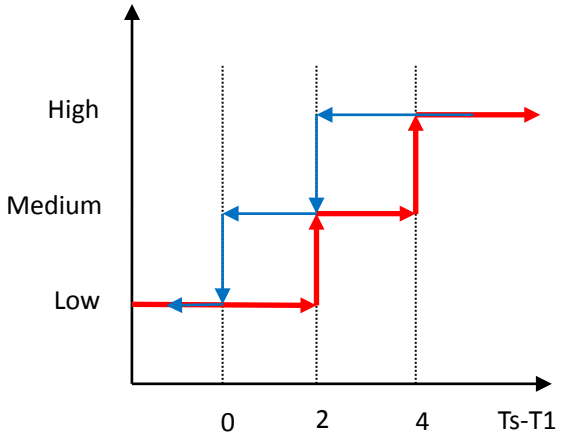
19.3 Heating Mode

Indoor fan running rules:

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

The auto fan:

T1 is indoor room temperature. Ts is setting temperature.



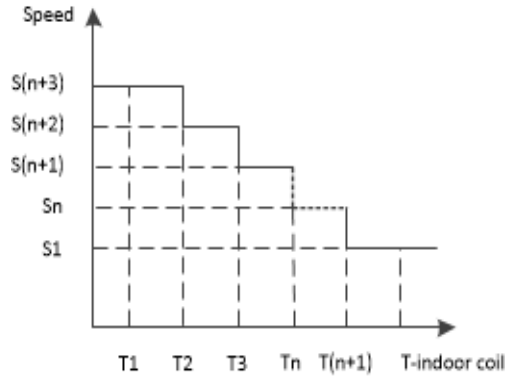
DC-Inverter outdoor unit：

Outdoor fan running rules:

Once the outdoor fan start up, it will follow the below rules:

Single outdoor fan: First, it will run in an invariable speed for a short time; Then it will regulate the speed by the indoor-coil temperature.

Double outdoor fan: If it has two outdoor fans, the upper fan regulates the speed by the rules, and the downer fan speed lower than the upper fan speed for 30rpm~60rpm.



19.4 Auto Mode

This mode can be chosen with remote controller and the setting temperature can be changed between 61°F~86°F(16°C~30℃).

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

ΔT=T1-Ts	Running mode
ΔT＞37°F(3℃)	Cooling
27°F(-3℃)≤ΔT≤37°F(3℃)	Fan-only
ΔT ＜27°F(-3℃)	Heating

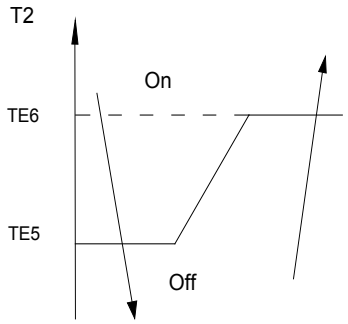
Indoor fan will run at auto fan of the relevant mode. The louver operates same as in relevant mode. If the compressor keep stopping for 10 minutes or the setting temperature is modified, the machine will choose mode according to ΔT again.

19.5 Evaporator Low-temperature Protection

DC-Inverter

AC will enter T2 protection if any of the following condition is satisfied.

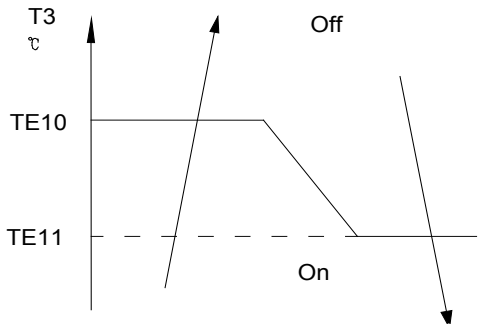
Condition:



Cooling mode: When the indoor coil temp. T2 keeps lower than TE5 for 120 seconds, the compressor and outdoor fan will shut off. When T2 is higher than TE6, the compressor and outdoor fan will restart up.

19.6 Condenser High-temperature Protection

DC-Inverter outdoor unit
AC will enter T3 protection if any of the following conditions is satisfied.



Condition1:
Cooling mode: When the outdoor coil temp. T3 keeps higher than T2 for 10 seconds, the compressor and outdoor fan will shut off. When T3 is lower than T1, the compressor and outdoor fan will restart up.
Condition2:
Heating mode: When the indoor coil temp. T3 keeps higher than T2 for 10 seconds, the compressor and outdoor fan will shut off. When T3 is lower than T1, the compressor and outdoor fan will restart up.