EN

SERVICE MANUAL

Nordic EVO II Series

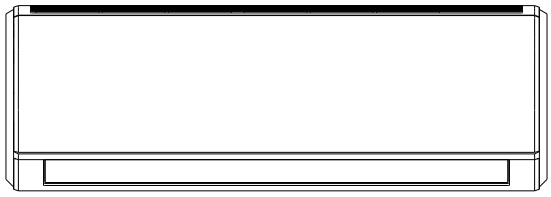
MODELS: CH-S09FTXN-E2wf
CH-S12FTXN-E2wf
CH-S18FTXN-E2wf
CH-S24FTXN-E2wf

Designed by Cooper&Hunter International Corporation, Oregon, USA
www.cooperandhunter.com

CONTENT

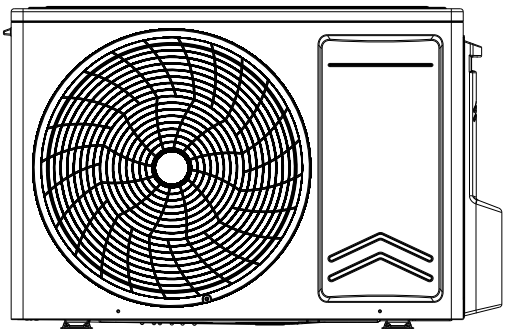
Summary and Features

Indoor Unit



Remote Controller

Outdoor Unit



1. Safety Precautions

Installing, starting up, and servicing air conditioner can behazardous due to system pressure, electrical components, and equipment location, etc.Only trained, qualified installers and service personnel areallowed to install, start-up, and service this equipment.Untrained personnel can perform basic maintenance fun-ctions such as cleaning coils. All other operations should be performed by trained service personnel.When handling the equipment, observe precautions in themanual and on tags, stickers, and labels attached to theequipment. Follow all safety codes. Wear safety glasses andwork gloves. Keep quenching cloth and fire extinguisher nearby when brazing.Read the instructions thoroughly and follow all warnings orcautions in literature and attached to the unit. Consult localbuilding codes and current editions of national as well as local electrical codes.

Recognize the following safety information:

⚠ Warning

Incorrect handling could result inpersonal injury or death.

⚠ Caution

Incorrect handling may result inminor injury,or damage to product or property.

- ◆ Make sure the outdoor unit is installed on a stable, level surface with no accumulation of snow, leaves, or trash beside.
- ◆ Make sure the ceiling/wall is strong enough to bear the weight of the unit.
- ◆ Make sure the noise of the outdoor unit does not disturb neighbors.
- ◆ Follow all the installation instructions to minimize the risk of damage from earth quakes, typhoons or strong winds.
- ◆ Avoid contact between refrigerant and fire as it generate spoi onous gas.
- ◆ Apply specified refrigerant onl . Never have it mixed with any other refrigerant. Never have air remain in the refrigerant line as it may lead to rupture and other hazards.
- ◆ Make sure no refrigerant gas is leaking out when installation is completed.
- ◆ Should there be refrigerant leakage, the density of refrigerant in the air shall in no way exceed its limited value, or it may lead to explosion.
- ◆ Keep your fingers and clothing away from any moving parts
- ◆ Clear the site after installation. Make sure no foreign objects are left in the unit.
- ◆ Always ensure effective grounding for the unit.

⚠ Warning

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

Before installing, modifying, or servicing system, mainelectrical disconnect switch must be in the OFF position. There may be more than 1 disconnect switch. Lock out and tag switch with a suitable warning label.

Never supply power to the unit unless all wiring and tubing are completed, reconnected and checked.

This system adopts highly dangerous electrical voltage. Incorrect connection or inadequate grounding can cause personal injury or death. Stick to the wiring diagram and all the instructions when wiring.

Have the unit adequately grounded in accordance with local electrical codes.

Have all wiring connected tightly. Loose connection may lead to overheating and a possible fire hazard

All installation or repair work shall be performed by your dealer or a specialized subcontractor as there is the risk of fire, electric shock, explosion or injur .

⚠ Caution

Never install the unit in a place where a combustible gas might leak, or it may lead to fire or explosion

Make a proper provision against noise when the unit is installed at a telecommunication center or hospital.

Provide an electric leak breaker when it is installed in a watery place.

Never wash the unit with water.

Handle unit transportation with care. The unit should not be carried by only one person if it is more than 20kg.

Never touch the heat exchanger fins with bare hands

Never touch the compressor or refrigerant piping without wearing glove.

Do not have the unit operate without air filte .

Should any emergency occur, stop the unit and disconnect the power immediately.

Properly insulate any tubing running inside the room to prevent the water from damaging the wall.

2. Specifications

2.1 Unit Specifications

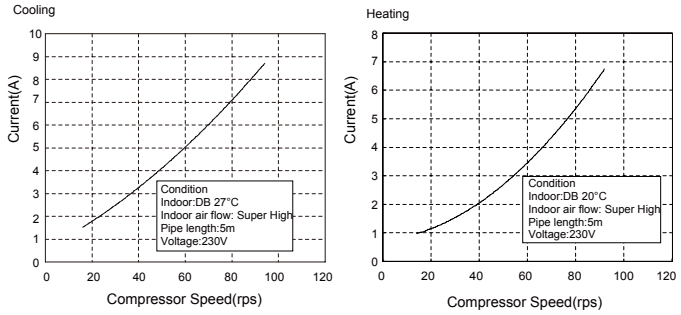
Parameter		Unit	Value	Value
Model		--	CH-S09FTXN-E2wf	CH-S12FTXN-E2wf
Product Code		--	SCB001N0011	SCB001N0021
Power Supply	Rated Voltage	V~	220-240	220-240
	Rated Frequency	Hz	50	50
	Phases	--	1	1
Power Supply Mode		--	outdoor	outdoor
Cross-sectional Area of Power Cable Conductor		mm2	1.0	1.0
Recommended Power Cable(Core)		N	3	3
Min/Max. Voltage		V	198/264	198/264
Cooling Capacity		Btu/h	8530	11600
Min. Cooling Capacity		Btu/h	2660	4436
Max. Cooling Capacity		Btu/h	9895	13306
Heating Capacity		Btu/h	9554	12283
Min. Heating Capacity		Btu/h	2491	2730
Max. Heating Capacity		Btu/h	11260	14330
Cooling Power Input		W	580	790
Min. Cooling Power Input		W	75	90
Max. Cooling Power Input		W	1430	1560
Heating Power Input		W	650	800
Min. Heating Power Input		W	135	140
Max. Heating Power Input		W	1550	1650
Cooling Current		A	3.4	4.7
Heating Current		A	3.4	4.4
Rated Input		W	1550	1650
Rated Current		A	6.9	7.3
EER		W/W	4.32	4.32
COP		W/W	4.51	4.51
Air Flow Volume		m3/h	520/440/230/150	550/470/250/180
Dehumidifying Volume		L/h	0.80	1.40
Dehumidifying Volume		PINT/D	1.69	2.96
Application Area		m2	12-18	16-24
Indoor Unit	Indoor Unit Model	--	CH-S09FTXN-E2wf	CH-S12FTXN-E2wf
	Fan Type	--	Cross-flo	Cross-flo
	Fan Diameter Length(D×L)	mm	Φ97.5×579	Φ97.5×579
	Cooling Speed	r/min	1300/1150/750/600	1350/1200/800/650
	Heating Speed	r/min	1300/1150/850/800	1350/1200/900/850
	Fan Motor Power Output	W	18	18
	Fan Motor RLA	A	0.2	0.2
	Fan Motor Capacitor	μF	1	1
	Evaporator Form	--	Alumium Tube	Alumium Tube
	Evaporator Pipe Diameter	mm	φ5	φ5
	Evaporator Row-fin Ga	mm	2-1.4	2-1.4
	Evaporator Coil Length (L×D×W)	mm	584.4×22.8×266.7	584.4×22.8×266.7
	Swing Motor Model	--	24BJ-A1	24BJ-A1
	Swing Motor Power Output	W	1.5	1.5
	Fuse Current	A	3.15	3.15
	Set Temperature Range	℃	16~31	16~31
	Set Temperature Range	℉	61~88	61~88
	Sound Pressure Level	dB (A)	40/36/24/19	41/37/25/20
	Sound Power Level	dB (A)	54/39/36/30	55/40/37/31
	Dimension (W×H×D)	mm	792x279x195	792x279x195
	Dimension of Carton Box (W×H×D)	mm	868x280x349	868x280x349
	Dimension of Package (W×H×D)	mm	871x290x352	871x290x352
	Stacked Layers	-	7	7
	Net Weight	kg	9	9
	Gross Weight	kg	11.5	11.5

Parameter		Unit	Value	Value
Outdoor Unit	Outdoor Unit Model	--	CH-S09FTXN-E2wf	CH-S12FTXN-E2wf
	Compressor Trademark		panasonic	SANYO
	Compressor Model	--	5SS072ZJA21	C-1RZ110H1AE
	Compressor Oil	--	FV50S or equivalent	FV50BX
	Compressor Type	--	Rotary	Rotary
	Compressor LRA.	A	21	25
	Compressor RLA	A	3.1	3.5
	Compressor Power Input	W	680	780
	Fan Type	--	Axial-flo	Axial-flo
	Fan Diameter	mm	405	405
	Fan Diameter	inch	15.9	15.9
	Fan Motor Speed	rpm	880	880
	Fan Motor Power Output	W	30	30
	Fan Motor RLA	A	0.4	0.4
	Outdoor Unit Air Flow Volume	m3/h	1800	1800
	Condenser Form	--	Alumium Tube	Alumium Tube
	Condenser Pipe Diameter	mm	φ7.94	φ7
	Condenser Rows-fin Ga	mm	1-1.4	2-1.4
	Condenser Coil Length (L×D×W)	mm	742×19.05×506	719×38.1×506
	Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3	4.3
	Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5	2.5
	Maximum Allowable Pressure	MPa	4.3	4.3
	Cooling Operation Ambient Temperature Range	℃	18~48	18~48
	Cooling Operation Ambient Temperature Range	℉	64~118	64~118
	Heating Operation Ambient Temperature Range	℃	-23~24	-23~24
	Heating Operation Ambient Temperature Range	℉	5~75	5~75
	Throttling Method	--	Electron expansion valve	Electron expansion valve
	Defrosting Method	--	Automatic Defrosting	Automatic Defrosting
	Climate Type	--	T1	T1
	Climate Zone	--	Temperate Zone	Temperate Zone
	Isolation	--	I	I
	Moisture Protection	--	IP24	IP24
	Sound Pressure Level	dB (A)	52	53
	Sound Power Level	dB (A)	61	62
	Dimension (W×H×D)	mm	830X540X325	830X540X325
	Dimension of Carton Box (W×H×D)	mm	876x585x363	876x585x363
	Dimension of Package (W×H×D)	mm	879x605x366	879x605x366
	Stacked Layers	--	5	5
	Net Weight	kg	29	30.5
	Gross Weight	kg	32	33.5
	Refrigerant	--	R410A	R410A
	Refrigerant Charge	kg	0.7	0.90
Connection Pipe	Length	m	5	5
	Length	ft	16.4	16.4
	Gas Additional Charge	g/m	20	20
	Gas Additional Charge	oz/ft.	0.2	0.2
	Outer Diameter of Liquid Pipe(GREE Allocation) (Metric)	mm	φ6	φ6
	Outer Diameter of Liquid Pipe(British System Allocation)	inch	1/4"	1/4"
	Outer Diameter of Gas Pipe(GREE Allocation) (Metric)	mm	φ9.52	φ9.52
	Outer Diameter of Gas Pipe(British System Allocation)	inch	3/8"	3/8"
	Max Distance Height	m	10	10
	Max Distance Height	ft	32.8	32.8
	Max Distance Length	m	20	20
	Max Distance Length	ft	65.6	65.6

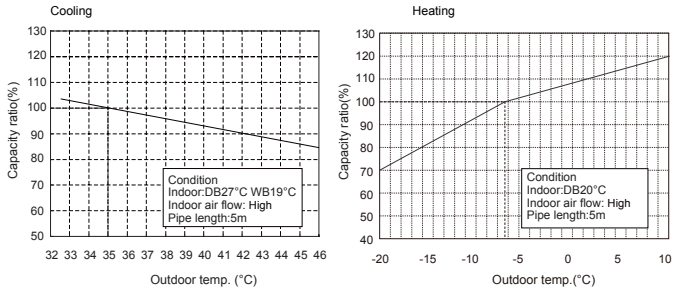
Parameter		Unit	Value	Value
Model		--	CH-S18FTXN-E2wf	CH-S24FTXN-E2wf
Product Code		--	SCB001N0051	SCB001N0061
Power Supply	Rated Voltage	V~	220-240	220-240
	Rated Frequency	Hz	50	50
	Phases	--	1	1
Power Supply Mode		--	outdoor	outdoor
Cross-sectional Area of Power Cable Conductor		mm2	1.5	2.5
Recommended Power Cable(Core)		N	3	3
Min/Max. Voltage		V	198/264	198/264
Cooling Capacity		W	5130	6450
Cooling Capacity		Btu/h	17504	22007
Min. Cooling Capacity		Btu/h	3412	4777
Max. Cooling Capacity		Btu/h	22860	23884
Heating Capacity		Btu/h	18000	22500
Min. Heating Capacity		Btu/h	3753	5118
Max. Heating Capacity		Btu/h	23202	26955
Cooling Power Input		W	1190	1500
Min. Cooling Power Input		W	320	380
Max. Cooling Power Input		W	2460	2800
Heating Power Input		W	1138	1524
Min. Heating Power Input		W	350	400
Max. Heating Power Input		W	2300	2500
Cooling Current		A	7.0	8.9
Heating Current		A	6.3	8.4
Rated Input		W	2600	3100
Rated Current		A	11.5	13.8
EER		W/W	4.32	4.30
COP		W/W	4.63	4.63
Air Flow Volume		m3/h	850/720/610/520	1150/1050/950/850
Dehumidifying Volume		L/h	1.80	2.40
Dehumidifying Volume		PINT/D	3.80	4.22
Application Area		m2	23-34	27-42
Indoor Unit	Indoor Unit Model	--	CH-S18FTXN-E2wf	CH-S24FTXN-E2wf
	Fan Type	--	Cross-flo	Cross-flo
	Fan Diameter Length(D×L)	mm	Φ106×706	Φ108×830
	Fan Diameter Length(D×L)	inch	Φ4 1/6×27 4/5	Φ4 1/4×32 7/10
	Cooling Speed	r/min	1230/1130/900/800	1250/1100/900/800
	Heating Speed	r/min	1350/1200/900/850	1250/1100/900/850
	Fan Motor Power Output	W	40	55
	Fan Motor RLA	A	0.36	0.47
	Fan Motor Capacitor	μF	2.5	2.5
	Evaporator Form	--	Alumium Tube	Alumium Tube
	Evaporator Pipe Diameter	mm	Φ7	φ7
	Evaporator Pipe Diameter	inch	0.276	0.276
	Evaporator Row-fin Ga	mm	2-1.4	2-1.4
	Evaporator Coil Length (L×D×W)	mm	715×25.4×304.8	850×25.4×342.9
	Swing Motor Model	--	MP35CJ	MP35CJ
	Swing Motor Power Output	W	2.5	2.5
	Fuse Current	A	3.15	3.15
	Set Temperature Range	℃	16~31	16~31
	Set Temperature Range	℉	61~88	61~88
	Sound Pressure Level	dB (A)	46/42/39/28	48/45/42/28
	Sound Power Level	dB (A)	58/54/51/48	64/59/56/48
	Dimension (W×H×D)	mm	972x302x224	1081x327x248
	Dimension of Carton Box (W×H×D)	mm	1044x304x374	1155x342x410
	Dimension of Package (W×H×D)	mm	1047x314x377	1158x352x413
	Stacked Layers	-	7	7
	Net Weight	kg	14	16.5
	Gross Weight	kg	17	20
Parameter		Unit	Value	Value

Outdoor Unit	Outdoor Unit Model	--	CH-S18FTXN-E2wf	CH-S24FTXN-E2wf
	Compressor Trademark		SANYO	SANYO
	Compressor Model	--	C-6RZ146H1AG	C-6RZ146H1AG
	Compressor Oil	--	FV50BX or equivalent	FV50BX or equivalent
	Compressor Type	--	Rotary	Rotary
	Compressor LRA.	A	25	25
	Compressor RLA	A	6.1	6.1
	Compressor Power Input	W	1145	1145
	Fan Type	--	Axial-flo	Axial-flo
	Fan Diameter	mm	522	522
	Fan Diameter	inch	20.6	20.6
	Fan Motor Speed	rpm	800	800
	Fan Motor Power Output	W	60	60
	Fan Motor RLA	A	0.79	0.79
	Outdoor Unit Air Flow Volume	m3/h	3300	3300
	Condenser Form	--	Alumium Tube	Alumium Tube
	Condenser Pipe Diameter	mm	Φ7	φ7.94
	Condenser Rows-fin Ga	mm	2-1.4	2-1.4
	Condenser Coil Length (L×D×W)	mm	878×38.1×660	878×38.1×660
	Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3	4.3
	Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5	2.5
	Maximum Allowable Pressure	MPa	4.3	4.3
	Cooling Operation Ambient Temperature Range	℃	18~48	18~48
	Cooling Operation Ambient Temperature Range	℉	64~118	64~118
	Heating Operation Ambient Temperature Range	℃	-23~24	-23~24
	Heating Operation Ambient Temperature Range	℉	5~75	5~75
	Throttling Method	--	Capillary	Capillary
	Defrosting Method	--	Automatic Defrosting	Automatic Defrosting
	Climate Type	--	T1	T1
	Climate Zone	--	Temperate Zone	Temperate Zone
	Isolation	--	I	I
	Moisture Protection	--	IP24	IP24
	Sound Pressure Level	dB (A)	56	60
	Sound Power Level	dB (A)	63	68
	Dimension (W×H×D)	mm	960×700×396	960×700×396
	Dimension of Carton Box (W×H×D)	mm	1008x742x452	1008x742x452
	Dimension of Package (W×H×D)	mm	1011x763x455	1011x763x455
	Stacked Layers	--	4	4
	Net Weight	kg	43	43.5
	Gross Weight	kg	47.5	48
	Refrigerant	--	R410A	R410A
	Refrigerant Charge	kg	1.25	1.45
Connection Pipe	Length	m	5	5
	Length	ft	16.4	16.4
	Gas Additional Charge	g/m	20	50
	Gas Additional Charge	oz/ft.	0.2	0.5
	Outer Diameter of Liquid Pipe(GREE Allocation) (Metric)	mm	φ6	φ6
	Outer Diameter of Liquid Pipe(British System Allocation)	inch	1/4"	1/4"
	Outer Diameter of Gas Pipe(GREE Allocation) (Metric)	mm	φ12	φ16
	Outer Diameter of Gas Pipe(British System Allocation)	inch	1/2"	5/8"
	Max Distance Height	m	10	10
	Max Distance Height	ft	32.8	32.8
	Max Distance Length	m	25	25
	Max Distance Length	ft	82.0	82.0

2.2 Operation Characteristic Curve



2.3 Capacity Variation Ratio According to Temperature



2.4 Cooling and Heating Data Sheet in Rated Frequency

Model	Rated cooling condition(°C) (DB/WB)		Pressure of gas pipe connecting indoor and outdoor unit	Inlet and outlet pipe temperature of heat exchanger		Fan speed of indoor unit	Outdoor fan mode (rpm)
	Indoor	Outdoor	P (MPa)	T1 (°C)	T2 (°C)		
09K	27/19	35/24	0.9~1.1	12 to 14	75 to 37	Super High	880
12K							880
18k							800
24k							800

Model	Rated cooling condition(°C) (DB/WB)		Pressure of gas pipe connecting indoor and outdoor unit	Inlet and outlet pipe temperature of heat exchanger		Fan speed of indoor unit	Outdoor fan mode (rpm)
	Indoor	Outdoor	P (MPa)	T1 (°C)	T2 (°C)		
09K	20/-	7/6	2.2~2.4	70 to 35	2 to 4	Super High	880
12K							880
18k							800
24k							800

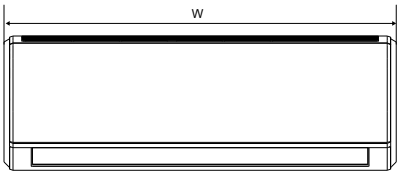
T1: Inlet and outlet pipe temperature of evaporator;
T2: Inlet and outlet pipe temperature of condenser;
P: Pressure of air pipe connecting indoor and outdoor units.

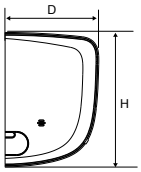
NOTES :
(1) Measure surface temperature of heat exchanger pipe around center of heat exchanger path U bent.(Thermistor themometer)
(2) Connecting piping condition : 5m

3. Construction Views

3.1 Indoor Unit

Unit:mm

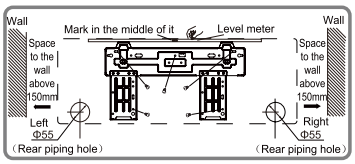




Model	W(mm)	H(mm)	D(mm)
CH-S09FTXN-E2wf	792	279	195
CH-S12FTXN-E2wf	792	279	195
CH-S18FTXN-E2wf	972	302	224
CH-S24FTXN-E2wf	1081	327	248

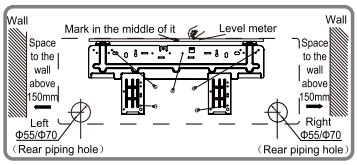
CH-S09FTXN-E2wf
CH-S12FTXN-E2wf

Dimension: 792x279x195



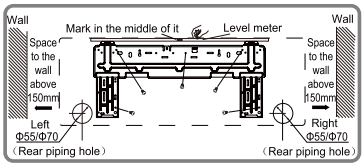
CH-S18FTXN-E2wf

Dimension: 972x302x224



CH-S24FTXN-E2wf

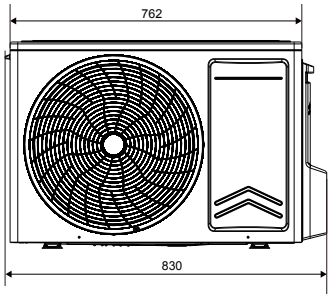
Dimension: 1081x327x248

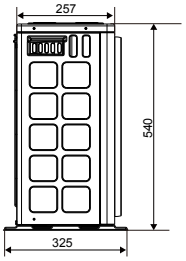


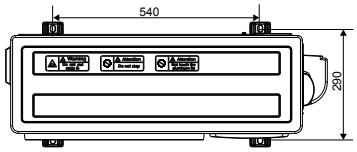
3.2 Outdoor Unit

Unit:mm

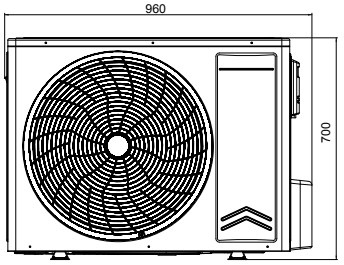
Model:CH-S09FTXN-E2wf
CH-S12FTXN-E2wf

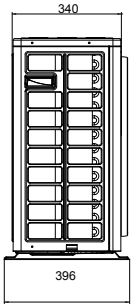


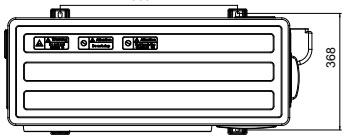




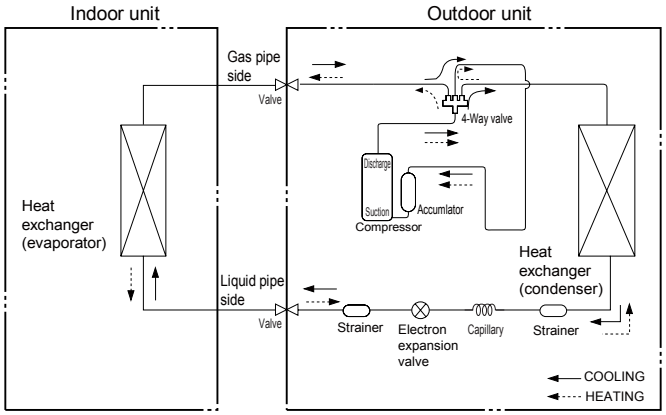
Model:CH-S18FTXN-E2wf
CH-S24FTXN-E2wf







4. Refrigerant System Diagram



Refrigerant pipe diameter
Liquid :1/4" (6 mm) Gas : 3/8" (9.52mm)(9、12K); 1/2"(12mm)(18K); 5/8"(16mm)(24K)

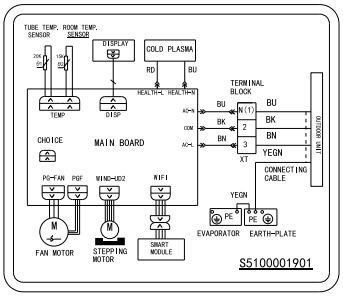
5. Schematic Diagram

5.1 Electrical Wiring

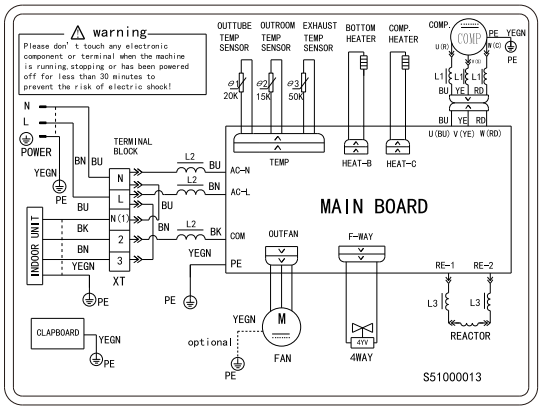
Meaning of marks

Symbol	OG	WH	YE	RD	YEGN	BN	BU	BK	VT
Color symbol	ORANGE	WHITE	YELLOW	RED	YELLOW GREEN	BROWN	BLUE	BLACK	VIOLET
Symbol	COMP		CT1,2		4V	XT			
Parts name	COMPRESSOR		OVERLOAD		4-WAY VALVE	TERMINAL BLOCK		PROTECTIVE EARTH	

Indoor unit



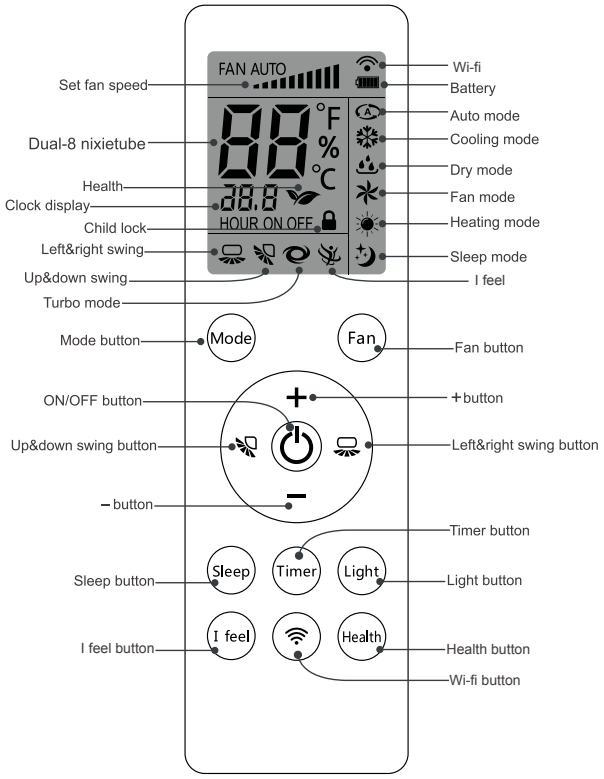
Outdoor unit



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

6. Function and Control

6.1 Remote Control Operations



ON/OFF button

Press this button can turn on or turn off the air conditioner.

Mode button

Press this button to select your required operation mode.

When selecting auto mode, air conditioner will operate automatically according to ex-factory setting. Set temperature can't be adjusted and will not be displayed as well. Press "Fan" button can adjust fan speed. Press " " or " " button can adjust fan blowing angle.

After selecting cool mode, air conditioner will operate under cool mode. Press "+" or "-" button to adjust set temperature. Press "Fan" button to adjust fan speed. Press " " or " " button to adjust fan blowing angle.

When selecting dry mode, the air conditioner operates at fan1 under dry mode. Under dry mode, fan speed can't be adjusted. Press" " or " " button to adjust fan blowing angle.

When selecting fan mode, the air conditioner will only blow fan, no cooling and no heating. Press "Fan" button to adjust fan speed. Press " " or " " button to adjust fan blowing angle.

When selecting heating mode, the air conditioner operates under heat mode. Press "+" or "-" button to adjust set temperature. Press "Fan" button to adjust fan speed. Press " " or " " button to adjust fan blowing angle. (Cooling only unit won't receive heating mode signal. If setting heat mode with remote controller, press ON/OFF button can't start up the unit).

Note:

- To preventing cold air, after starting up heating mode, indoor unit will delay 1~5 minutes to blow air (actual delay time is depend on indoor ambient temperature).
- Seting temperature range from remote controller: 16~31°C;Fan speed: auto, fan1, fan2 , fan3 , fan4, fan5, turbo, stepless speed.

Fan button

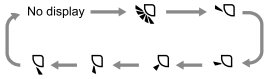
Pressing this button can set fan speed circularly as: auto (AUTO), fan1( ), fan2 ( ) , fan3 ( ) , fan4 ( ), fan5 ( ), turbo (+), stepless speed.

Note:

- In AUTO speed, air conditioner will select proper fan speed automatically according to ambient temperature.
- Fan speed under dry mode is fan1.
- After entering the stepless speed mode, users can adjust the fan speed according to the button "+" or " – ".

button

Press this button can select up&down swing angle. Fan blow angle can be selected circularly as below:

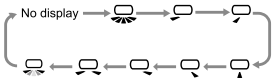


Note:

- When convert " No display " into " " status, if press this button after 2s, swing status directly turns into " No display " ; if press this button within 2s, swing status changes according to the above order.
- When selecting " " with remote controller, it's auto swing. Up&down swing louver of air conditioner will swing up&down automatically at the maximum angle.
- When selecting " , , , , " with remote controller, it's the fixed position swing. Up&down swing louver of air conditioner will stop at that position as shown by the icon to swing. There is no this function for some remote control.

button

Press this button can select left&right swing angle. Fan blow angle can be selected circularly as below:



- When convert " No display " into " " status, if press this button after 2s, swing status directly turns into " No display " ; if press this button within 2s, swing status changes according to the above order.
- When selecting " " with remote controller, it's auto swing. Left&right swing louver of air conditioner will swing left&right automatically at the maximum angle.
- When selecting " , , , , , " with remote controller, it's the fixed position swing. Left&right swing louver of air conditioner will stop at that position as shown by the icon to swing.
- When selecting " ", it's the circulating swing. Left&right swing louver of air conditioner will swing circularly according to the angle as shown by the icon.

Note:
There is no this function for the units. If press this button, the main unit will sound, but it also runs under original status.

+ and − button

Press " + " or " − " button once to increase or decrease 1℃ of temperature. Holding " + " or " − " button, temperature on remote controller will change quickly. On releasing button after setting is finished,temperature indicator on indoor unit will change accordingly. (Temperature can't be adjusted under auto mode)
When setting TIMER ON, TIMER OFF, press " + " or " − " button to adjust time. (Refer to " Timer " buttons)

Sleep button

Press this button to turn on or turn off the Sleep function under cooling,heating,dry mode.

Note:
- This function is off as defaulted after power on.
- It will be cleared after changing mode.
- It is no use under "Fan" mode and "Auto" mode.

Timer button

This button can set the time for timer on(timer off). After pressing this button, " HOUR ON (HOUR OFF) " and " 0.0 " icon on remote controller blinks. Press " + " or " − " button within 5s to set timer on(timer off) time. Each pressing of " + " or " − " button, the time will increase or decrease 0.5 hour. Hold " + " or " − " button, the time will change quickly until reaching your required time. Press " Timer " to confirm it. The word "HOUR ON(HOUR OFF) " will stop blinking. "HOUR ON(HOUR OFF) " and " 8.8 " on remote controller will be displayed.

Cancel Timer on (off)
In the condition of timer on (off) is started up, press "Timer" button to cancel it.

Note:
- Time set range: 0.5~24hours.
- When timer on has set, the controller displays as the unit is on.
- Timing of the initital set hour is 0.0 hour.

Light button

Press this button can turn off the light for indoor unit's display.

I feel button

Press this button to start I FEEL function and " " will be displayed on the remote controller. After this function is set, the remote controller will send the detected ambient temperature to the indoor unit and the unit will automatically adjust the indoor temperature according to the detected temperature. Press this button again to close I FEEL function and " " will disappear.

Note:
Please put the remote controller near user and confirm the unit can receive the remote code when this function is set. Do not put the remote controller near the object of high temperature or low temperature in order to avoid detecting inaccurate ambient temperature.

Wifi button

Default WIFI open on remote control , WIFI button for air conditioner WIFI link.
Note: Optional function, if the model without this function, no feedback from the aircon when press this button

Health button

Press this button to turn on or turn off the health function.
Note:This function is not available for some models.

Function introduction for combination buttons

1. Child lock function

Press " + " *and* " − " simultaneously to turn on or turn off child lock function. When child lock function is on, " " icon is displayed on remote controller. If you operate the remote controller, the " " icon will blink three times without sending signal to the unit.

2. Temperature display switchover function

In the off mode, press " MODE " and " − " buttons simultaneously to switch temperature display between °C and °F.

3. ECO function setting

In cool mode, press "Fan" and " + " buttons together for 3s would start the ECO mode.
Note:
- Change mode will exit the ECO mode.
- In ECO mode,remote controller displays "ECO". Set temperature can't be adjusted.
- In ECO mode,Air conditioner will operate at auto fan speed,fan can't be adjusted.
- You can set up other function.

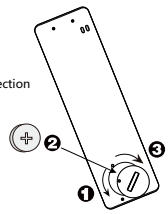
4. Low temperature heating function setting

- In heating mode, pressing "Mode" and "+" button at the same time will enter/exit the low temperature heating function.
- "LA" would be showed on the remote controller after entered into the low temperature heating funtion.
- When switching from one mode to another mode, low temperature heating function was canceled.Turn off and then turn on air conditioner that will remain the low temperature heating function. When in an energized state/when power on, the low temperature heating fuction would be canceled.
- In the low temperature heating mode, "Sleep" and "Low temperature heating" function cannot start at the same time. When low temperature heating mode has already started, meanwhile you press the "Sleep" button, the air conditioner will exit low temperature heating mode and enter the sleep mode. Vice versa.

Note:
- In the low temperature heating mode, the fan speed was default to Auto and non-ajusatable.
- In the low temperature heating mode, "TURBO" and "QUIET" can't be set.If enter the low temperature heating mode, the turbo and quiet function that started before will be canceled. As well as when exit the low temperature heating mode, it will not resume .
- When exit from the low temperature heating mode, the speed and temperature will turn into the original condition before it started.
- You can set up other function.

Installation batteries

1. Turn on the back cover of the remote control according to the counter clockwise direction
2. Put one unit CR2032 button cell, and make sure the position of "+" polar and "-" polar are correct.
3. Re-install the back cover into the remote control according to the back ockwise direction. And make sure the 2 concave points coincide.



6.2 Description of Each Control Operation

1. The mainboard design with below function

(1) Auto (2) Cooling (3) Dehumidifying (4) Air fan (5) Heating

2. Control

Indoor fan(Quiet、speed 1、speed 2、speed 3、speed 4、speed 5、Turbo), left and right louver, up and down louver, buzzer, display, outdoor electric heater(option), outdoor power, healthy(option).

3. Basis control function

Cooling mode

(1) Setting Temp 16-31 degree,the indoor fan and louver run as the original mode.
(2) The indoor will run as original mode if the outdoor does not work,and the indoor will show error code.

Fan

(1) Setting Temp 16-31 degree,the indoor fan and louver run as the original mode.
(2) The indoor will run as original mode if the outdoor does not work,and the indoor will show error code.

Heating mode

(1) Setting temperature range 16-31 degree.
(2) It will in anti-cold air first when unit run in heating mode,and then heating.It will blow hot air after unit is o f.
(3) Indoor power light blink and then indoor fan stop after unit entering defrost mode.
(4) Indoor blow hot air one minute if outdoor is malfunction.
(5) Indoor blow hot air 10 minutes after turn off unit when indoor fan is running.

4. Auto mode

(1) When environment temperature is equal or above 26 degree,and setting the cooling mode,the setting temperature will reach 25 degree.
(2)When the environment temperature i is equal or below 19 degree plus additional temperature,it will run in heating mode,and the setting temperature reach 20 degree at that time.
(3) When 1(9 degree +additional temperature,)<environment temperature<26 degree.It will run in airfan mode if it is the firs time entering auto mode.It will run in original mode if it change from cooling and heating mode.If original mode is dehumidifying,it will be in airfan after change into auto mode.

5. Protect

(1)Anti cold air

The louver will be in horizontal level when evaporator temperature is too low,and indoor fan does not work or run in low speed.

(2)Blow hot air

Indoor will run in few minutes before turn off when turn off in heating or indoor temperature above environment temperature.

(3)Sensor malfunction

If the environment sensor or pipe sensor AD is above or equal 250 5s continually or the environment sensor or pipe sensor AD is below 5 when the unit is on ,it means sensor malfunction.

(4)Motor blockage

When mainboard can not find the indoor fan speed continually,or motor fan run in low speed continually ,compressor outdoor fan,indoor fan and louver stop running.Indoor will show error code.

(5)Jumper malfunction

Un-install the jumper

(6)Communication malfunction

When the unit is running except for airfan mode,outdoor and indoor can not communicate 3 minutes.It will show error code.

(7)Defrost

When outdoor condensing defrost,it will start defrost mode.

(8)Manually Defrost

Press the "FAN" and "MODE" 3s at the same time in heating mode,it will enter or exit the manually defrost,and indoor will buzz.

6. Other Function

(1) Auto button

when you press this button,it will enter auto mode,indoor motor in auto fan speed,Indoor fan run and louver motor stop. Press the auto button,unit will be off.

(2) Filter cleaning

Indoor motor fan run 600 hours ,unit will show b3 to notice filter cleaning.The b3 is o f after turn off unit

(3) Health

Indoor healthy function start when push healthy button.

(4) Dry

Unit will run in cooling 10 min after set up dry function.

(5) Saving energy

Indoor will show in ECO after unit run in energy saving mode.

(6) Low temperature heating

Press "MODE" and "+" button at the same time in heating mode,it will show LA.

(7) Environment temperature

push temperature button,it will show environment temperature 5s and the setting temperature.

(8) Outdoor power

Power on,outdoor power is off.

(9) When unit is on except for fan mode,outdoor power supply input high frequency.

(10) Entering off mode or fan mode,outdoor power is off after 4 minutes.

(11) 1W Standby.

7. Display

(1) Basis display,Power on,it maintain 2s-3s display,and then power light is on.
(2) The running light is on when remote controller turn on unit,and indoor show the running mode.
(3) If turn off the light button,and all display is off.
(4) It displays as original mode after setting sleeping function.

7. Installation Manual

7.1 Notices for Installation

Caution

1.The unit should be installed only by authorized service center according to local or government regulations and in compliance with this manual.
2.Before installing, please contact with local authorized maintenance center. If the unit is not installed by the authorized service center, the malfunction may not be solved due to incovenient contact between the user and the service personnel.
3.When removing the unit to the other place, please firstly contact with the local authorized service center.
4.Warning: Before obtaining access to terminals, all supply circuits must be disconnected.
5.For appliances with type Y attachment, the instructions shall contain the substance of the following. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
6.The appliance must be positioned so that the plug is accessible.
7.The temperature of refrigerant line will be high; please keep the interconnection cable away from the copper tube.
8.The instructions shall state the substance of the following:This appliance is not intended for use by persons(including children)with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
Children should be supervised to ensure that they do not play with the appliance.

7.1.1 Installation Site Instructions

Installing the unit in the following places maycause malfunction. If it is unavoidable, please consult the local dealer:
1.The place with strong heat sources,vapors,flammable or explosive gas,or volatile objects spread in the ai .
2.The place with high-frequency devices (such as welding machine,medical equipment).
3.The place near coast area.
4.The place with oil or fumes in the air.
5.The place with sulfureted gas.
6.Other places with special circumstances.
7.The appliance shall not be installed in the laundry.

7.1.2 Installation Site of Indoor Unit

1. There should be noobstruction near air inlet and air outlet.
2. Select a location where the condensation water can be dispersed easily and won't affect other people.
3. Select a location which is convenient to connect the outdoor unit and near the power socket.
4. Select a location which is out of reach for children.
5. The location should be ableto withstand the weight of indoor unit and won't increase noise and vibration.
6. The appliance must be installed 2.5m above fioo .
7. Don't install the indoor unit right above the electric appliance.
8. Please try your best to keep way from fluorescent lamp

7.1.3 Installation Site of Outdoor Unit

1.Select a location where the noise and out flow air emitted by the outdoor unit will not a fect neighborhood.
2.The location should be well ventilated and dry, in which the outdoor unit won't be exposed directly to sunlight or strong wind.
3.The location should be able to withstand the weight of outdoor unit.
4.Make sure that the installation follows the requirement of installation dimension diagram.
5.Select a location which is out of reach for children and far away from animals or plants.If it is unavoidable, please add the fence for safety purpose.

7.1.4 Safety Precautions for Electric Appliances

1. A dedicated power supply circuit should be used in accordance with local electrical safety regulations.
2. Don't drag the power cord with excessive force.
3. The unit should be reliably earthed and connected to an exclusive earth device by the professionals.
4. The air switch must have the functions of magnetic tripping and heat tripping to prevent short circuit and overload.
5. The minimum distance between the unit and combustive surface is 1.5m.
6. The appliance shall be installed in accordance with national wiring regulations.
7. An all-pole disconnection switch with a contact separation of at least 3mm in all poles should be connected in fixed wiring

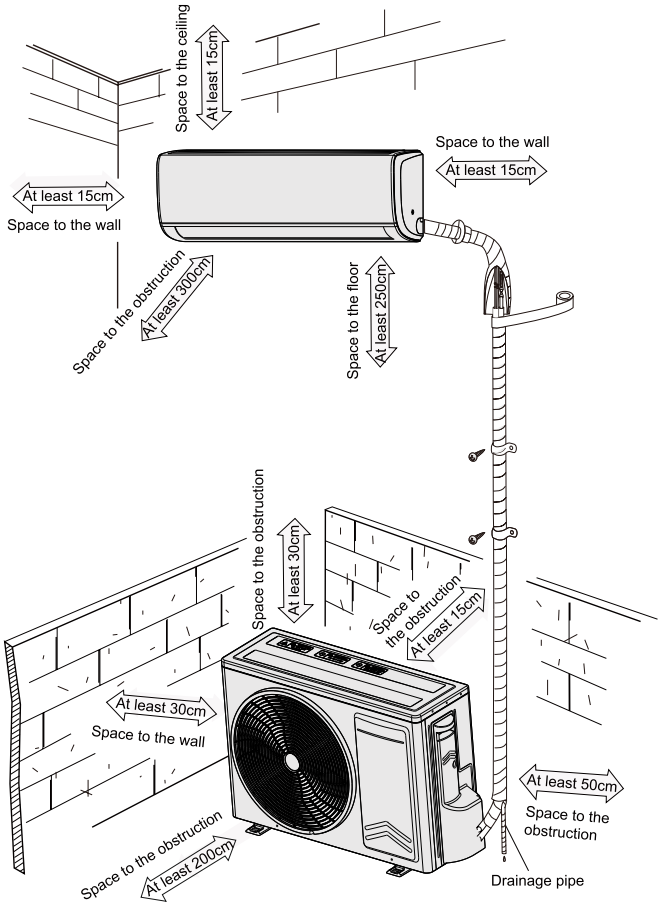
Note:

- **Make sure the live wire, neutral wire and earth wire in the family power socket are properly connected. There should be reliable circuit in the diagram.**
- **Inadequate or incorrect electrical connections may cause electric shock or fire.**

7.1.5 Earthing Requirements

1. Air conditioner is type I electric appliance. Please ensure that the unit is reliably earthed.
2. The yellow-green wire in air conditioner is the earthing wire which can not be used for other purposes. Improper earthing may cause electric shock.
3. The earth resistance should accord to the national criterion.
4. The power must have reliable earthing terminal. Please do not connect the earthing wire with the following:
   - Water pipe
   - Gas pipe
   - Contamination pipe
   - Other place that professional personnel consider is unreliable
5. The model and rated values of fuses should accord with the silk print on fuse cover or related PCB.

7.2 Installation Dimension Diagram



7.3 Installation Indoor Unit

Step 1: Choosing installation location

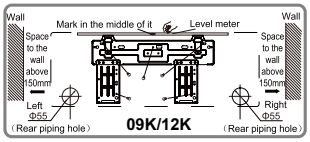
Recommend the installation location to the client and then confirm it with the client

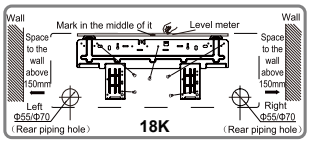
Step 2: Install wall-mounting frame

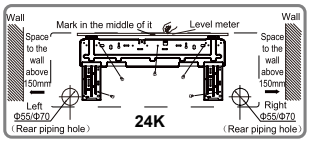
1. Hang the wall-mounting frame on the wall; adj ust it in horizontal position with the level meter and then point out the screw fixin holes on the wall .
2. Drill the screw fixing holes on the wall with impact drill (the specification of drill head should be the same as the plastic expansion particle) and then fill the plastic expansion particles in the holes.
3. Fix the wall-mounting frame on the wall with tapping screws (ST4.2X25TA) and then check if the frame is firmly inatalled by pulling the frame.If the plastic expansion particle is loose, please drill another fixing hole nearb .

Step 3: Open piping hole

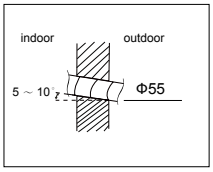
1. Choose the position of piping hole according to the direction of outlet pipe. The position of piping hole should be a little lower than the wall-mounted frame, shown as below.







2. Open a piping hole with the diameter of Φ55 on the selected outlet pipeposition. In order to drain smoothly, slant the piping hole on the wall slightly downward to the outdoor side with the gradient of 5-10°.

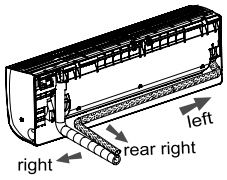


Note:

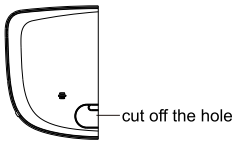
- **Pay attention to dust prevention and take relevant safety measures when opening the hole.**
- **The plastic expansion particles are not provided and should be bought locally.**

Step 4: Outlet pipe

1.The pipe can be led out in the direction of right, rear right or left.

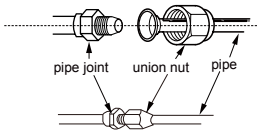


2.When select leading out the pipe from left or right, please cut off the corresponding hole on the bottom case.



Step 5: Connect the pipe of indoor unit

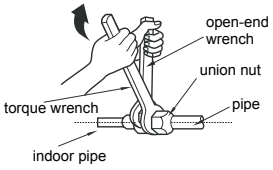
1. Aim the pipe joint at the corresponding bellmouth.



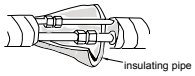
2. Pretightening the union nut with hand.

3. Adjust the torque force by referring to the following sheet. Place the open-end wrench on the pipe joint and place the torque wrench on the union nut. Tighten the union nut with torque wrench.

Hex nut diameter	Tightening torque (N·m)
Φ 6	15-20
Φ 9.52	30~40
Φ 12	45~55
Φ 16	60~65
Φ 19	70~75



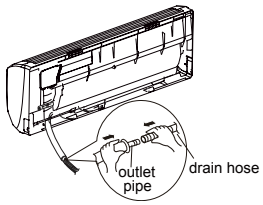
4. Wrap the indoor pipe and joint of connection pipe with insulating pipe, and then wrap it with tape.

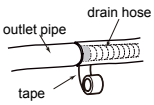


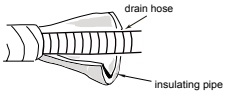
Step 6: Install drain hose

1. Connect the drain hose to the outlet pipe of indoor unit.

2. Bind the joint with tape.



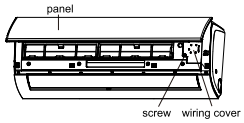


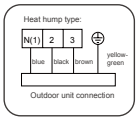


Note:
- Add insulating pipe in the indoor drain hose in order to prevent condensation.
- The plastic expansion particles are not provided.

Step 7: Connect wire of indoor unit

1. Open the panel, remove the screw on the wiring cover and then take down the cover.



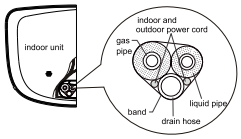


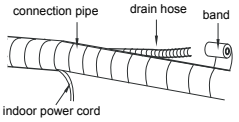
2. Make the power connection wire go through the cable-cross hole at the back of indoor unit and then pull it out from the front side.
3. Remove the wire clip,connect the power connection wire to the wiring terminal according to the color, tighten the screw and then fix the power connection wirewith wire clip
4. Put wiring cover back and then tighten the screw.
5. Close the panel.

Note:
- All wires of indoor unit and outdoor unit should be connected by a professional.
- If the length of power connection wire is insufficient, please contact the supplier for a new one. Avoid extending the wire by yourself.
- For the air conditioner with plug,the plug should be reachable after finishing installation
- For the air conditioner without plug, an air switch must be installed in the line. The air switch should be all-pole parting and the contact parting distance should be more than 3mm.

Step 8: Bind up pipe

1. Bind up the connection pipe, power cord and drain hose with the band.
2. Reserve a certain length of drain hose and power cord for installation when binding them.
   When binding to a certain degree, separate the indoor power and then separate the drain hose.



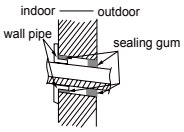


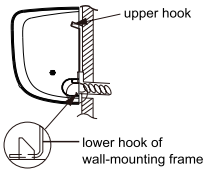
3. Bind them evenly.
4. The liquid pipe and gas pipe should be bound separately at the end.

Note:
- The power cord and control wire can't be crossed or winding.
- The drain hose should be bound at the bottom.

Step 9: Hang the indoor unit

1. Put the bound pipes in the wall pipe and then make them pass through the wall hole.
2. Hang the indoor unit on the wall-mounting frame.
3. Stuff the gap between pipes and wall hole with sealing gum.
4. Fix the wall pipe.
5. Check if the indoor unit is installed firmly and closed to the wall





Note:
- Do not bend the drain hose too excessively in order to prevent blocking.

7.4 Installation Outdoor Unit

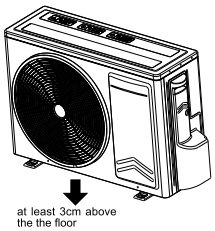
Step 1: Fix the support of outdoor

Select it according to the actual installation situation

1. Select installation location according to the house structure.
2. Fix the support of outdoor unit on the selected location with expansion screws.

Note:

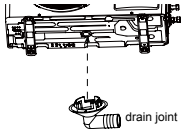
- Take sufficient protecttive measures when installing the outdoor unit
- Make sure the support can withstand at least four times of the unit weight.
- The outdoor unit should be installed at least 3cm above the the floor in orde to install drain joint.
- For the unit with cooling capacity of 2300W~5000W, 6 expansion screws are needed; for the unit with cooling capacity of 6000W~8000W, 8 expansion screws are needed; for the unit with cooling capacity of 10000W~16000W, 10 expansion screws are needed.



Step 2: Install drain joint

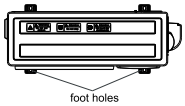
(Only for cooling and heating unit)

1. Connect the outdoor drain joint into the hole on the chassis, as shown in the picture below.
2. Connect the drain hose into the drain vent.



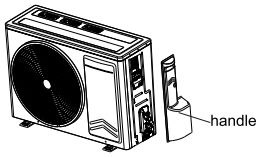
Step 3: Fix outdoor unit

1. Place the outdoor unit on the support.
2. Fix the foot holes of outdoor unit with bolts.

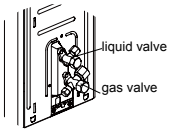


Step 4: Connect indoor and outdoor pipe

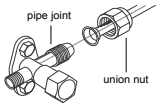
1. Remove the screw on the right handle of outdoor unit and then remove the handle.



2. Remove the screw cap of valve and aim the pipe joint at the bell mouth of pipe.



3. Pretightening the union nut with hand.

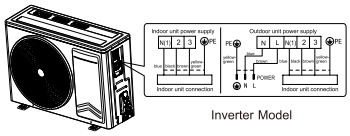


4. Tighten the union nut with torque wrench by referring to the sheet below.

Hex nut diameter	Tightening torque (N.m)
Φ 6	15~20
Φ 9.52	30~40
Φ 12	45~55
Φ 16	60~65
Φ 19	70~75

Step 5: Connect indoor and outdoor pipe

1. Remove the wire clip; connect the power connection wire and signal control wire (only for cooling and heating unit) to the wiring terminal according to the color,fix them with screws
2. Fix the power connection wire and signal control wire with wire clip (only for cooling and heating unit).



Inverter Model

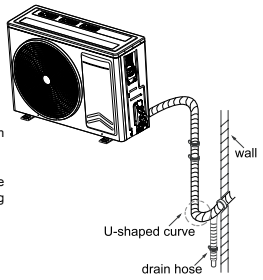
Note:

- After tighten the screw,pull the power cord slightly to check if it is firm
- Never cut the power connection wire to prolong or shorten the distance.

Step 6: Neaten the pipes

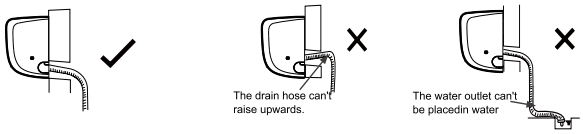
1. The pipes should be placed along the wall,bent reasonably and hidden possibly. Min.semidiameter of bending the pipe is 10cm.

2. If the outdoor unit is higher than the wall hole, you must set a U-shaped curve in the pipe before pipe goes into the room, in order to prevent rain from getting into the room.

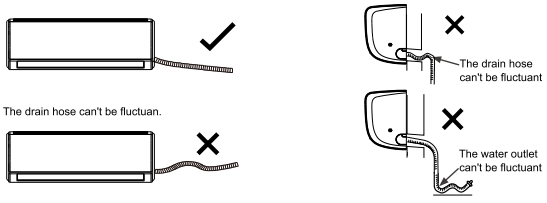


Note:

The through-wal height of drain hose shouldn't be higher than the outlet pipe hole of indoor unit.
The water outlet can't be placed in water in order to drain smoothly.



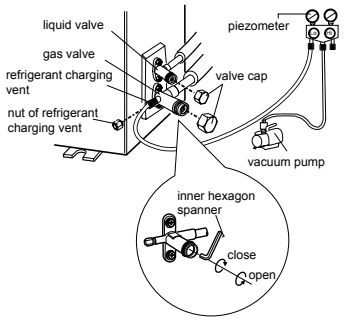
Slant the drain hose slightly downwards. The drain hose can't be curved, raised and fiuctuant, etc.



Step 7: Vacuum pumping

Use vacuum pump

1. Remove the valve caps on the liquid valve and gas valve and the nut of refrigerant charging vent.
2. Connect the charging hose of piezometer to the refrigerant charging vent of gas valve and then connect the other charging hose to the vacuum pump.
3. Open the piezometer completely and operate for 10-15min to check if the pressure of piezometer remains in -0.1MPa.
4. Close the vacuum pump and maintain this status for 1-2min to check if the pressure of piezometer remains in -0.1MPa. If the pressure decreases, there may be leakage.
5. Remove the piezometer, open the valve core of liquid valve and gas valve completely with inner hexagon spanner.
6. Tighten the screw caps of valve and refrigerant charging vent.
7. Reinstall the handle.



Step 8: Leakage detection

1. With leakage detector:
Check if there is leakage with leakage detector.

2. With soap water:
If leakage detector is not available, please use soap water for leakage detection.Apply soap water at the suspected position and keep the soap water for more than 3min. If there are air bubbles coming out of this position, there's a leakage.

7.5 Check after installation

Check according to the following requirement after finishing installation.

Items to be checked	Possible malfunction
Has the unit been installed firmly	The unit may drop, shake or emit noise
Have you done the refrigerant leakage test?	It may cause in sufficient cooling(heating) capacity.
Is heat insulation of pipeline sufficient	It may cause condensation and water dripping.
Is water drained well?	It may cause condensation and water dripping.
Is the voltage of power supply according to the voltage marked on the nameplate?	It may cause malfunction or damaging the parts.
Is electric wiring and pipeline installed correctly?	It may cause malfunction or damaging the parts.
Is the unit grounded securely?	It may cause electric leakage
Does the power cord follow the specification	It may cause malfunction or damaging the parts.
Is there any obstruction in the air inlet and outlet?	It may cause in sufficient cooling(heating) capacity.
The dust and sundries caused during installation are removed?	It may cause malfunction or damaging the parts.
The gas valve and liquid valve of connection pipe are open completely?	It may cause in sufficient cooling(heating) capacity.

7.6 Test operation

1. Preparation of test operation
- The client approves the air conditioner.
- Specify the important notes for air conditioner to the client.

2. Method of test operation
- Put through the power, press ON/OFF button on the remote controller to start operation.
- Press MODE button to select AUTO, COOL, DRY, FAN and HEATto check whether the operation is normal or not.
- If the ambient temperature is lower than 16℃, the air conditioner can't start cooling.

7.7 Configuration of connection pipe

1. Standard length of connection pipe
   - 5m, 7.5m, 8m.
2. Min. length of connection pipe is 3m.
3. Max. length of connection pipe and max. high difference.

Cooling capacity	Max length of connection pipe	Max height difference	Cooling capacity	Max length of connection pipe	Max height difference
5000Btu/h(1465W)	15	5	24000Btu/h(7032W)	25	10
7000Btu/h(2051W)	15	5	28000Btu/h(8204W)	30	10
9000Btu/h(2637W)	15	5	36000Btu/h(10548W)	30	20
12000Btu/h(3516W)	20	10	42000Btu/h(12306W)	30	20
18000Btu/h(5274W)	25	10	48000Btu/h(14064W)	30	20

4. The additional refrigerant oil and refrigerant charging required after prolonging connection pipe
- After the length of connection pipe is prolonged for 10m at the basis of standard length, you should add 5ml of refrigerant oil for each additional 5m of connection pipe.
- Thecalculation methodof additional refrigerant charging amount (onthe basis of liquid pipe):
  Additional refrigerant charging amount = prolonged length of liquid pipe × additional refrigerant charging amount per meter

- Basing on the length of standard pipe, add refrigerant according to the requirement as shown in the table. The additional refrigerant charging amount per meter is different according to the diameter of liquid pipe. See the following sheet.

Additional refrigerant charging amount for R22, R407C, R410A and R134a

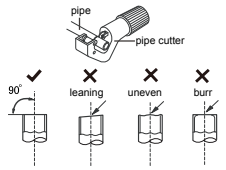
Diameter of connection pipe		Outdoor unit throttle	
Liquid pipe(mm)	Gas pipe(mm)	Cooling only(g/m)	Cooling and heating(g/m)
Φ6	Φ9.52 or Φ12	15	20
Φ6 or Φ9.52	Φ16 or Φ19	15	50
Φ12	Φ19 or Φ22.2	30	120
Φ16	Φ25.4 or Φ31.8	60	120
Φ19	-	250	250
Φ22.2	-	350	350

7.8 Pipe expanding method

Improper pipe expanding is the main cause of refrigerant leakage. Please expand the pipe according to the following steps:

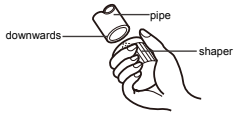
A: Cut the pipe

Confirm the pipe length according to the distance of indoor unit and outdoor unit. Cut the required pipe with pipe cutte .



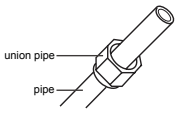
B: Remove the burrs

Remove the burrs with shaper and prevent the burrs from getting into the pipe.



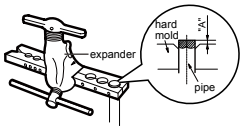
C: Put on suitable insulating pipe
D: Put on the union nut

Remove the union nut on the indoor connection pipe and outdoor valve; install the union nut on the pipe.



E: Expand the port

Expand the port with expander.

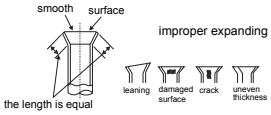


Note:
"A" is different according to the diameter, please refer to the sheet below:

Outer diameter(mm)	A(mm)	
	Max	Min
Φ6 - 6.35(1/4")	1.3	0.7
Φ9.52(3/8")	1.6	1.0
Φ12-12.7(1/2")	1.8	1.0
Φ15.8-16(5/8")	2.4	2.2

F: Inspection

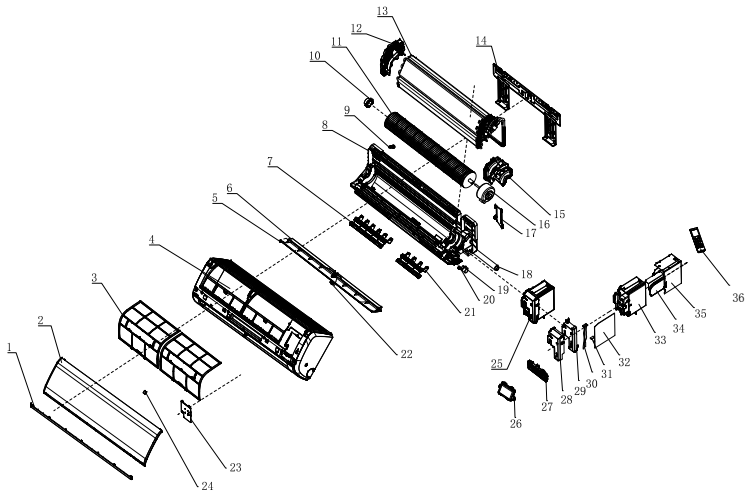
Check the quality of expanding port.
If there is any blemish, expand the port again according to the steps above.



8. Exploded Views and Parts List

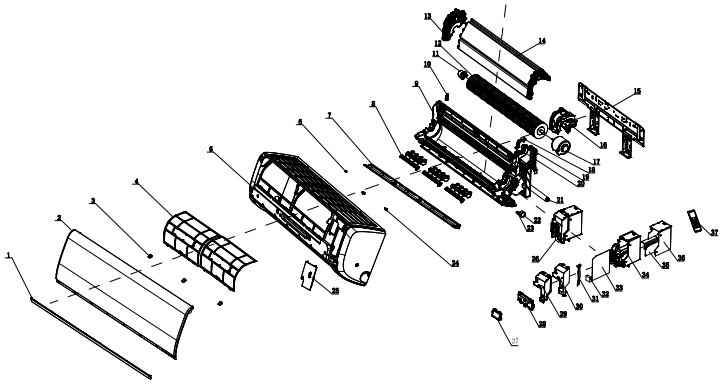
8.1 Indoor Unit

Model: CH-S09FTXN-E2wf CH-S12FTXN-E2wf



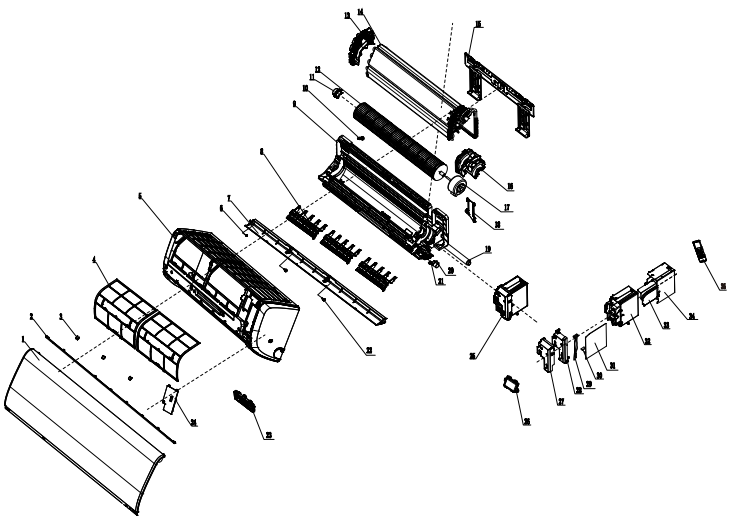
NO.	Description	CH-S09FTXN-E2wf	CH-S12FTXN-E2wf	QTY
	product code	SCB001N0011	SCB001N0021	
1	decorate strip	S21200001P	S21200001P	1
2	panel	S24600000004	S24600000004	1
3	filter subassembly	S15420001	S15420001	2
4	panel	S20000005	S20000005	1
5	left axile bush	S15210003	S15210003	1
6	air louver	S15200001	S15200001	1
7	swing louver	S15200003	S15200003	1
8	chassis subassembly	S21400001	S21400001	1
9	water pan rubber	S62600001	S62600001	1
10	bearing rubber ring subassembly	S62400001	S62400001	1
11	cross-flow fan	S15020002	S15020002	1
12	evaporator angular carriage	S21800002	S21800002	1
13	evaporator assembly	S20210001	S20210001	1
14	wall frame	S10620001	S10620001	1
15	fan motor clamp board	S22020002	S22020002	1
16	fan motor	S16800001	S16800001	1
17	fan motor clamp board	S22020001	S22020001	1
18	drain pipe	S1301000101	S1301000101	1
19	step motor	S17000001	S17000001	1
20	crank	S61200002	S61200002	1
21	swing louver	S15200004	S15200004	1
22	axile bush	S15210002	S15210002	1
23	electrical box cover 2 subassembly	S21420003	S21420003	1
24	screw cap	S21830001	S21830001	1
25	electrical box assembly	S39901005	S39901006	1
26	WiFi module	Y3500000101	Y3500000101	1
27	display board	S304100002	S304100002	1
28	electrical box cover shielding cover	S11020004	S11020004	1
29	electrical box cover	S21420001	S21420001	1
30	tempreature sensor	S3300000101	S3300000101	1
31	jumper wire cap	S3361000112	S3361000110	1
32	main board	S300500044	S300500044	1
33	electrical box	S20410001	S20410001	1
34	electrical box shielding cover 2	S11020003	S11020003	1
35	electrical box shielding cover 1	S11020002	S11020002	1
36	remote controller	S30400001K004	S30400001K004	1

Model:CH-S18FTXN-E2wf



NO.	Description product code	CH-S18FTXN-E2wf SCB001N0051	QTY
1	decorate strip	S21200005P	1
2	panel	S47040000005	1
3	screw cap	S21830002	3
4	filter subassembly	S15420003	2
5	panel	S20000007	1
6	left axile bush	S15210003	1
7	air louver	S15200008	1
8	swing louver	S15200007	3
9	chassis subassembly	S21400007	1
10	water pan rubber	S62600001	1
11	bearing rubber ring subassembly	S62400003	1
12	cross-flow fan	S15020003	1
13	evaporator angular carriage	S21800005	1
14	evaporator assembly	S10200004	1
15	wall frame	S10620007	1
16	fan motor clamp board	S22020004	1
17	fan motor	S16800003	1
18	fan motor clamp board	S22020007	1
19	connction pipe pressed plate	S22020005	1
20	motor stand	S22020006	1
21	drain pipe	S1301000103	1
22	step motor	S17000003	1
23	crank	S61200002	1
24	axile bush	S15210002	1
25	electrical box cover 2 subassembly	S21420006	1
26	electrical box assembly	S11800016	1
27	WiFi module	Y35000001	1
28	display board	S304100002	1
29	electrical box cover shielding cover	S11020007	1
30	electrical box cover	S21420005	1
31	tempreature sensor	S33000001	1
32	jumper wire cap	S3361000122	1
33	main board	S300500045	1
34	electrical box	S20410004	1
35	electrical box shielding cover 2	S11020006	1
36	electrical box shielding cover 1	S11020005	1
37	remote controller	S30400001K004	1

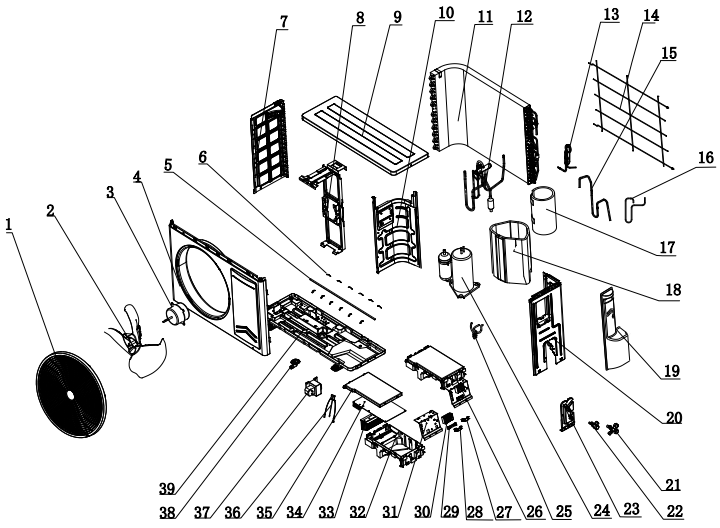
Model:CH-S24FTXN-E2wf



NO.	Description product code	CH-S24FTXN-E2wf SCB001N0061	QTY
1	panel	S47040000006	1
2	decorate strip	S21200006P	1
3	screw cap	S21830002	3
4	filter subassembly	S15420004	2
5	panel	S20000010	1
6	left axile bush	S15210003	1
7	air louver	S15200010	1
8	swing louver	S15200009	3
9	chassis subassembly	S21400008	1
10	water pan rubber	S62600001	1
11	bearing rubber ring subassembly	S62400003	1
12	eross-flow fan	S15020004	1
13	evaporator angular carriage	S21800006	1
14	evaporator assembly	S21800006	1
15	wall frame	S10620017	1
16	fan motor clamp board	S22020008	1
17	fan motor	S16800008	1
18	connction pipe pressed plate	S22020005	1
19	drain pipe	S1301000104	1
20	step motor	S17000003	1
21	crank	S61200002	1
22	axile bush	S15210002	2
23	display board	S304100002	1
24	electrical box cover 2 subassembly	S21420006	1
25	electrical box assembly	S11800017	1
26	WiFi module	Y35000001	1
27	electrical box cover 1 shielding cover	S11020007	1
28	electrical box cover 1	S21420005	1
29	tempreature sensor	S33000001	1
30	jumper wire cap	S3361000125	1
31	main board	S300500046	1
32	electrical box	S20410004	1
33	electrical box shielding cover 2	S11020006	1
34	electrical box shielding cover 1	S11020005	1
35	remote controller	S30400001K004	1

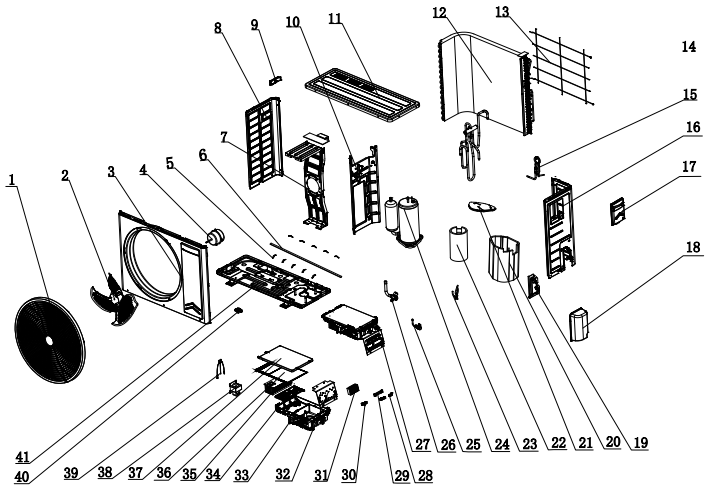
8.2 Outdoor Unit

Model: CH-S09FTXN-E2wf
CH-S12FTXN-E2wf



NO.	Description	CH-S09FTXN-E2wf	CH-S12FTXN-E2wf	QTY
	product code	SCB001W0013_A0020	SCB001W0021_A0020	
1	grill（apricot grey）	S21600001	S21600001	1
2	axial flow fan（original color）	S15010002	S15010002	1
3	motor	S16800011	S16800011	1
4	front panel（apricot grey）	S11010001P	S11010001P	1
5	Electric heating tablet	S11410001	S11410001	1
6	electrical heating(chassis)	S3080000101	S3080000101	12
7	left side panel	S10600001	S10600001	1
8	motor support	S1120000101	S1120000101	1
9	top cover（apricot grey）	S10450001P	S10450001P	1
10	Partition board subassembly	S10440011	S10440011	1
11	condenser assembly	S20209007	S20209006	1
12	4-way-valve assembly	S12050006	S12050005	1
13	capillary subassembly	S20317007	S20317006	1
14	mesh enclosure(Iron mesh)	S10860006	S10860006	1
15	suction pipe	S20307009	S12620010	1
16	discharge pipe	S12610015	S12610014	1
17	noise-absorption sponge（inside）	/	S61410020	1
18	noise-absorption sponge（outside）	S61410019	S61410024	1
19	big handle（apricot grey）	S22210001	S22210001	1
20	right side panel（apricot grey）	S10600002P	S10600002P	1
21	stop valve 3/8	S1420000403	S1420000403	1
22	stop valve 1/4	S1420000103	S1420000103	1
23	valve support（apricot grey）	S11200002P	S11200002P	1
24	compressor and accessory	S10000012	S10000005	1
25	wiring（compressor）	S33200008	S33200005	1
26	electric box assembly	S39901008	S39901007	1
27	wire fix clamp	S61000002	S61000002	1
28	wire fix clamp	S61000004	S61000004	1
29	insulation gasket	S60600004	S60600004	1
30	wiring board（5 unit）	S3360000401	S3360000401	1
31	wiring board support	S1082000201	S1082000201	1
32	electric box	S20400002	S20400002	1
33	radiator	S34810002	S34810002	1
34	main board	S300100015	S300100007	1
35	electric box cover	S20400003	S20400003	1
36	temp. sensor	S3300000202	S3300000202	1
37	reactor	S34020001	S34020001	1
38	drain joint	S13210001	S13210001	1
39	chassis subassembly	S10400003P	S10400013P	1

Model: CH-S18FTXN-E2wf
CH-S24FTXN-E2wf



NO.	Description	CH-S18FTXN-E2wf	CH-S24FTXN-E2wf	QTY
	product code	SCB001W0051_A0020	SCB001W0061_A0020	
1	grill（apricot grey）	S21600002	S21600002	1
2	axial flow fan（original color）	S15010003	S15010003	1
3	front panel（apricot grey）	S11010002P	S11010002P	1
4	ODU fan motor	S16800009	S16800009	1
5	Electric heating tablet	S11410001	S11410001	1
6	electrical heating(chassis)	S3080000101	S3080000101	10
7	motor support subassembly	S1120000404	S1120000404	1
8	left side panel（apricot grey）	S10600003P	S10600003P	1
9	small handle	S22210003	S22210003	1
10	Partition board subassembly	S10440014	S10440014	1
11	top cover（apricot grey）	S10450002P	S10450002P	1
12	condenser assembly	S10300010	S10300011	1
13	mesh enclosure(Iron mesh)	S10860004	S10860004	1
14	4-way-valve assembly	S12050004	S12050004	1
15	capillary subassembly	S12000006	S12000007	1
16	4-way-valve coil	S3380000209	S3380000209	1
17	right side panel（apricot grey）	S10600004P	S10600004P	1
18	big handle（apricot grey）	S22210002	S22210002	1
19	valve cover	S21420007	S21420007	1
20	valve support subassembly（apricot grey）	S11200002P	S1120000201P	1
21	noise-absorption sponge（outside）	S61410003	S61410003	1
22	noise-absorption sponge（inside）	S61410009	S61410009	1
23	wiring（compressor）	S3320000501	S3320000501	1
24	compressor and accessory	S10000008	S10000008	1
25	stop valve 1/4	S1420000103	S1420000103	1
26	stop valve 1/2	S1420000203	S1420001603	1
27	electric box assembly	S11800015	S11800015	1
28	wire fix clamp	S61000002	S61000005	1
29	insulation gasket	S60600004	S60600004	1
30	wire fix clamp	S61000004	S61000004	1
31	wiring board（5 unit）	S3360000401	S3360000401	1
32	wiring board support	S10820004	S10820004	1
33	electric box	S20400006	S20400006	1
34	module support	S22240001	S22240001	1
35	radiator	S34810003	S34810003	1
36	main board	S300100008	S300100008	1
37	electric box cover	S20400007	S20400007	1
38	reactor	S34020002	S34020002	1
39	temp. sensor	S3300000203	S3300000203	1
40	drain joint	S13210001	S13210001	1
41	chassis subassembly	S10400012P	S10400012P	1

9. Troubleshooting

9.1 Error Code List

Error Code	Name of malfunction and status	Way of display			Error Type	Possible cause	Troubleshooting Procedure
		Display directly	By remote control procedure only	By remote control procedure within compressor stop 200 sec or direcly after compressor stop 200 sec			
BL	Filter cleaning reminder	√			indoor	filter may have dust	Clean the fliter
H0	Discharge temperature overheat protection			√	outdoor	see the process below	see the process below
H1	System overload protection			√	outdoor	see the process below	see the process below
H2	Compressor overload protection			√	outdoor	see the process below	see the process below
H3	Anti-freezing protection			√	indoor	1. Indoor machine return air is not smooth. 2.The fan speed is too low 3.The filter or evaporator not clean 4.The inner temperature sensor abnormal	1. Indoor machine return air is not smooth. 2.The fan speed is too low 3.The filter or evaporator not clean 4.Change the temperature sensor abnormal
H7	4 way valve reversed malfunction			√	outdoor	1.Supply voltage is unstable 2.mainboard and 4-Way valve unconnected 3.4-Way valve is broken"	"1.check the voltage of power supply 2.check the connecting of mainboard and 4-way valve 3.change the 4-Way valve"
H8	ODU ambient temperature malfunction		√		outdoor	1. The outdoor environment temperature is too high or too low 2. The outdoor environment temprature sensor is damage	1. The outdoor environment temperature is in normal range 2. Change the temprature sensor
L0	Compressor non-synchronism			√	outdoor	see the process below	see the process below
L1	Compressor start failure			√	outdoor	see the process below	see the process below
L2	Compressor current peak protection			√	outdoor	see the process below	see the process below

L3	Compressor current RMS protection			√	outdoor	see the process below	see the process below
L4	Compressor IPM protection			√	outdoor	see the process below	see the process below
L5	IPM overheat protection			√	outdoor	1. The radiator ventilation is abnormal 2. IPM module thermal paste dry solid or screw loose 3. the mainboard is damage	1. Check the radiator ventilation is normal 2. Check the IPM module thermal paste dry solid or screw loose is normal 3. Change the main board
L6	Compressor current sensing circuit malfunction	√			outdoor	the mainboard is broken	change the mainboard
L7	Compressor phase loss protection			√	outdoor	1.mainboard and compressor unconnected 2. the mainboard is broken	1. check the connecting of mainboard and compressor 2. change the mainboard
L8	ODU DC fan motor error			√	outdoor	1. Outdoor motor fan is blocked 2. mainboard and DC fan motor unconnected 3. the mainboard is broken 4. DC fan motor is broken	1. remove the block 2. check the connecting of mainboard and DC fan motor 3. change the mainboard 4.change the DC fan motor
L9	ODU DC fan motor current sensing circuit malfunction	√			outdoor	the mainboard is broken	change the mainboard
C0	IDU jumper cap error	√			indoor	see the process below	see the process below
C1	IDU AC voltage zero-crossing detectiong error	√			indoor	see the process below	see the process below
C2	IDU fan motor error	√			indoor	see the process below	see the process below
C3	Communication error between IDU and ODU check by IDU	√			indoor	see the process below	see the process below
C4	Function Select Circuit error		√		indoor	the mainboard is broken	change the mainboard

C5	IDU EEPREM error		√		indoor	the mainboard is broken	change the mainboard
C6	Communication error between IDU and ODU check by ODU	√			outdoor	see the process below	see the process below
C7	Communication error between mainboard and WiFi modular		√		indoor	1.the wiring terminal between the mainboard and wifi module loosened or poorly contacted; 2.the mainboard or wifi module is bad.	1.check the wiring terminal; 2.check the mainboard and wifi module,change the bad one.
U0	ODU EEPREM error	√			outdoor	1. EEPROM chip loose 2. the mainboard is broken	1. Check the EEPROM chip is fixed 2. change the mainboard
U1	ODU charging malfunction	√			outdoor	1. the voltage of power supply is too low 2. the mainboard is broken	1. check the voltage of power supply 2. change the mainboard
U2	ODU AC voltage abnormal protection			√	outdoor	1. the voltage of power supply is too low 2. the mainboard is broken	1. check the voltage of power supply 2. change the mainboard
U3	ODU DC voltage overhigh protection			√	outdoor	1. the voltage of power supply is too high 2. the mainboard is broken	1. check the voltage of power supply 2. change the mainboard
U4	ODU DC voltage over low protection			√	outdoor	1. the voltage of power supply is too low 2. the mainboard is broken	1. check the voltage of power supply 2. change the mainboard
U5	DC voltage drop protection			√	outdoor	1. the voltage of power supply is unstable 2. the mainboard is broken	1. check the voltage of power supply 2. change the mainboard
U6	ODU AC current abnormal protection	√			outdoor	1. Refrigerant leakage 2. the mainboard is broken	1. check the refrigerant leakage 2. change the mainboard

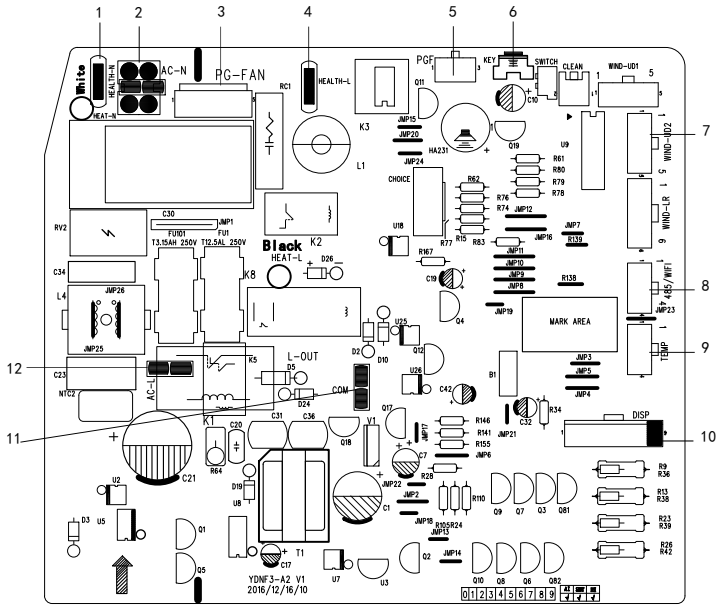
U7	ODU AC RMS current overhigh protection			√	outdoor	1. Supply voltage is unstable; 2. System is overload because of poor radiating.	1. Check the voltage of power supply ; 2. Check the system
U8	ODU PFC current sensing circuit malfunction protection	√			outdoor	the mainboard is broken	change the mainboard
U9	PFC protection			√	outdoor	see the process below	see the process below
UA	Capacity dismatch between IDU and ODU error	√			outdoor	1. The outdoor unit valve is close; 2. The refrigerant connecting pipe installation errors; 3. The inside and outside the machine connecting wiring error; 4. The refrigerant connecting pipe with the connection order sequence.	1. Check the outdoor unit valve is open; 2. The refrigerant connecting pipe installation errors; 3. Check the inside and outside the machine connecting wiring is correct; 4. Check the refrigerant connecting pipe with the connection is in order sequence.
Ub	Mode conflict	√			outdoor	Failure in indoor model conflicts with the operation mode of the outdoor unit	Power off or change the failure in indoor unit mode to non-conflicts mode
E0	IDU ambiet temp sensor short\open	√			indoor	1. the wiring terminal between the temperature sensor and the mainboard loosened or poorly contacted 2. the sensor is broken 3. the mainboard is broken	1. check the wiring terminal 2.change the sensor 3. change the mainboard
E1	IDU pipe temp sensor short\open	√			indoor	1. the wiring terminal between the temperature sensor and the mainboard loosened or poorly contacted 2. the sensor is broken 3. the mainboard is broken	1. check the wiring terminal 2.change the sensor 3. change the mainboard

E2	ODU ambient temp sensor short\open	√			outdoor	1.the wiring terminal between the temperature sensor and the mainboard loosened or poorly contacted 2.the sensor is broken 3.the mainboard is broken	1.check the wiring terminal 2.change the sensor 3.change the mainboard
E3	ODU pipe temp sensor short\open	√			outdoor	1.the wiring terminal between the temperature sensor and the mainboard loosened or poorly contacted 2. the sensor is broken 3. the mainboard is broken	1.check the wiring terminal 2.change the sensor 3.change the mainboard
E4	ODU discharge temp sensor short\open	√			outdoor	1.the wiring terminal between the temperature sensor and the mainboard loosened or poorly contacted 2.the sensor is broken 3. the mainboard is broken	1. check the wiring terminal 2.change the sensor 3.change the mainboard
E5	IPM temp sensor short\ open	√			outdoor	the IPM temp sensor is broken	change the mainboard
E6	Liquid pipe temp sensor short\open	√			outdoor	1.the wiring terminal between the temperature sensor and the mainboard loosened or poorly contacted 2.the sensor is broken 3. the mainboard is broken	1.check the wiring terminal 2.change the sensor 3. change the mainboard

E7	Gas pipe temp sensor short\open	√			outdoor	1. the wiring terminal between the temperature sensor and the mainboard loosened or poorly contacted 2. the sensor is broken 3. the mainboard is broken	1.check the wiring terminal 2.change the sensor 3. change the mainboard
E8	Discharge temp sensor malfunction	√			outdoor	1.ODU discharge temp sensor is not in the right position 2. the sensor is broken 3. the mainboard is broken	1.check the sensor position 2.change the sensor 3. change the mainboard

9.2 PCB Printed Diagram

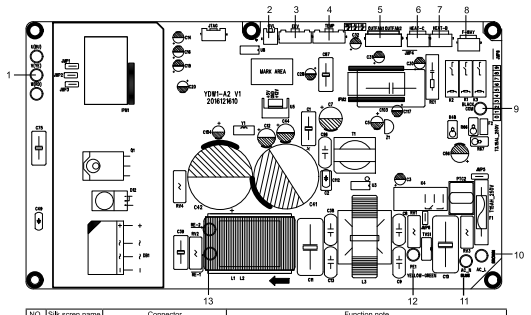
• **Indoor Unit**



1	Cold pasma zero wire connector
2	Power supply zero wire connector
3	PG fan contral connector
4	Cold pasma fire wire connector
5	PG fan feedback connector
6	Auto key
7	Vertical swing connector
8	WiFi connector
9	Temp. sensor connector
10	Display connector
11	Communication connector
12	Power supply fire wire connector

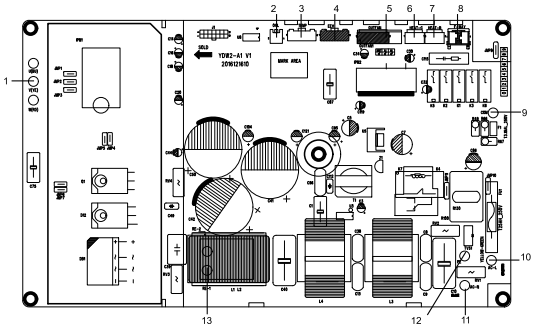
• **Outdoor Unit**

9K/12K



NO.	Silk scren name	Connector	Function note
1	U(BU), V(YE),W(RD)	Compressor interface	Used to connect the compressor: U (BU) - (YE) - yellow blue, V, W (RD) - red
2	OVL	Overload interface	Used to connect the compressor overload protector, the two white lines, Random selection
3	EEV	Electronic expansion valve interface	Used to connect five core electronic expansion valve
4	TEMP	Temp.sensor interface	Used to connect to the six core thermal package: tube temperature (20 k @ 25 ℃), the outer ring temperature (15 k @ 25 ℃), exhaust (50 k @ 25 ℃)
5	OFAN,OFAN1	Fan interface	Used to connect to external fan
6	HEAT-C	Compression mechanical and electrical heated interface	Used to compress the mechanical and electrical heating zone
7	HEAT-B	Chassis electrical heating zone interface	Used for chassis electrical heating zone
8	F-WAY	4-way-valve interface	4-way-valve
9	COM	Communication line	Used to communicate with the indoor unit
10	AC-L	Power supply line	Used to connect to the power supply line
11	AC-N	Power supply wiring	Used to connect the power supply wiring
12	PE	Power supply ground line	Used to connect the power supply ground line
13	RE-1, RE-2	Reactor connecting	Used to connect the reactor

18K/24K



NO.	Silk scren name	Connector	Function note
1	U(BU), V(YE),W(RD)	Compressor interface	Used to connect the compressor: U (BU) - (YE) - yellow blue, V, W (RD) - red
2	OVL	Overload interface	Used to connect the compressor overload protector, the two white lines, Random selection
3	TEMP	Temp.sensor interface	Used to connect to the six core thermal package: tube temperature (20 k @ 25 ℃), the outer ring temperature (15 k @ 25 ℃), exhaust (50 k @ 25 ℃)
4	EEV	Electronic expansion valve interface	Used to connect five core electronic expansion valve
5	OFAN,OFAN1	Fan interface	Used to connect to external fan
6	HEAT-C	Compression mechanical and electrical heated interface	Used to compress the mechanical and electrical heating zone
7	HEAT-B	Chassis electrical heating zone interface	Used for chassis electrical heating zone
8	F-WAY	4-way-valve interface	4-way-valve
9	COM	Communication line	Used to communicate with the indoor unit
10	AC-L	Power supply line	Used to connect to the power supply line
11	AC-N	Power supply wiring	Used to connect the power supply wiring
12	PE	Power supply ground line	Used to connect the power supply ground line
13	RE-1, RE-2	Reactor connecting	Used to connect the reactor

9.3 Procedure of Troubleshooting

(1) IDU Jumper cap error（C0）

Main detection points:

- Is there jumper cap on the main board?
- Is the jumper cap inserted correctly and tightly?
- The jumper is broken?
- The motor is broken?
- Detection circuit of the mainboard is defined abnormal

Malfunction diagnosis process:

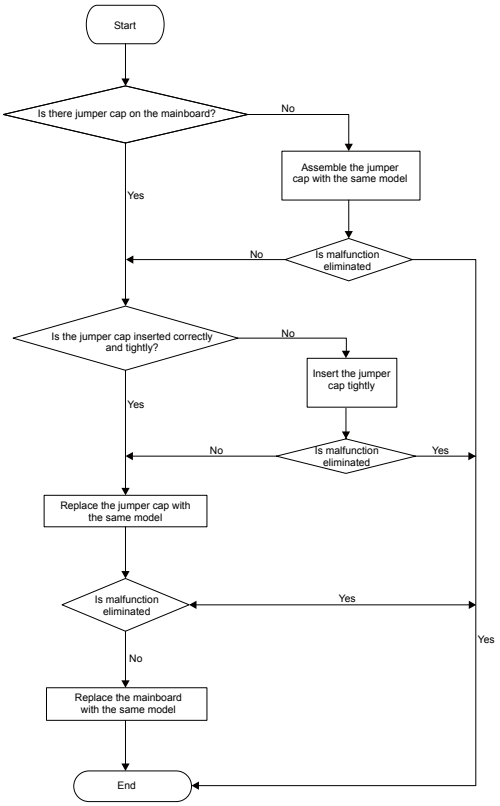


Diagram 1

(2) IDU AC Voltage zero-crossing detection error（C1）

Main detection points:

- Instant energization afte de-energization while the capacitor discharges slowly
- The zero-cross detection circuit of the mainboard is defined abnormal

Malfunction diagnosis process:

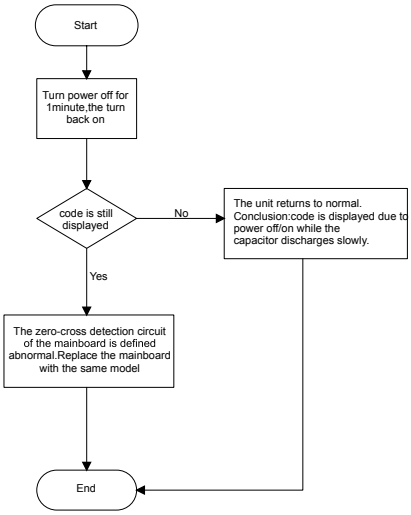


Diagram 2

(3) IDU fan motor error（C2）

Main detection points:

- SmoothlyIs the control terminal of PG motor connected tightly
- SmoothlyIs the feedback interface of PG motor connected tightly
- The fan motor can't operate?
- The motor is broken?
- Detection circuit of the mainboard is defined abnorm

Malfunction diagnosis process:

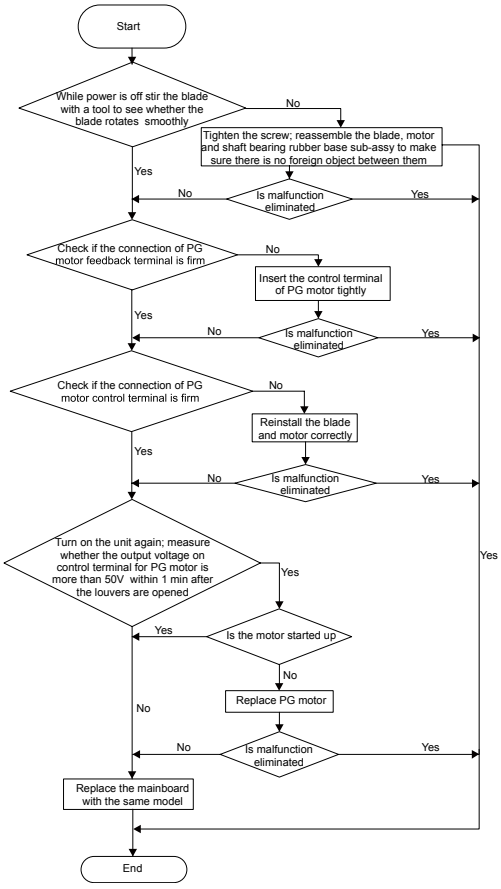


Diagram 3

(4) Temperature sensor open/short circuit(E0、E1）

Main detection points:

- Is the wiring terminal between the temperature sensor and the controller loosened or poorly contacted
- Is there short circuit due to trip-over of the parts
- Is the temperature sensor broken
- Is main board broken?Malfunction diagnosis process

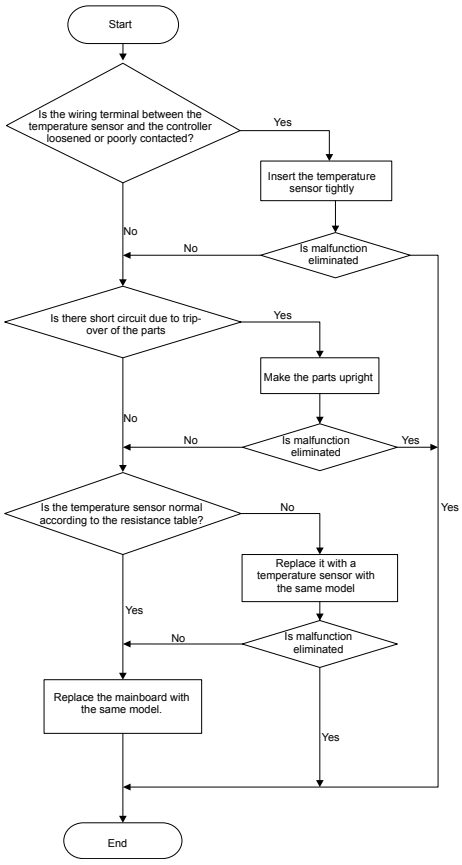


Diagram 4

Troubleshooting

(1) Communication error(C3、C6)

Main checking points:

- If the connection wire between the indoor unit and outdoor unit is connected well, if the wires inside the unit is connected well?
- If the indoor mainboard or outdoor main board is broken;

Flow chart:

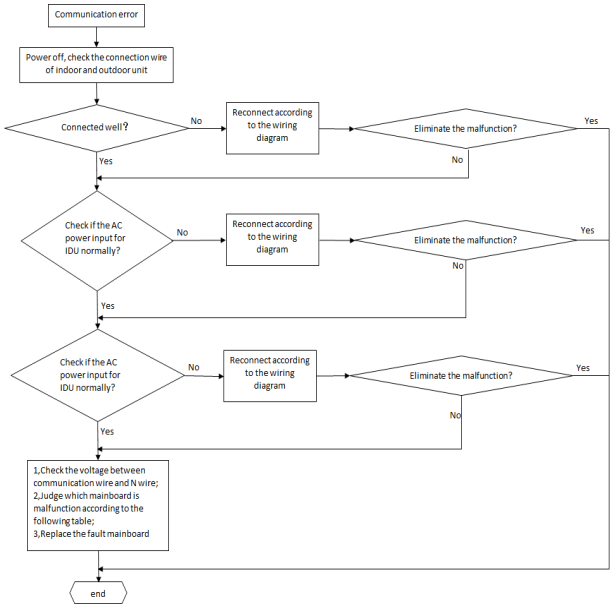


Diagram 5

Voltage between Communication and N wire

	Power on less than 3 seconds	Power on for more than 3 seconds
normal voltage	Rise to about 28V stable without change	Voltage varies at 0-50V
ODU mainboard abnormal	0V stable without change	
	about 2V stable without change	
	about 28V stable without change	
	Rise to about 28V stable without change	Voltage varies at 0-50V
IDU mainboard abnormal	Rise to about 56V stable without change	Voltage varies at 54-56V
	Rise to about 28V stable without change	Voltage varies at 0-28V
	Rise to about 56V stable without change	Voltage varies at28-56V

(2) Temperature sensor open/short circuit(E2-E5)

Main checking points:

- If the temperature sensor is damaged or broken
- If the terminal of the temperature sensor is loosended or not connected;
- If the mainboard is broken;

Flow chart:

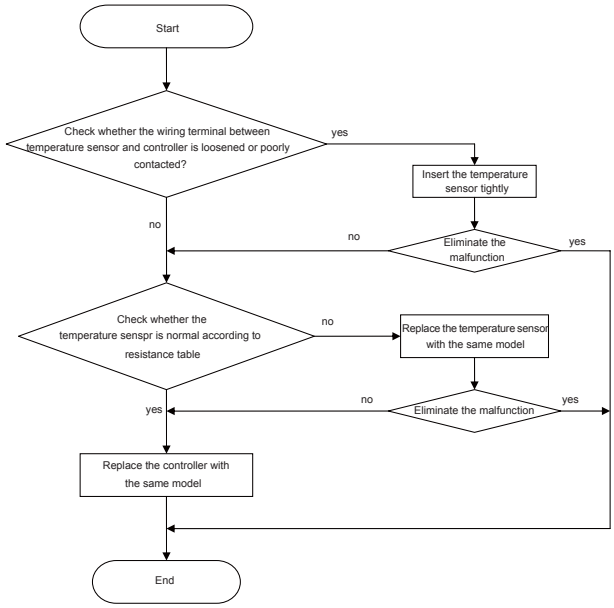


Diagram 6

(3) Discharge temperature overheat, Compressor overload protection(H0、H2)

Main checking points:

- If the eletric expansion valve is connected well or it is broken;
- If there is refrigerant leakage;
- If the overload protector is broken;

Flow chart:

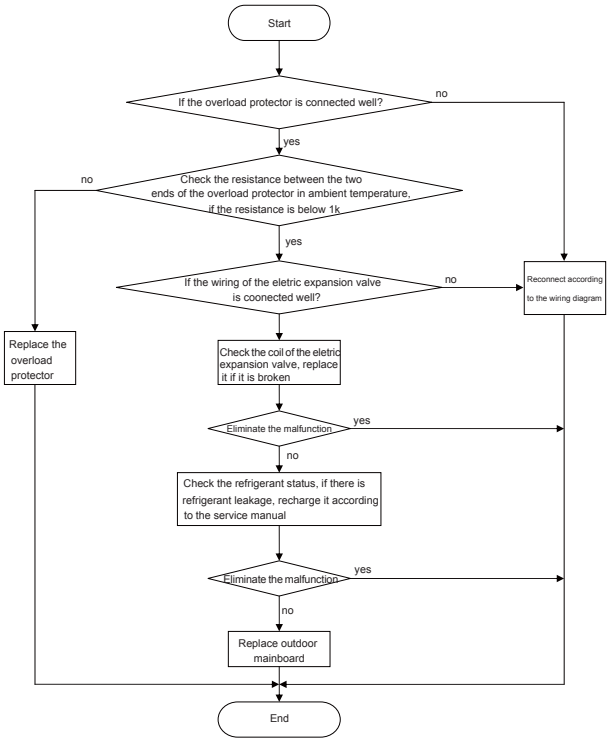


Diagram 7

Noted: the detection method of the coil of the eletric expansion valve: there is five pieces of the coil of the eletric expansion valve, the resistance of one of them (the leftmost or the rightmost one) is almost the same as the resistance of other terminal (within 100 Ω). Judge the condition of the electronic expansion valve through detecting these resistance.

(4) System overload protection(H1)

Main checking points:

- If the outdoor ambient temperature is within the normal range;
- If the outdoor fan is running normally;
- If the indoor and outdoor radiation environment is good;

Flow chart:

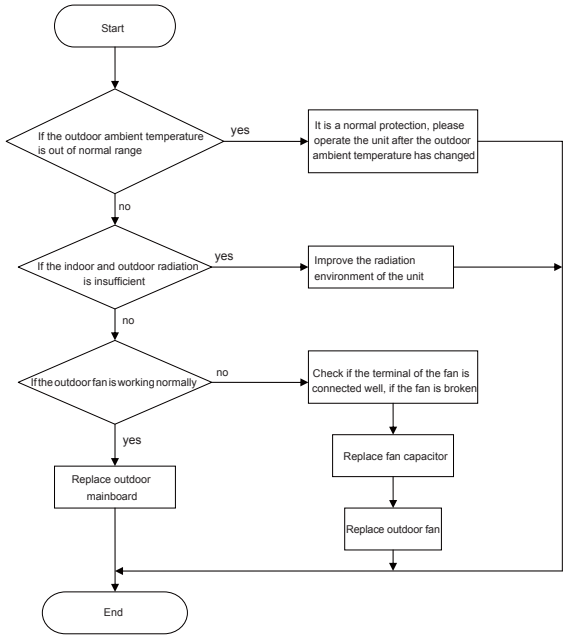


Diagram 8

(5) Compressor non-synchronism protection(L0)

Main checking points:

- If the pressure of the system is too high;
- If the eletric expansion valve is working normally or it is broken;
- If the radiation of the unit is good;

Flow chart:

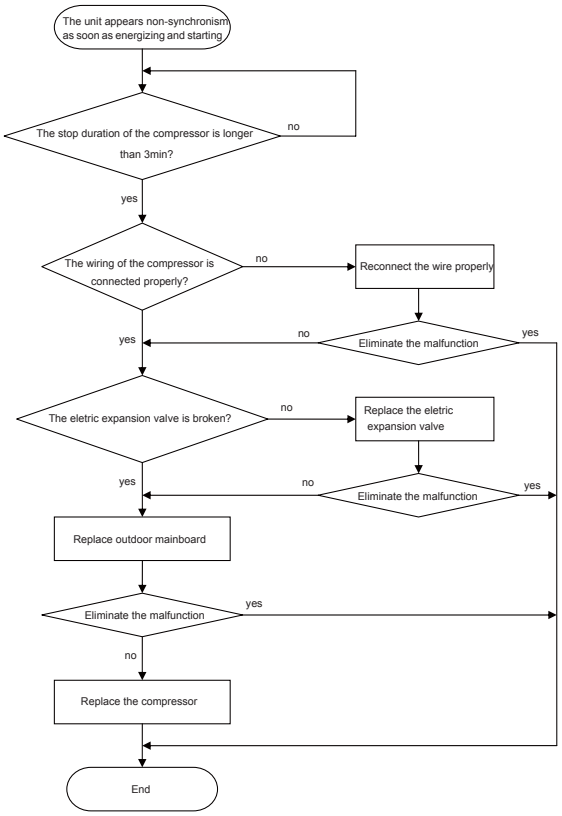


Diagram 9

(6) Compressor start failure protection（L1）

Main checking points:

- If the connection wire of the compressor is connected properly;
- If the stop duration of the compressor is sufficient;
- If the compressor is broken;
- If the refrigerant charging amount is too much;

Flow chart:

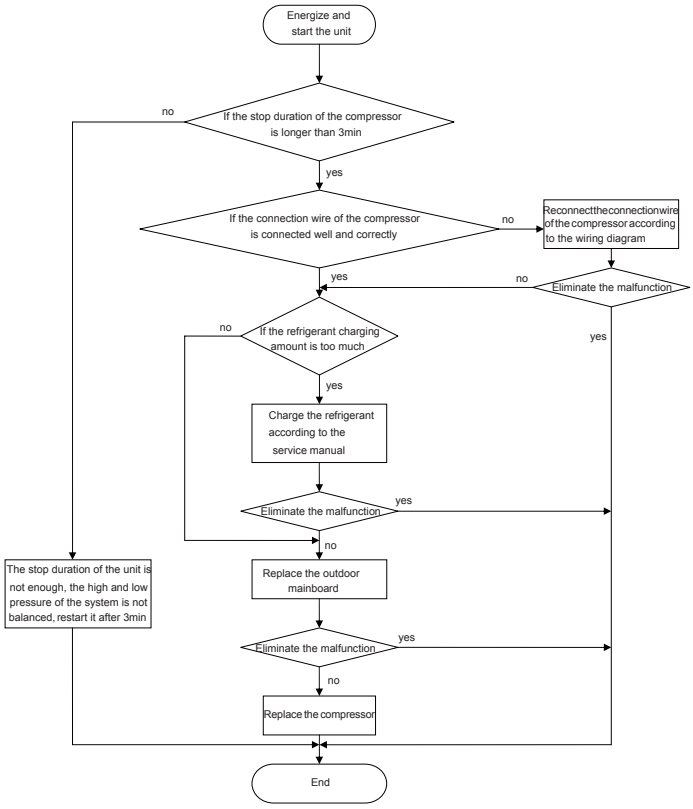


Diagram 10

(7) IPM protection，Compressor current protection（L2、L3、L4）

Main checking point:

- If the input voltage of the unit is within normal range?
- If the connection wire of compressor is connected well? Is it loose? If the connection sequence is correct?
- If the resistance of compressor coil is normal? If the isolation of compressor coil with copper pipe is good?
- If the unit is overloaded? If the heat radiation of the unit is good?
- If the refrigerant charge is suitable?

Flow chart:

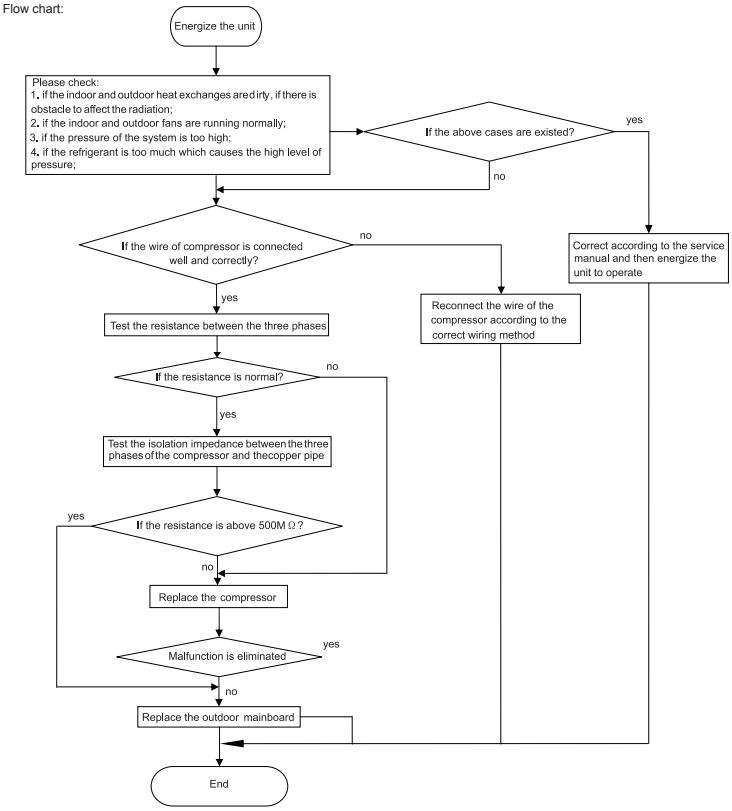


Diagram 11

(8) ODU Charging malfunction(U1)

Main checking points:

- If the wiring of the induction is connected well and if the induction is broken;
- If the mainboard is broken;

Flow chart:

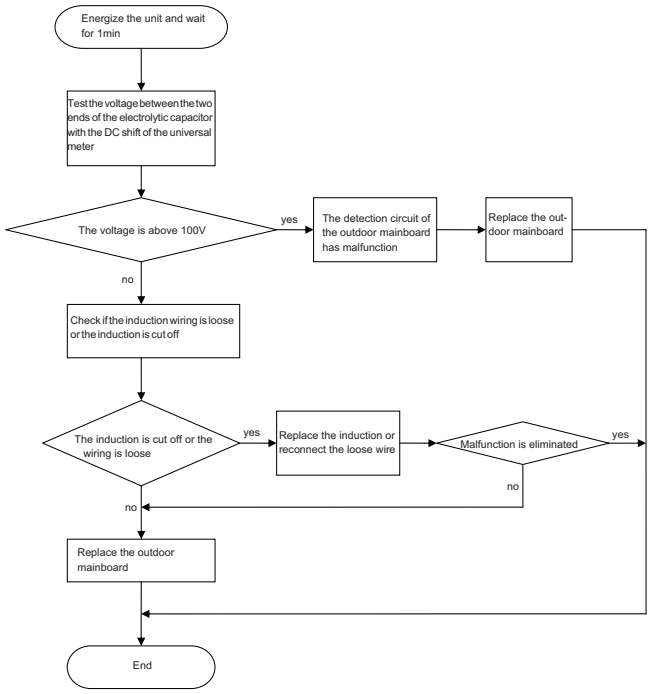


Diagram 12

(9) PFC protection(U9)

Main checking points:

- If the power supply is normal;
- Check if the connection wire of induction is connected well and if the induction is broken;

Flow chart:

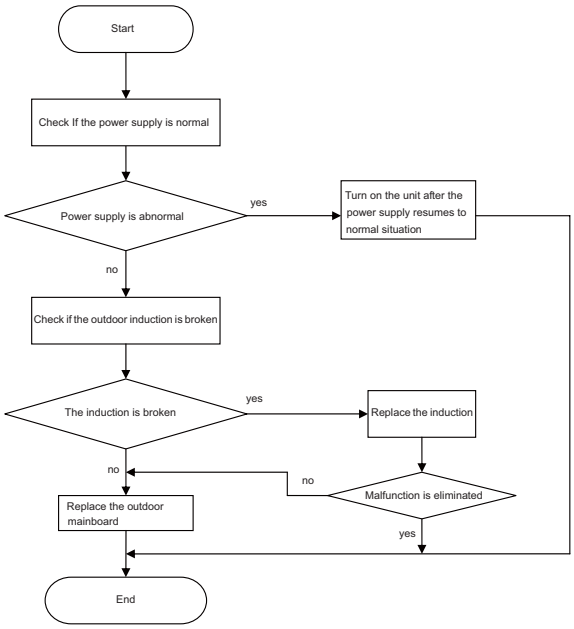


Diagram 13

9.3 Troubleshooting for Normal Malfunction

1. Air Conditioner Can't be Started Up

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
No power supply, or poor connection for power plug	After energization, operation indicator isn't bright and the buzzer can't give out sound	Confirm whether it's due to power failure. If yes,wait for power recovery. If not, check power supply circuit and make sure the power plug is connected well.
Wrong wire connection between indoor unit and outdoor unit, or poor connection for wiring terminals	Under normal power supply circumstances, operation indicator isn't bright after energization	Check the circuit according to circuit diagram and connect wires correctly. Make sure all wiring terminals are connected firm
Electric leakage for air conditioner	After energization, room circuit breaker trips off at once	Make sure the air conditioner is grounded reliablyMake sure wires of air conditioner is connected correctly. Check the wiring inside air conditioner. Check whether the insulation layer of power cord is damaged; if yes, place the power cord
Model selection for air switch is improper	After energization, air switch trips off	Select proper air switch
Malfunction of remote controller	After energization, operation indicator is bright, while no display on remote controller or buttons have no action	Replace batteries for remote controller Repair or replace remote controller

2. Poor Cooling (Heating) for Air Conditioner

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
Set temperature is improper	Observe the set temperature on remote controller	Adjust the set temperature
Rotation speed of the IDU fan motor is set too low	Small wind blow	Set the fan speed at high or medium
Filter of indoor unit is blocked	Check the filter to see it's blocke	Clean the filt
Installation position for indoor unit and outdoor unit is improper	Check whether the installation postion is proper according to installation requirement for air conditioner	Adjust the installation position, and install the rainproof and sunproof for outdoor unit
Refrigerant is leaking	Discharged air temperature during cooling is higher than normal discharged wind temperature; Discharged air temperature during heating is lower than normal discharged wind temperature; Unit's pressure is much lower than regulated range	Find out the leakage causes and deal with it. Add refrigerant.
Malfunction of 4-way valve	Blow cold wind during heating	Replace the 4-way valve
Malfunction of capillary	Discharged air temperature during cooling is higher than normal discharged wind temperature; Discharged air temperature during heating is lower than normal discharged wind temperature; Unit't pressure is much lower than regulated range. If refrigerant isn't leaking, part of capillary is blocked	Replace the capillary
Flow volume of valve is insufficien	The pressure of valves is much lower than that stated in the specificati	Open the valve completely
Malfunction of horizontal louver	Horizontal louver can't swing	Refer to point 3 of maintenance method for details
Malfunction of the IDU fan motor	The IDU fan motor can't operate	Refer to troubleshooting for H6 for maintenance method in details
Malfunction of the ODU fan motor	The ODU fan motor can't operate	Refer to point 4 of maintenance method for details
Malfunction of compressor	Compressor can't operate	Refer to point 5 of maintenance method for details

3. Horizontal Louver Can't Swing

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
Wrong wire connection, or poor connection	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram to make sure all wiring terminals are connected firm
Stepping motor is damaged	Stepping motor can't operate	Repair or replace stepping motor
Main board is damaged	Others are all normal, while horizontal louver can't operate	Replace the main board with the same model

4. ODU Fan Motor Can't Operate

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
Wrong wire connection, or poor connection	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram to make sure all wiring terminals are connected firm
Capacity of the ODU fan motor is damaged	Measure the capacity of fan capacitor with an universal meter and fnd that the capacity is out of the deviation range indicated on the nameplate of fan capacitor.	Replace the capacity of fan
Power voltage is a little low or high	Use universal meter to measure the power supply voltage. The voltage is a little high or low	Suggest to equip with voltage regulator
Motor of outdoor unit is damaged	When unit is on, cooling/heating performance is bad and ODU compressor generates a lot of noise and heat.	Change compressor oil and refrigerant. If no better, replace the compressor with a new one

5. Compressor Can't Operate

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
Wrong wire connection, or poor connection	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram to make sure all wiring terminals are connected firm
Capacity of compressor is damaged	Measure the capacity of fan capacitor with an universal meter and fnd that the capacity is out of the deviation range indicated on the nameplate of fan capacitor.	Replace the compressor capacitor
Power voltage is a little low or high	Use universal meter to measure the power supply voltage. The voltage is a little high or low	Suggest to equip with voltage regulator
Coil of compressor is burnt out	Use universal meter to measure the resistance between compressor terminals and it's 0	Repair or replace compressor
Cylinder of compressor is blocked	Compressor can't operate	Repair or replace compressor

6. Air Conditioner is Leaking

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
Drain pipe is blocked	Water leaking from indoor unit	Eliminate the foreign objects inside the drain pipe
Drain pipe is broken	Water leaking from drain pipe	Replace drain pipe
Wrapping is not tight	Water leaking from the pipe connection place of indoor unit	Wrap it again and bundle it tightly

7. Abnormal Sound and Vibration

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
When turn on or turn off the unit, the panel and other parts will expand and there's abnormal sound	There's the sound of "PAPA"	Normal phenomenon. Abnormal sound will disappear after a few minutes.
When turn on or turn off the unit, there's abnormal sound due to flow of refrigerant inside airconditioner	Water-running sound can be heard	Normal phenomenon. Abnormal sound will disappear after a few minutes.
Foreign objects inside the indoor unit or there're parts touching together inside the indoor unit	There's abnormal sound fro indoor unit	Remove foreign objects. Adjust all parts' position of indoor unit, tighten screws and stick damping plaster between connected parts
Foreign objects inside the outdoor unit or there're parts touching together inside the outdoor unit	There's abnormal sound fro outdoor unit	Remove foreign objects. Adjust all parts' position of outdoor unit, tighten screws and stick damping plaster between connected parts
Short circuit inside the magnetic coil	During heating, the way valve has abnormal electromagnetic sound	Replace magnetic coil
Abnormal shake of compressor	Outdoor unit gives out abnormal sound	Adjust the support foot mat of compressor, tighten the bolts
Abnormal sound inside the compressor	Abnormal sound inside the compressor	If add too much refrigerant during maintenance, please reduce refrigerant properly. Replace compressor for other circumstances.

Appendix1:Resistance Table for Indoor and Outdoor Ambient Temperature Sensors (15K)

Temp.(℃)	Resistance(kΩ)	Temp.(℃)	Resistance(kΩ)	Temp.(℃)	Resistance(kΩ)	Temp.(℃)	Resistance(kΩ)
-20	144	16	22.53	52	4.986	88	1.451
-19	138.1	17	21.51	53	4.802	89	1.408
-18	128.6	18	20.54	54	4.625	90	1.363
-17	121.6	19	19.63	55	4.456	91	1.322
-16	115	20	18.75	56	4.294	92	1.282
-15	108.7	21	17.93	57	4.139	93	1.244
-14	102.9	22	17.14	58	3.99	94	1.207
-13	97.4	23	16.39	59	3.848	95	1.171
-12	92.22	24	15.68	60	3.711	96	1.136
-11	87.35	25	15	61	3.579	97	1.103
-10	82.75	26	14.36	62	3.454	98	1.071
-9	78.43	27	13.74	63	3.333	99	1.039
-8	74.35	28	13.16	64	3.217	100	1.009
-7	70.5	29	12.6	65	3.105	101	0.9801
-6	66.88	30	12.07	66	2.998	102	0.9519
-5	63.46	31	11.57	67	2.898	103	0.9247
-4	60.23	32	11.09	68	2.797	104	0.8984
-3	57.18	33	10.63	69	2.702	105	0.873
-2	54.31	34	10.2	70	2.611	106	0.8484
-1	51.59	35	9.779	71	2.523	107	0.8246
0	49.02	36	9.382	72	2.439	108	0.8016
1	46.8	37	9.003	73	2.358	109	0.7793
2	44.31	38	8.642	74	2.28	110	0.7577
3	42.14	39	8.297	75	2.205	111	0.7369
4	40.09	40	7.967	76	2.133	112	0.7167
5	38.15	41	7.653	77	2.064	113	0.6971
6	36.32	42	7.352	78	1.997	114	0.6782
7	34.58	43	7.065	79	1.933	115	0.6599
8	32.94	44	6.791	80	1.871	116	0.6421
9	31.38	45	6.529	81	1.811	117	0.625
10	29.9	46	6.278	82	1.754	118	0.6083
11	28.51	47	6.038	83	1.699	119	0.5922
12	27.18	48	5.809	84	1.645	120	0.5765
13	25.92	49	5.589	85	1.594	121	0.5614
14	24.73	50	5.379	86	1.544	122	0.5467
15	23.6	51	5.179	87	1.497	123	0.5324

Appendix2:ResistanceTable for Indoor and Outdoor Ambient Temperature Sensors (20K)

Temp.(℃)	Resistance(kΩ)	Temp.(℃)	Resistance(kΩ)	Temp.(℃)	Resistance(kΩ)	Temp.(℃)	Resistance(kΩ)
-30	361.8	6	48.42	42	9.803	78	2.663
-29	339.8	7	46.11	43	9.42	79	2.577
-28	319.2	8	43.92	44	9.054	80	2.495
-27	300	9	41.84	45	8.705	81	2.415
-26	282.2	10	39.87	46	8.37	82	2.339
-25	265.5	11	38.01	47	8.051	83	2.265
-24	249.9	12	36.24	48	7.745	84	2.194
-23	235.3	13	34.57	49	7.453	85	2.125
-22	221.6	14	32.98	50	7.173	86	2.059
-21	208.9	15	31.47	51	6.905	87	1.996
-20	196.9	16	30.04	52	6.648	88	1.934
-19	181.4	17	28.68	53	6.403	89	1.875
-18	171.4	18	27.39	54	6.167	90	1.818
-17	162.1	19	26.17	55	5.942	91	1.763
-16	153.3	20	25.01	56	5.726	92	1.71
-15	145	21	23.9	57	5.519	93	1.658
-14	137.2	22	22.85	58	5.32	94	1.609
-13	129.9	23	21.85	59	5.13	95	1.561
-12	123	24	20.9	60	4.948	96	1.515
-11	116.5	25	20	61	4.773	97	1.47
-10	110.3	26	19.14	62	4.605	98	1.427
-9	104.6	27	18.32	63	4.443	99	1.386
-8	99.13	28	17.55	64	4.289	100	1.346
-7	94	29	16.8	65	4.14	101	1.307
-6	89.17	30	16.1	66	3.998	102	1.269
-5	84.61	31	15.43	67	3.861	103	1.233
-4	80.31	32	14.79	68	3.729	104	1.198
-3	76.24	33	14.18	69	3.603	105	1.164
-2	72.41	34	13.59	70	3.481	106	1.131
-1	68.79	35	13.04	71	3.364	107	1.099
0	65.37	36	12.51	72	3.252	108	1.069
1	62.13	37	12	73	3.144	109	1.039
2	59.08	38	11.52	74	3.04	110	1.01
3	56.19	39	11.06	75	2.94	111	0.9825
4	53.46	40	10.62	76	2.844	112	0.9556
5	50.87	41	10.2	77	2.752	113	0.9295

Appendix 3: Resistance Table for Indoor and Outdoor Ambient Temperature Sensors (50K)

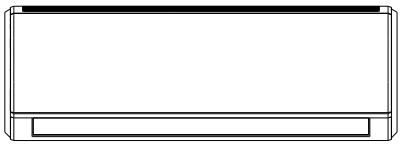
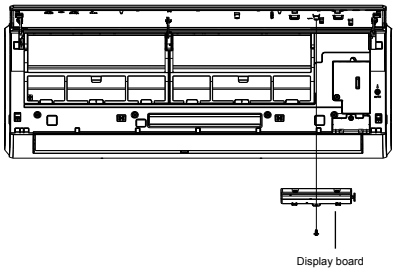
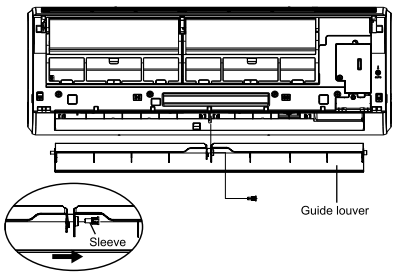
Temp. (℃)	Resistance (kΩ)	Temp. (℃)	Resistance (kΩ)	Temp. (℃)	Resistance (kΩ)	Temp. (℃)	Resistance (kΩ)	Temp. (℃)	Resistance (kΩ)
-30	911.56	6	119.08	42	24.128	78	6.542	114	2.2409
-29	853.66	7	113.37	43	23.186	79	6.3315	115	2.1816
-28	799.98	8	107.96	44	22.286	80	6.1288	116	2.1242
-27	750.18	9	102.85	45	21.425	81	5.9336	117	2.0686
-26	703.92	10	98.006	46	20.601	82	5.7457	118	2.0148
-25	660.93	11	93.42	47	19.814	83	5.5647	119	1.9626
-24	620.94	12	89.075	48	19.061	84	5.3903	120	1.9123
-23	583.72	13	84.956	49	18.34	85	5.2223	121	1.8652
-22	549.04	14	81.052	50	17.651	86	5.0605	122	1.8158
-21	516.71	15	77.349	51	16.99	87	4.9044	123	1.7698
-20	486.55	16	73.896	52	16.358	88	4.7541	124	1.7253
-19	458.4	17	70.503	53	15.753	89	4.6091	125	1.6821
-18	432.1	18	67.338	54	15.173	90	4.4693	126	1.6402
-17	407.51	19	64.333	55	14.018	91	4.3345	127	1.5996
-16	384.51	20	61.478	56	14.085	92	4.2044	128	1.5602
-15	362.99	21	58.766	57	13.575	93	4.0789	129	1.522
-14	342.83	22	56.189	58	13.086	94	3.9579	130	1.485
-13	323.94	23	53.738	59	12.617	95	3.841	131	1.449
-12	306.23	24	51.408	60	12.368	96	3.7283	132	1.4141
-11	289.61	25	49.191	61	11.736	97	3.6194	133	1.3803
-10	274.02	26	47.082	62	11.322	98	3.5143	134	1.3474
-9	259.37	27	45.074	63	10.925	99	3.4128	135	1.3155
-8	245.61	28	43.163	64	10.544	100	3.3147	136	1.2846
-7	232.67	29	41.313	65	10.178	101	3.22	137	1.2545
-6	220.5	30	39.61	66	9.8269	102	3.1285	138	1.2233
-5	209.05	31	37.958	67	9.4896	103	3.0401	139	1.1969
-4	198.27	32	36.384	68	9.1655	104	2.9547	140	1.1694
-3	188.12	33	34.883	69	8.9542	105	2.8721	141	1.1476
-2	178.65	34	33.453	70	8.5551	106	2.7922	142	1.1166
-1	169.68	35	32.088	71	8.2676	107	2.715	143	1.0913
0	161.02	36	30.787	72	7.9913	108	2.6404	144	1.0667
1	153	37	29.544	73	7.7257	109	2.5682	145	1.0429
2	145.42	38	28.359	74	7.4702	110	2.4983	146	1.0197
3	138.26	39	27.227	75	7.2245	111	2.4308	147	0.9971
4	131.5	40	26.147	76	6.9882	112	2.3654	148	0.9752
5	126.17	41	25.114	77	6.7608	113	2.3021	149	0.9538

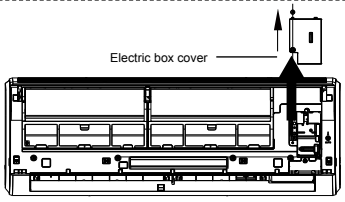
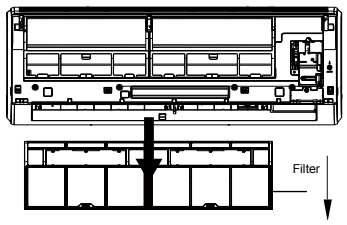
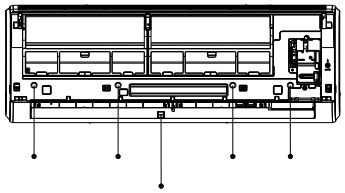
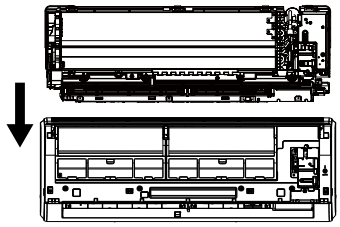
Note: The information above is for reference only.

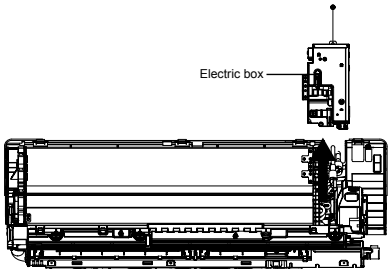
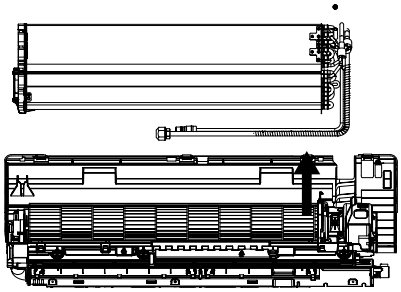
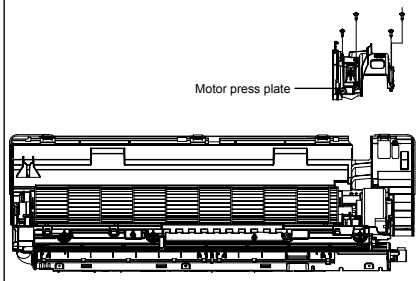
10. Removal Procedure

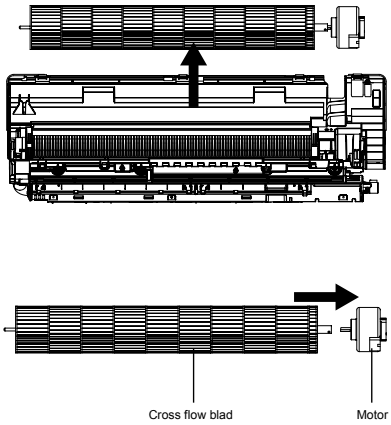
10.1 Removal Procedure of Indoor Unit

Warning **Be sure to wait for a minimum of 10 minutes after turning off all power supplies before disassembly.**

Procedure	Note
	**1. Before disassembly**
	**2. Remove panel and Display Board** A: Open the front panel. B: Loosen the screws of the display board with screwdriver. C: Push the rotor shaft on both sides of the panel to make it separate from the groove. Remove the panel.
	**3. Remove guide louver** Remove axial sleeve of guide louver.

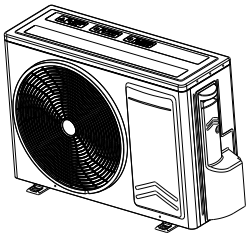
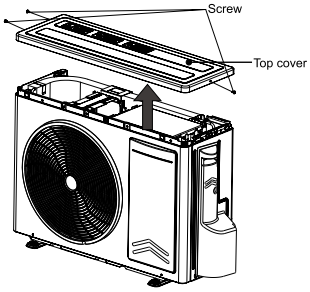
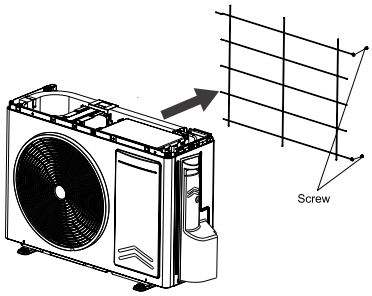
Procedure	Note
	**4. Remove electric box cove** Loosen the screws of the electric box cover with screwdriver.
	**5. Remove the filter** Push the filter inward and then draw it upward to remove it.
	**6. Remove the screw** Open the screw cap on the front case. Remove the screws fixing the front case.
	**7. Remove the front case** Remove the front case to seperate it with bottom assembly.

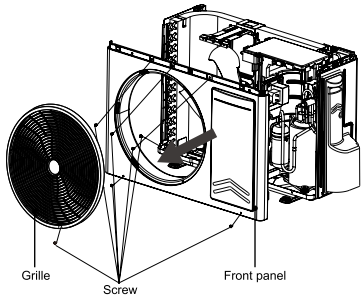
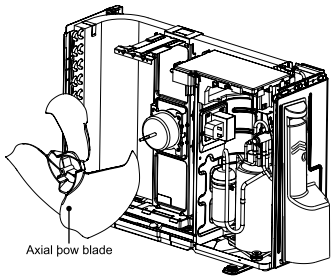
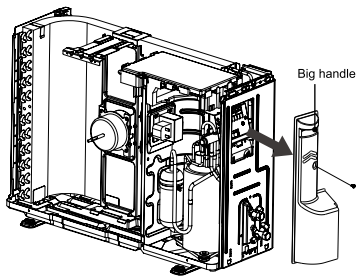
Procedure	Note
	**8. Remove electric box** A: Disconnect the indoor tube temperature sensor. B: Remove the screws at the joint of the earthing wire and evaporator. C: Loosen the clasp at the joint of the electric box.
	**9. Remove evaporator** A: Remove the screws at the joint of the evaporator and rear case. B: Adjust slightly the pipe on the evaporator to separate the pipe with the evaporator. C: Remove the evaporator to separate the evaporator with rear case assy.
	**10. Remove motor press plate** Remove the screw of the motor press plateand then remove the press plate.

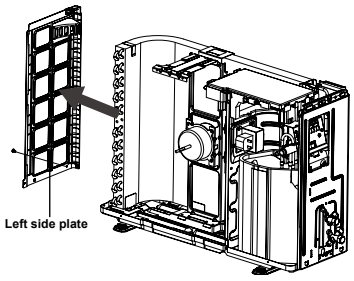
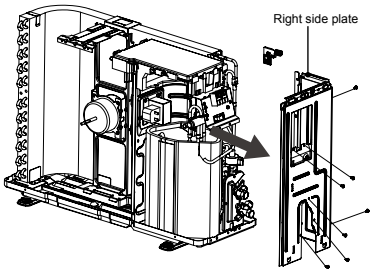
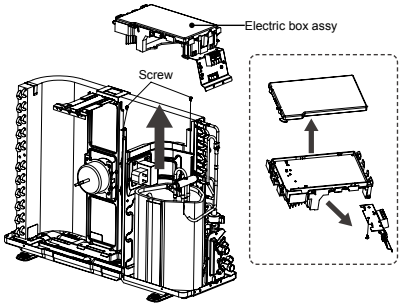
Procedure	Note
	**11. Remove motor and cross flow blad** A: Remove the cross flow blade and moto . B: Remove the screws at the joint of the cross flowblade and the moto . Take down the motor.

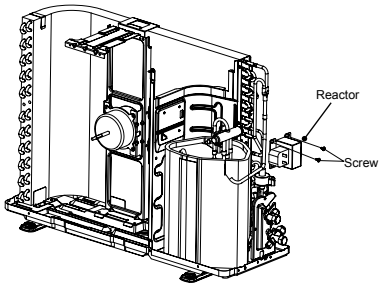
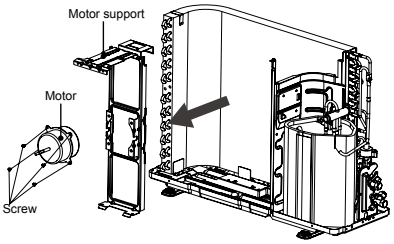
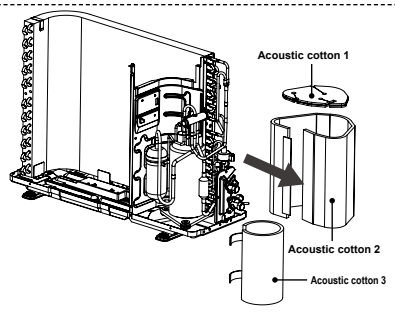
10.2 Removal Procedure of Outdoor Unit

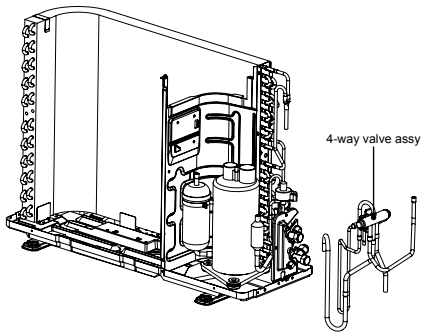
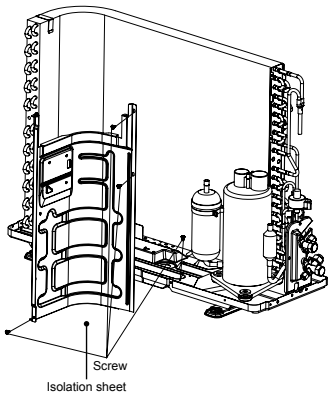
Warning **Be sure to wait for a minimum of 10 minutes after turning off all power supplies before disassembly.**

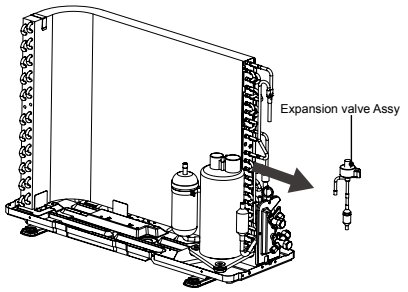
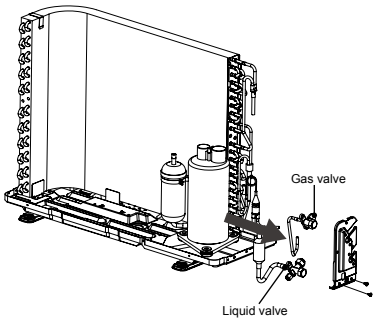
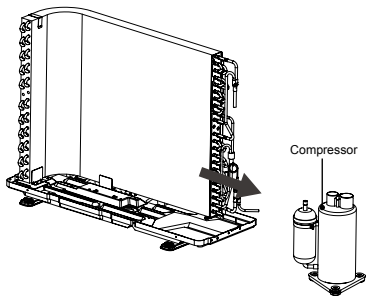
Procedure	Note
	**1.Before disassembly**
	**2. Remove top cover** Remove connection screws connecting the top cover plate with the front panel and the right side plate, and then remove the toppanel.
	**3. Remove protective grille** Remove the screws fixing protective grille and then remove the protective grille.

Procedure	Note
	**4.Remove grille and panel** A: Remove connection screws between the front grille and the front panel. Then remove the front grille. B: Remove connection screws connecting the front panel with the chassis and the motor support, and then remove the front panel.
	**4.Remove axial flow blad** Remove the nut fixing the blade and then remove the axial flow blade.
	**5.Remove big handle** Remove the connection screw fixing the big handle and then remove the handle.

Procedure	Note
	**6. Remove left side plate** Remove connection screws connecting the left side plate with the condenser assy. Then remove the left side plate.
	**7. Remove right side plate** Remove connection screws connecting the right side plate with the valve support and the electric box. Then remove the right side plate.
	**8. Remove electric box assy** Remove screws fixing the electric box assy; loosen the wire bundle and unplug the wiring terminals. Then lift the electric box to remove it.

Procedure	Note
	**9. Remove Reactor** Take off the fixed scre ,and you could take off the reactor.
	**10. Remove motor and motor support** Remove tapping screws fixing the motor anddisconnect the leading wire insert of the motor. Then remove the motor. Remove tapping screws fixing the motor andlift the motor support to remove it.
	**11. Remove acoustic cotton** Split the acoustic cotton lock,and take out 3 pcs slowly. NOTE: Do not damage the pipe.

Procedure	Note
	**12. Remove 4-way valve assy** Unsolder the spot weld of 4-way valve assy, compressor and condenser, and then remove the 4-way valve assy . **Warning** Discharge the refrigerant completely before unsoldering,when unsoldering, wrap the gas valve with awet cloth completely to avoid damage to thevalve caused by high temperature. When unsoldering the spot weld, wrap the 4-way valve with wet cloth completely to avoid damaging the valve due to high temperature.
	**13. Remove isolation sheet** Remove the screws fixing the isolation sheet and then remove the isolation sheet.

Procedure	Note
	**14. Remove Expansion valve Assy** Unsolder the spot weld of expansion valve assy, liquid valve and condenser, and then remove the expansion valve assy .
	**14. Remove the compressor** A: Remove the 2 screws fixing the gas valve and unsolder the welding joint between the gas valve and the air-return pipe to remove the gas valve.
	B: Remove the foot nuts on the compressor and then remove the compressor.

* Cooper & Hunter is constantly working to improve their products, so the information in this manual is subject to change without prior notice.