CHIGO LCAC
50Hz R410A ON/OFF

Service Manual

2010

CHIGO COMMERCIAL AIR CONDITIONER

Quiet,Energy-saving and Ecological

※The specifications, designs, and information in this book are subject to change without notice for product improvement.

Part 1
General Information

1. Model Names of Indoor/Outdoor Units

1.1 Indoor Units

Model name	Dimension (W×H×D) (mm)	Net/Gross weight (kg)	Power supply
RF3.5cQ/X2	580×275×580	25/27	220~240V-1Ph-50Hz
RF5.1cQ/X2	580×275×580	25/27	220~240V-1Ph-50Hz
RF7cQ/X2	840×230×840	28/31	220~240V-1Ph-50Hz
RF8.8cQ/X2A	840×285×840	29/33	220~240V-1Ph-50Hz
RF10cQ/X2A	840×285×840	29/33	220~240V-1Ph-50Hz
RF5.1cFm/X2 TB	780×260×530	28/32	220~240V-1Ph-50Hz
RF7cFm/X2	930×260×530	35/39	220~240V-1Ph-50Hz
RF10cFm/X2	1180×260×530	42/46	220~240V-1Ph-50Hz
RF12cFm/X2TB	1180×260×530	42/46	220~240V-1Ph-50Hz
RF14cFm/X2TB	1380×260×530	52/56	220~240V-1Ph-50Hz
RF5.1cLD/X2C	870×203×635	30/32	220~240V-1Ph-50Hz
RF7cLD/X2C	1270×225×635	41/46	220~240V-1Ph-50Hz
RF10cLD/X2C	1270×225×635	45/50	220~240V-1Ph-50Hz
RF14cLD/X2C	1815×225×635	58/65	220~240V-1Ph-50Hz
RF16cLD/X2C	1815×255×635	60/68	220~240V-1Ph-50Hz

1.2 Outdoor Units

Model name	Dimension (W×H×D) (mm)	Net/Gross weight (kg)	Power supply
RF3.5cX2W	850×320×540	36/40	220~240V-1Ph-50Hz
RF5.1cX2W	870×620×355	45/50	220~240V-1Ph-50Hz
RF7cX2W	960×840×390	72/79	220~240V-1Ph-50Hz
RF10cX2W	1050×995×400	98/106	220~240V-1Ph-50Hz
RF8.8gX2W	1050×995×400	98/106	380~415V-3Ph-50Hz
RF10gX2W	1050×995×400	98/106	380~415V-3Ph-50Hz
RF14gX2W	970×1260×410	118/128	380~415V-3Ph-50Hz
RF16gX2W	970×1260×410	118/128	380~415V-3Ph-50Hz

2. External Appearance

2.1 Indoor Units

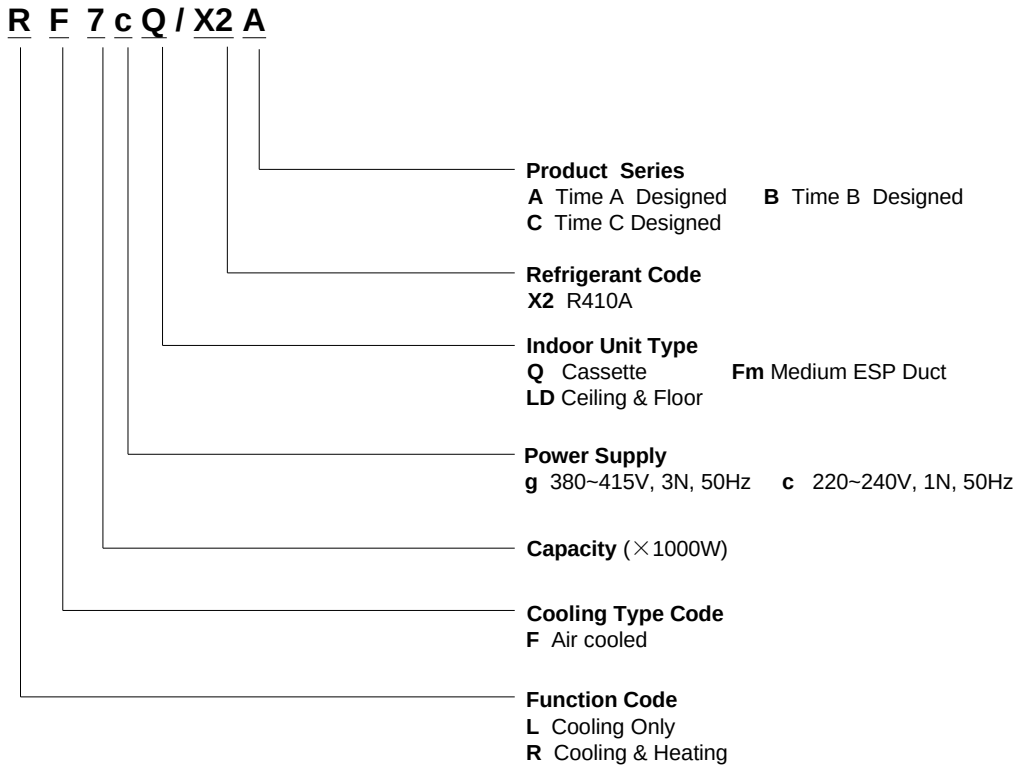
Duct 	Ceiling & Floor 
Four-way Cassette 	Compact Four-way cassette 

2.2 Outdoor Units

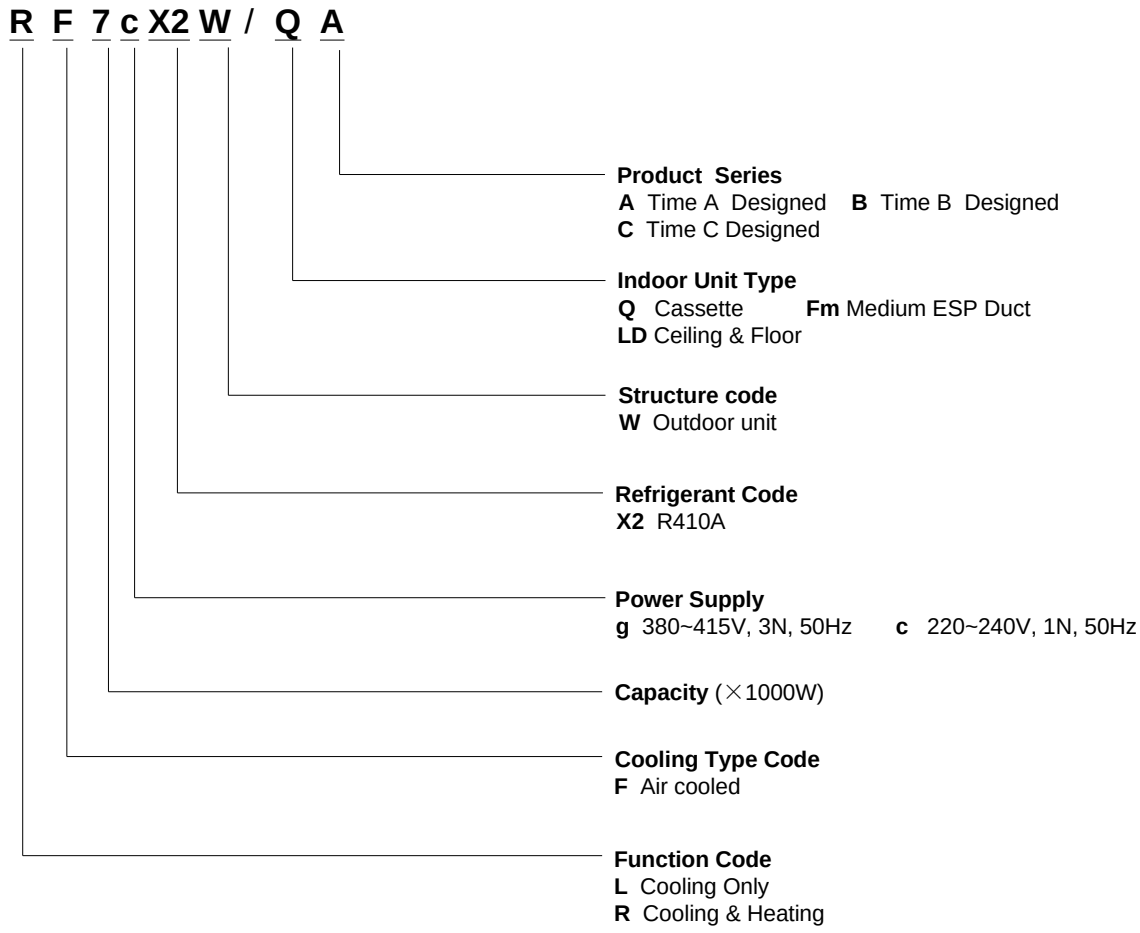
12,000Btu/h 	18,000Btu/h 
24,000Btu/h 	30,000~36,000Btu/h 
48,000Btu/h 	60,000Btu/h 

3. Nomenclature

3.1 Indoor Unit



3.2 Outdoor Unit



4. Features

4.1 High quality coils:

The coil is constructed of advanced inner grooved copper tube and aluminum fins.

4.2 Low operation sound level: Well-known stable and quiet running fan motor.

4.3 Well-known compressor.

4.4 Compact design: Smaller dimension and larger stuffing capacity.

4.5 R410A environment friendly refrigerant.

Part 2
Indoor Units

New Four-way Cassette Type (Compact)

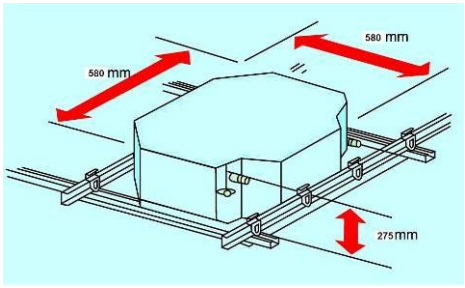
1. Features

(1) Low operation noise
---Streamline plate ensures quietness
---Creates natural and comfortable environment

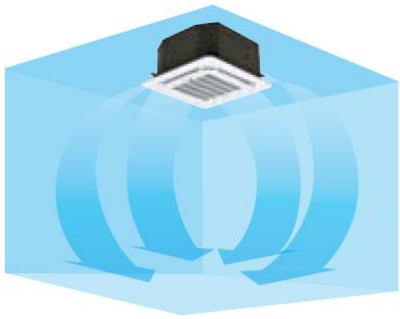
(2) Efficient cooling
---Equal, fast and wide—range cooling

(3) The adoption of the most advanced 3- Dimensional Screw fan
---Reduces the air resistance passing through
---Smoothes the air flow
---Makes air speed distribution to the heat exchange uniform

(4) Improvement for easy installation and maintenance
---Little space is required for installation into a shallow ceiling
---Because of the compactness and weight reduction of the main unit and panel, all models can be installed without a hoist



(5) 4-way Air Flow Panel
4-way air outlet makes equal,fast ad wide range cooling

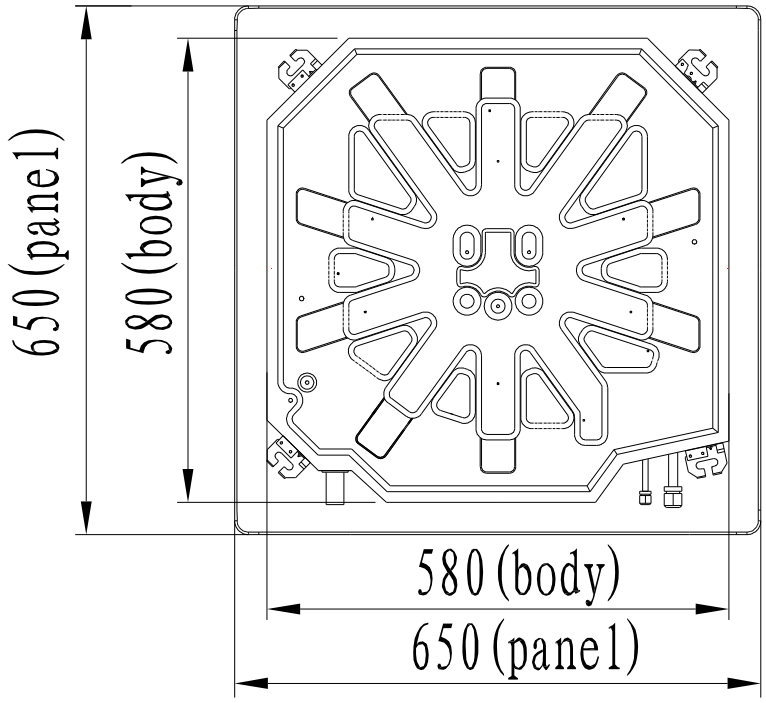


2. Specifications

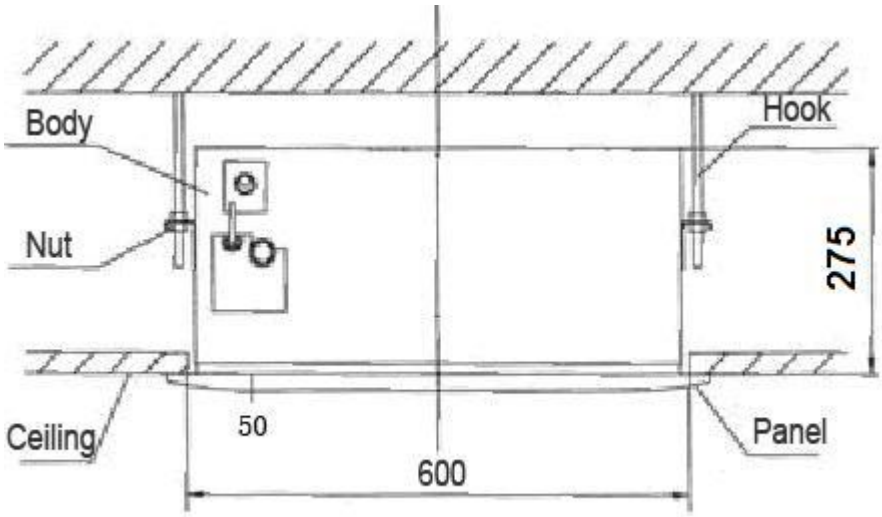
Model name		Set	RF3.5cQ/X2	RF5.1cQ/X2
Power supply		V-Ph -Hz	220～240-1-50	220～240-1-50
Cooling	Capacity	Btu/h	12000	18000
	Input	W	1300	1890
	Current	A	5.8	8.6
	EER	W/W	2.7	2.7
Heating	Capacity	Btu/h	13000	19800
	Input	W	1330	2030
	Rated current	A	5.9	9.2
	COP	W/W	2.86	2.86
Indoor fan motor	Model		YDK-35T-4	YDK-35T-4 1
	Quantity		1	1
	Input	W	35	35
	Capacitor	uF	2.5	2.5
	Speed (Hi/Mi/Lo)	rpm	600/500/400	1050/950/830
Indoor coil	Number of rows		2	2
	Fin spacing	mm	1.55	1.55
	Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	Tube outside dia. and type	mm	φ7 Inner grooved copper tube	φ7 Inner grooved copper tube
	Coil length × height × width	mm	435×210×435	425×210×425
	Number of circuits		3	5
Indoor air flow (Hi/Mi/Lo)		m^3/h	566/470/380	700/590/470
Indoor noise level (sound pressure)		dB(A)	45/42/40	48/45/43
Indoor unit	Dimension (W×H×D)(body)	mm	580×275×580	580×275×580
	Packing (W×H×D)(body)	mm	745×375×675	745×375×675
	Dimension (W×H×D)(panel)	mm	650×30×650	650×30×650
	Packing (W×H×D)(panel)	mm	750×95×750	750×95×750
	Net/Gross weight(body)	kg	25/27	25/27
	Net/Gross weight(panel)	kg	4/5	4/5
Refrigerant type			R410A	R410A
Refrigerant piping	Liquid side	mm	φ6.35	φ6.35
	Gas side	mm	φ12.7	φ12.7
Controller			ZH/JT-01	ZH/JT-01
Operation temperature		℃	17~30	17~30

Notes: 1. Nominal cooling capacities are based on the following conditions:
Indoor temp: 27°CDB, 19°CWB; Outdoor temp: 35°CDB; Equivalent ref. Piping: 5m(horizontal)
2. Nominal heating capacities are based on the following conditions:
Indoor temp: 20°CDB; Outdoor temp: 7°CDB, 6°CWB; Equivalent ref. Piping: 5m(horizontal)
3. Actual noise level may differ, depending on the room structure, etc, since these noise values are from an anechoic room.

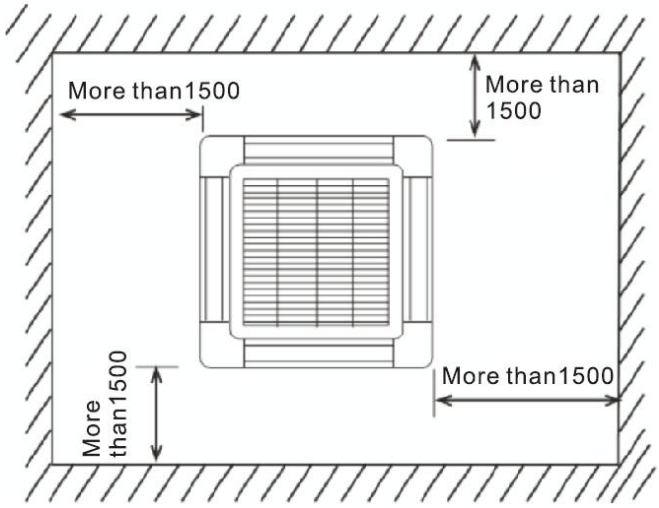
3. Dimensions

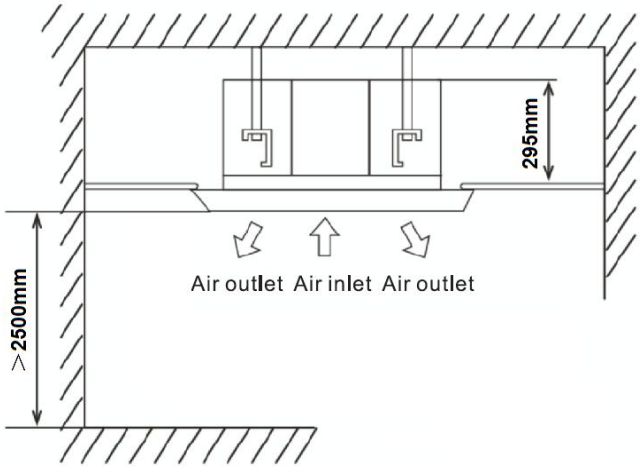


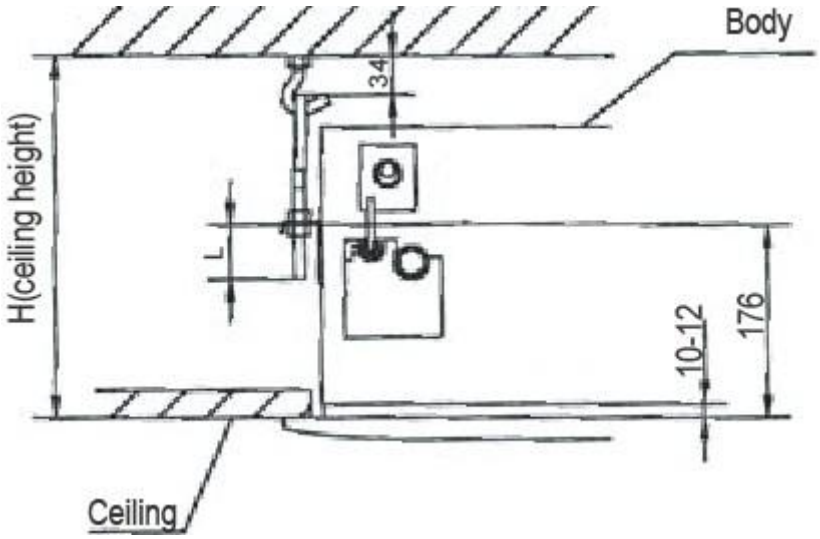
unit: mm



4. Service Space

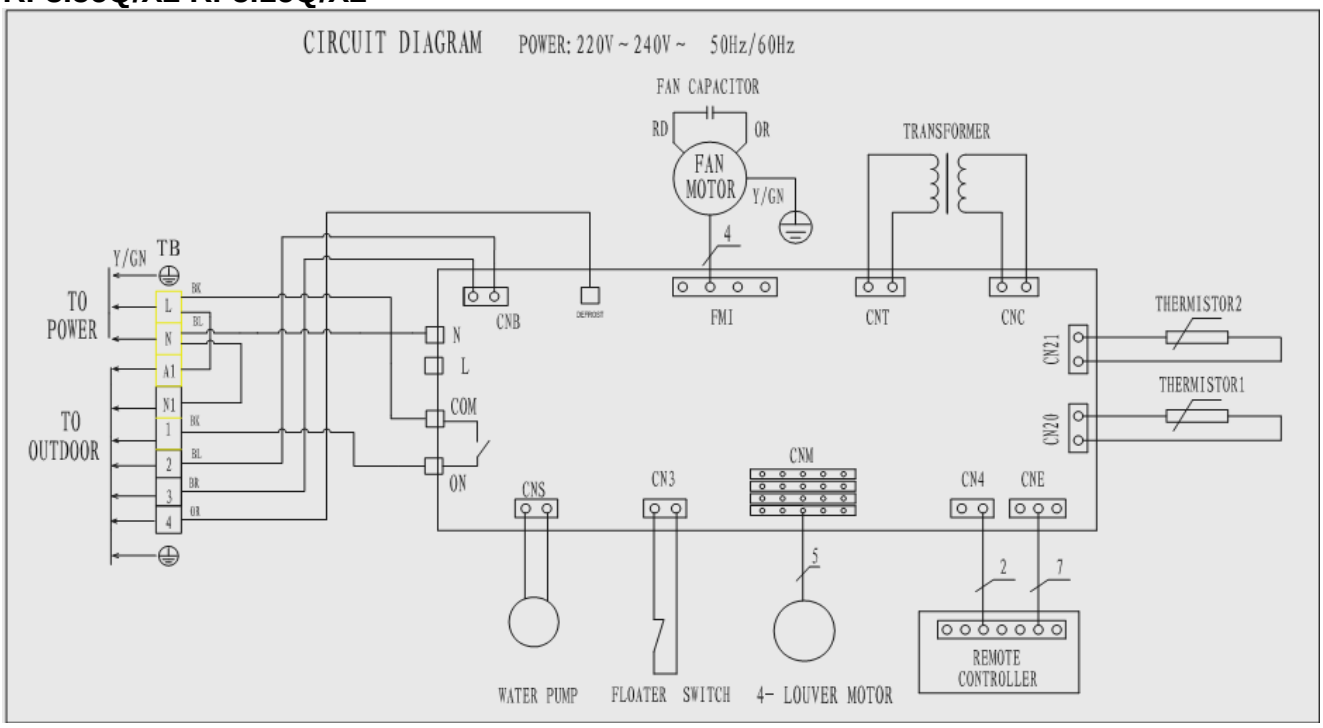






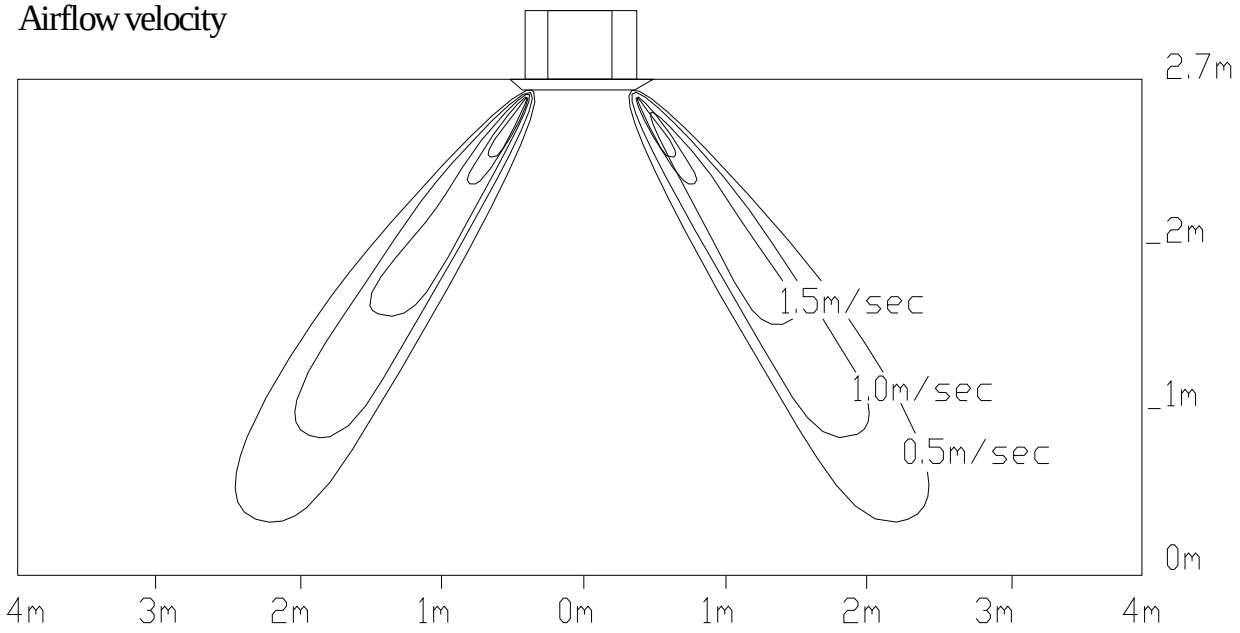
5. Wiring Diagrams

RF3.5cQ/X2 RF5.1cQ/X2

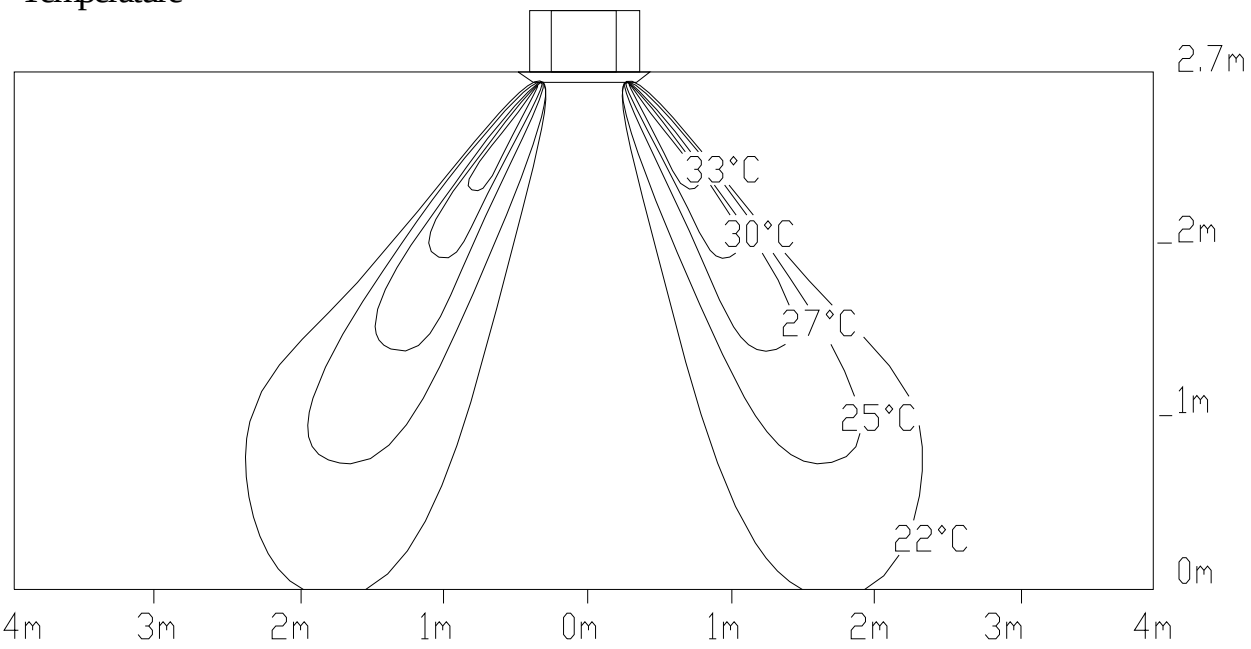


6. Air Velocity and Temperature Distributions

Airflow velocity



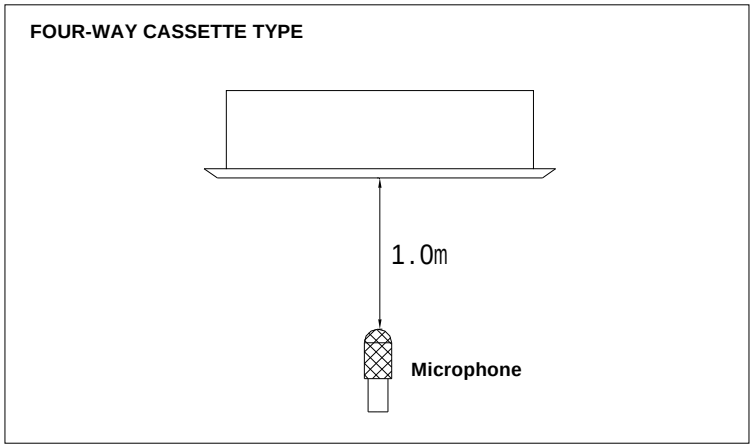
Temperature



7. Electric Characteristics

Model	Indoor Units			
	Hz	Voltage	Min.	Max.
RF3.5cQ/X2	50	220-240V	198V	254V
RF5.1cQ/X2	50	220-240V	198V	254V

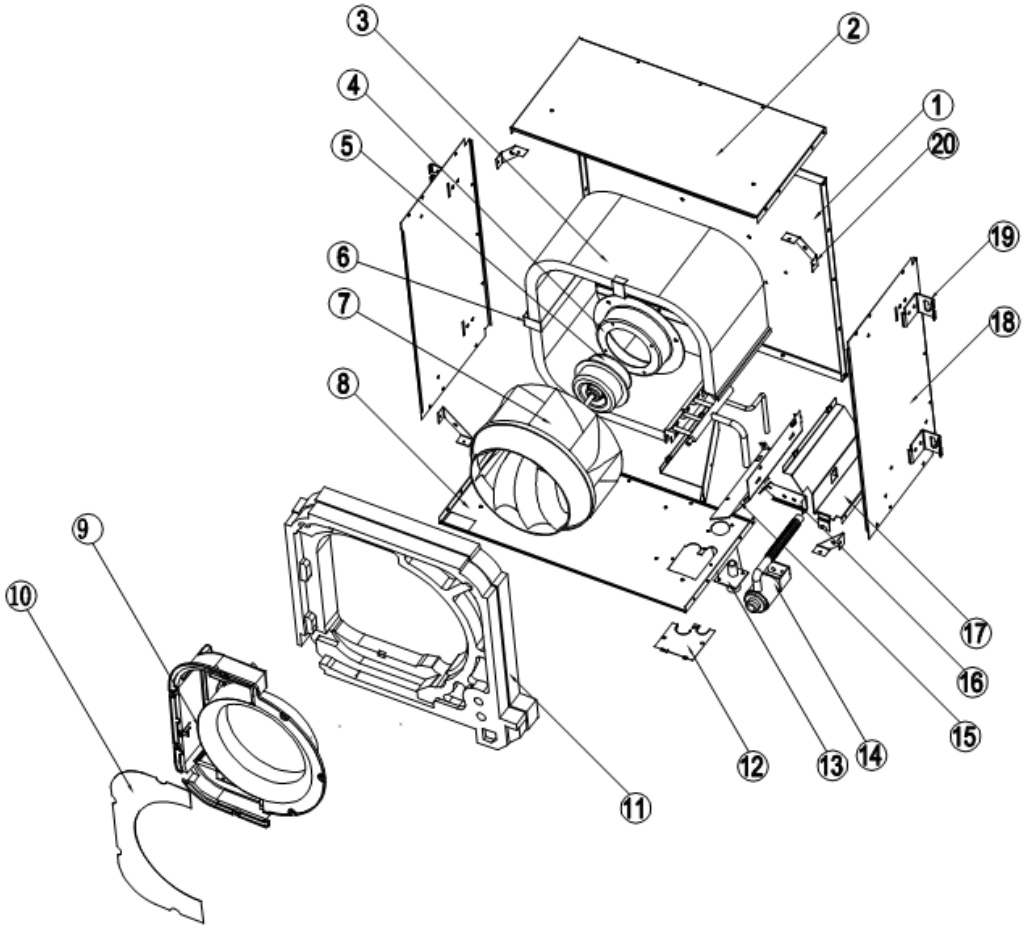
8. Sound Levels



Model	Noise level dB(A)		
	H	M	L
RF3.5cQ/X2	45	42	40
RF5.1cQ/X2	48	45	43

9. Exploded View

RF3.5cQ/X2 RF5.1cQ/X2



No.	Part Name	Quantity	No.	Part Name	Quantity
1	Base component	1	11	Foam water pan	1
2	Boarding IV assembly	1	12	Steel tube support	1
3	Evaporator assembly	1	13	Drain tube tie-in assy	1
4	Motor support	1	14	Pump	1
5	Motor	1	15	Side board Ⅱ	1
6	Evaporator holder	2	16	Pump holder	1
7	Fan	1	17	Side board I holder	1
8	Boarding II	2	18	Boarding I	2
9	Electronic box	1	19	Flying rings	4
10	Electronic box cover	1	20	Boarding holder	4

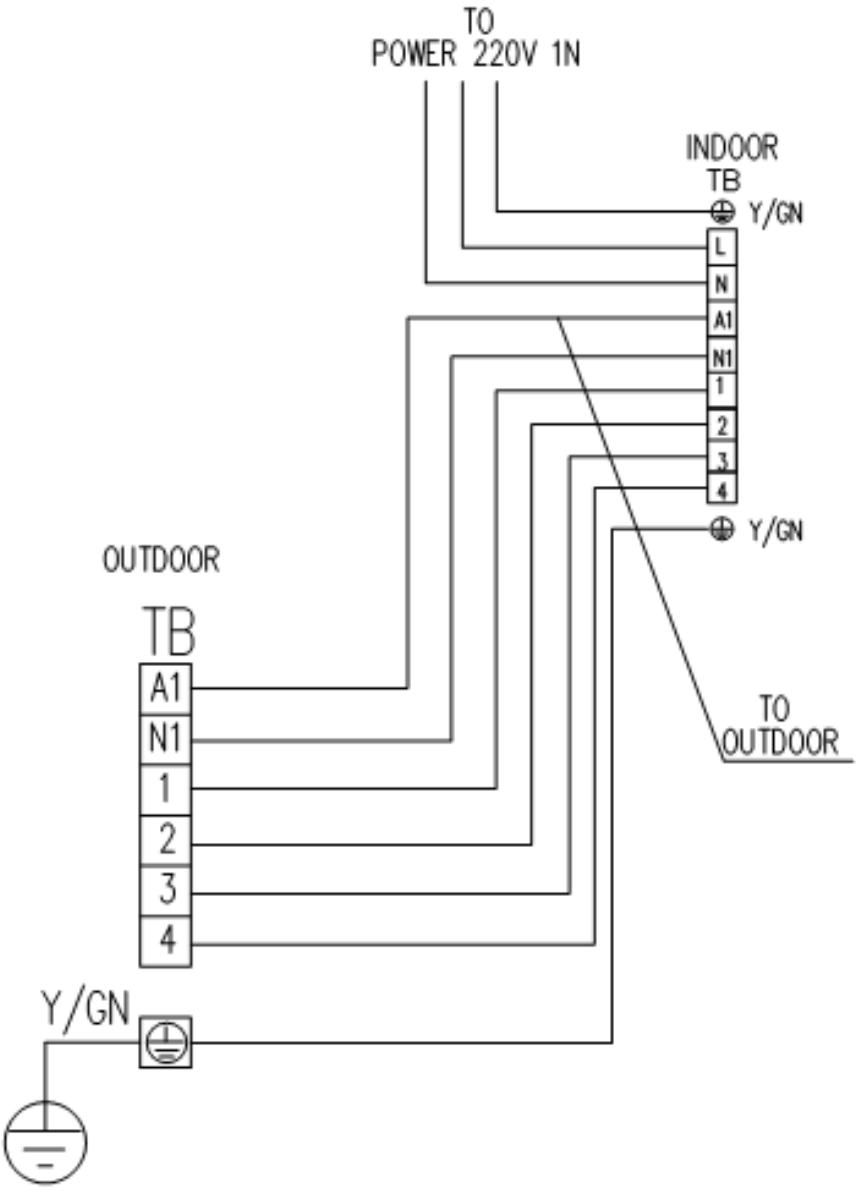
10. Accessories

Name	Shape	Quantity
1. Drain joint (Be provided in outdoor unit.)		1
2. Remote controller		1
3. Remote controller holder (Optional)		1
4. Mounting screw(ST2.9×10-C-H)		2
5. Alkaline dry batteries (AM4)		2
6. Operation & installation instruction manual		1

11. The Specification of Power

Type		RF3.5cQ/X2	RF5.1cQ/X2
Power	Phase	1-phase	1-phase
	Frequency and Voltage	220-240V, 50Hz	220-240V, 50Hz
Circuit Breaker/ Fuse (A)		40/25	40/25
Indoor Unit Power Wiring (mm^2)		3×1.5	3×1.5
Indoor/Outdoor Connecting Wiring	Ground wire (mm^2)	0.75	0.75
	Outdoor Unit Power Wiring	———	———
	Strong Electric Signal	2×1.5	2×1.5
	Weak Electric Signal (mm^2)	5×0.75	5×0.75

12. Field Wiring



13. Troubleshooting

Setting Change is Impossible		
Symptoms	Causes	Reason and Disposal
The fan speed can not be changed.	● Check whether the MODE indicated on the display is "AUTO"	When the automatic mode is selected, the air conditioner automatically selects the fan speed.
	● Check whether the MODE indicated on the display is "DEHUMIDIFICATION"	When dry operation is selected, the air conditioner automatically select the fan speed. The fan speed can be selected during "COOL" and "FAN ONLY", and "HEAT"

The Transmission Indicator "+" "-" Never Comes On		
Symptoms	Causes	Reason and Disposal
The remote control signal is not transmitted even when the ON/OFF button is pushed.	● Check whether the batteries in the remote controller are exhausted.	The remote control signal is not transmitted, because the power supply is off.

The Display Never Comes On		
Symptoms	Causes	Reason
The TEMP. indicator does not come on.	● Check whether the MODE indicated on the display is "FAN ONLY". **FAN ONLY**	The temperature cannot be set during fan only operation.

The Display Goes Off		
Symptoms	Causes	Reason
The indication on the display disappears after a lapse of time.	● Check whether the timer operation has come to an end when the OFF TIMER is indicated on the display.	The air conditioner operation stops since the set time elapsed.
The ON TIMER indicators go off after a lapse of certain time.	● Check whether the timer operation is started when the ON TIMER is indicated on the display.	When the time set to start the air conditioner is reached, the air conditioner will automatically start and the appropriate indicator will go off.

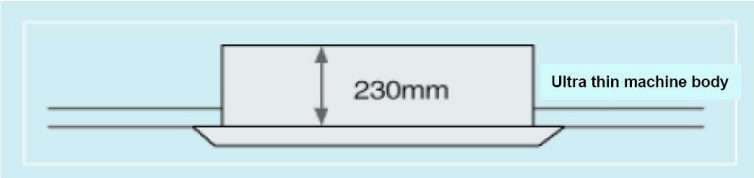
The Signal Receiving Tone does Not Sound		
Symptoms	Causes	Disposal
No receiving tone sounds from the indoor unit even when the ON/OFF button is pushed.	● Check whether the signal transmitter of the remote controller is properly directed to the receiver of the indoor unit when the ON/OFF button is pushed.	Direct the signal transmitter of the remote controller to the receiver of the indoor unit, and then repeatly push the ON/ OFF button twice.
Buttons on the remote controller don't work.		Press Reset button.

Self-test information	The flash condition of the red light	Self-test information	The flash condition of the red light
Defrost indication(the unit is in normal state)	Flash one time every second	The frost protection of the indoor eraporator	Flash five times every seven seconds
Second wind prevention indication(the unit is in normal state)	Flash one time every three seconds	The low voltage protection	Flash six times every eight seconds
Indoor temperature sensor fault	Flash two times every four seconds	The outdoor feedback fault	Flash seven times every nine seconds
Duct temperature sensor fault	Flash three times every five seconds	The superheating protection	Flash eight times every ten seconds
The outdoor unit is in abnormal state	Flash four times every six seconds	The water pump fault	Flash nine times every eleven seconds

Four-way Cassette Type

1. Features

(1) Ultra thin machine body to easy installation and maintenance. 24K:230mm, 30-48K:285mm.

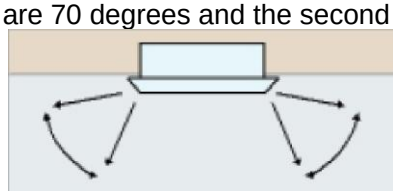


(2) Different color panels to choose: Gray, White


standard

optional

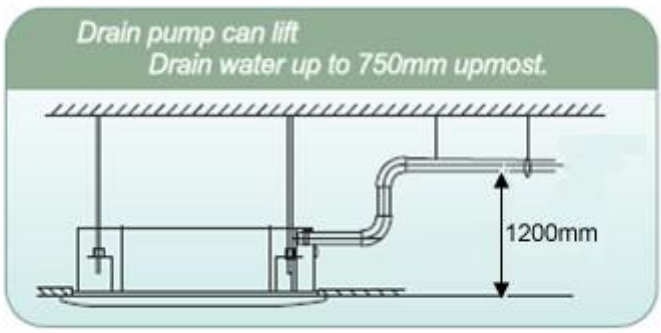
(3) The swing angle of the first louver are 70 degrees and the second louver are 40 degrees.



(4) 3 speeds available, optional super high fan speed design, suitable for the large building over 3m high.

(7) Stylish design is harmonious with any interior decoration and creates and elegant environment.

(8) Built-in water pump with 120mm pumping head.



2. Specifications

Model name		Set	RF7cQ/X2	RF8.8cQ/X2A
Power supply		V- Ph-Hz	220～240-1-50	380～415-3-50
Cooling	Capacity	Btu/h	24000	30000
	Input	W	2350	3650
	Current	A	10.7	6.5
	EER	W/W	2.98	2.19
Heating	Capacity	Btu/h	25600	33000
	Input	W	2240	3530
	Rated current	A	10	6.3
	COP	W/W	3.35	2.53
Indoor fan motor	Model		YDK-55T-6	YDK-70T-6
	Quantity		1	1
	Input	W	55	70
	Capacitor	uF	3	5
	Speed (Hi/Mi/Lo)	rpm	920/850/780	700/620/550
Indoor coil	Number of rows		2	2
	Fin spacing	mm	1.45	1.6
	Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	Tube outside dia. and type	mm	φ7 Inner grooved copper tube	φ8 Inner grooved copper tube
	Coil length × height × width	mm	548×168×548	640×200×640
	Number of circuits		4	3
Indoor air flow (Hi/Mi/Lo)		m^3/h	1145/1020/900	1600/1480/1350
Indoor noise level (sound pressure)		dB(A)	48/46/44	52/48/45
Indoor unit	Dimension (W×H×D)(body)	mm	840×230×840	820×235×820
	Packing (W×H×D)(body)	mm	920×310×920	920×330×920
	Dimension (W×H×D)(panel)	mm	950×50×950	950×50×950
	Packing (W×H×D)(panel)	mm	1030×105×1030	1030×105×1030
	Net/Gross weight(body)	kg	28/31	29/33
	Net/Gross weight(panel)	kg	5/7	5/7
Refrigerant type			R410A	R410A
Refrigerant piping	Liquid side	mm	φ9.52	φ9.52
	Gas side	mm	φ15.88	φ15.88
Controller			ZH/JT-01	ZH/JT-01
Operation temperature		℃	17~30	17~30

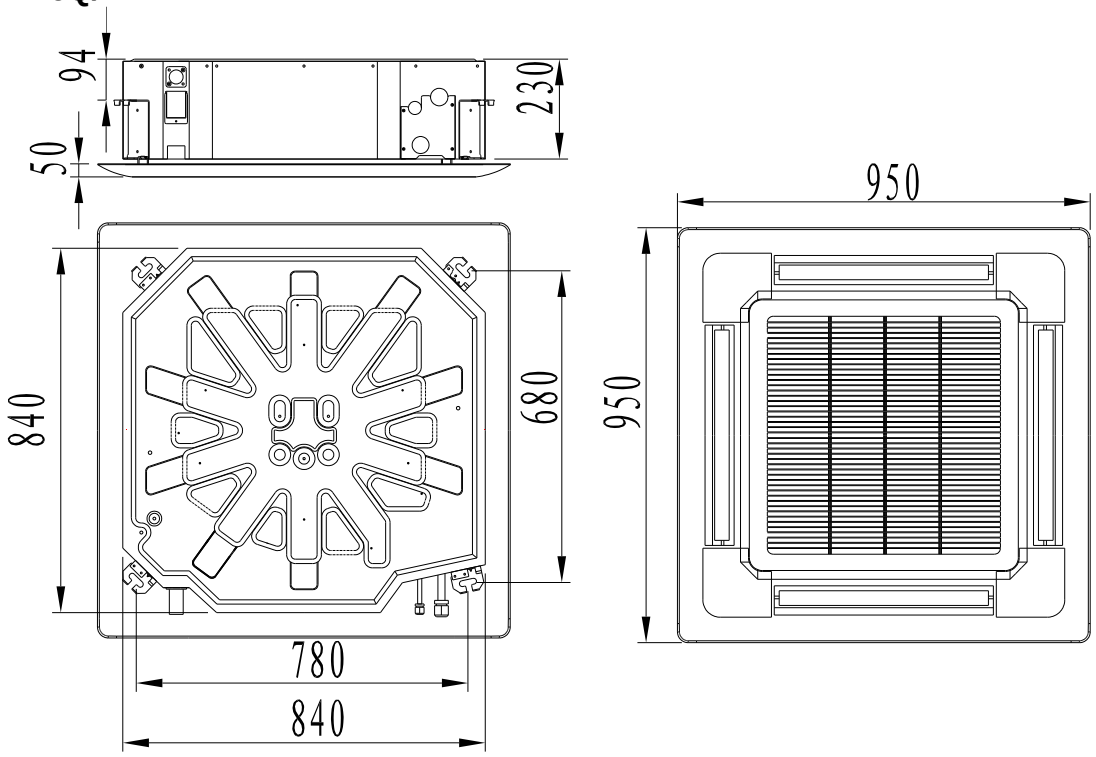
Notes: 1. Nominal cooling capacities are based on the following conditions:
Indoor temp: 27°CDB, 19°CWB; Outdoor temp: 35°CDB; Equivalent ref. piping: 8m (horizontal)
2. Nominal heating capacities are based on the following conditions:
Indoor temp: 20°CDB; Outdoor temp: 7°CDB, 6°CWB; Equivalent ref. piping: 8m (horizontal)
3. Actual noise level may differ, depending on the room structure, etc, since these noise values are from an anechoic room.

Model name		Set	RF10gX2W/QA	RF12gX2W/Q
Power supply		V- Ph-Hz	380～415-3-50	380～415-3-50
Cooling	Capacity	Btu/h	36000	41000
	Input	W	3700	4780
	Current	A	6.7	8.5
	EER	W/W	2.7	2.51
Heating	Capacity	Btu/h	37600	45100
	Input	W	3630	5550
	Rated current	A	6.5	8.6
	COP	W/W	3.03	2.38
Indoor fan motor	Model		YDK-70T-6	YDK-75T-6
	Quantity		1	1
	Input	W	70	75
	Capacitor	uF	5	4
	Speed (Hi/Mi/Lo)	rpm	750/680/600	750/680/600
Indoor coil	Number of rows		2	2
	Fin spacing	mm	1.6	1.45
	Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	Tube outside dia. and type	mm	φ8 Inner grooved copper tube	φ7 Inner grooved copper tube
	Coil length × height × width	mm	640×200×640	648×252×648
	Number of circuits		3	3
Indoor air flow (Hi/Mi/Lo)		m^3/h	1600/1420/1280	1700/1560/1430
Indoor noise level (sound pressure)		dB(A)	52/48/45	52/48/45
Indoor unit	Dimension (W×H×D)(body)	mm	820×235×820	840×285×840
	Packing (W×H×D)(body)	mm	920×330×920	920×375×920
	Dimension (W×H×D)(panel)	mm	950×50×950	950×50×950
	Packing (W×H×D)(panel)	mm	1030×105×1030	1030×105×1030
	Net/Gross weight(body)	kg	29/33	31/35
	Net/Gross weight(panel)	kg	5/7	5/7
Refrigerant type			R410A	R410A
Refrigerant piping	Liquid side	mm	φ9.52	φ9.52
	Gas side	mm	φ19.05	φ19.05
Controller			ZH/JT-01	ZH/JT-01
Operation temperature		℃	17~30	17~30

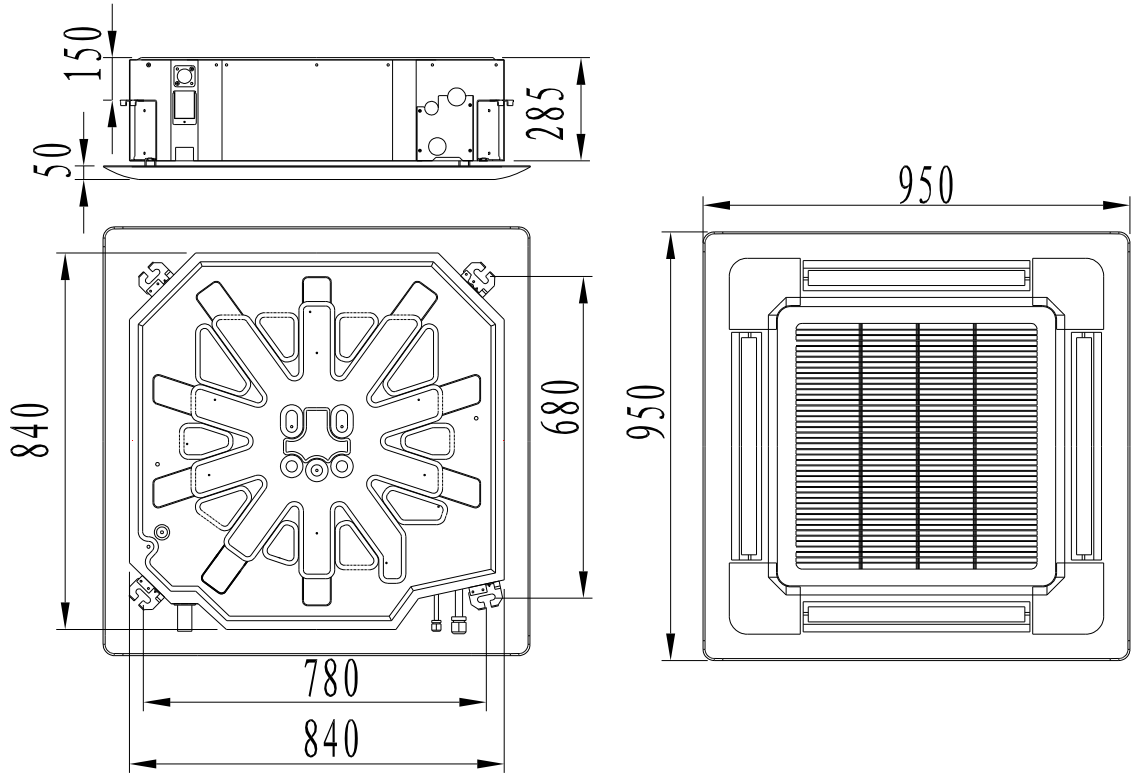
Notes: 1. Nominal cooling capacities are based on the following conditions:
Indoor temp: 27°CDB, 19°CWB; Outdoor temp: 35°CDB; Equivalent ref. piping: 8m (horizontal)
2. Nominal heating capacities are based on the following conditions:
Indoor temp: 20°CDB; Outdoor temp: 7°CDB, 6°CWB; Equivalent ref. piping: 7.5m (horizontal)
3. Actual noise level may differ, depending on the room structure, etc, since these noise values are from an anechoic room.

3. Dimensions

RF7cQ/X2



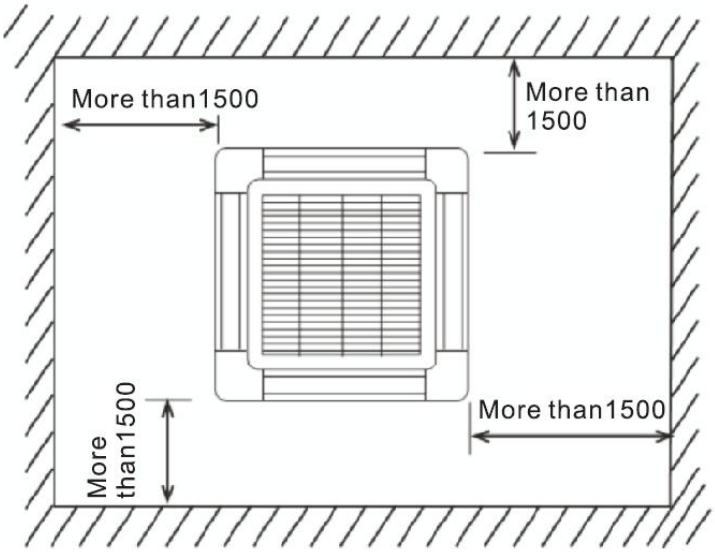
RF8.8cQ/X2, RF10cQ/X2, RF12cQ/X2



4. Service Space

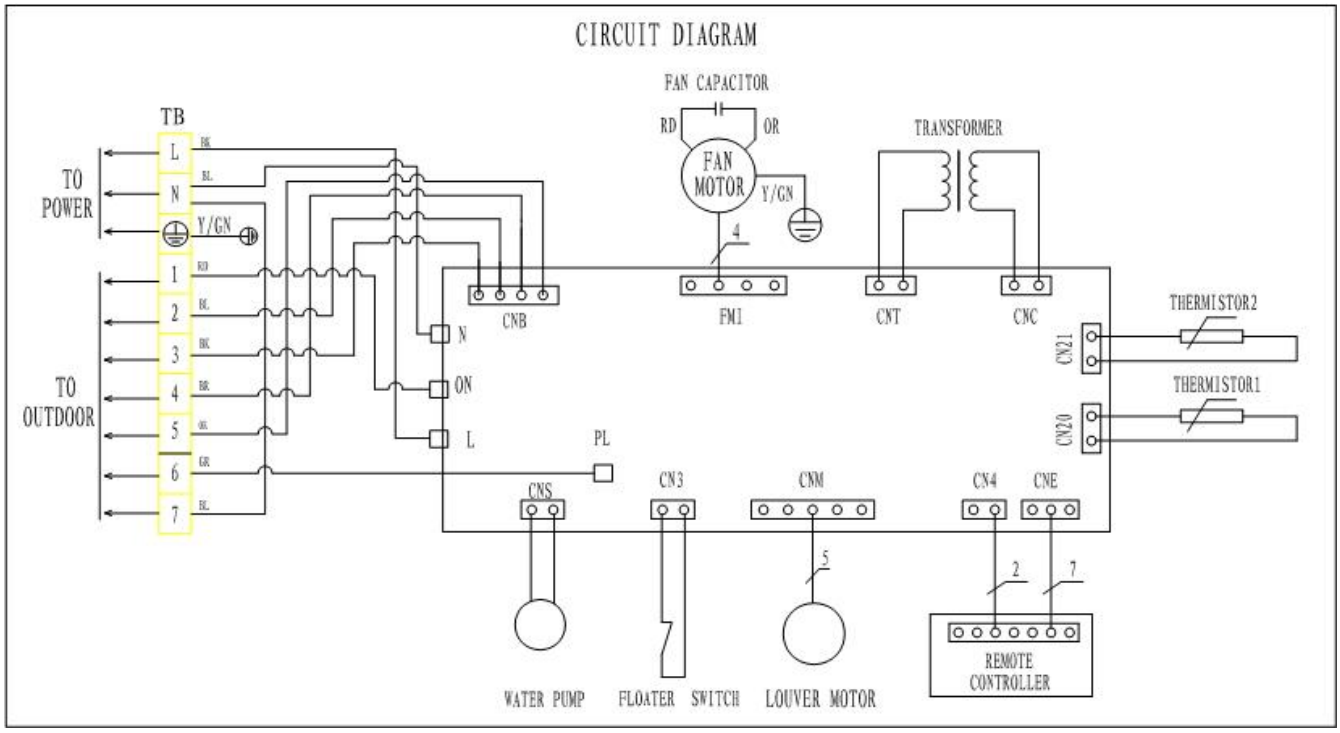
The indoor unit should be installed in a location that meets the following requirements:

- There is enough room for installation and maintenance.
- The ceiling is horizontal, and its structure can endure the weight of the indoor unit.
- The outlet and the inlet are not impeded, and the influence of external air is the least.
- The air flow can reach throughout the room.
- The connecting pipe and drainpipe could be extracted out easily.
- There is no direct radiation from heaters.



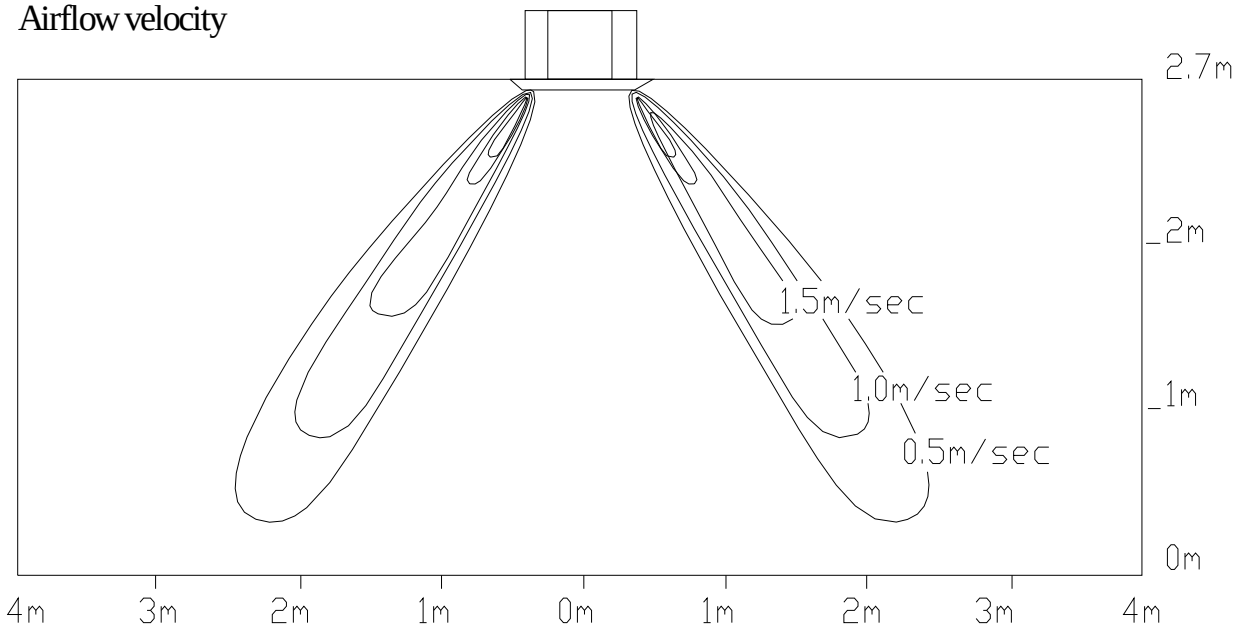
5. Wiring Diagrams

RF7cQ/X2, RF8.8cQ/X2, RF10cQ/X2, RF12cQ/X2

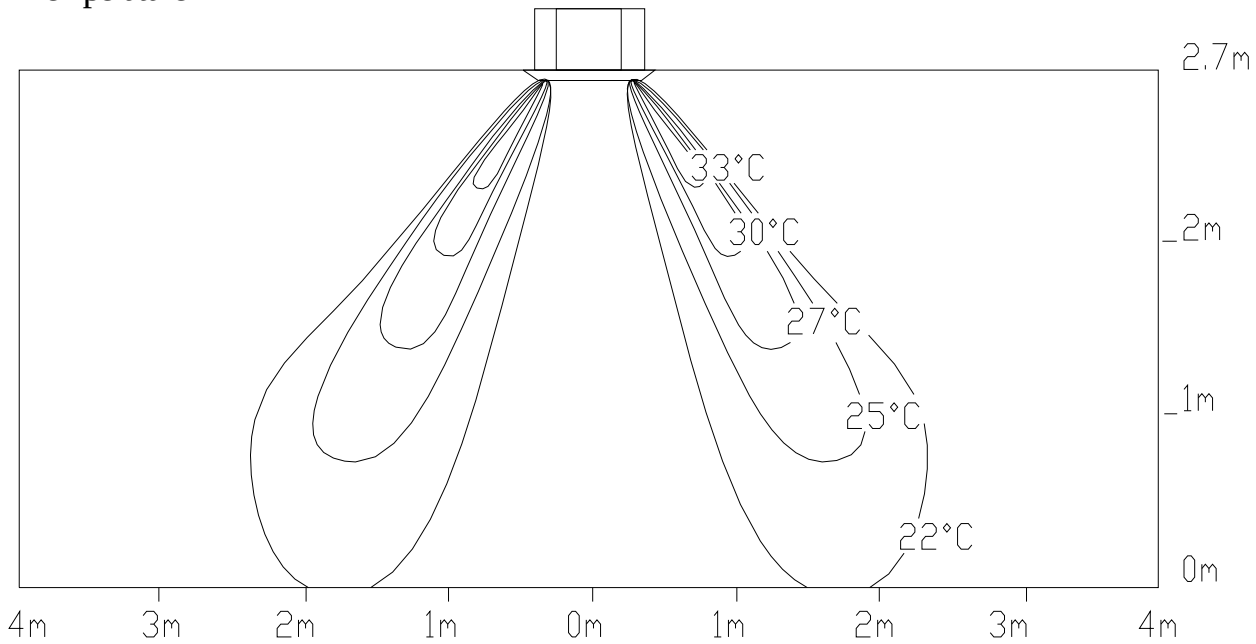


6. Air Velocity and Temperature Distributions

Airflow velocity



Temperature

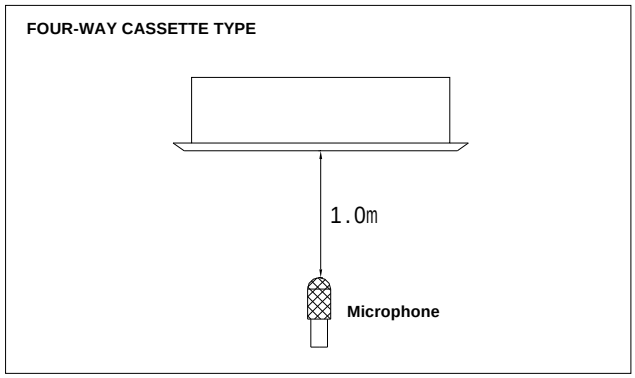


7. Electric Characteristics

Model	Indoor Units				Power Supply		Indoor Fan Motor	
	Hz	Voltage	Min.	Max.	MCA	MFA	kW	FLA
RF7cQ/X2Q	50	220-240V	198V	254V	0.7	25	0.065	0.56
RF8.8cQ/X2Q	50	220-240V	198V	254V	0.955	25	0.090	0.8
RF10cQ/X2Q	50	380-415V	198V	254V	0.955	25	0.090	0.8
RF14cQ/X2Q	50	220-240V	198V	254V	0.955	25	0.090	0.8

Remark:
MCA: Min. Current Amps. (A)
MFA: Max. Fuse Amps. (A)
KW: Fan Motor Rated Output (kW)
FLA: Full Load Amps. (A)

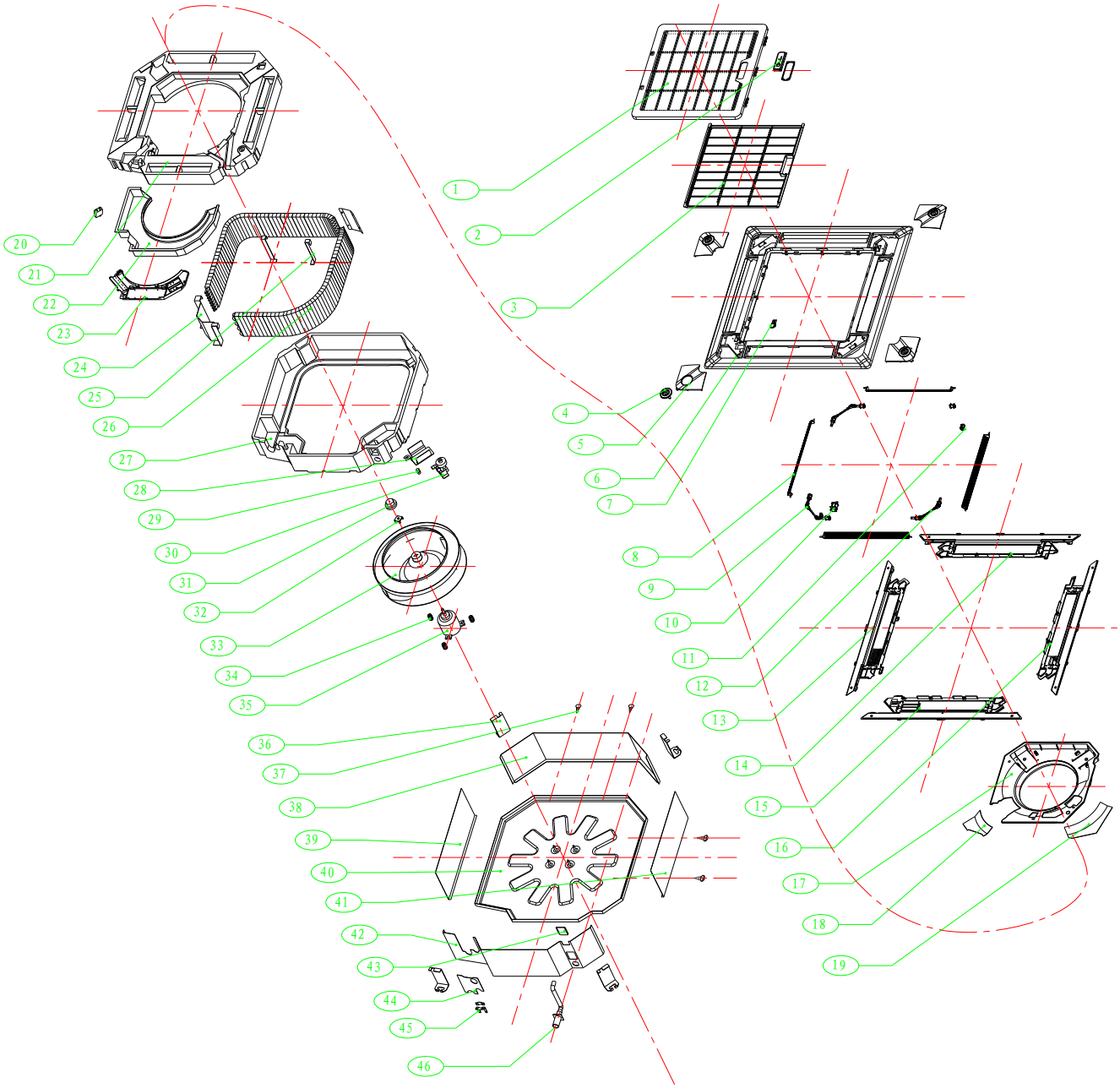
8. Sound Levels



Model	Noise level dB(A)		
	H	M	L
RF7cQ/X2Q	48	46	44
RF8.8cQ/X2Q	52	48	45
RF10cQ/X2Q	52	48	45
RF14cQ/X2Q	52	48	45

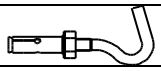
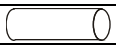
9. Exploded View

RF7cQ/X2, RF8.8cQ/X2, RF10cQ/X2, RF12cQ/X2



No.	Part Name	Quantity	No.	Part Name	Quantity
1~16	panel assy	1	32	Fan clip	1
17	Electronic box cover	1	33	Centrifugal fan	1
18	Warning diagram board	1	34	Motor washer	4
19	circuit diagram board	1	35	Motor	1
20	capacitor	1	36	Fixing hanger	4
21	Water pan assy	1	37	Screw	4
22	Electronic holder	1	38	Back cover	1
23	Electronic box	1	39	Left plate	1
24	Main fixing plate	1	40	Base component	1
25	Sub-fixing plate	2	41	Right plate	1
26	Evaporator assy	1	42	Front cover	1
27	Top foam assy	1	43	Maintenance plate	1
28	Pump bracket	1	44	Valve plate	1
29	Pump bracket washer	1	45	Pipe clip	1
30	Pump	1	46	Drain pipe component	1
31	Screw	1			

10. Accessories

	Name	Shape	Quantity
Installation Fittings	1. Expansible hook		4
	2. Installation hook		4
	3. Installation paper board		1
	4. Bolt M5		4
Tubing & Fittings	5. Connecting pipe group		1
	6. Binding tape		1
	7.Soundproof/insulation sheath		2
Drainpipe Fittings	8. Out-let pipe sheath		1
	10. Tightening band		5
Protect Pipe Fittings	13. Wall conduit		1
	14. Wall conduit cover		1
Remote controller & Its Frame	15. Remote controller		1
	16. Frame (optional)		1
	17. Mounting screw(ST2.9×10-C-H)		2
	18. Alkaline dry batteries (AM4)		2
Others	19. Operation & installation instruction manual		1

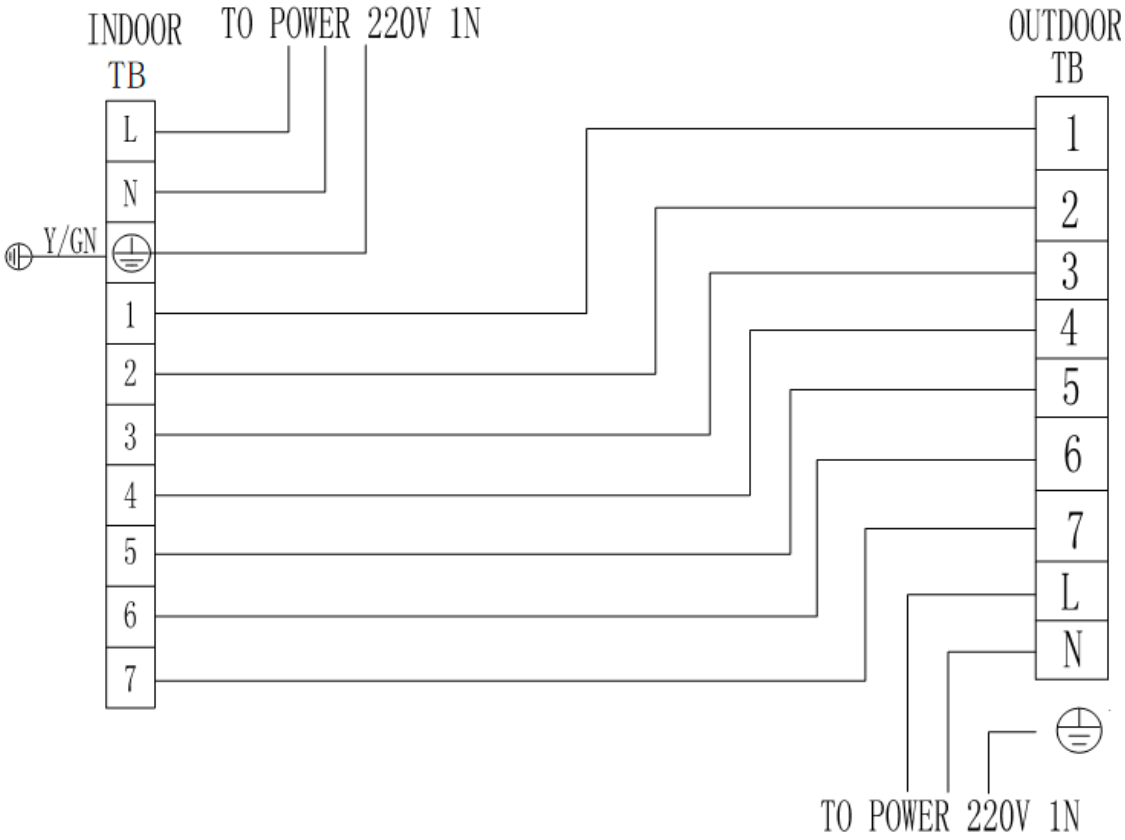
11. The Specification of Power

Type		RF7cQ/X2Q	RF8.8cQ/X2Q
Power	Phase	1-phase	1-phase
	Frequency and Voltage	220-240V, 50Hz	220-240V, 50Hz
Circuit Breaker/ Fuse (A)		40/25	40/25
Indoor Unit Power Wiring (mm^2)		3×1.0	3×1.5
Indoor/Outdoor Connecting Wiring (mm^2)	Ground Wiring	0.75	0.75
	Outdoor Unit Power Wiring	3×2.5	5×1.5
	Strong Electric Signal	--	--
	Weak Electric Signal	7×0.75	7×0.75

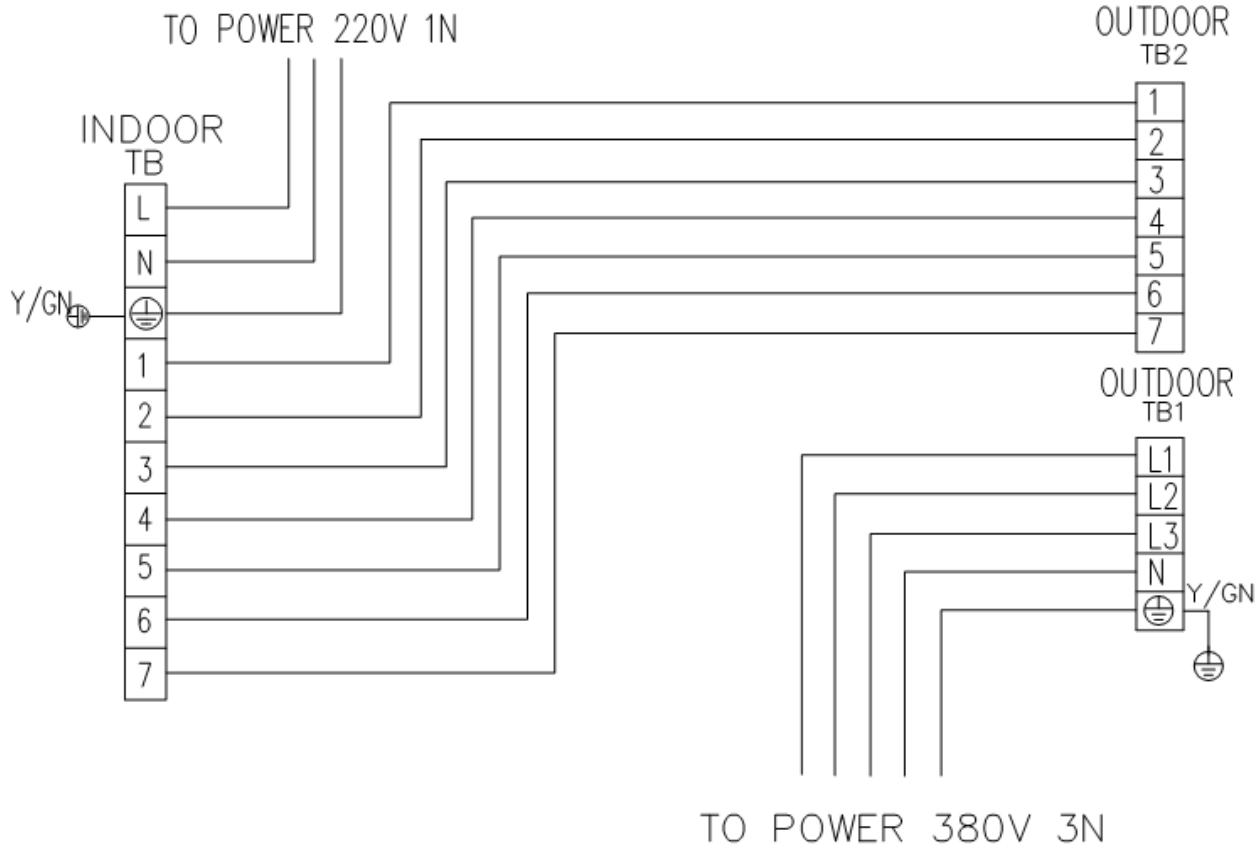
Type		RF10cQ/X2Q	RF12cQ/X2Q
Power	Phase	1-phase	3-phase
	Frequency and Voltage	220-240V, 50Hz	380-415V, 50Hz
Circuit Breaker/ Fuse (A)		40/25	25/15
Indoor Unit Power Wiring (mm^2)		3×1.5	3×1.5
Indoor/Outdoor Connecting Wiring (mm^2)	Ground Wiring	0.75	0.75
	Outdoor Unit Power Wiring	5×1.5	5×1.5
	Strong Electric Signal	--	--
	Weak Electric Signal	7×0.75	7×0.75

12. Field Wiring

12.1 RF7cQ/X2



12.2 RF8.8cQ/X2, RF10cQ/X2, RF12cQ/X2



13. Troubleshooting

Setting Change is Impossible		
Symptoms	Causes	Reason and Disposal
The fan speed can not be changed.	● Check whether the MODE indicated on the display is "AUTO"	When the automatic mode is selected, the air conditioner automatically selects the fan speed.
	● Check whether the MODE indicated on the display is "DEHUMIDIFICATION"	When dry operation is selected, the air conditioner automatically select the fan speed. The fan speed can be selected during "COOL" and "FAN ONLY", and "HEAT"

The Transmission Indicator "+" "-" Never Comes On		
Symptoms	Causes	Reason and Disposal
The remote control signal is not transmitted even when the ON/OFF button is pushed.	● Check whether the batteries in the remote controller are exhausted.	The remote control signal is not transmitted, because the power supply is off.

The Display Never Comes On		
Symptoms	Causes	Reason
The TEMP. indicator does not come on.	● Check whether the MODE indicated on the display is "FAN ONLY". **FAN ONLY**	The temperature cannot be set during fan only operation.

The Display Goes Off		
Symptoms	Causes	Reason
The indication on the display disappears after a lapse of time.	● Check whether the timer operation has come to an end when the OFF TIMER is indicated on the display.	The air conditioner operation stops since the set time elapsed.
The ON TIMER indicators go off after a lapse of certain time.	● Check whether the timer operation is started when the ON TIMER is indicated on the display.	When the time set to start the air conditioner is reached, the air conditioner will automatically start and the appropriate indicator will go off.

The Signal Receiving Tone does Not Sound		
Symptoms	Causes	Disposal
No receiving tone sounds from the indoor unit even when the ON/OFF button is pushed.	● Check whether the signal transmitter of the remote controller is properly directed to the receiver of the indoor unit when the ON/OFF button is pushed.	Direct the signal transmitter of the remote controller to the receiver of the indoor unit, and then repeatly push the ON/ OFF button twice.
Buttons on the remote controller don't work.		Press Reset button.

Self-test information	The flash condition of the red light	Self-test information	The flash condition of the red light
Defrost indication(the unit is in normal state)	Flash one time every second	The frost protection of the indoor eraporator	Flash five times every seven seconds
Second wind prevention indication(the unit is in normal state)	Flash one time every three seconds	The low voltage protection	Flash six times every eight seconds
Indoor temperature sensor fault	Flash two times every four seconds	The outdoor feedback fault	Flash seven times every nine seconds
Duct temperature sensor fault	Flash three times every five seconds	The superheating protection	Flash eight times every ten seconds
The outdoor unit is in abnormal state	Flash four times every six seconds	The water pump fault	Flash nine times every eleven seconds

Duct Type

1. Features

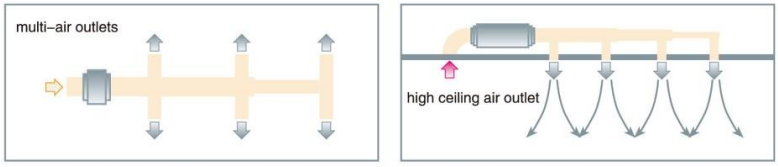
1. Economic and convenient installation

---Several diffusers branch off from an indoor unit, adjusting the room temperature, which makes many rooms to be air-conditioned with only one indoor unit.

---All models feature thin design making them applicable to ceiling pocket that tends to be shallow

2. Filter as standard accessories, long-life and high-efficiency

3. Medium ESP, flexible air duct installation



2. Specifications

Model		Set	RF5.1cFm/X2TB	RF7cFm/X2
Power supply		V- Ph-Hz	220～240-1-50	220～240-1-50
Cooling	Capacity	Btu/h	18000	24000
	Input	W	2000	2370
	Rated current	A	9.0	11.27
	EER	W/W	2.55	2.95
Heating	Capacity	Btu/h	18800	26300
	Input	W	1880	2340
	Rated current	A	8.5	11.15
	COP	W/W	2.93	3.29
Indoor fan motor	Model		YSK110-50-4P	YSK110-120-4
	Quantity		chigo	CHIGO
	Intput	W	50	120
	Capacitor	uF	built-in	6
	Speed (Hi/Mi/Lo)	rpm	1250/1190/1130	1310/1245/1150
Indoor coil	Number of rows		2	2
	Fin spacing	mm	1.5	1.5
	Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	Tube outside dia. and type	mm	φ7 Inner grooved copper tube	φ7 Inner grooved copper tube
	Coil length × height × width	mm	(498×126×46)×4	(648×126×46)×4
	Number of circuits		4	12
Indoor air flow (Hi/Me/Lo)		m^3/h	820/720/620	1200/1050/900
Indoor external static pressure (Hi)		Pa	50	50
Indoor noise level (Hi/Mi/Lo)		dB(A)	51/49/46	51/49/47
Indoor dimension	Unit (WxHxD)	mm	780×260×530	930×260×530
	Packing (WxHxD)	mm	850×320×600	1000×320×600
Indoor weight	Net	kg	28	35
	Gross	kg	32	39
Refrigerant type			R410A	R410A
Refrigerant piping	Liquid side	mm	φ6.35	φ9.52
	Gas side	mm	φ12.7	φ15.88
Drainage water pipe diameter		mm		
Controller			ZKX-FE-01/C & ZH/JT-01	ZKX-FE-01/C & ZH/JT-01
Operation temperature range		℃	17～30	17～30

Notes: 1. Nominal cooling capacities are based on the following conditions:
Indoor temp: 27°CDB, 19°CWB; Outdoor temp: 35°CDB; Equivalent ref. piping: 5m (horizontal)
2. Nominal heating capacities are based on the following conditions:
Indoor temp: 20°CDB; Outdoor temp: 7°CDB, 6°CWB; Equivalent ref. piping: 5m (horizontal)
3. Actual noise level may differ, depending on the room structure, etc, since these noise values are from an anechoic room.

Model			RF10cFm/X2	RF12cFm/X2TB
Power supply		V-Ph-Hz	220～240-1-50	220～240-1-50
Cooling	Capacity	Btu/h	36000	42000
	Input	W	3870	4900
	Rated current	A	17.55	8.25
	EER	W/W	2.58	2.45
Heating	Capacity	Btu/h	37600	44400
	Input	W	4080	5800
	Rated current	A	18.5	9
	COP	W/W	2.7	2.24
Indoor fan motor	Model		YSK110-120-4P/YDK110-50-4P	YSK110-120-4P/YDK110-50-4P
	Quantity		CHIGO	chigo
	Intput	W	170	170
	Capacitor	uF	8	6
	Speed (Hi/Mi/Lo)	rpm	1400/1360/1260	1300/1200/1100
Indoor coil	Number of rows		2	2
	Fin spacing	mm	1.5	1.5
	Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	Tube outside dia. and type	mm	φ7 Inner grooved copper tube	φ7 Inner grooved copper tube
	Coil length × height × width		(898×126×46)×4	(898×126×46)×4
	Number of circuits		8	8
Indoor air flow (Hi/Me/Lo)		m^3/h	1700/1580/1440	1700/1550/1400
Indoor external static pressure (Hi)		Pa	50	50
Indoor noise level (Hi/Mi/Lo)		dB(A)	60/55/48	60/55/49
Indoor dimension	Unit (WxHxD)	mm	1180×260×530	1180×260×530
	Packing (WxHxD)	mm	1250×320×600	1250×320×600
Indoor weight	Net	kg	42	42
	Gross	kg	46	46
Refrigerant type			R410A	R410A
Refrigerant piping	Liquid side	mm	φ9.52	φ9.52
	Gas side	mm	φ19.05	φ19.05
Controller			ZKX-FE-01/C & ZH/JT-01	ZKX-FE-01/C & ZH/JT-01
Operation temperature range		℃	17～30	17～30

Notes: 1. Nominal cooling capacities are based on the following conditions:
Indoor temp: 27°CDB, 19°CWB; Outdoor temp: 35°CDB; Equivalent ref. piping: 7.5m (horizontal)
2. Nominal heating capacities are based on the following conditions:
Indoor temp: 20°CDB; Outdoor temp: 7°CDB, 6°CWB; Equivalent ref. piping: 7.5m (horizontal)
3. Actual noise level may differ, depending on the room structure, etc, since these noise values are from an anechoic room.

Model			RF14cFm/X2TB
Power supply		V-Ph-Hz	220～240-1-50
Cooling	Capacity	Btu/h	48000
	Input	W	5657
	Rated current	A	9.64
	EER	W/W	2.47
Heating	Capacity	Btu/h	52600
	Input	W	6687
	Rated current	A	11
	COP	W/W	2.31
Indoor fan motor	Model		YSK120-110-4P/YSK120-60-4P
	Quantity		chigo
	Intput	W	170
	Capacitor	uF	6
	Speed (Hi/Mi/Lo)	rpm	1400/1360/1260、1410/1380/1290
Indoor coil	Number of rows		2
	Fin spacing	mm	1.5
	Fin type (code)		Hydrophilic aluminum
	Tube outside dia. and type	mm	φ7 Inner grooved copper tube
	Coil length × height × width		(1150×150×46)×4
	Number of circuits		8
Indoor air flow (Hi/Me/Lo)		m^3/h	2100/1900/1700
Indoor external static pressure (Hi)		Pa	50
Indoor noise level (Hi/Mi/Lo)		dB(A)	55/51/47
Indoor dimension	Unit (WxHxD)	mm	1380×260×530
	Packing (WxHxD)	mm	1460×320×600
Indoor weight	Net	kg	52
	Gross	kg	56
Refrigerant type			R410A
Refrigerant piping	Liquid side	mm	φ12.7
	Gas side	mm	φ19.05
Controller			ZKX-FE-01/C & ZH/JT-01
Operation temperature range		℃	17～30

Notes: 1. Nominal cooling capacities are based on the following conditions:
Indoor temp: 27°CDB, 19°CWB; Outdoor temp: 35°CDB; Equivalent ref. piping: 7.5m (horizontal)
2. Nominal heating capacities are based on the following conditions:
Indoor temp: 20°CDB; Outdoor temp: 7°CDB, 6°CWB; Equivalent ref. piping: 7.5m (horizontal)
3. Actual noise level may differ, depending on the room structure, etc, since these noise values are from an anechoic room.

3. Dimensions

Figure 1

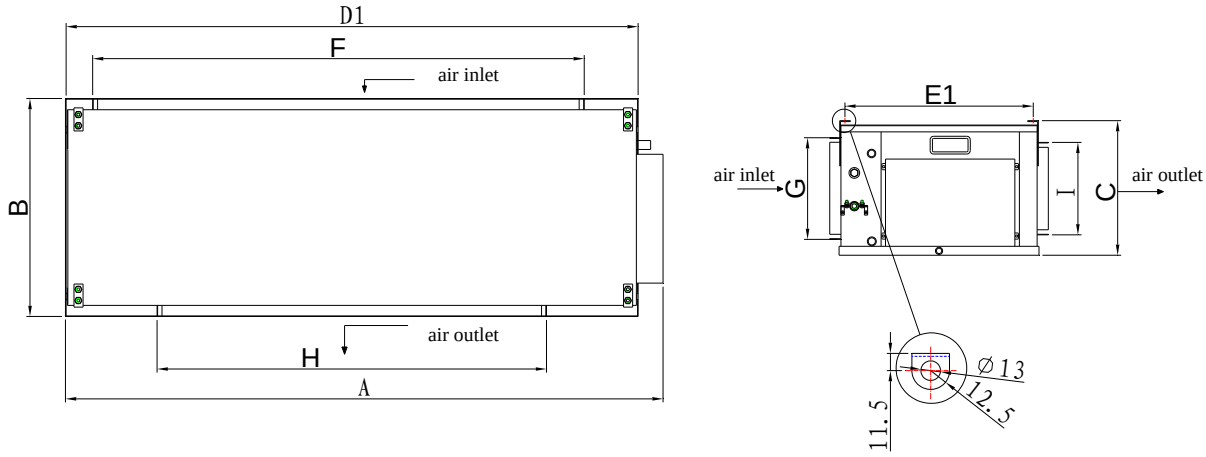
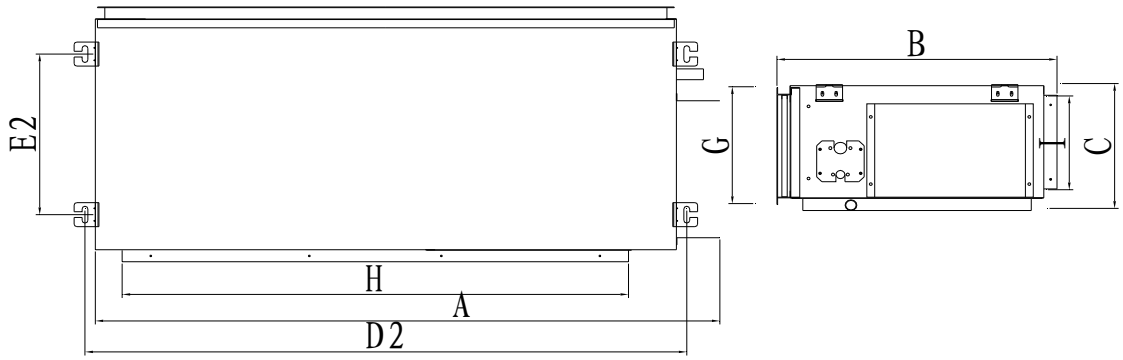


Figure 2

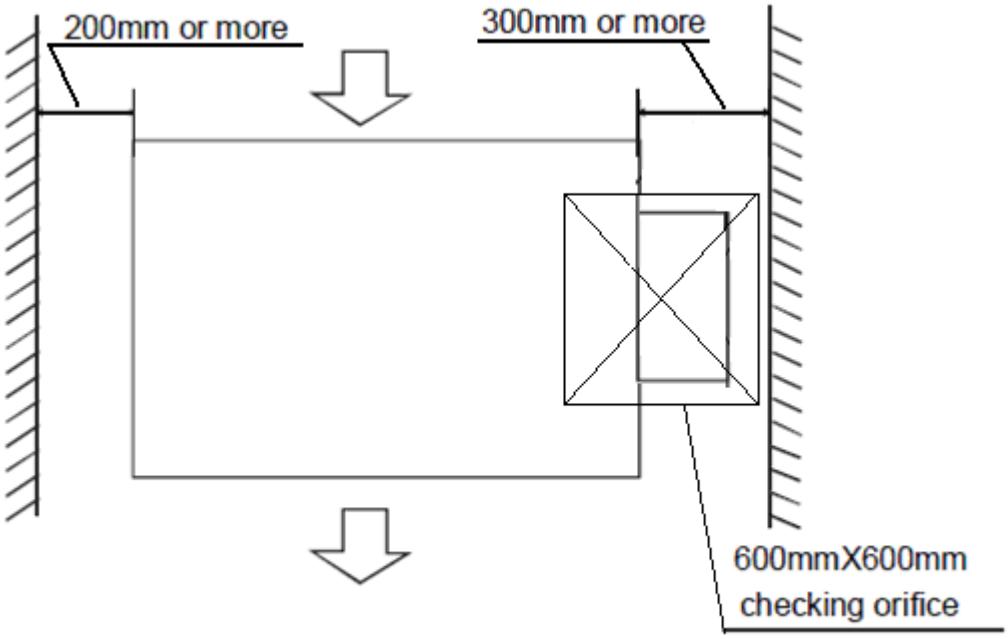


unit：mm

Capacity (kBtu)	Outline dimension(mm)			Air outlet		Air inlet		Size of outline dimension mounted plug	
	A	B	C	H	I	F	G	D1/D2	E1/E2
18	780	530	260	645	195	664	243	1092	243
24	930	530	260	672	195	842	243	1264	243
36/42	1180	530	260	959	195	1092	243	1139/1185	334
48	1380	530	260	1133	195	1264	243	1270/1316	334

4. Service Space

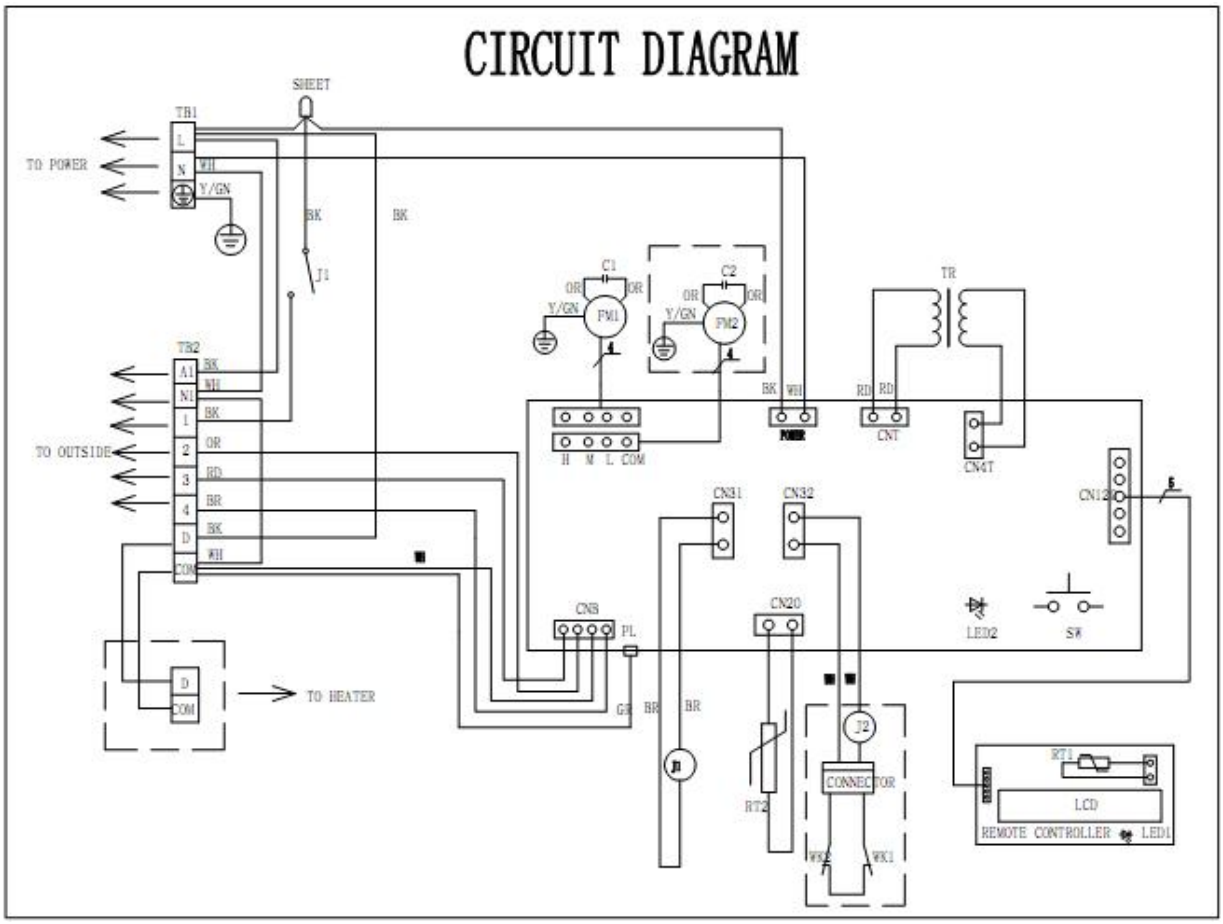
Ensure enough space required for installation and maintenance.



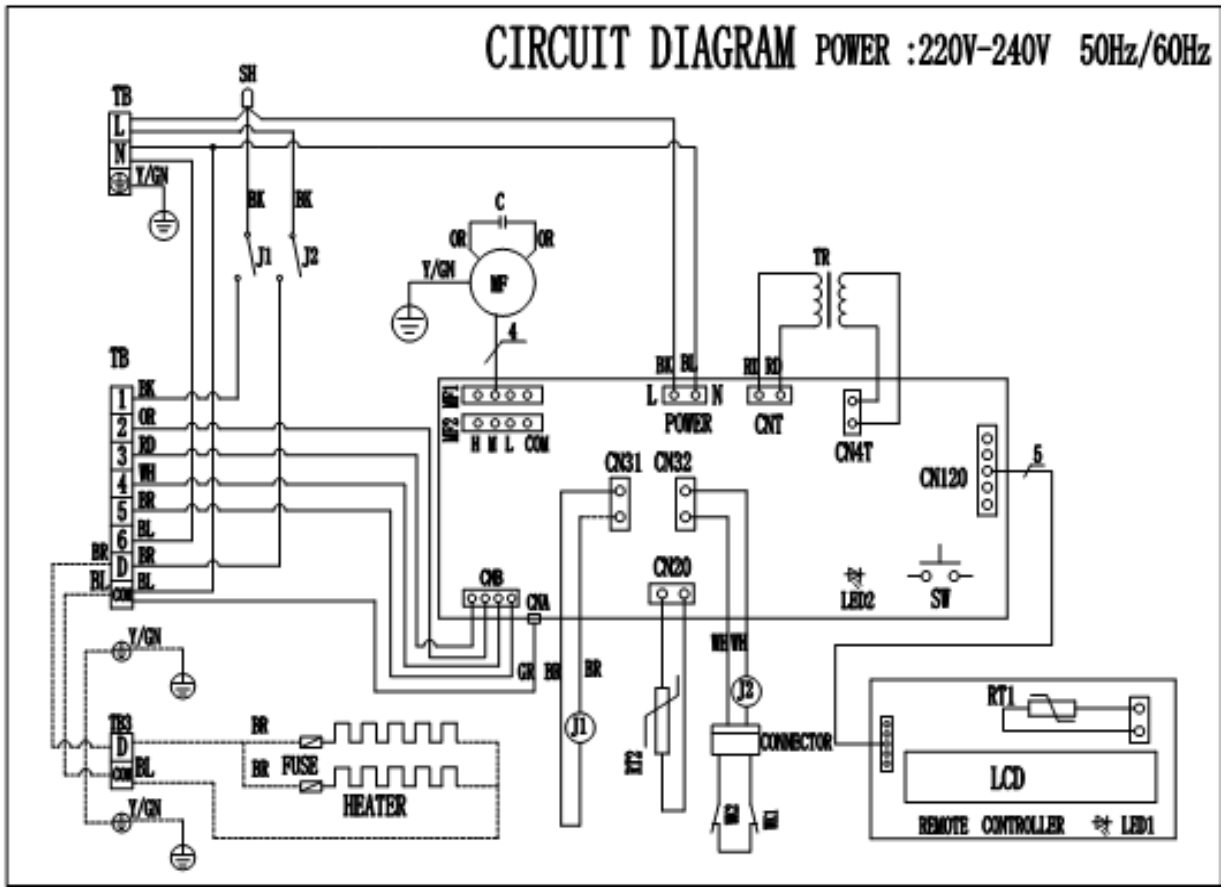
There is enough space for installation and maintenance. The ceiling is horizontal, and its structure can endure the weight of the indoor unit. The outlet and the inlet are not impeded, and the influence of external air is the least. The air flow can reach throughout the room. The connecting pipe and drainpipe could be extracted out easily. There is no direct radiation from heater.

5. Wiring Diagrams

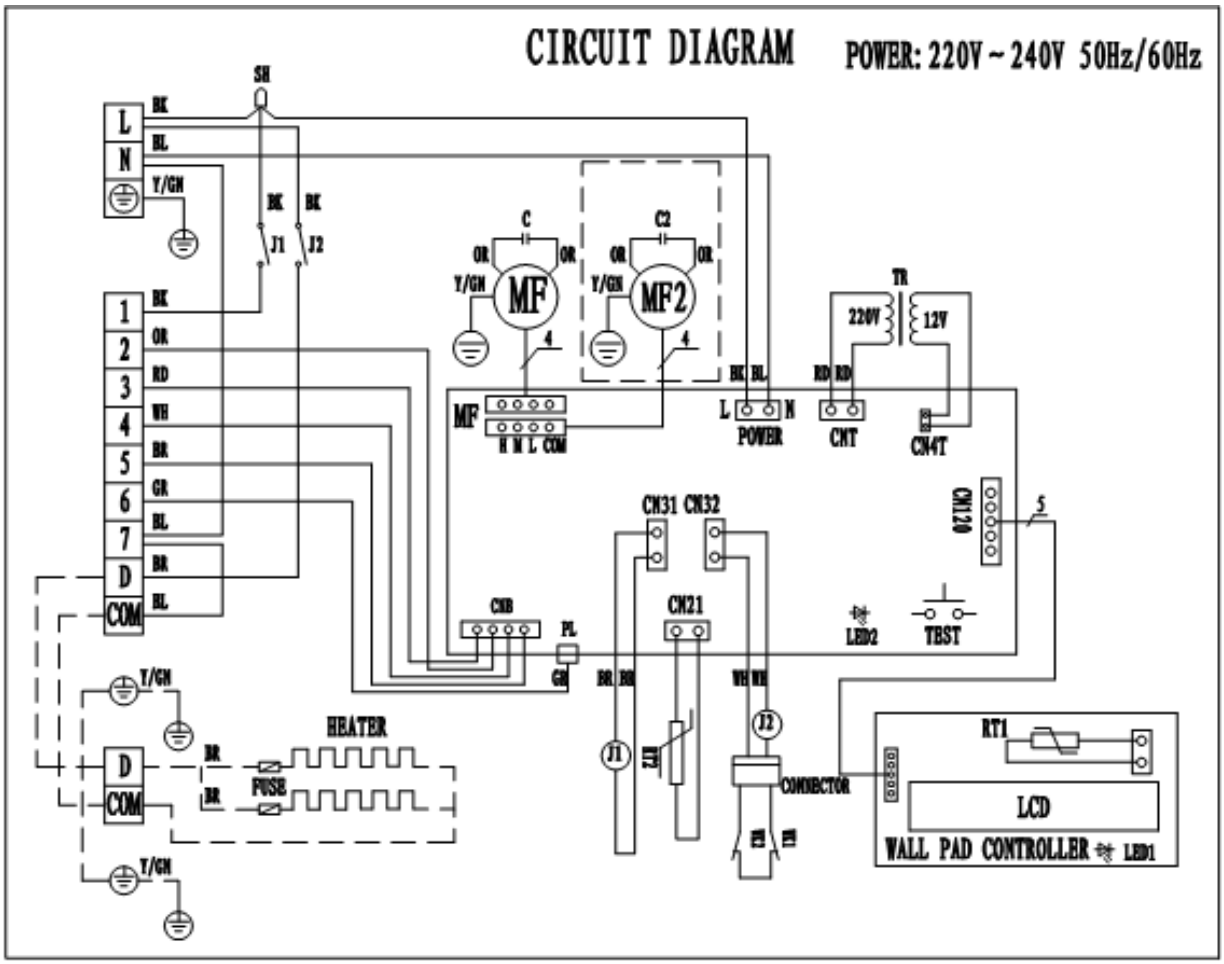
RF5.1cFm/ X2TB



RF7cFm/ X2



RF10cFm/ X2, RF12cFm/ X2TB, RF14 cFm / X2TB

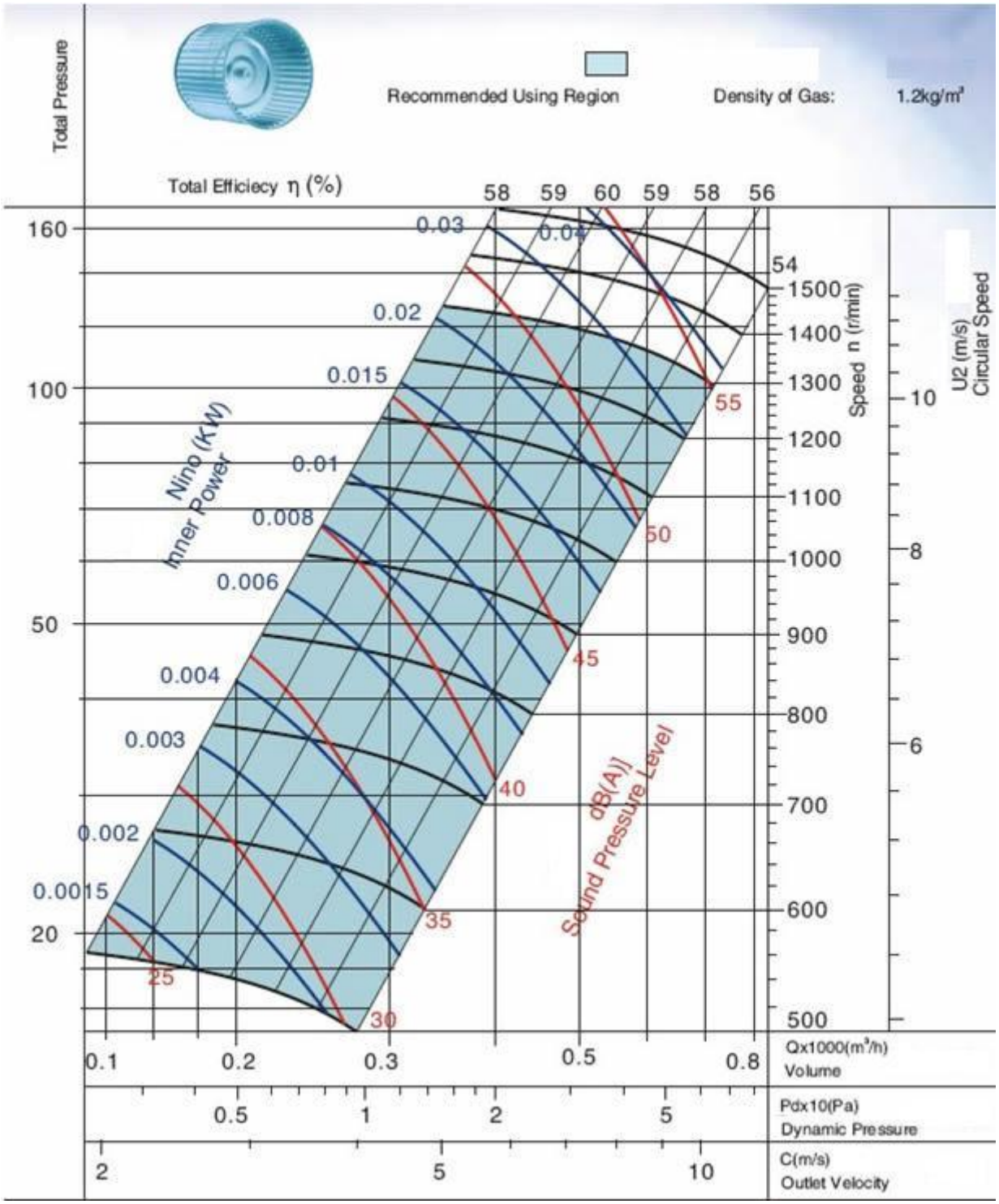


6. Electric Characteristics

Model	Indoor Units			
	Hz	Voltage	Min.	Max.
RF5.1cFm/X2TB	50	220-240V	198V	254V
RF7cFm/X2	50	220-240V	198V	254V
RF10cFm/X2	50	220-240V	198V	254V
RF12cFm/X2TB	50	380-420V	342V	420V
RF14cFm/X2TB	50	220-240V	198V	254V

7. Static Pressure

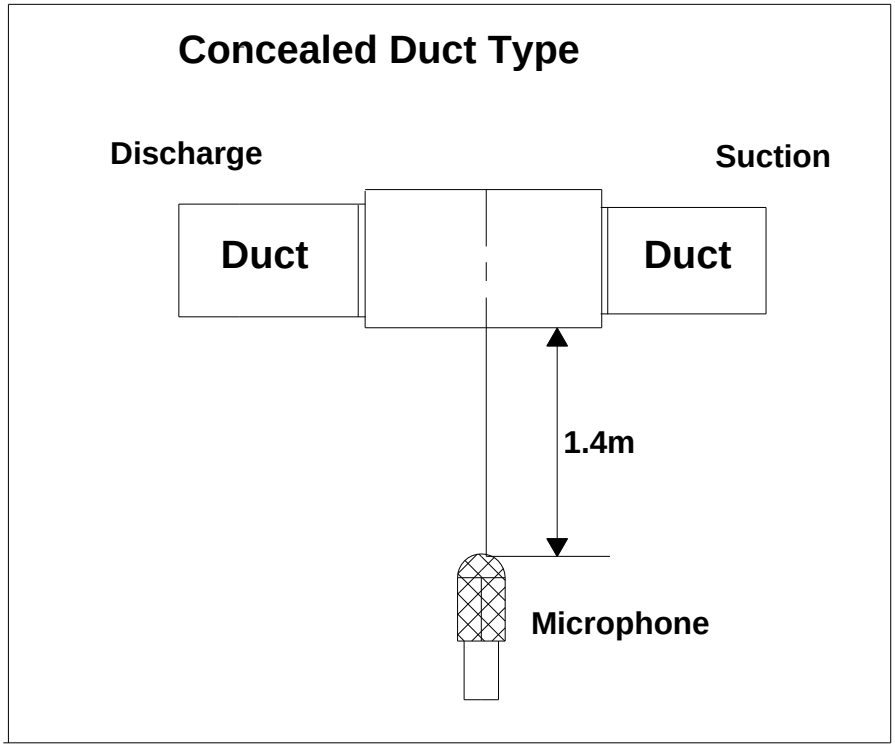
RF5.1cFm/X2TB, RF7cFm/X2, RF10cFm/X2, RF12cFm/X2TB, RF14cFm/X2TB



Note: The above performance curve is of single fan single motor. When indoor unit use single motor,double fans,the cuive should change as follows:

1, Double fans air flow = single fan air flow×2
2, Double fans air pressure = single fan air pressure
3, Double fans rotate speed = single fan rotate speed×1.05
4, Double fans noise = single fan noise +3dB(A)

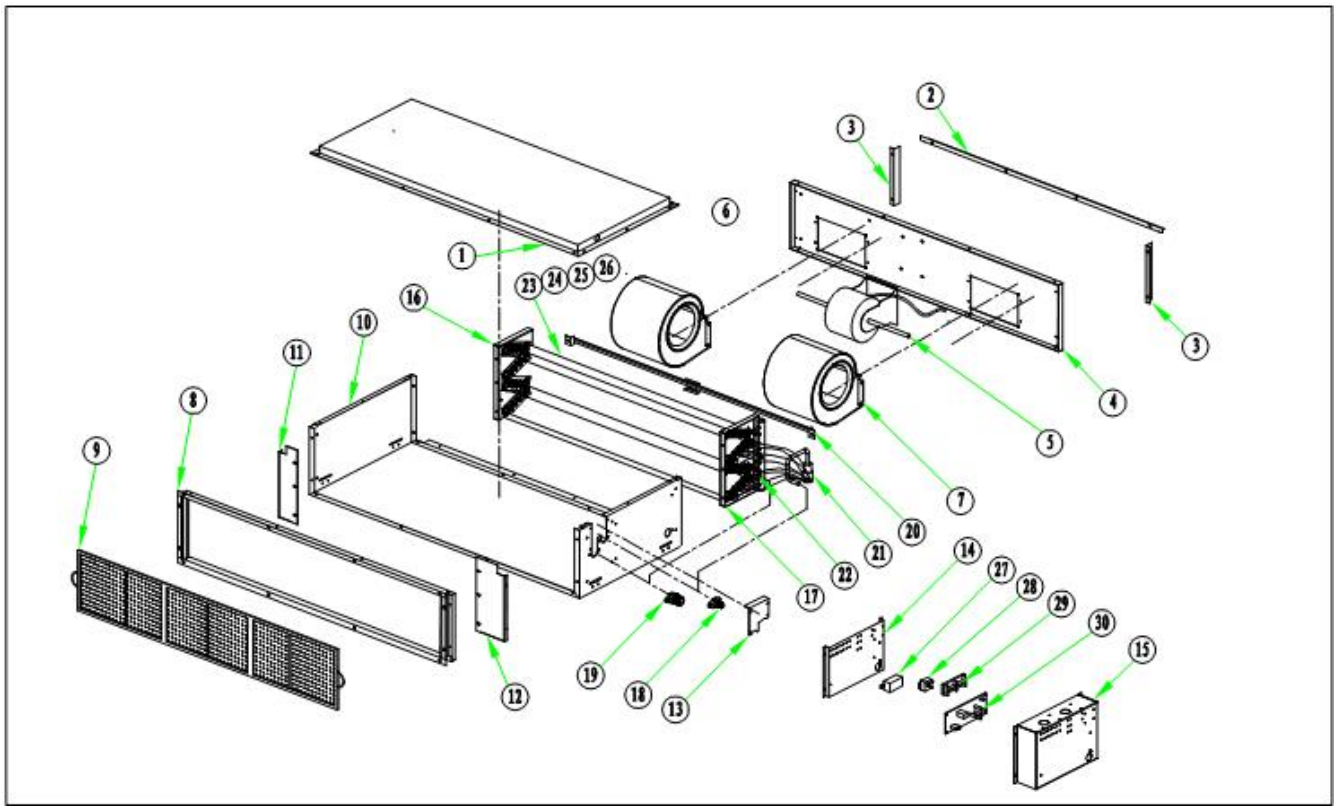
8. Sound Levels



Model	Noise level dB(A)		
	H	M	L
RF5.1cFm/X2TB	51	49	46
RF7cFm/X2	51	49	47
RF10cFm/X2	60	55	48
RF12cFm/X2TB	60	55	49
RF14cFm/X2TB	55	51	47

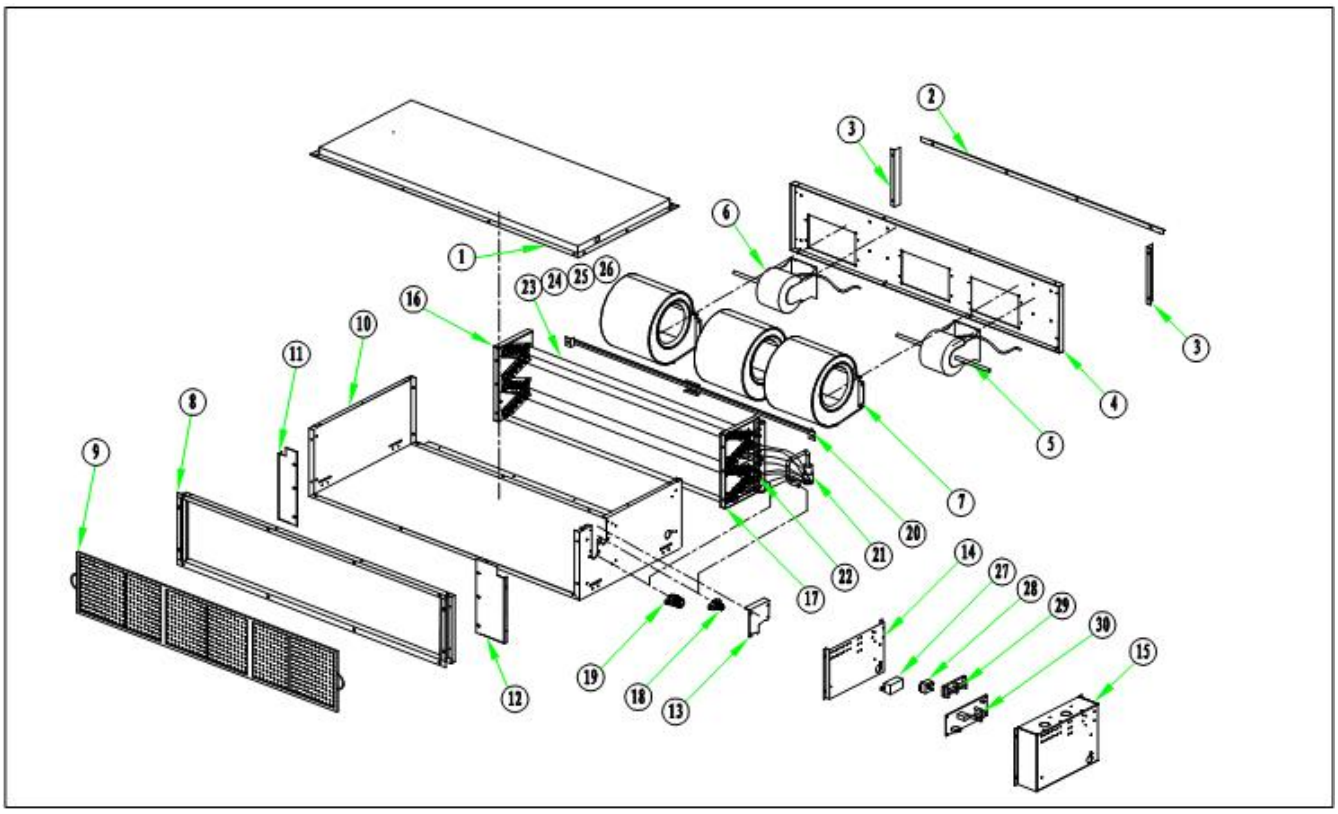
9. Exploded View

9.1 RF5.1cFmTB/X2 RF7cFmTB/X2



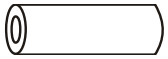
No.	Part Name	Quantity	No.	Part Name	Quantity
1	Drain pan	1	16	Evaporator left fixed plate	1
2	Air outlet opening bottom plate	1	17	Evaporator right fixed plate	1
3	Air outlet opening fixed plate	2	18	DN8 valve	1
4	Fan installation plate assey	1	19	DN16 valve	1
5	Indoor motor1	1	20	Evaporator support	1
6	Indoor motor2	1	21	Divided capillary assembly	1
7	Fan assembly	2	22	Collection pipe assembly	1
8	Return air opening assembly	1	23	Evaporator A	1
9	Filter assembly	1	24	Evaporator B	1
10	Panel	1	25	Evaporator C	1
11	Right fixed plate	1	26	Evaporator D	1
12	Left fixed plate	1	27	Transformer	1
13	Valve installation plate	1	28	Relay	2
14	Electronic installation plate	1	29	Terminal	2
15	Electronic box cover	1	30	Indoor PCB	1

9.2 RF10cFmTB/X2 RF12cFmTB/X2 RF14cFmTB/X2



No.	Part Name	Quantity	No.	Part Name	Quantity
1	Drain pan	1	16	Evaporator left fixed plate	1
2	Air outlet opening bottom plate	1	17	Evaporator right fixed plate	1
3	Air outlet opening fixed plate	2	18	DN8 valve	1
4	Fan installation plate assey	1	19	DN16 valve	1
5	Indoor motor1	1	20	Evaporator support	1
6	Indoor motor2	1	21	Divided capillary assembly	1
7	Fan assembly	3	22	Collection pipe assembly	1
8	Return air opening assembly	1	23	Evaporator A	1
9	Filter assembly	1	24	Evaporator B	1
10	Panel	1	25	Evaporator C	1
11	Right fixed plate	1	26	Evaporator D	1
12	Left fixed plate	1	27	Transformer	1
13	Valve installation plate	1	28	Relay	2
14	Electronic installation plate	1	29	Terminal	2
15	Electronic box cover	1	30	Indoor PCB	1

10. Accessories

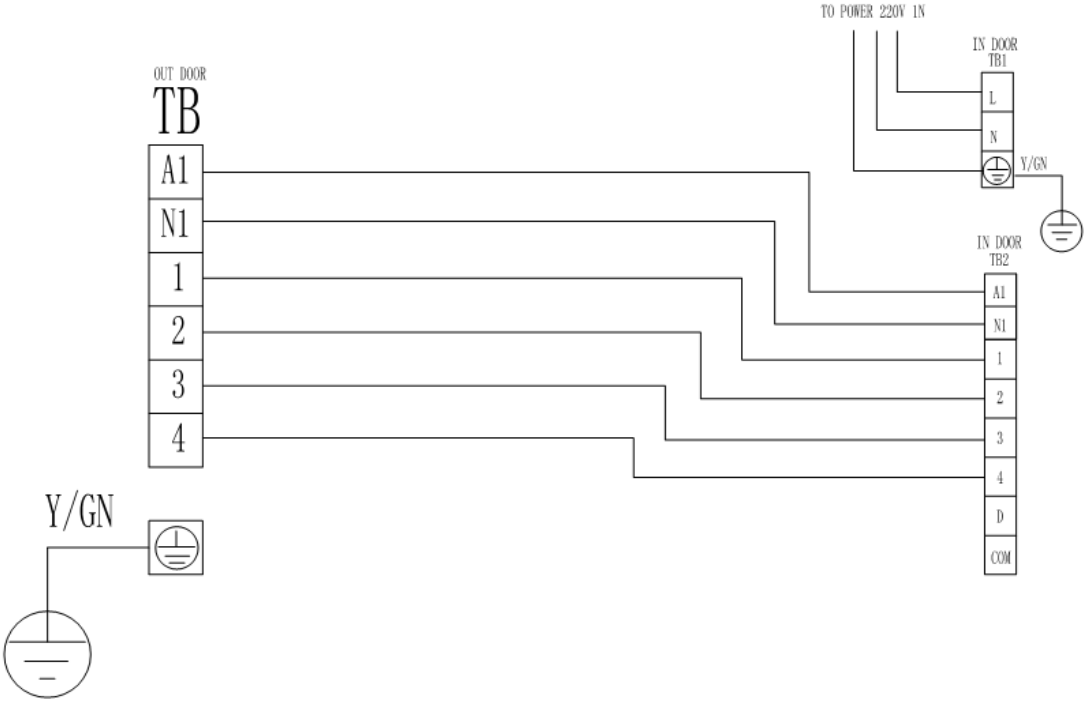
	Name	Shape	Quantity
Tubing & Fittings	Soundproof/insulation sheath		2
	Binding tape		1
	Seal sponge		1
Drainpipe Fittings	Seal ring		1
Controller	Wire controller		1
	Remote controller		1
others	Operation & installation instruction manual		1

11. The Specification of Power

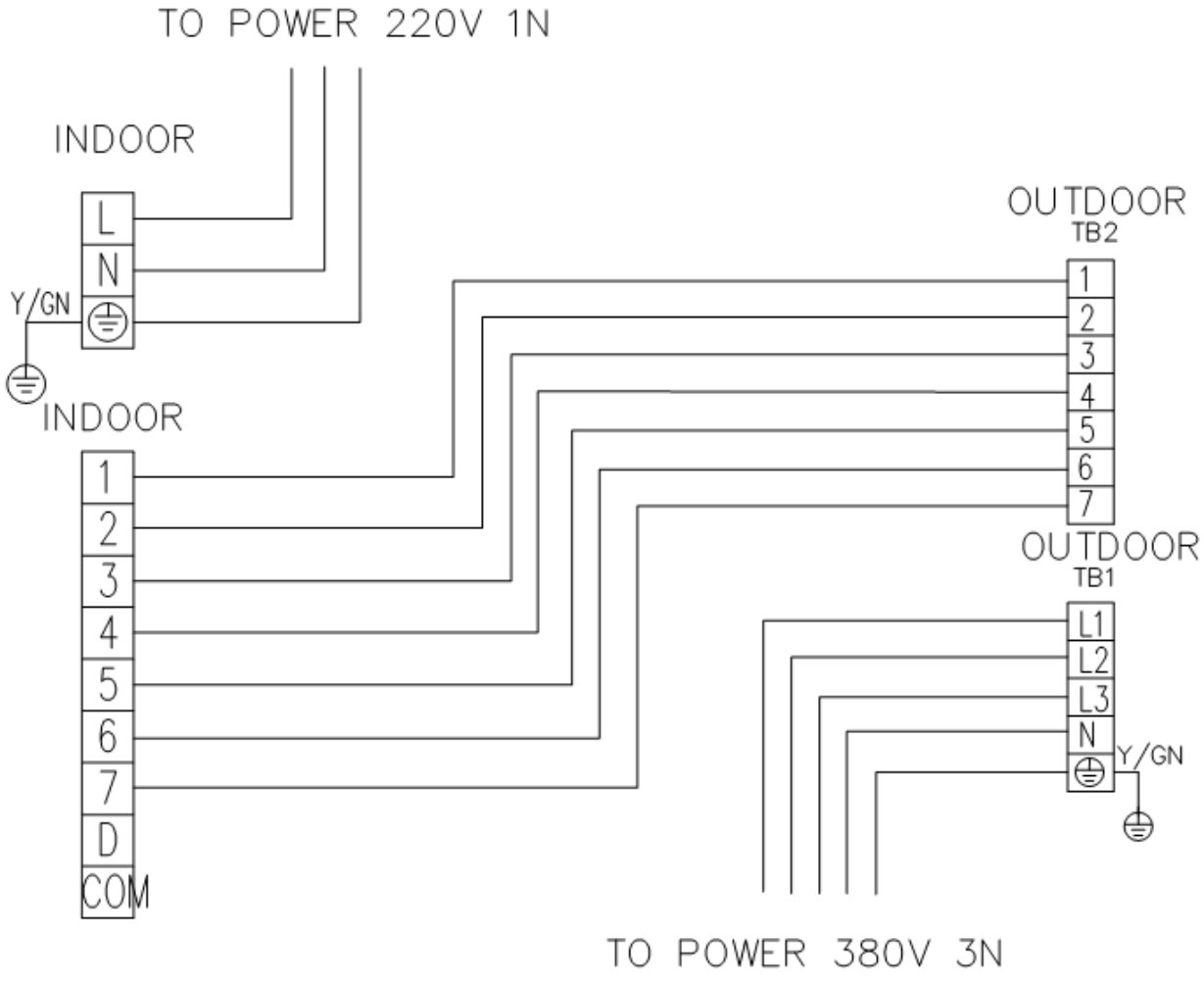
Model		RF5.1cFm/X2TB	RF7cFm/X2	RF10cFm/X2	RF12cFm/X2TB RF14cFm/X2TB
Power	Phase	1-Phase	1-Phase	1-Phase	1-Phase
	Frequency and Volt	220-240V,50Hz	220-240V,50Hz	220-240V,50Hz	380-420V, 50Hz
Circuit Breaker/Fuse(A)		20/16	30/25	35/30	40/30
Indoor unit power wiring(mm²)		3×1.5	3×2.5	3×2.5	--
Indoor/out-door connecting wiring(mm²)	Groud wiring	1.5	0.75	0.75	0.75
	Outdoor unit power wiring	3×2.5	3×2.5	3×4.0	5×1.5
	Strong electric signal	4×1.5	--	--	3×1.0
	Weak electric signal	--	6×0.75	7×0.75	7×0.75

12. Field Wiring

12.1 RF5.1cFm/X2TB, RF7cFm/X2, RF10cFm/X2



12.2 RF12cFm/X2TB, RF14cFm/X2TB



13. Troubleshooting

Table 1

Symptoms	Causes	Solution
Unit does not start	• Power failure. • Power switch is off. • Fuse of power switch may have burned. • Batteries of remote controller exhausted or other problem of controller.	• Wait for the comeback of power. • Switch on the power. • ReplLocation: • Replace the batterises or check the controller.
Air flowing normally but completely can't cooling	• Temperature is not set correctly. • Be in 3 minutes protection of compressor.	• Set the temperature properly. • Wait.
Units start or stop frequently	• Refrigerant is too little or too much. • Air or no concretingc gas in the refrigerating circuit. • Compressor is malfunction. • Voltage is too high or too low. • System circuit is blocked.	• Check leakage, and rightly recharge refrigerant. • Vacuum and recharge refrigerant. • Maintenance or change compressor. • Install manostat. • Find reasons and solution.
Low cooling effect	• Outdoor unit and indoor unit heat exchanger is dirty. • The air filter is dirty. • Inlet/outlet of indoor/outdoor units is blocked. • Doors and windows are open • Sunlight directly shine. • Too much heat resource. • Outdoor temp. is too high. • Leakage of refrigerant or lack of refrigerant.	• Clean the heat exchanger. • Clean the air filter. • Eliminate all dirties and make air smooth. • Close doors and windows. • Make curtains in order to shelter from sunshine. • Reduce heat source. • AC cooling capacity reduces (normal). • Check leakage and rightly recharge refrigerant.
Low heating effect	• Outdoor temperature is lower than 7°C • Doors and windows not completely closed. • Leakage of refrigerant or lack of refrigerant.	• Use heating device. • Close doors and windows. • Check leakage and rightly recharge refrigerant.

Table 2

Symptoms	Solution	Causes
The fan speed can not be changed.	● Check whether the MODE indicated on the display is "AUTO"	When the automatic mode is selected, the air conditioner will automatically change the fan speed.
	● Check whether the MODE indicated on the display is "DEHUIMIDIFICATION"	When dry operation is selected, the air conditioner automatically change the fan speed. The fan speed can be selected during "COOL" , "FAN ONLY", and "HEAT"
The wire controller signal is not transmitted even when the ON/OFF button is pushed.	● Check whether the signal transmitter of the wire controller is properly directed to the infrared signal receiver of the indoor unit.	The power supply is off.

The TEMP. indicator does not come on.	• Check whether the MODE indicated on the display is FAN ONLY	The temperature cannot be set during FAN mode.
The indication on the display disappears after a lapse of time.	• Check whether the timer operation has come to an end when the TIMER OFF is indicated on the display.	The air conditioner operation will stop up to the set time
The TIMER ON indicator goes off after a lapse of certain time.	• Check whether the timer operation is started when the TIMER ON is indicated on the display.	Up to the set time, the air conditioner will automatically start and the appropriate indicator will go off.
No receiving tone sounds from the indoor unit even when the ON/OFF button is pressed.	• Check whether the signal transmitter of the wire controller is properly directed to the infrared signal receiver of the indoor unit when the ON/OFF button is pressed.	Directly transmit the signal transmitter of the wire controller to the infrared signal receiver of the indoor unit, and then repeatly push the ON/OFF button twice.

Table 3 Fault code

Fault content	LCD display content	Causes of the malfunction and treatment
Control system main board communication failure	E1	1, Inspection of main board and display operation panel, check whether communication signal line connection is normal. 2, Check whether main board and display operation board have signal output.
Room temperature sensor fault	E2	1, Check whether the sensor resistance normal (at temperature 25 ℃ resistance to 5 k Ω, measuring by multimeter to see resistance changing when the temperature changes), when abnormal would replace. 2, Check whether the plug-in contact well, if there is false jointing on circuit board. 3, When 1, 2 items are normal, therefore the sensor external components or integrated circuit is damaged, it is needed to replace with electronic control panels.
Indoor coil temperature sensor fault	E3	1, Check whether the sensor resistance normal (at temperature 25 ℃ resistance to 5 k Ω, measuring by multimeter to see resistance changing when the temperature changes), when abnormal would replace. 2, Check whether the plug-in contact well, if there is false jointing on circuit board. 3, When 1, 2 items are normal, therefore the sensor external components or integrated circuit is damaged, it is needed to replace with electronic control panels.
Low-pressure protection	E4	1, Check whether there is refrigerant in the system. 2, Check whether the low pressure under operation is at normal value. (action and resume pressure: 0.05/0.15 MPa) 3, Check whether the pressure switch and connection are normal.
Frosting protection	E8	1, Check whether the fan motor is running normally. 2, Check whether the evaporation and filter are dirty blocking.

		3, Under heating mode, the four-way valve does not work.
Overcurrent or phase sequence protection	E7	1, Check whether the compressor winding resistance and operation current are normal. 2, Check whether low and high pressure under operation are normal. 3, Check whether there is lack of phase or the phase sequence is correct of power supply. 4, Check whether the terminals and the plug-in on circuit board contact well. 5, Inspection of phase sequence, current, check whether there is fault of circuit.
Overheating protection	E8	1, Fault effective in heating mode. 2, Check whether the fan motor is operating normally (power supply, winding, capacitance, etc.). 3, Check whether the evaporation and filter are dirty blocking. 4, Whether air inlet and outlet short circuit.
Outdoor abnormal protection	E9	1, Cooling mode: Check whether room temperature sensor close to cold source (such as: evaporator cuprum pipes) . Check whether room temperature sensor installation position is correct. The difference between room temperature and temperature maintains more than 5 ℃ after the compressor running over five minutes. The difference between room temperature and temperature maintains less than 5 ℃ for three minutes, emergence this fault. 2, Heating mode: Check whether the fan motor is operating normally (motors, capacitors, control circuits and cables). First time start-up and compressor is running, indoor fan motor stops up to 35 minutes, emergence this fault. In operation, compressor is running and indoor fan motor stops up to 20 minutes, emergence this fault.

Ceiling & Floor Type

1. Features

1.1. New design, more modern and elegant appearance.

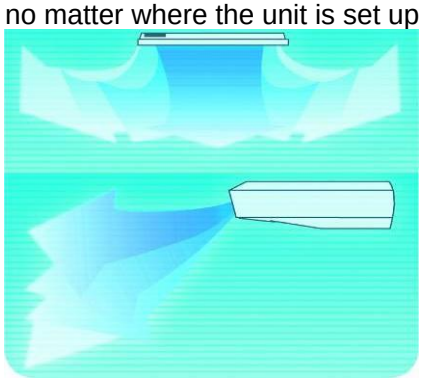


1.2. Convenient installation

--The ceiling type can be easily installed into a corner of the ceiling even if the ceiling is very narrow
--It is especially useful when installation of an air conditioner in the center of the ceiling is impossible due to a structure such as one lighting.

1.3. Two direction auto swing (vertical & horizontal) and wide angle air flow,

--Air flow directional control minimizes the air resistance and produces wilder air flow to vertical direction.
--The range of horizontal air discharge is widened which secures wider air flow distribution to provide more comfortable air circulation no matter where the unit is set up



1.4. Three level fan speed, more humanism design, meets different air-supply requirement.

1.5. Water proof by utilizing the absorbing plastic film on water collector

1.6. Easy operation.

1.7. Remote control and optional wired control method.

2. Specifications

Model			RF5.1cLD/X2C	RF7cLD/X2C
Power supply		V-Ph-Hz	220～240-1-50	220～240-1-50
Cooling	Capacity	Btu/h	18000	24000
	Input	W	1920	2350
	Rated current	A	8.73	10.7
	EER	W/W	2.66	2.98
Heating	Capacity	Btu/h	17550	24300
	Input	W	2020	2250
	Rated current	A	9.2	10.2
	COP	W/W	2.77	3.42
Indoor fan motor	Model		YSK110-65LD-4P3H85	YSK110-45LD-4P3H90/ YDK110-22LD-4P3H90L
	Input	W	65	67
	Capacitor	uF	built-in	built-in
	Speed(Hi/Mi/Lo)	r/min	1350/1270/1180	1250/1120/950
Indoor coil	Number of rows		3	2
	Fin spacing	mm	2	1.6
	Fin type (code)		Hydrophilic Aluminum	Hydrophilic Aluminum
	Tube outside dia. and type	mm	φ9.52 Inner grooved copper tube	φ9.52 Inner grooved copper tube
	Coil length × height × width		610x255x66	995x256x72
	Number of circuits		3	3
Indoor air flow (Hi/Mi/Lo)		m^3/h	790/670/540	1100/970/840
Indoor noise level (Hi/Mi/Lo)		dB(A)	52/48/44	52/48/44
Indoor unit	Dimension (W×H×D)	mm	870×635×203	1270×635×225
	Packing (W×H×D)	mm	970×711×301	1340×721×301
	Net/Gross weight	kg	30/32	41/46
Refrigerant type			R410A	R410A
Refrigerant piping	Liquid side	mm	φ6.35	φ9.52
	Gas side	mm	φ12.7	φ15.88
Controller			ZKX-FE-01/C & ZH/JT-01	ZKX-FE-01/C & ZH/JT-01
Operation temperature range		℃	17～30	17～30

Notes: 1. Nominal cooling capacities are based on the following conditions:
Indoor temp: 27°CDB, 19°CWB; Outdoor temp: 35°CDB; Equivalent ref. Piping: 5m(horizontal)
2. Nominal heating capacities are based on the following conditions:
Indoor temp: 20°CDB; Outdoor temp: 7°CDB, 6°CWB; Equivalent ref. Piping: 5m(horizontal)
3. Actual noise level may differ, depending on the room structure, etc, since these noise values are from an anechoic room.

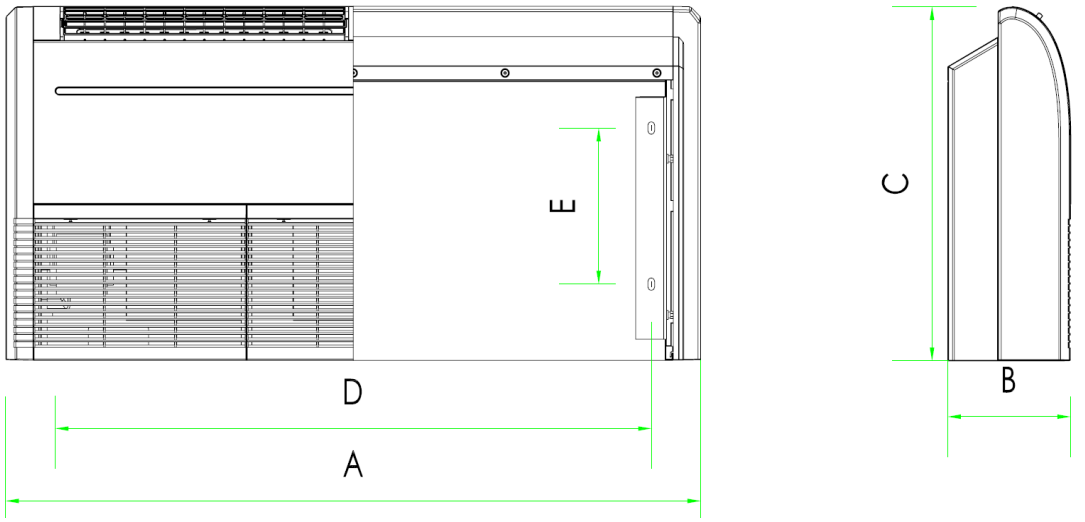
Model			RF10cLD/X2C	RF12cLD/X2C
Power supply		V-Ph-Hz	220～240-1-50	220～240-1-50
Cooling	Capacity	Btu/h	36000	42000
	Input	W	3870	4780
	Rated current	A	17.55	8.05
	EER	W/W	2.58	2.51
Heating	Capacity	Btu/h	38000	45000
	Input	W	4080	5550
	Rated current	A	26.5	8.6
	COP	W/W	2.7	2.38
Indoor fan motor	Model		YSK110-85LD-4P3H95/ YDK110-50LD-4P3H95L	YSK110-85LD-4P3H90×2
	Input	W	135	170
	Capacitor	uF	built-in	built-in
	Speed(Hi/Mi/Lo)	r/min	1260/1150/1010	1260/1150/1010
Indoor coil	Number of rows		3	2
	Fin spacing	mm	2	1.6
	Fin type (code)		Hydrophilic Aluminum	Hydrophilic Aluminum
	Tube outside dia. and type	mm	φ9.52 Inner grooved copper tube	φ9.52 Inner grooved copper tube
	Coil length × height × width		995x256x66	1385×256×43.65
	Number of circuits		5	5
Indoor air flow (Hi/Mi/Lo)		m^3/h	1350/1210/1070	1800/1650/1500
Indoor noise level (Hi/Mi/Lo)		dB(A)	56/53/50	52/48/44
Indoor unit	Dimension (W×H×D)	mm	1270×635×225	1660×635×225
	Packing (W×H×D)	mm	1340×725×301	1730×750×301
	Net/Gross weight	kg	45/50	48/53
Refrigerant type			R410A	R410A
Refrigerant piping	Liquid side	mm	φ9.52	φ9.52
	Gas side	mm	19.05	19.05
Controller			ZKX-FE-01/C & ZH/JT-01	ZKX-FE-01/C & ZH/JT-01
Operation temperature range		℃	17～30	17～30

Notes: 1. Nominal cooling capacities are based on the following conditions:
Indoor temp: 27°CDB, 19°CWB; Outdoor temp: 35°CDB; Equivalent ref. Piping: 5m(horizontal)
2. Nominal heating capacities are based on the following conditions:
Indoor temp: 20°CDB; Outdoor temp: 7°CDB, 6°CWB; Equivalent ref. Piping: 5m(horizontal)
3. Actual noise level may differ, depending on the room structure, etc, since these noise values are from an anechoic room.

Model			RF14cLD/X2C	RF16cLD/X2C
Power supply		V-Ph-Hz	220～240-1-50	220～240-1-50
Cooling	Capacity	Btu/h	48000	58000
	Input	W	5800	6561
	Rated current	A	8.45	10
	EER	W/W	2.41	2.41
Heating	Capacity	Btu/h	53000	60000
	Input	W	6406	6698
	Rated current	A	9.06	10.2
	COP	W/W	2.40	2.52
Indoor fan motor	Model		YSK120-105LD-4P3H95×2	YSK120-105LD-4P3H95×2
	Input	W	210	210
	Capacitor	uF	built-in	built-in
	Speed(Hi/Mi/Lo)	r/min	1380/1230/1080	1380/1230/1080
Indoor coil	Number of rows		3	3
	Fin spacing	mm	1.6	2
	Fin type (code)		Hydrophilic Aluminum	Hydrophilic Aluminum
	Tube outside dia. and type	mm	φ9.52 Inner grooved copper tube	φ9.52 Inner grooved copper tube
	Coil length × height × width		1540x256x43.65	1540x256x66
	Number of circuits		5	5
Indoor air flow (Hi/Mi/Lo)		m^3/h	2300/2160/2010	2400/2260/2120
Indoor noise level (Hi/Mi/Lo)		dB(A)	62/59/55	60/57/54
Indoor unit	Dimension (W×H×D)	mm	1815×635×225	1815×635×255
	Packing (W×H×D)	mm	1884×725×301	1884×725×301
	Net/Gross weight	kg	58/65	60/68
Refrigerant type			R410A	R410A
Refrigerant piping	Liquid side	mm	φ12.7	φ12.7
	Gas side	mm	φ19.05	φ19.05
Controller			ZKX-FE-01/C & ZH/JT-01	ZKX-FE-01/C & ZH/JT-01
Operation temperature range		℃	17～30	17～30

Notes: 1. Nominal cooling capacities are based on the following conditions:
Indoor temp: 27°CDB, 19°CWB; Outdoor temp: 35°CDB; Equivalent ref. Piping: 5m(horizontal)
2. Nominal heating capacities are based on the following conditions:
Indoor temp: 20°CDB; Outdoor temp: 7°CDB, 6°CWB; Equivalent ref. Piping: 5m(horizontal)
3. Actual noise level may differ, depending on the room structure, etc, since these noise values are from an anechoic room.

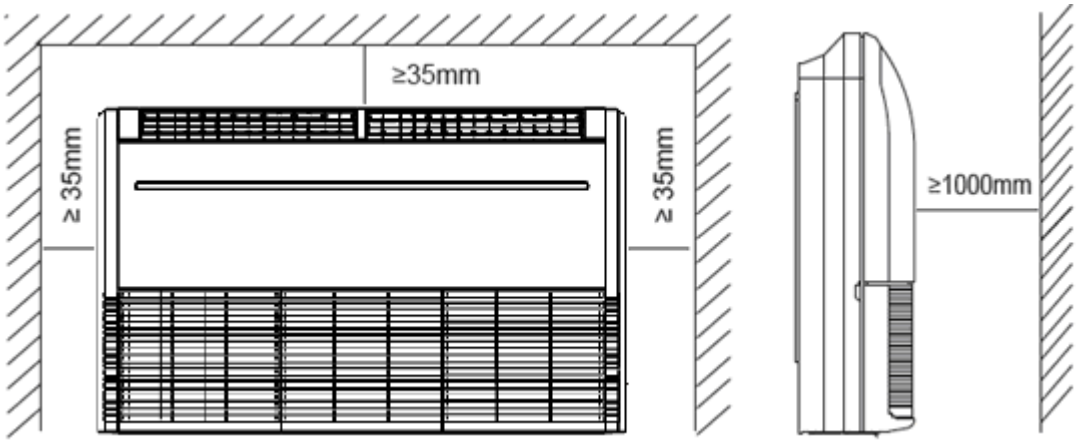
3. Dimensions



unit: mm

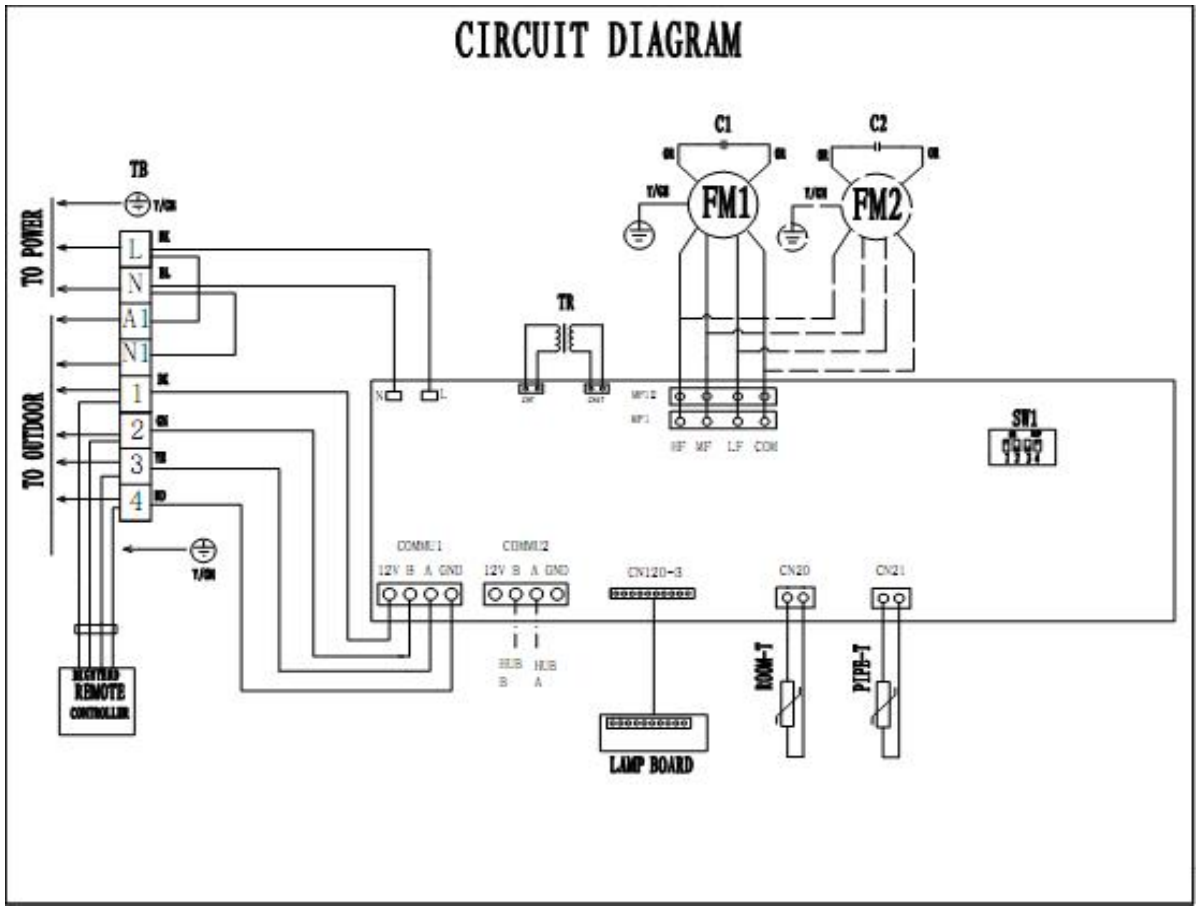
Dimension code / Indoor model	Body dimension			Installation dimension	
	A	B	C	D	E
18000Btu/h	880	203	635	700	280
24000Btu/h	1270	225	635	1090	280
36000Btu/h	1270	225	635	1090	280
48000Btu/h	1815	225	635	1635	280
60000Btu/h	1815	255	635	1635	280

4. Service Space

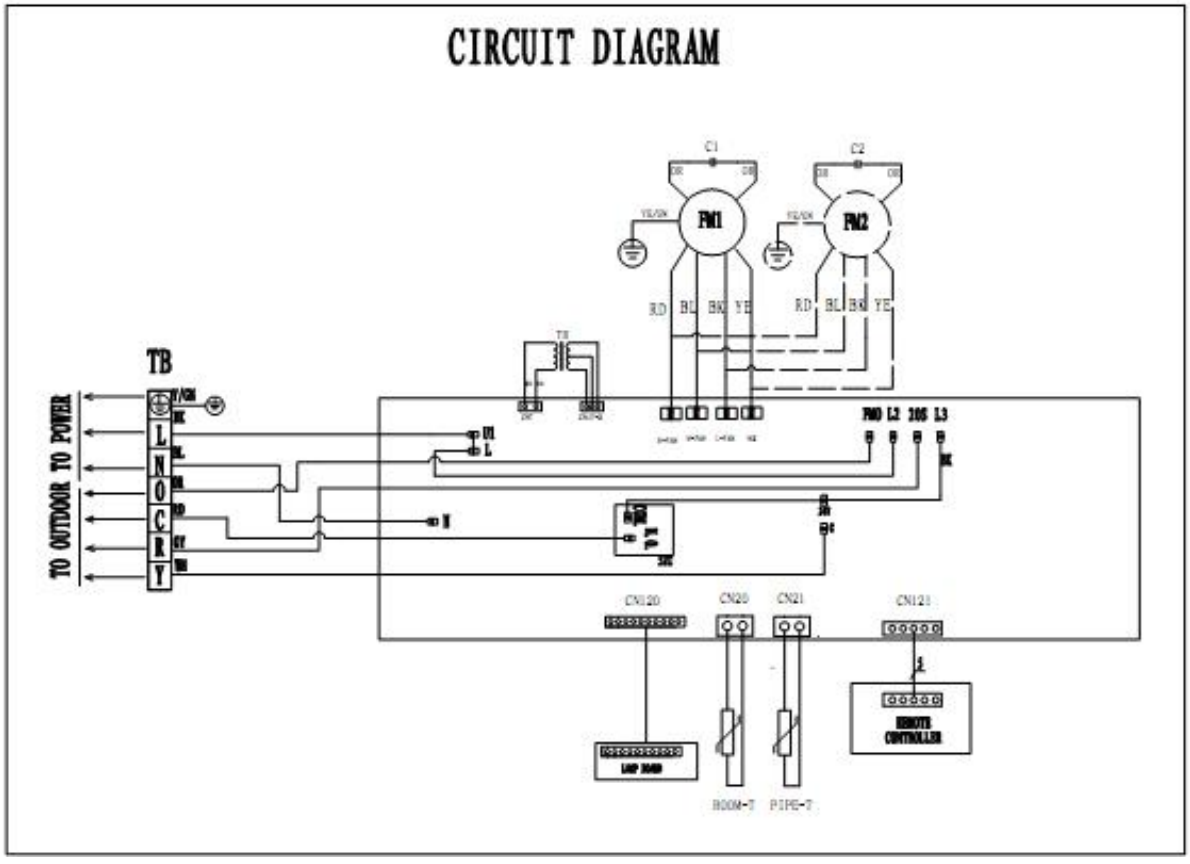


5. Wiring Diagrams

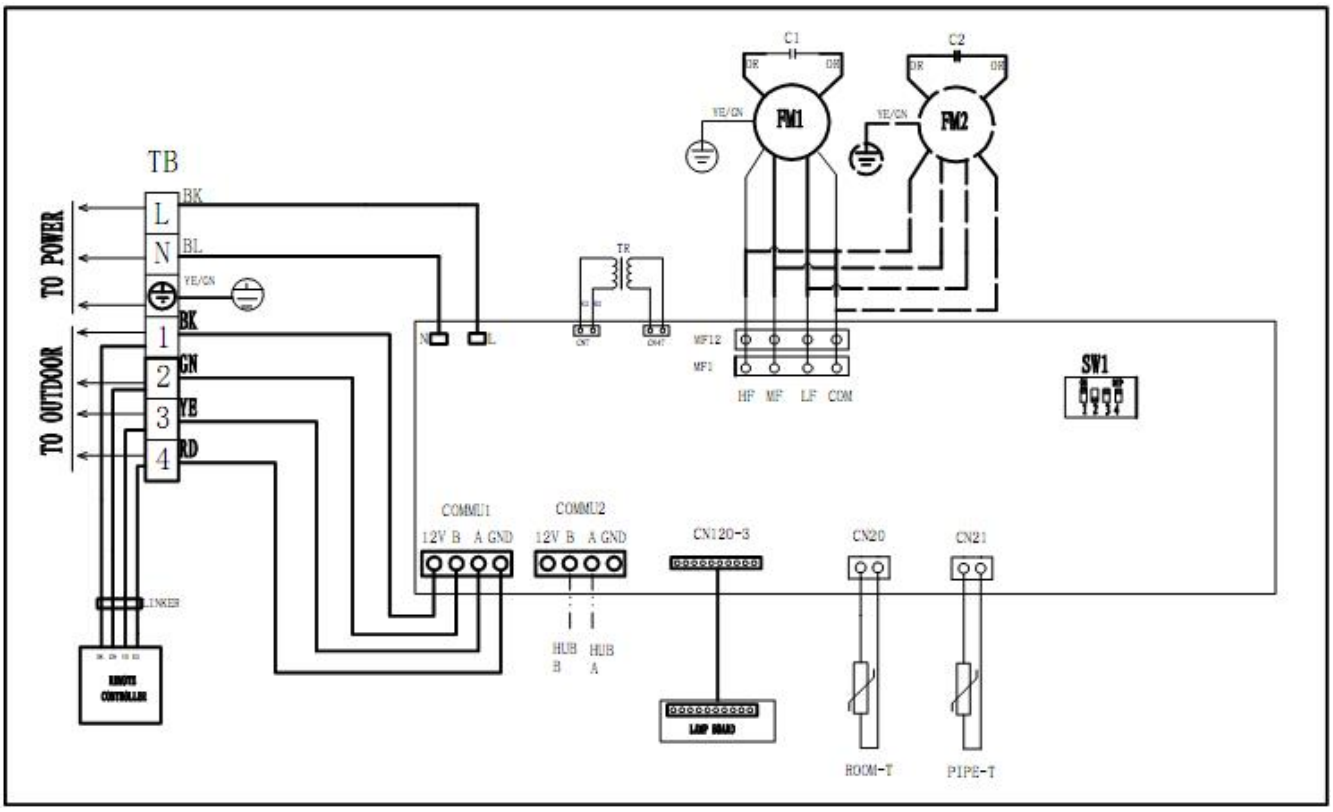
RF5.1cLD/X2C



RF7cLD/X2C



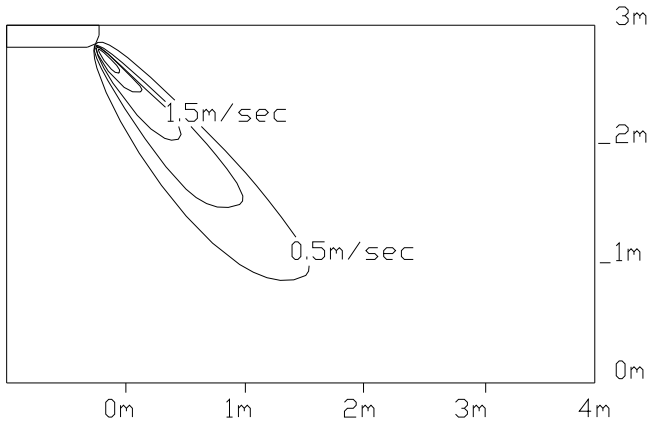
RF10cLD/X2C, RF14cLD/X2C, RF16cLD/X2C



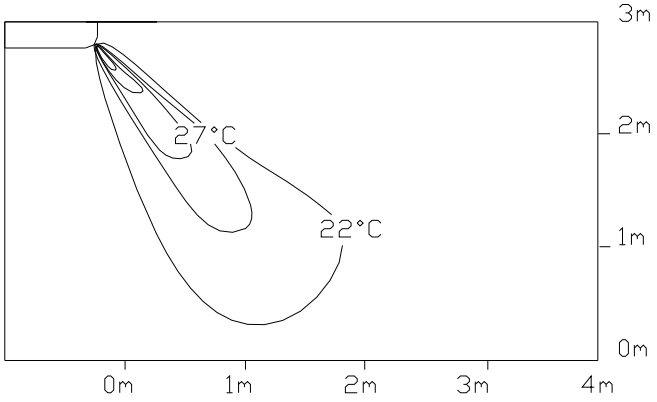
6. Air Velocity and Temperature Distributions

Discharge angle 60° (CEILING)

Airflow velocity

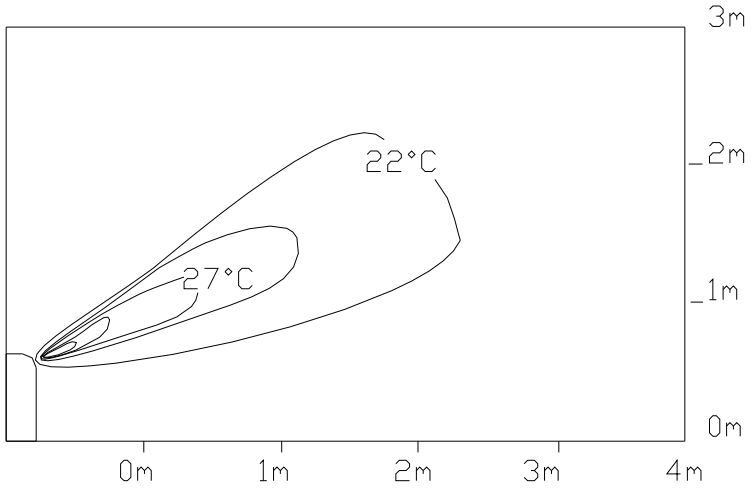


Temperature

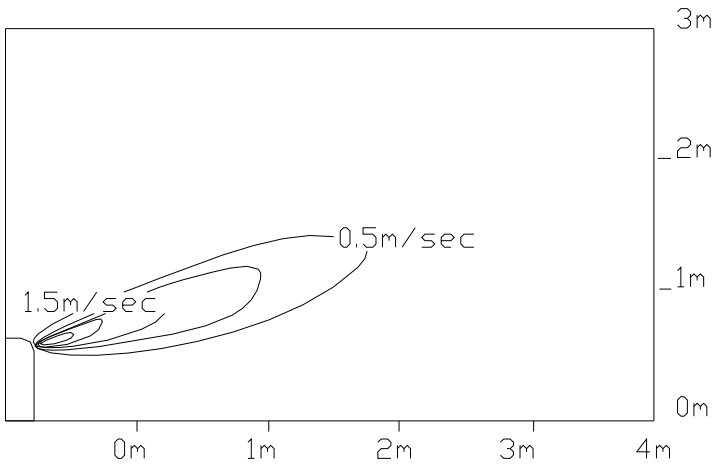


Discharge angle 60°(FLOOR)

Temperature



Airflow velocity

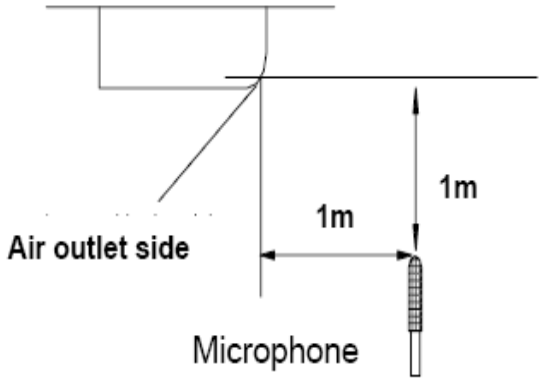


7. Electric Characteristics

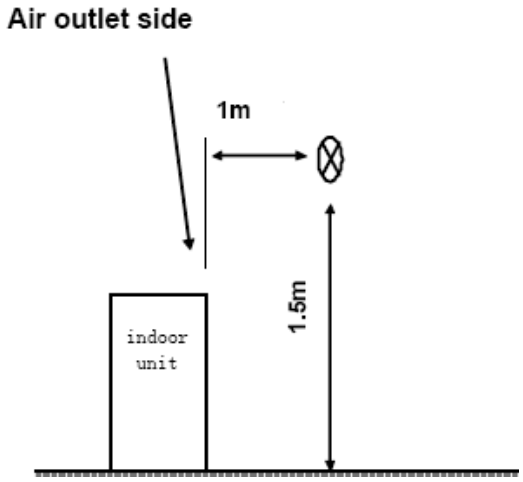
Model	Indoor Units				Power Supply		Indoor Fan Motor	
	Hz	Voltage	Min.	Max.	MCA	MFA	kW	FLA
RF5.1cLD/X2C	50	220-240V	198V	254V	0.71	16	0.055	0.57
RF7cLD/X2C	50	220-240V	198V	254V	0.71	25	0.055	0.57
RF10cLD/X2C	50	220-240V	198V	254V	0.79	25	0.08	0.63
RF12cLD/X2C	50	220-240V	198V	254V	0.79	20	0.08	0.78
RF14cLD/X2C	50	220-240V	198V	254V	1.25	20	0.09	0.94
RF16cLD/X2C	50	220-240V	198V	254V	1.25	20	0.09	0.94

Remark:
MCA: Min. Current Amps. (A)
MFA: Max. Fuse Amps. (A)
KW: Fan Motor Rated Output (kW)
FLA: Full Load Amps. (A)

8. Sound Levels



Ceiling

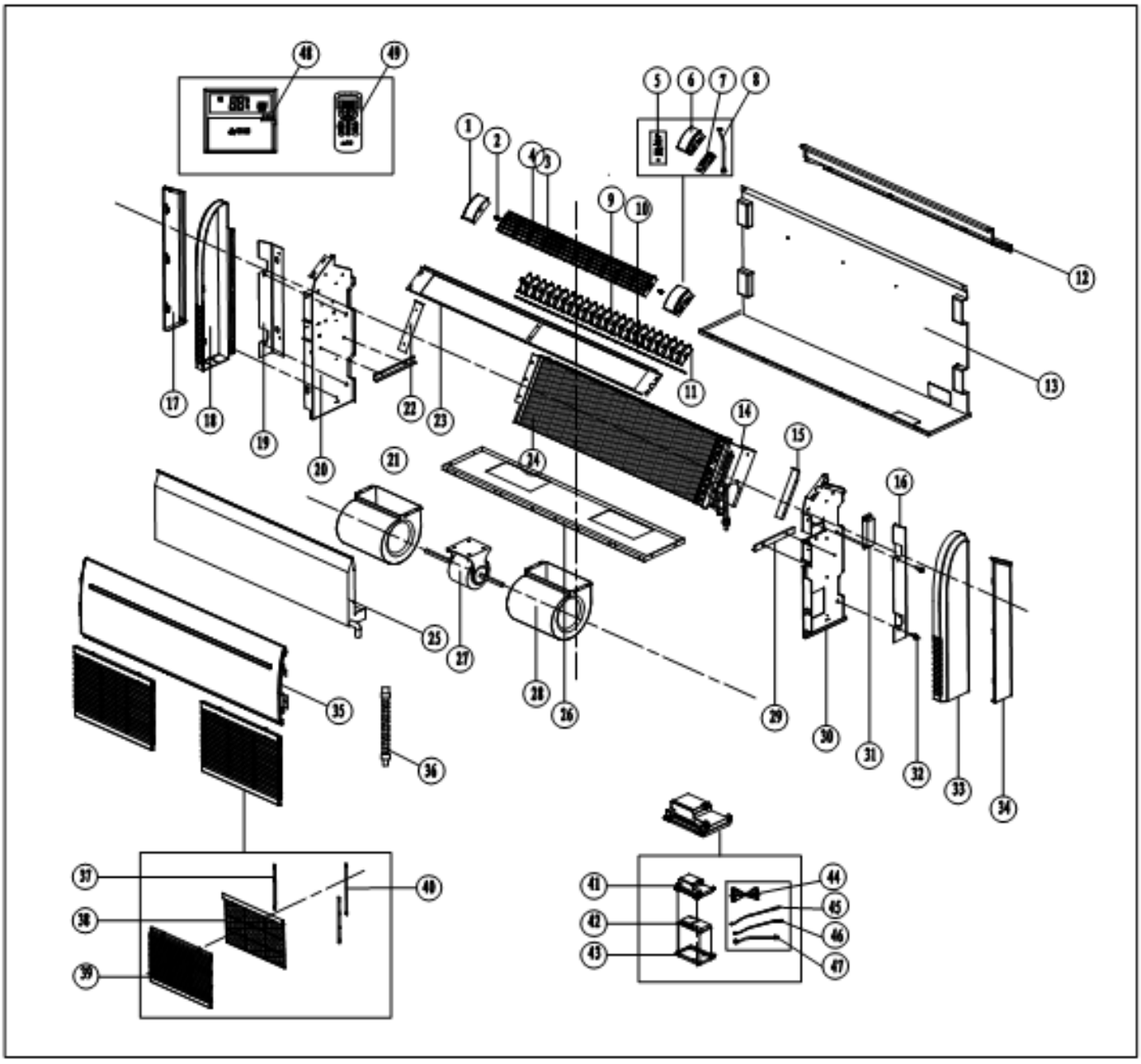


Floor

Model	Noise level dB(A)		
	H	M	L
RF5.1cLD/X2C	52	48	44
RF7cLD/X2C	52	48	44
RF10cLD/X2C	56	53	50
RF12cLD/X2C	52	48	44
RF14cLD/X2C	62	59	55
RF16cLD/X2C	60	57	54

9. Exploded View

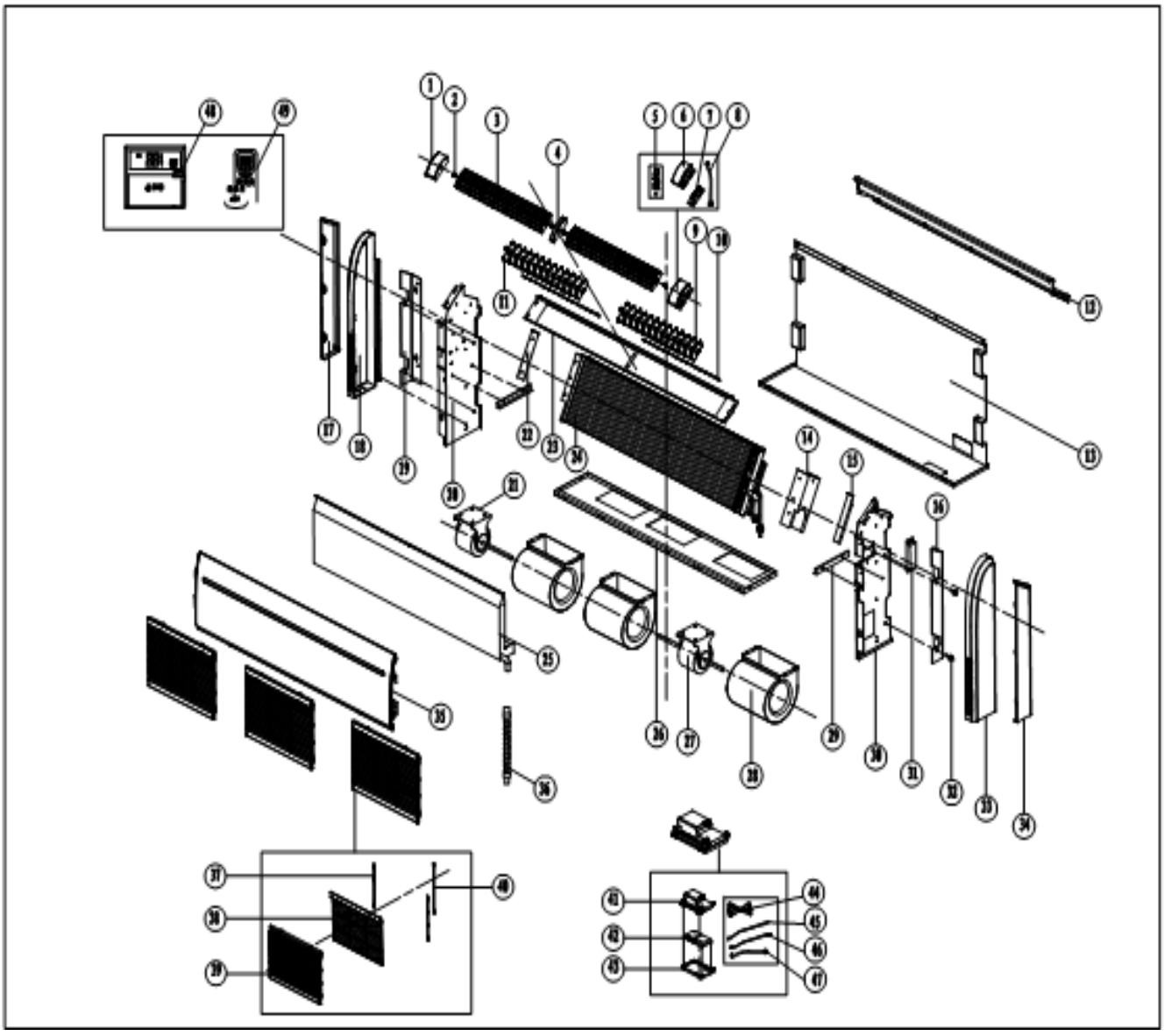
RF5.1cX2W/LDC



No.	Name	Quantity	No.	Name	Quantity
1	air guide strip connection plate B	1	25	water pan	
2	coupling shaft	1	26	fan installing plate	1
3	air guide frame	1	27	indoor fan motor B	1
4	air guide strip connection plate A	1	28	wind wheel volute	3
5	control film (IMD)	1	29	guide rail	2
6	display panel	1	30	right plate	1
7	lamp panel	1	31	terminal	1
8	lamp panel wire	1	32	bolt M8x30	4
9	swing vane 1	24	33	right cover board	1
10	connecting rod	1	34	right accessories	1

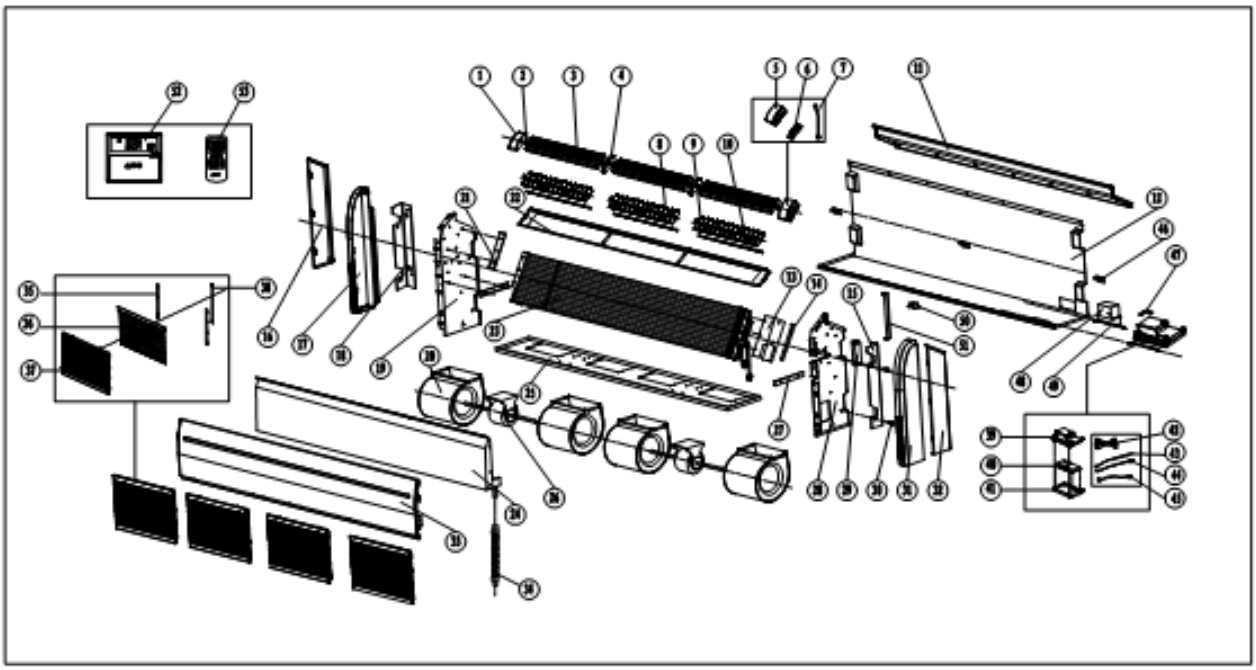
11	swing vane 2	/	35	front panel	1
12	top plate	1	36	insulated drainage pipe	1
13	back plate	1	37	filter layering A	6
14	right fixed plate of evaporator	1	38	filter	2
15	right locating plate of evaporator	1	39	air inlet grille	2
16	right installing support	1	40	filter layering B	3
17	left accessories	1	41	electric box upper cover	1
18	left cover board	1	42	indoor PCB	1
19	left installing support	1	43	electric box lower cover	1
20	left plate	1	44	communication link	1
21	indoor fan motor A（left output shaft）	1	45	evaporator temperature sensor	1
22	left locating of evaporator	1	46	room temperature sensor	1
23	air outlet support	1	47	lamp panel connection wire	1
24	evaporator	1	48	remote controller	1
			49	wire controller	1

RF7cLD/X2C RF10cLD/X2C



No.	Name	Quanti	No.	Name	Quantity
1	air guide strip connection plate	1	25	water pan	1
2	coupling shaft	2	26	fan installing plate	1
3	air guide frame	2	27	indoor fan motor B	1
4	air guide strip connection plate	1	28	wind wheel volute	3
5	control film (IMD)	1	29	guide rail	2
6	display panel	1	30	right plate	1
7	lamp panel	1	31	terminal	1
8	lamp panel wire	1	32	bolt M8x30	4
9	swing vane 1	24	33	right cover board	1
10	connecting rod	1	34	right accessories	1
11	swing vane 2	24	35	front panel	1
12	top plate	1	36	insulated drainage pipe	1
13	back plate	1	37	filter layering A	6
14	right fixed plate of evaporator	1	38	filter	3
15	right locating plate of	1	39	air inlet grille	3
16	right installing support	1	40	filter layering B	3
17	left accessories	1	41	electric box upper cover	1
18	left cover board	1	42	indoor PCB	1
19	left installing support	1	43	electric box lower cover	1
20	left plate	1	44	communication link	1
21	indoor fan motor A（left output	1	45	evaporator temperature sensor	1
22	left locating of evaporator	1	46	room temperature sensor	1
23	air outlet support	1	47	lamp panel connection wire	1
24	evaporator	1	48	remote controller	1
			49	wire controller	1

RF14cLD/X2C RF16cLD/X2C



No.	Name	Quantity	No.	Name	Quantity
1	air guide strip connection	1	25	water pan	1
2	coupling shaft	3	26	fan installing plate	1
3	air guide frame	3	27	indoor fan motor B	1
4	air guide strip connection	1	28	wind wheel volute	3
5	control film (IMD)	1	29	guide rail	2
6	display panel	1	30	right plate	1
7	lamp panel	1	31	terminal	1
8	lamp panel wire	1	32	bolt M8x30	4
9	swing vane 1	24	33	right cover board	1
10	connecting rod	1	34	right accessories	1
11	swing vane 2	24	35	front panel	1
12	top plate	1	36	insulated drainage pipe	1
13	back plate	1	37	filter layering A	8
14	right fixed plate of evaporator	1	38	filter	4
15	right locating plate of	1	39	air inlet grille	4
16	right installing support	1	40	filter layering B	4
17	left accessories	1	41	electric box upper cover	1
18	left cover board	1	42	indoor PCB	1
19	left installing support	1	43	electric box lower cover	1
20	left plate	1	44	communication link	1
21	indoor fan motor A（left output	1	45	evaporator temperature sensor	1
22	left locating of evaporator	1	46	room temperature sensor	1
23	air outlet support	1	47	lamp panel connection wire	1
24	evaporator	1	48	remote controller	1
			49	wire controller	1

10. Accessories

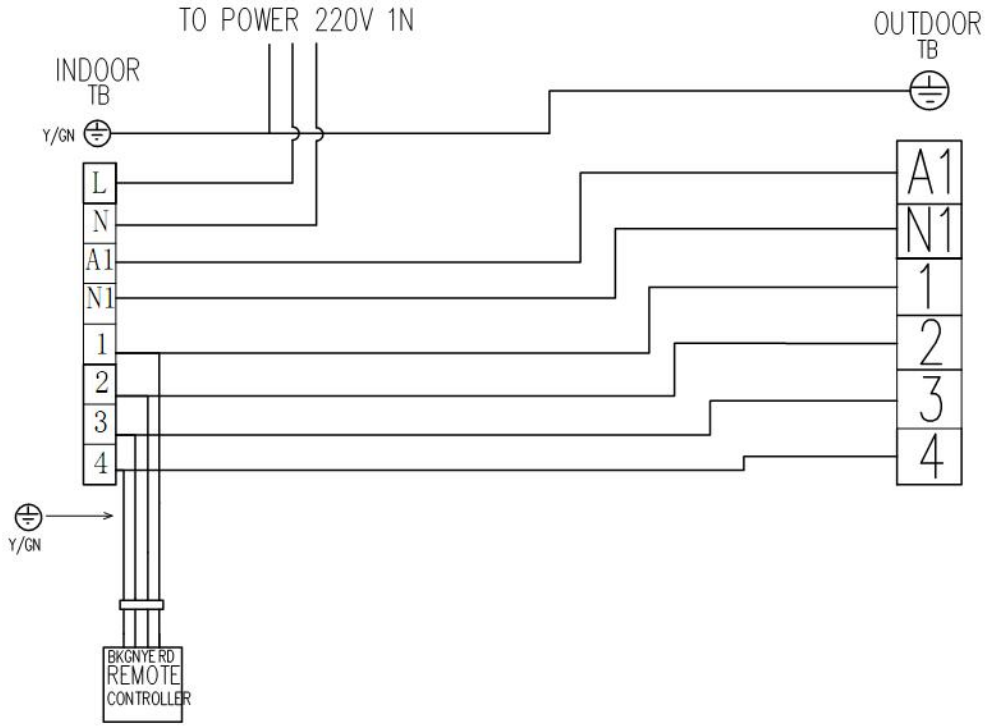
	Name	Shape	Quantity
Installation fittings	1.Hanging arm		2
Controller	2. Remote controller		1
	3. Remote controller holder (optional)		1
	4. Wire controller		1
	5. Mounting screw (ST2.9×10-C-H)		2
	6. Alkaline dry batteries (AM4)		2
Others	7. Installation & operation instruction manual		1

11. The Specification of Power

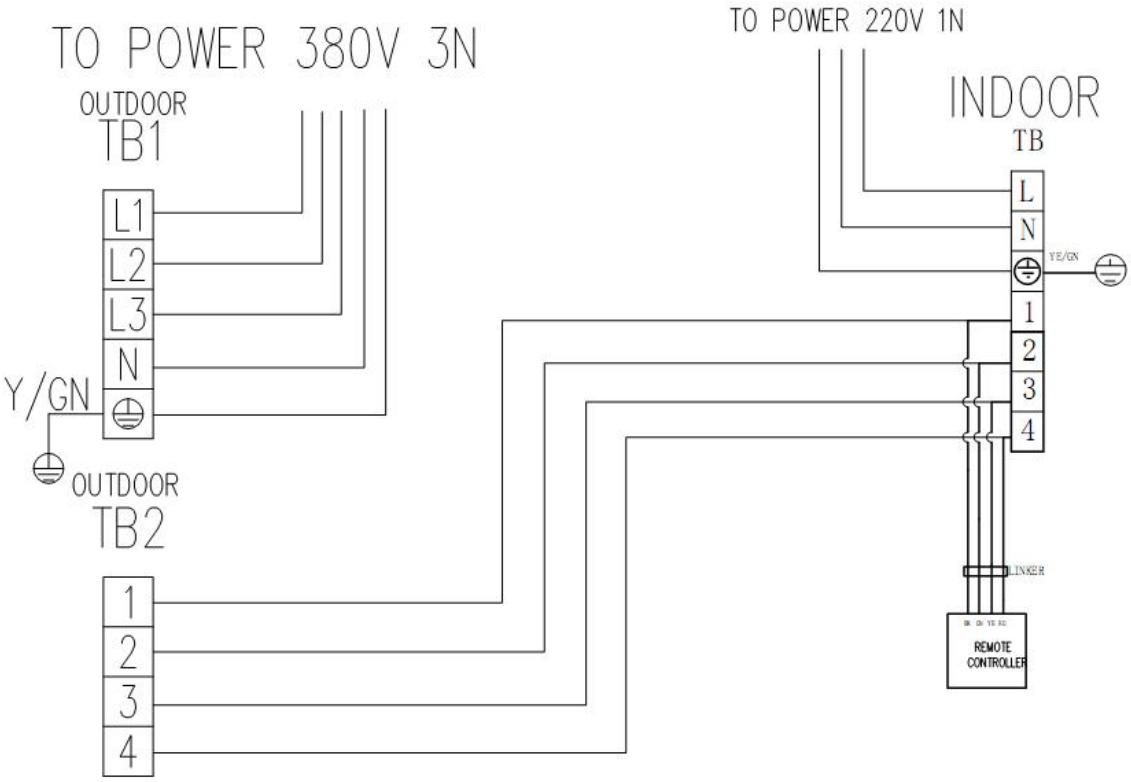
Type		18000Btu/h	24000	36000-60000Btu/h
Power	Phase	1-phase	1-phase	3-phase
	Frequency and Voltage	220-240V, 50Hz	220-240V, 50Hz	380-4150V, 50Hz
Circuit Breaker/ Fuse (A)		20/16	40/25	40/25
Indoor Unit Power Wiring (mm^2)		3×1.5	3×1.0	3×1.0
Indoor/Outdoor Connecting Wiring (mm^2)	Ground Wiring	0.75	0.75	0.75
	Outdoor Unit Power Wiring	3×1.5	3×2.5	5×2.5
	Strong Electric Signal	--	--	--
	Weak Electric Signal	4×0.75	4×0.75	4×0.75 (4×1.0)

12. Field Wiring

RF5.1cLD/X2C, RF7cLD/X2C



RF10cLD/X2C, RF12cLD/X2C, RF14cLD/X2C, RF16cLD/X2C



13. Troubleshooting

Table 1

If the following cases happen, do not worry, for them being not faults:

Phenomena	Phenomena analysis
The air conditioner can not be restarted just after shutting down	The unit delays running for 3 minutes after stopping for protection. The three-minute protection timer built-in micro-computer works automatically, but it is not for the case when the unit is powered first time.
The air conditioner does not supply air at the beginning of heating.	The air conditioner does not supply air to avoid of blowing cold air until the indoor heat exchanger is warm(2-5minutes).
The air conditioner does not supply air after it has running for 5-10 minutes in heating mode.	The air conditioner enters defrost mode automatically when the outdoor temp. Is quite low or the humidity is too high, so please wait for a moment. Besides, during defrosting, some moisture or steam will come out from the outdoor unit.
The air conditioner does not supply air in dehumidifying mode.	Sometimes, the fan of indoor unit will stop running to prevent the condensate from evaporating and save energy.
The air conditioner blows out the moisture in cooling mode.	This is caused by too high temperature and humidity of the room. It will eliminate when the temperature and humidify reduces.
The air blown out is smelly.	The air blown out is smelly during operating, it may come from the tobacco or other cosmetics sticked to the inner of the air conditioner.
Squeak is heard from the unit	This is caused by the circulating refrigerant inside the unit.
Crack is heard from the unit	This is caused by heat expansion or contraction of plastics
When the power restores, the air conditioner can not run	This is because the memory circuit of the microcomputer is cleared. Please start the air conditioner through the remote controller.
The air conditioner can not receive the signal from the remote controller.	It may happen when the signal receiver of the air conditioner is exposed to sunlight or strong light directly or the batteries are used up. In that case, eliminate those factors or change the batteries.
There is some drop on the air outlet and the grille.	The air outlet and the grillemoisture will condense when the air conditioner is operated in humid environment for a long time, please adjust the grille and the vane to the position which is in parallel with the wind supply direction and select "High speed" mode to improve the condensing phenomena.

Table 2 Fault code

Protection

Display / Error content	LED display		Digital display	Remark
	Running indicator lamp	Malfunction indicator lamp		
Protection against cold air	On	Flashing 1 time /3 seconds	P1	
Anti-frosting protection of indoor heat-exchanger	On	Flashing 2 times/4 seconds	P2	
Defrosting of outdoor heat-exchanger	On	Flashing 3 times/5 seconds	P3	
Abnormality of outdoor unit	On	Flashing 5 times/7 seconds	P5	
Indoor PCB E^2PROM malfunction	On	Flashing 6 time/8 seconds	P6	On power testing
Outdoor PCB E^2PROM malfunction	On	Flashing 7 time/9 seconds	P7	

Common malfunction

Display / Error content	LED display		Digital display	Remark
	Running indicator lamp	Malfunction indicator lamp		
Electric control communication malfunction	Flashing 1 time/ 3 seconds	On	E1	On power testing
Room temp. sensor malfunction	Flashing 2 times/ 4 seconds	On	E2	
Indoor coil temp. sensor malfunction	Flashing 3 times/ 5 seconds	On	E3	
Outdoor coil temp. sensor malfunction	Flashing 5 times/ 7seconds	On	E5	
Oudoor ambient temp. sensor malfunction	Flashing 6 times/8 seconds	On	E6	
Exhause temp. sensor malfunction	Flashing 8 times/10 senconds	On	E8	
Frosting protection of indoor unit	Flashing 9 times/11 seconds	On	E9	
Overheat protection of indoor unit	Flashing 10 times/12 seconds	On	EA	

Serious malfunction

Display / Error content	LED display		Digital diaplay	Remark
	Running indicator lamp	Malfunction indicator lamp		
High-pressure protection	Off	Flashing 3 times/5 seconds	F3	
Low-pressure protection	Off	Flashign 4 times/6 seconds	F4	
Overcurrent protection	Off	Flashing 7 times/9 seconds	F7	
Phase sequence protection	Off	Flashing 9 times/11 seconds	F9	On power testing
Exhause temp. too high protection	Off	Flashing 10 times/12 seconds	FA	

Part 3
Outdoor Units

1. Specifications

Model			RF3.5cX2W
Power supply		V- Ph-Hz	220～240-1-50
Max. input consumption		W	1610
Max. input current		A	8.7
Compressor	Model		PA150X2C-4FT
	Brand		TOSHIBA
	Type		Rotary
	Capacity	Btu/h	12481
	Input	W	1260
	Rated current(RLA)	A	5.8
	Locked rotor Amp(LRA)	A	35
	Thermal protector		built-in
	Capacitor	uF	35
	Refrigerant oil	ml	480
Outdoor fan motor	Model		YDK-35-6A H
	Type		AC motor
	Brand		CHIGO
	Input	W	35
	Capacitor	uF	2
	Speed	rpm	820
Outdoor coil	Number of row		1.7
	Fin spacing	mm	1.7
	Fin type		Hydrophilic aluminium
	Tube outside dia.and type	mm	Φ9.52 Inner grooved copper tube
	Coil length x height x width	mm	610×500×214
	Number of circuit		3
Outdoor air flow		m^3/h	1900
Outdoor noise level		dB(A)	55
Outdoor unit	Dimension(W×H×D)	mm	850×320×540
	Packing (W×H×D)	mm	920×585×335
	Net/Gross weight	kg	36/40
Refrigerant	Type		R410A
	Charge	g	1100
Refrigerant piping	Liquid side	mm	φ6.35
	Gas side	mm	φ12.7
	Max. refrigerant pipe length	m	10
	Max. difference in level	m	5
Ambient temp.		℃	cooling:18~43; heating:-7~24

Notes: 1. Nominal cooling capacities are based on the following conditions:
Indoor temp: 27°CDB, 19°CWB; Outdoor temp: 35°CDB;
2. Nominal heating capacities are based on the following conditions:
Indoor temp: 20°CDB; Outdoor temp: 7°CDB, 6°CWB;
3. Actual noise level may differ, depending on the room structure, etc, since these noise values are from an anechoic room.

Model			RF5.1cX2W	RF7cX2W
Power supply		V-Ph-Hz	220～240-1-50	220～240-1-50
Max. input consumption		W	2400	3280
Max. input current		A	12.2	16.8
Compressor	Model		PA225X2CS-4KU1	PA290X3CS-4MU1
	Brand		TOSHIBA	TOSHIBA
	Type		Rotary	Rotary
	Capacity	Btu/h	18970	24600
	Input	W	1950	2540
	Rated current(RLA)	A	8.75	11.9
	Locked rotor Amp(LRA)	A	50	58
	Thermal protector		built-in	built-in
	Capacitor	uF	50	50
	Refrigerant oil	ml	740	950
Outdoor fan motor	Model		YDK-45-6A5	YDK-60A-6F
	Type		AC motor	AC motor
	Brand		CHIGO	chigo
	Input	W	45	60
	Capacitor	uF	3	4
	Speed	rpm	640	860
Outdoor coil	Number of row		2	2
	Fin spacing	mm	1.6	1.8
	Fin type		Hydrophilic aluminium	Hydrophilic aluminium
	Tube outside dia.and type	mm	Φ9.52 Inner grooved copper tube	Φ9.52 Inner grooved copper tube
	Coil length x height x width	mm	652×550×219	623×650×210
	Number of circuit		3	4
Outdoor air flow		m^3/h	2600	3300
Outdoor noise level		dB(A)	54	60
Outdoor unit	Dimension(W×H×D)	mm	910×608×345	930×700×370
	Packing (W×H×D)	mm	990×670×410	990×775×410
	Net/Gross weight	kg	45/50	72/76
Refrigerant	Type		R410A	R410A
	Charge	g	1500	2180
Refrigerant piping	Liquid side	mm	φ6.35	φ9.52
	Gas side	mm	φ12.7	φ15.88
	Max. refrigerant pipe length	m	10	20
	Max. difference in level	m	5	10
Ambient temp.		℃	cooling:18~43; heating:-7~24	cooling:18~43; heating:-7~24

Notes: 1. Nominal cooling capacities are based on the following conditions:
Indoor temp: 27°CDB, 19°CWB; Outdoor temp: 35°CDB;
2. Nominal heating capacities are based on the following conditions:
Indoor temp: 20°CDB; Outdoor temp: 7°CDB, 6°CWB;
3. Actual noise level may differ, depending on the room structure, etc, since these noise values are from an anechoic room.

Model			RF10cX2W	RF8.8gX2W
Power supply		V-Ph-Hz	220～240-1-50	380～415-3-50
Max. input consumption		W	5330	4400
Max. input current		A	28	8.7
Compressor	Model		ZP50K3E-PFZ-522	C-SBN303H8D
	Brand		COPELAND	SANYO
	Type		Scroll	Scroll
	Capacity	Btu/h	38120	31600
	Input	W	3480	2650
	Rated current(RLA)	A	16	4.1
	Locked rotor Amp(LRA)	A	109	22
	Thermal protector		built-in	UP3RE0591-T56
	Capacitor	uF	80	/
	Refrigerant oil	ml	1200	950
Outdoor fan motor	Model		YDK-200-6B	YDK-200-6B
	Type		AC motor	AC motor
	Brand		CHIGO	CHIGO
	Input	W	200	200
	Capacitor	uF	10	10
	Speed	rpm	810	860
Outdoor coil	Number of row		2	2
	Fin spacing	mm	1.8	1.6
	Fin type		Hydrophilic aluminium	Hydrophilic Aluminum
	Tube outside dia.and type	mm	Φ8.0 Inner grooved copper tube	Φ9.52 Inner grooved copper tube
	Coil length x height x width	mm	746×950×205	746×950×205
	Number of circuit		6	7
Outdoor air flow		m^3/h	5500	4500
Outdoor noise level		dB(A)	65	62
Outdoor unit	Dimension(W×H×D)	mm	1050×995×400	1050×995×400
	Packing (W×H×D)	mm	1145×1120×475	1145×1120×475
	Net/Gross weight	kg	100/108	98/106
Refrigerant	Type		R410A	R410A
	Charge	g	2200	2600
Refrigerant piping	Liquid side	mm	φ9.52	φ9.52
	Gas side	mm	19.05	φ15.88
	Max. refrigerant pipe length	m	20	20
	Max. difference in level	m	10	10
Ambient temp.		℃	cooling:18~43; heating:-7~24	cooling:18~43; heating:-7~24

Notes: 1. Nominal cooling capacities are based on the following conditions:
Indoor temp: 27°CDB, 19°CWB; Outdoor temp: 35°CDB;
2. Nominal heating capacities are based on the following conditions:
Indoor temp: 20°CDB; Outdoor temp: 7°CDB, 6°CWB;
3. Actual noise level may differ, depending on the room structure, etc, since these noise values are from an anechoic room.

Model			RF10gX2W	RF12gX2W
Power supply		V-Ph-Hz	380～415-3-50	380～415-3-50
Max. input consumption		W	4600	6300
Max. input current		A	9.6	13.1
Compressor	Model		C-SBP130H38A	C-SBN353H8D
	Brand		SANYO	SANYO
	Type		Scroll	Scroll
	Capacity	Btu/h	37680	46980
	Input	W	4255	4775
	Rated current(RLA)	A	6.5	7.8
	Locked rotor Amp(LRA)	A	31	49
	Thermal protector		built-in	built-in
	Capacitor	uF	/	/
	Refrigerant oil	ml	1030	1700
Outdoor fan motor	Model		YDK-200-6B	YDK-200-6B
	Type		AC motor	AC motor
	Brand		CHIGO	CHIGO
	Input	W	200	200
	Capacitor	uF	10	10
	Speed	rpm	860	840
Outdoor coil	Number of row		2	2
	Fin spacing	mm	1.6	1.8
	Fin type		Hydrophilic Aluminum	Hydrophilic aluminium
	Tube outside dia.and type	mm	Φ9.52 Inner grooved copper tube	Φ8.0 Inner grooved copper tube
	Coil length x height x width	mm	746×950×205	746×950×205
	Number of circuit		3	6
Outdoor air flow		m^3/h	5200	5800
Outdoor noise level		dB(A)	62	65
Outdoor unit	Dimension(W×H×D)	mm	1050×995×400	1050×995×400
	Packing (W×H×D)	mm	1145×1120×475	1145×1120×475
	Net/Gross weight	kg	98/106	98/106
Refrigerant	Type		R410A	R410A
	Charge	g	2700	2650
Refrigerant piping	Liquid side	mm	φ9.52	φ9.52
	Gas side	mm	φ19.05	19.05
	Max. refrigerant pipe length	m	20	20
	Max. difference in level	m	10	10
Ambient temp.		℃	cooling:18~43; heating:-7~24	cooling:18~43; heating:-7~24

Notes: 1. Nominal cooling capacities are based on the following conditions:
Indoor temp: 27°CDB, 19°CWB; Outdoor temp: 35°CDB;
2. Nominal heating capacities are based on the following conditions:
Indoor temp: 20°CDB; Outdoor temp: 7°CDB, 6°CWB;
3. Actual noise level may differ, depending on the room structure, etc, since these noise values are from an anechoic room.

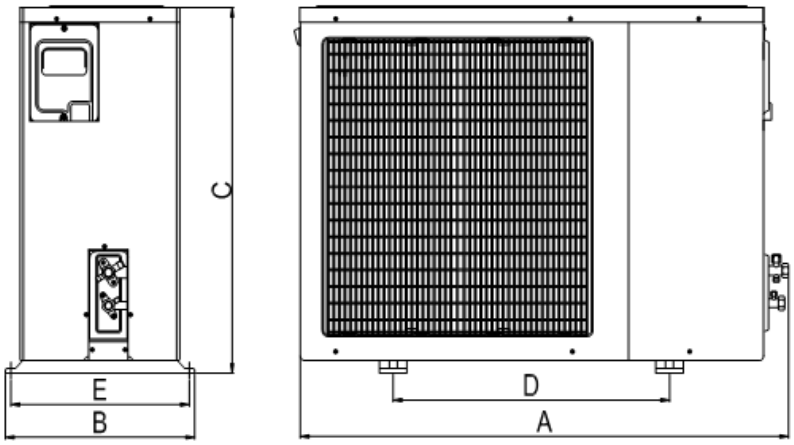
Model			RF14gX2W	RF16gX2W
Power supply		V-Ph-Hz	380～415-3-50	380～415-3-50
Max. input consumption		W	7932	7300
Max. input current		A	14.5	14.7
Compressor	Model		C-SBN453H8D	C-SBN523H8D
	Brand		SANYO	SANYO
	Type		Scroll	Scroll
	Capacity	Btu/h	55957	63300
	Input	W	5750	6120
	Rated current(RLA)	A	9.77	10.0
	Locked rotor Amp(LRA)	A	63	75
	Thermal protector		built-in	built-in
	Capacitor	uF	/	/
	Refrigerant oil	ml	1700	1700
Outdoor fan motor	Model		(YDK-60-6)*2	(YDK-60-6G 3)*2
	Type		AC motor	AC motor
	Brand		chigo	chigo
	Input	W	60*2	60*2
	Capacitor	uF	4*2	5*2
	Speed	rpm	820	860
Outdoor coil	Number of row		2	2
	Fin spacing	mm	1.8	1.8
	Fin type		Hydrophilic aluminium	Hydrophilic aluminium
	Tube outside dia.and type	mm	Φ9.52 Inner grooved copper tube	Φ9.52 Inner grooved copper tube
	Coil length x height x width	mm	758×1220×207	758×1220×207
	Number of circuit		6	6
Outdoor air flow		m^3/h	6200	7500
Outdoor noise level		dB(A)	63	68
Outdoor unit	Dimension(W×H×D)	mm	970×1260×380	970×1260×380
	Packing (W×H×D)	mm	1065×1385×475	1065×1385×475
	Net/Gross weight	kg	118/128	118/128
Refrigerant	Type		R410A	R410A
	Charge	g	3800	4200
Refrigerant piping	Liquid side	mm	φ12.7	φ12.7
	Gas side	mm	φ19.05	φ19.05
	Max. refrigerant pipe length	m	20	20
	Max. difference in level	m	10	10
Ambient temp.		℃	cooling:18~43; heating:-7~24	cooling:18~43; heating:-7~24

Notes: 1. Nominal cooling capacities are based on the following conditions:
Indoor temp: 27°CDB, 19°CWB; Outdoor temp: 35°CDB;
2. Nominal heating capacities are based on the following conditions:
Indoor temp: 20°CDB; Outdoor temp: 7°CDB, 6°CWB;
3. Actual noise level may differ, depending on the room structure, etc, since these noise values are from an anechoic room.

2. Dimensions

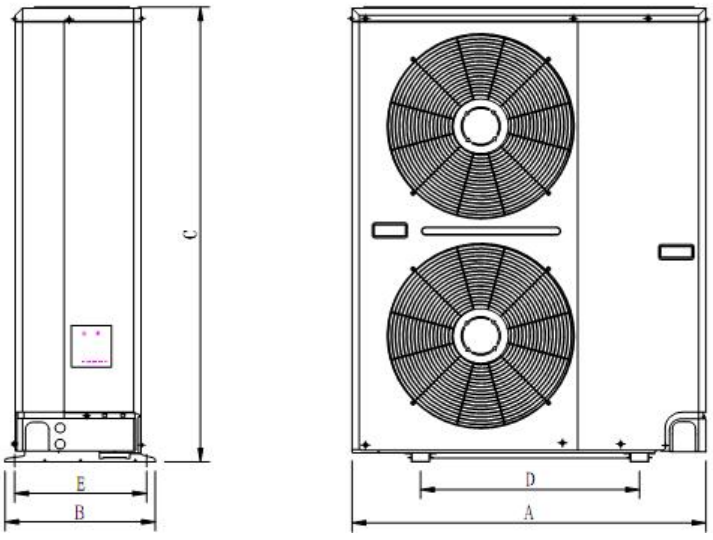
mm

Model	A	B	C	D	E
RF3.5cX2W	850	320	540	505	290
RF5.1cX2W	870	355	620	505	322
RF7cX2W	960	390	840	600	360
RF10cX2W	1050	400	995	695	370
RF8.8gX2W	1050	400	995	695	370
RF10gX2W	1050	400	995	695	370
RF12gX2W	1050	400	995	695	370

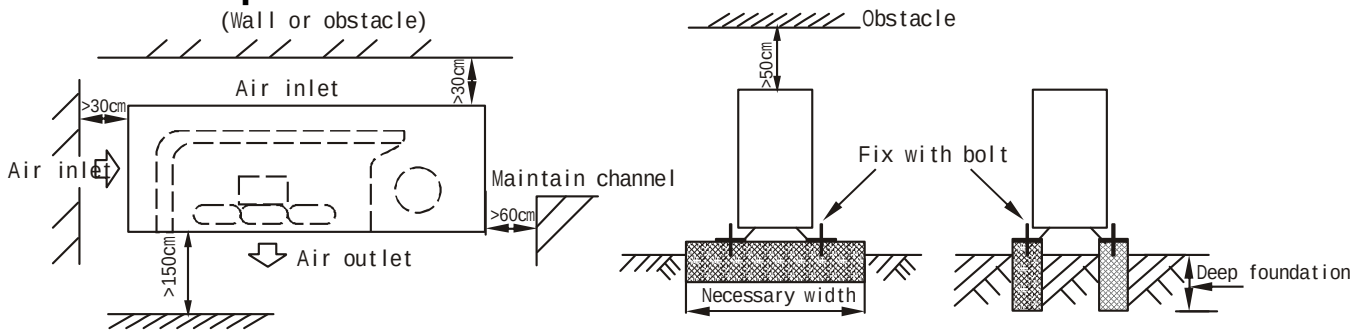


mm

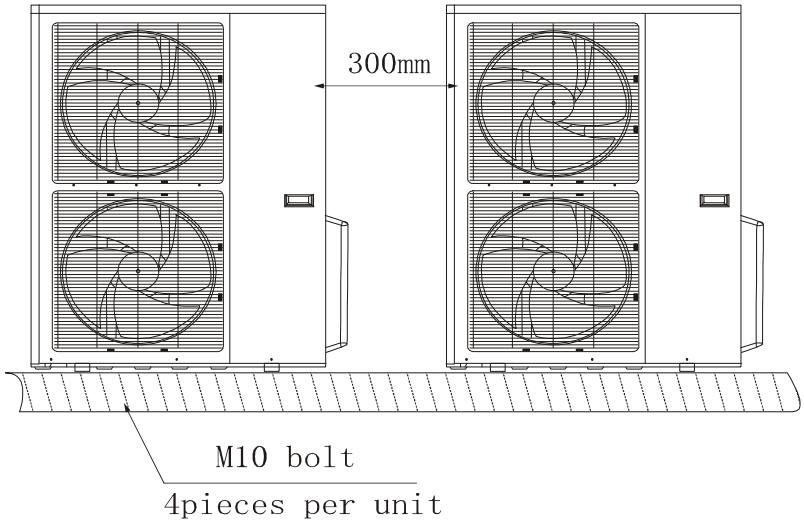
Model	A	B	C	D	E
RF14gX2W	970	410	1260	695	370
RF16gX2W	970	410	1260	695	370



3. Service Space

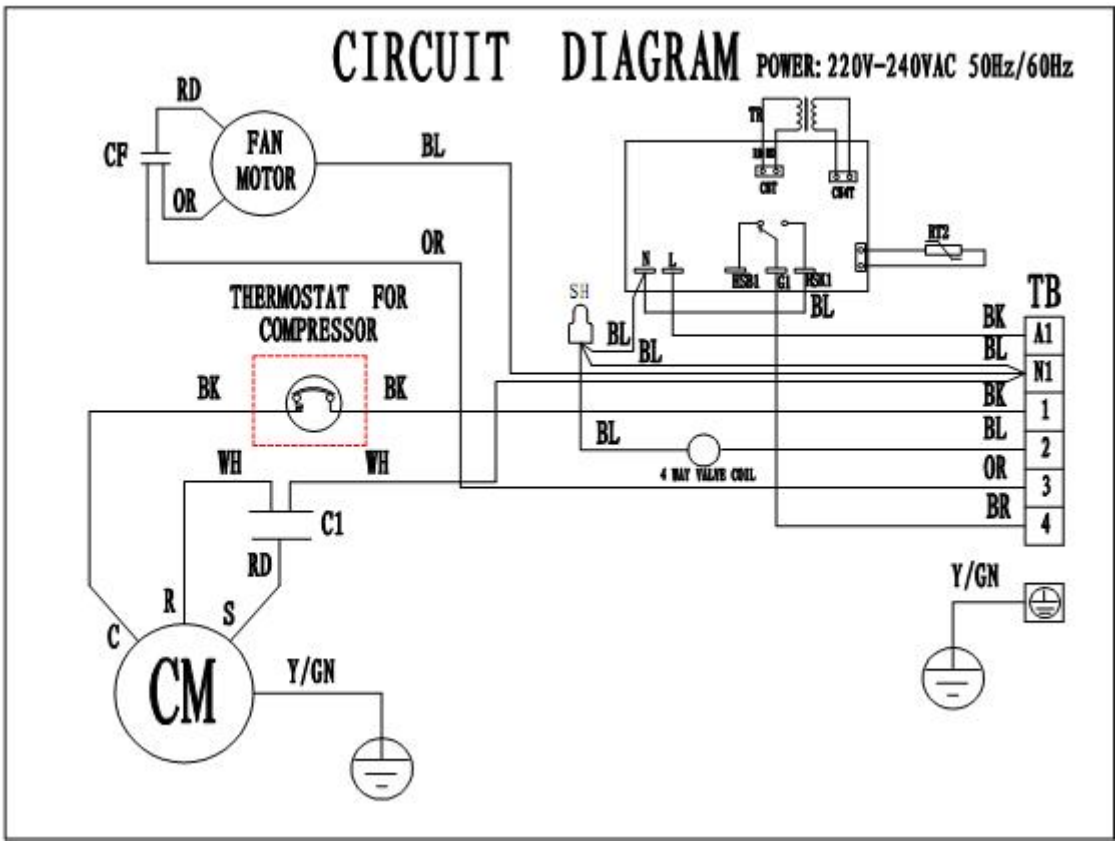


300mm is necessary between 2 outdoor units

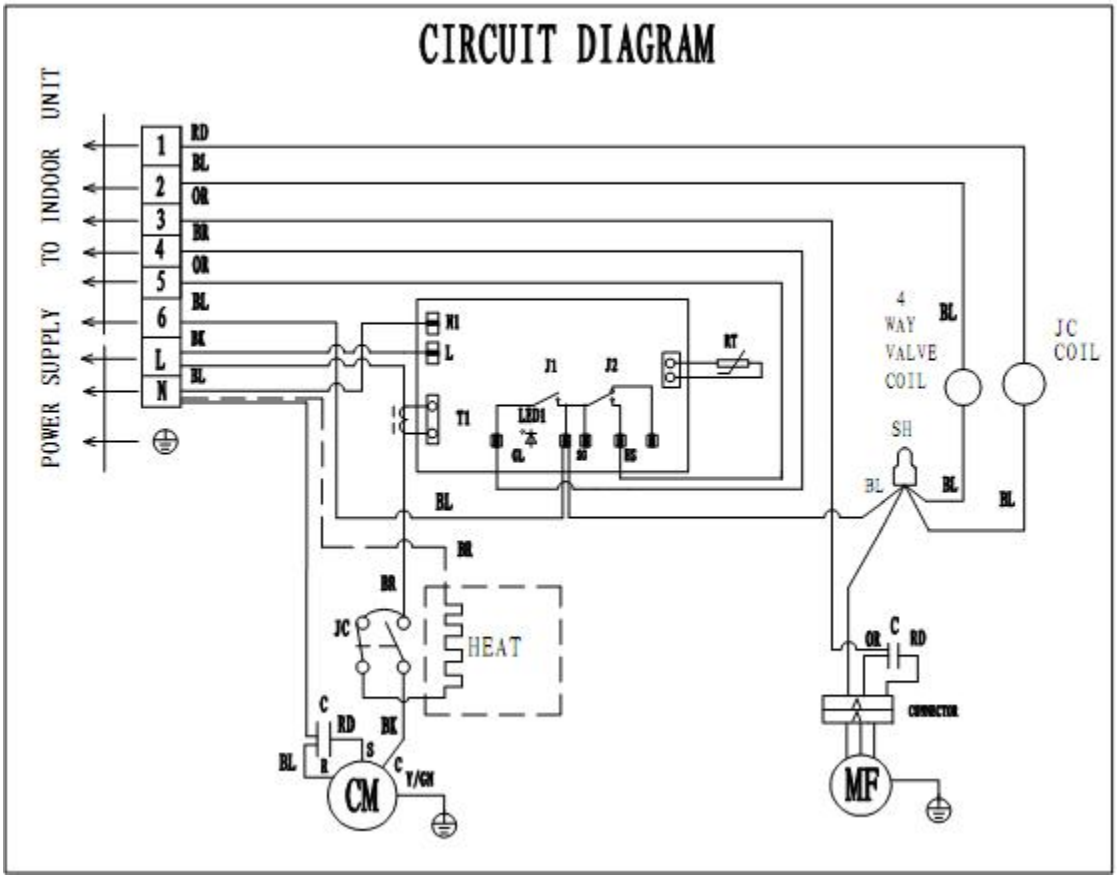


4. Wiring Diagrams

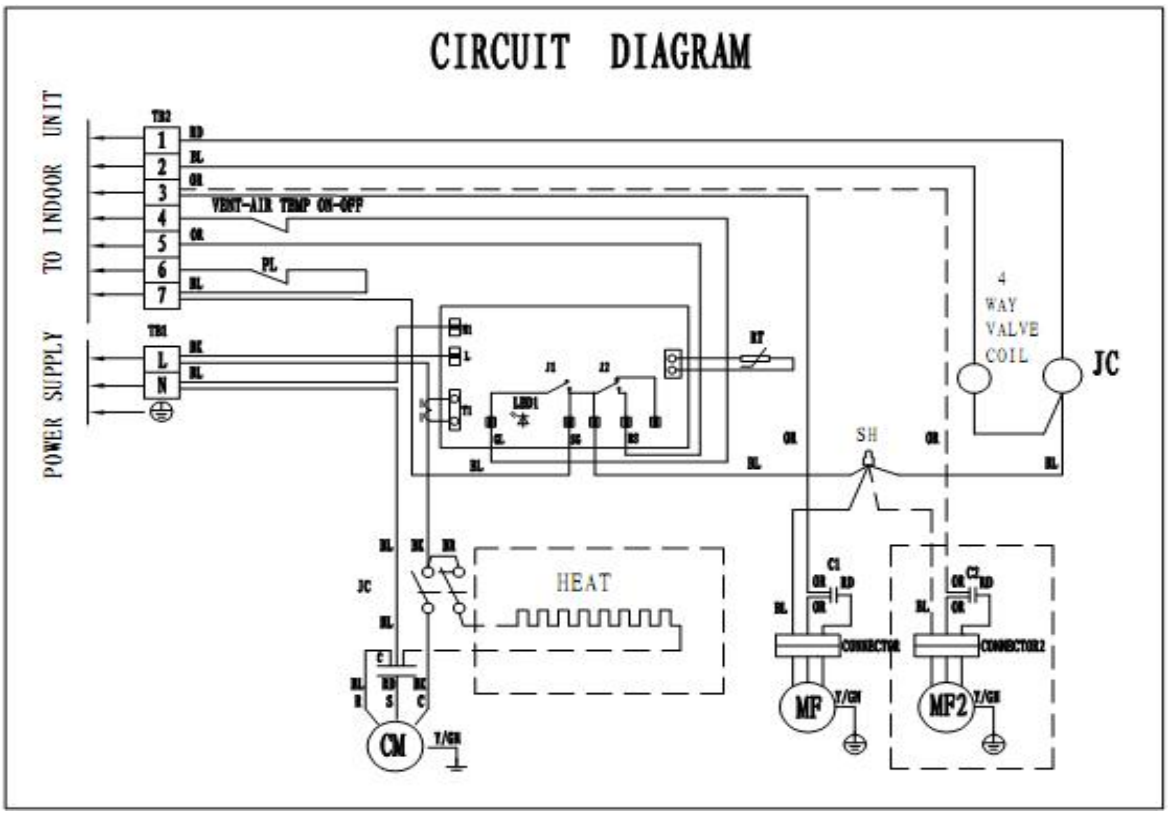
RF3.5cX2W, RF5.1cX2W



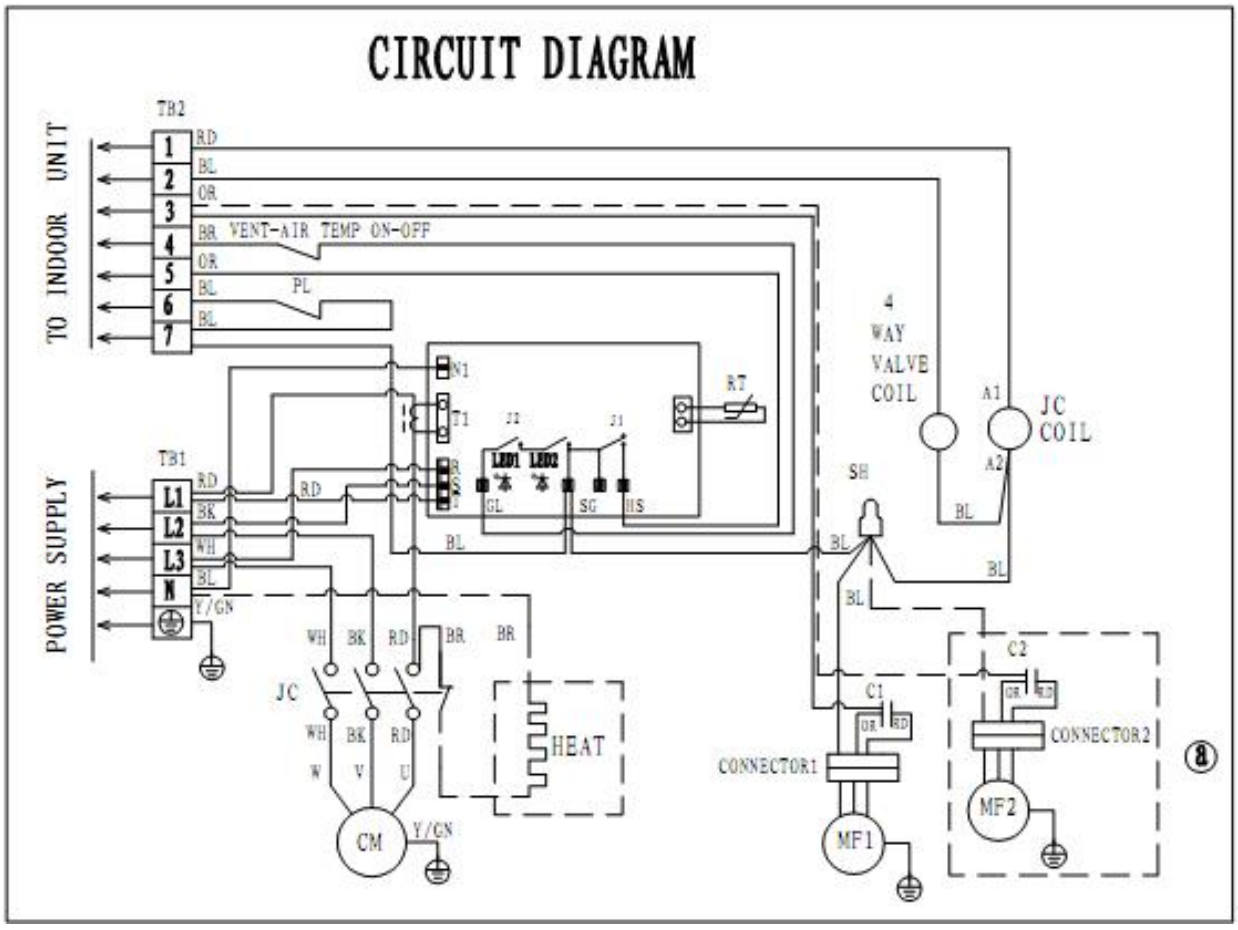
RF7cX2W



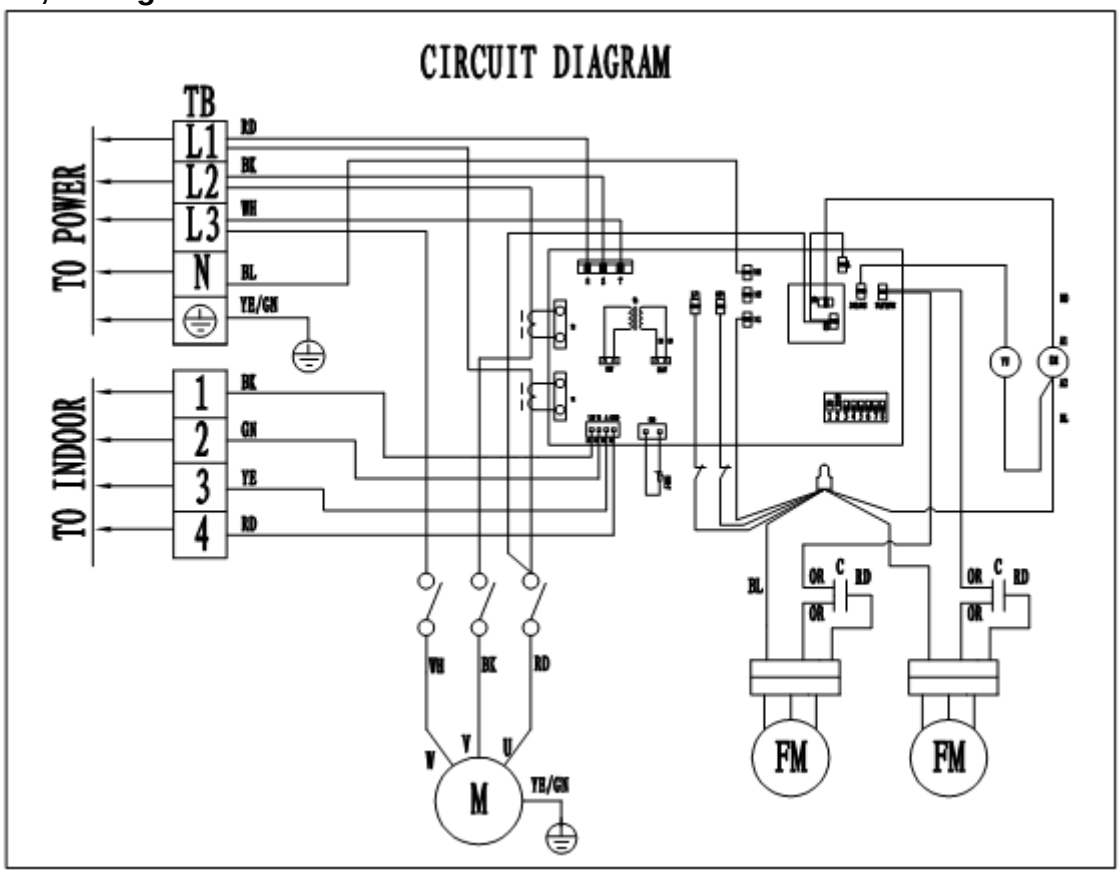
RF10cX2W



RF8.8gX2W, RF10gX2W



RF14gX2W, RF16gX2W



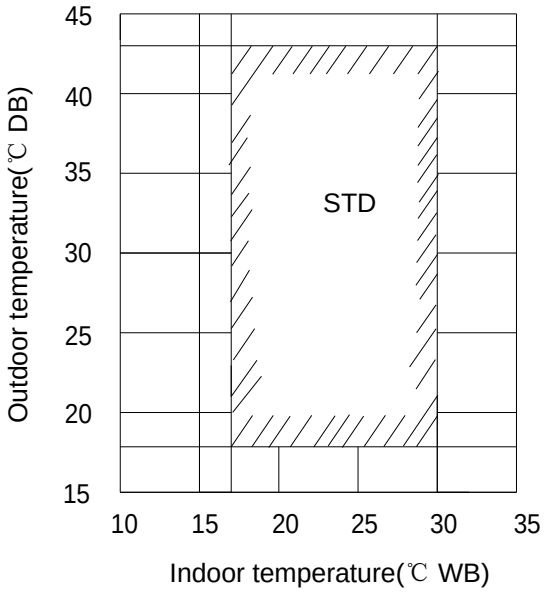
5. Electric Characteristics

Model	Outdoor Unit			
	Hz	Voltage	Min.	Max.
RF3.5cX2W	50	220~240V	198V	254V
RF5.1cX2W	50	220~240V	198V	254V
RF7cX2W	50	220~240V	198V	254V
RF10cX2W	50	220~240V	198V	254V
RF8.8gX2W	50	380~415V	342V	418V
RF10gX2W	50	380~415V	342V	418V
RF12gX2W	50	380~415V	342V	418V
RF14gX2W	50	380~415V	342V	418V
RF16gX2W	50	380~415V	342V	418V

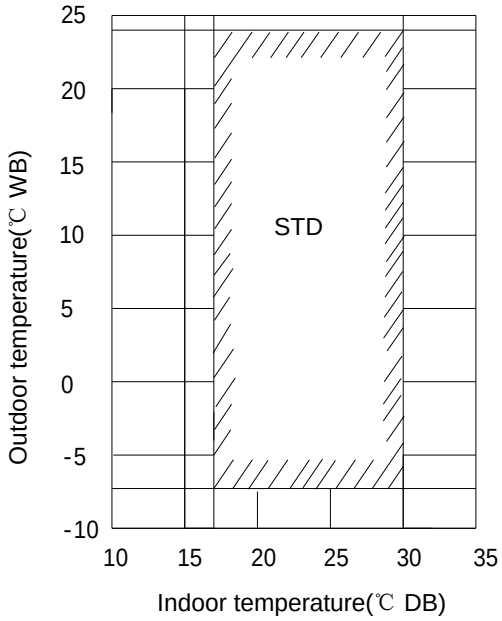
6. Operation Limits

Operation mode	Outdoor temperature(℃)	Room temperature(℃)
Cooling operation	18~43	17~30
Heating operation	-7~24	17~30

Cooling

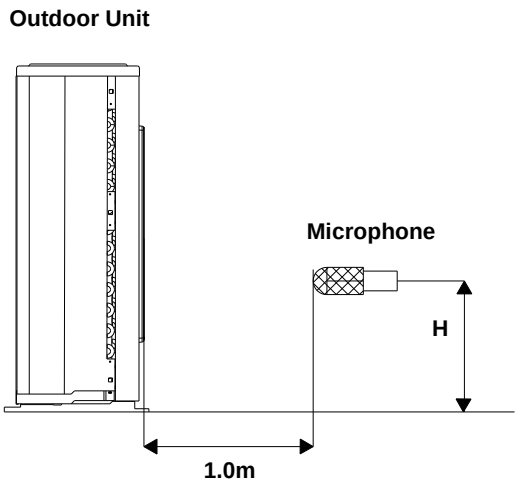


Heating



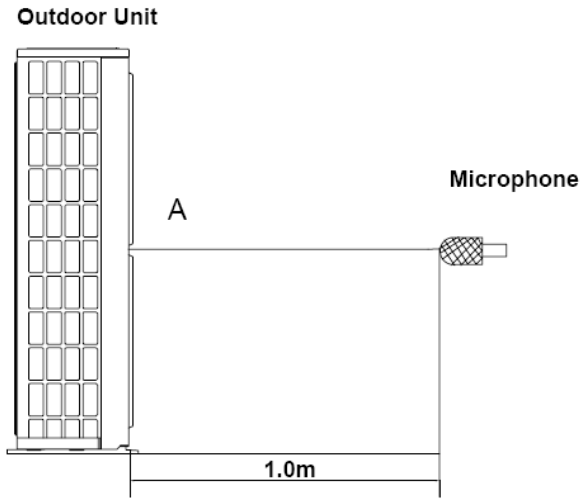
7. Sound Levels

18000Btu/h-48000Btu/h



Note: H= 0.5 × height of outdoor unit

60000Btu/h

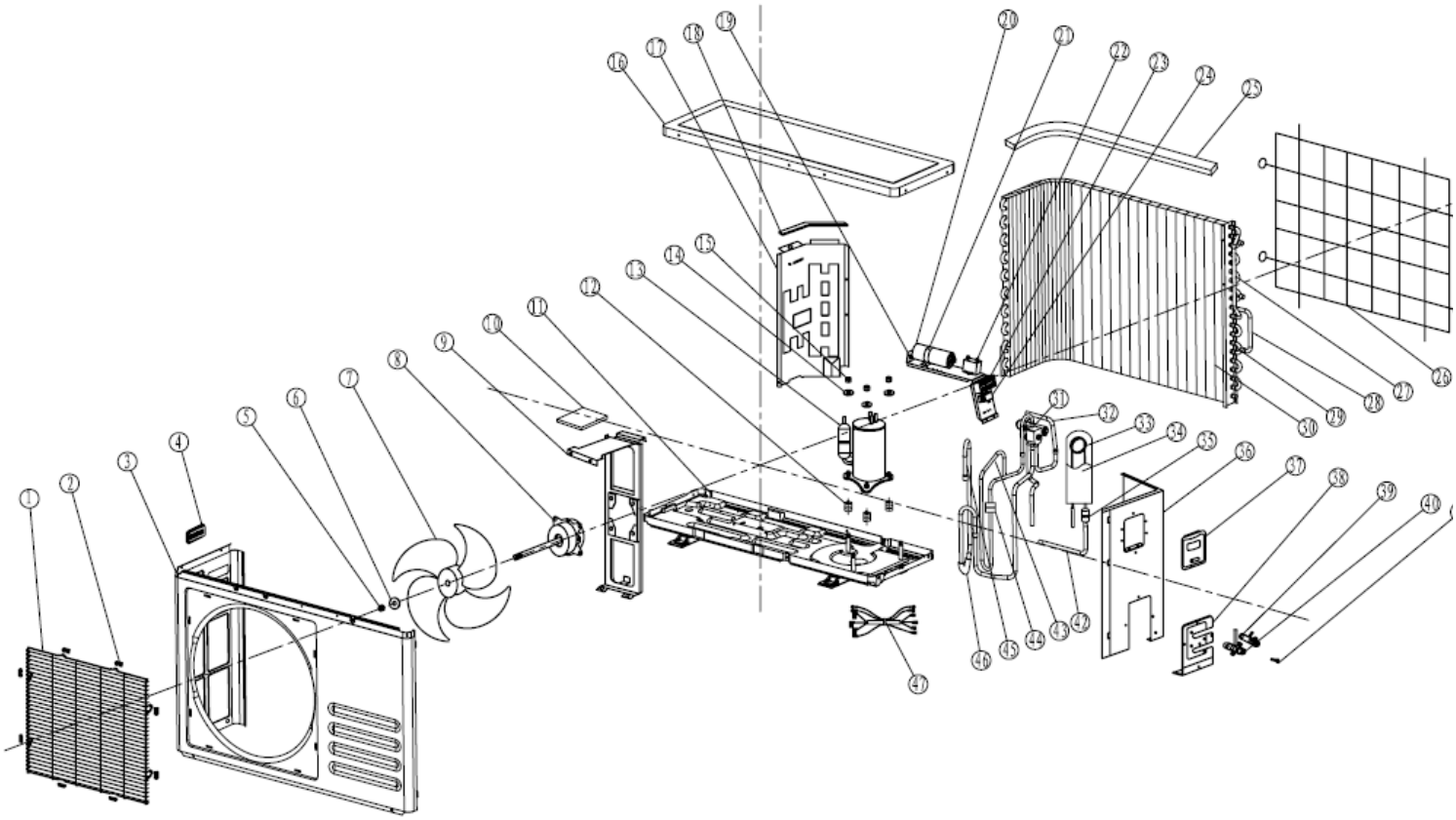


Note: The point A is in the middle of the whole outdoor panel.

Model	Noise level dB(A)
RF3.5cX2W	55
RF5.1cX2W	54
RF7cX2W	60
RF10cX2W	65
RF8.8gX2W	62
RF10gX2W	62
RF12gX2W	65
RF14gX2W	63
RF16gX2W	68

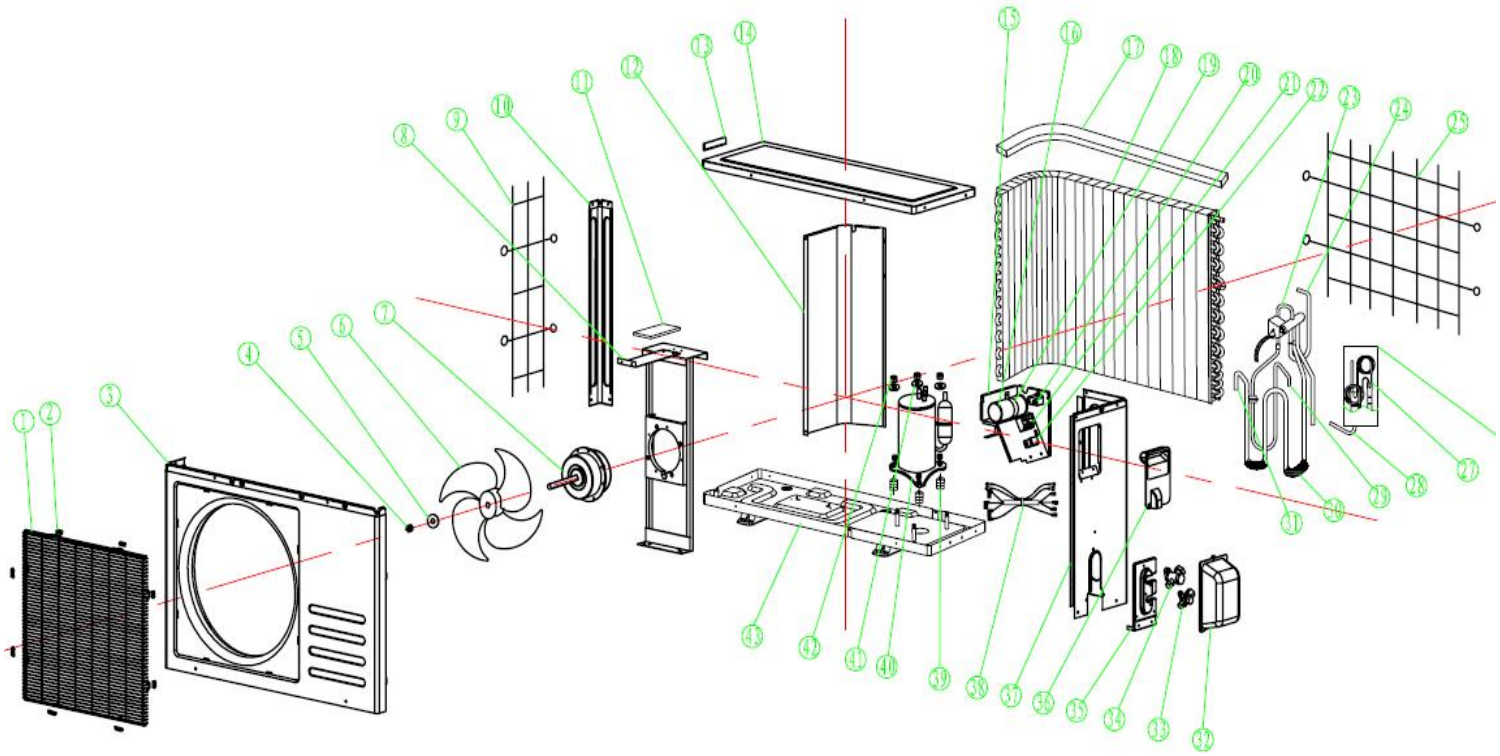
8. Exploded View

RF3.5cX2W



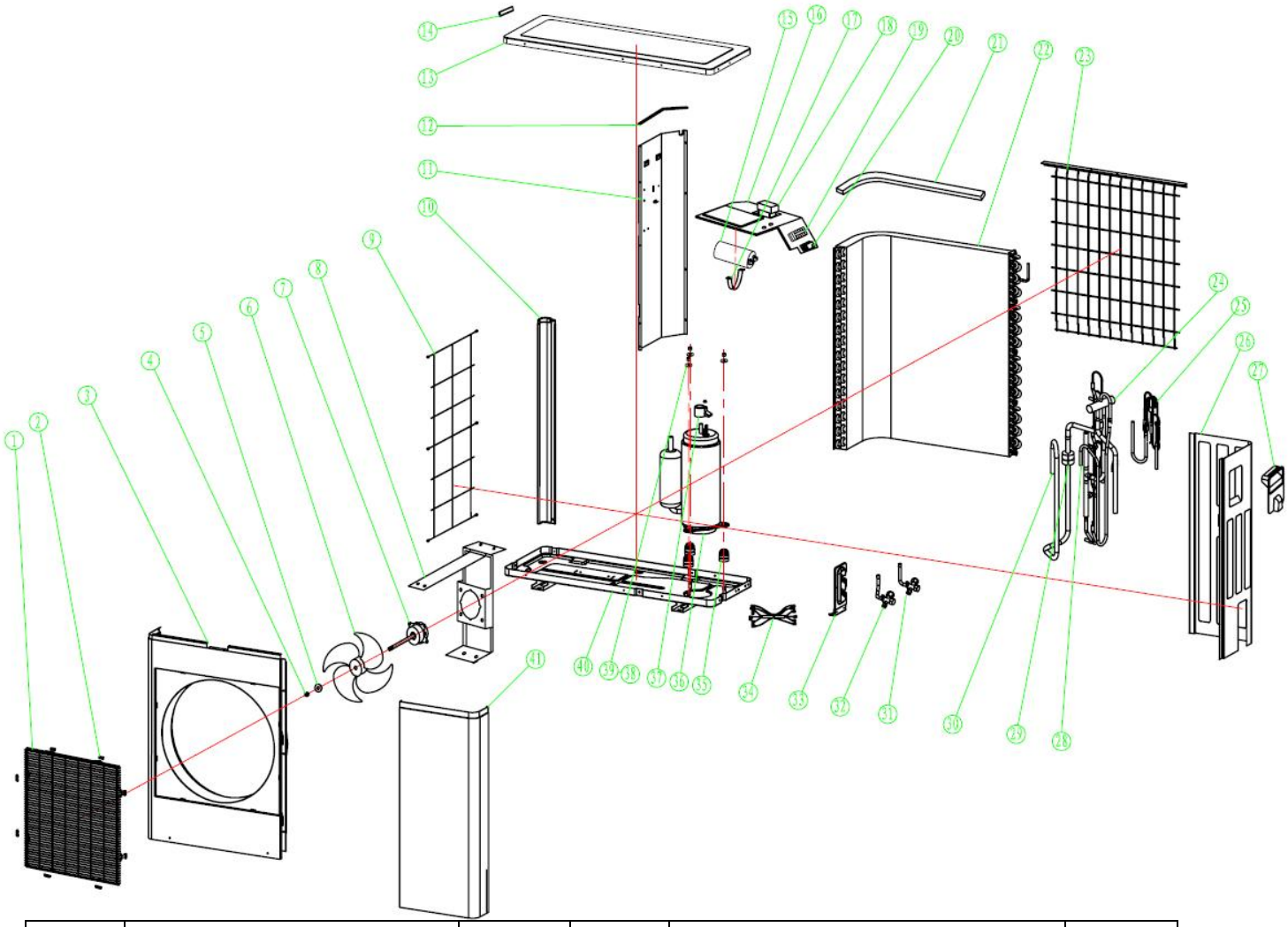
No.	Part Name	Quantity	No.	Part Name	Quantity
1	Front Grill	1	25	PU Sponge	1
2	Grill Clip	3	26	Rear Grill	1
3	Front Panel	1	27	Span pipe	1
4	Small handle	1	28	Span pipe	1
5	Nut	3	29	3-way pipe	1
6	Gasket	3	30	Condenser	1
7	Axial flow fan	1	31	4-way Valve assy	1
8	Motor	1	32	Intake pipe for condenser	1
9	Motor support	1	33	Capillary Assy	1
10	PE Sponge	2	34	Damping rubber	1
11	Base	1	35	Filter	1
12	Anti-vibration pad for compressor	3	36	Right panel	1
13	Compressor	1	37	Large handle	1
14	Gasket	3	38	Valve installation plate	1
15	Nut	3	39	High-pressure valve	1
16	Top panel	1	40	Low-pressure valve	1
17	Partition board	1	41	Screw	8
18	PU sponge	1	42	Drainpipe for the condenser	1
19	Electric installation board	1	43	Discharge pipe	1
20	Compressor Capacitor	1	44	Damping block	1
21	Capacitor clamp	1	45	Suction pipe	1
22	Terminal Board	1	46	Damping rubber	1
23	Fan Capacitor	1	47	Connecting Wire	1
24	Wire Clip	1			

RF5.1cX2W



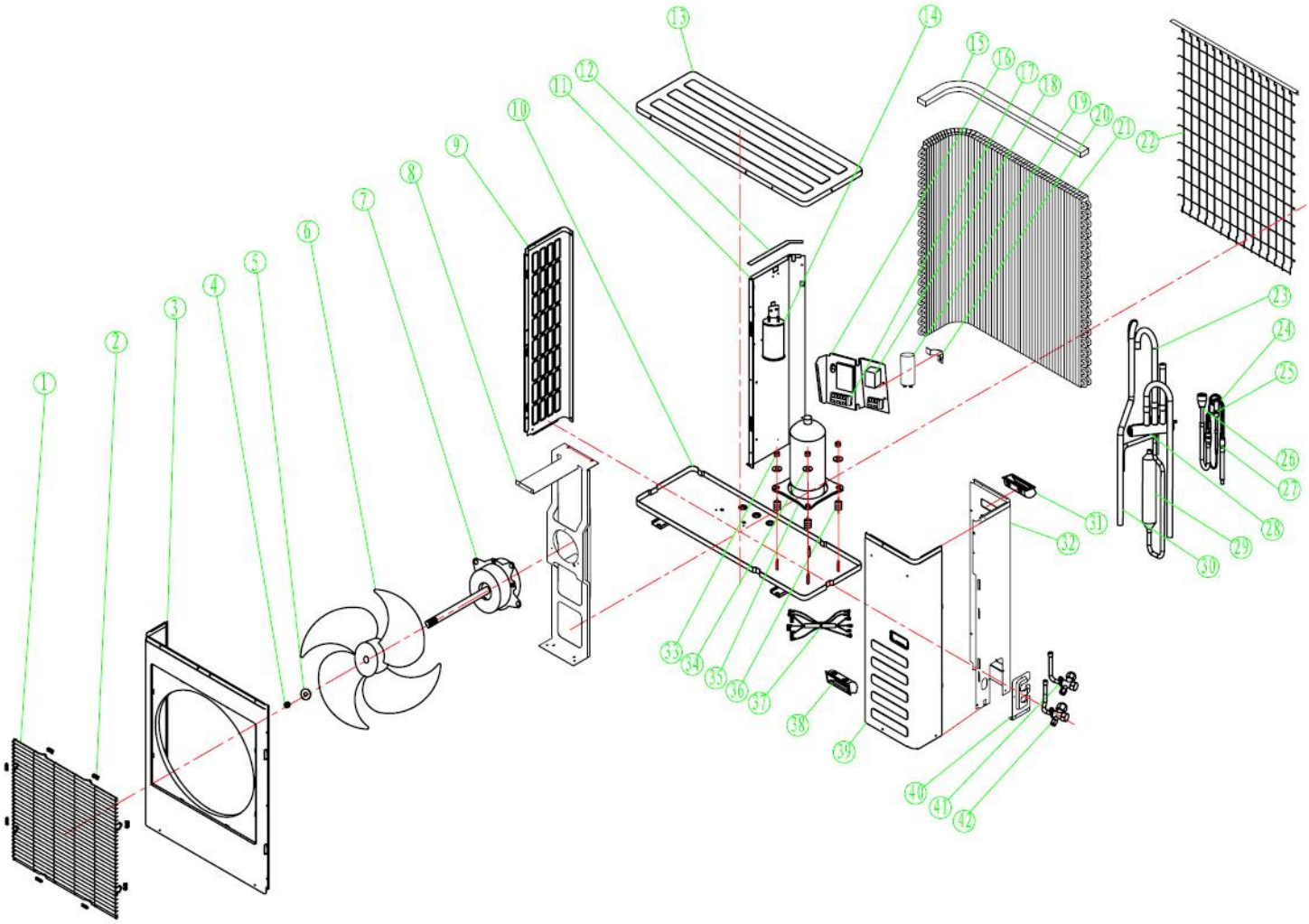
No.	Part Name	Quantity	No.	Part Name	Quantity
1	Front Grill	1	23	Four-way valve assembly	1
2	Grill Clip	8	24	Intake pipe for the condensor	1
3	Front Plate	1	25	Rear Grill	1
4	Nut	1	26	Damping rubber for capillary	1
5	Gasket	1	27	Capillary Assy	1
6	Axial flow fan	1	28	Drainpipe for the condensor	1
7	Motor	1	29	Discharge pipe	1
8	Motor support	1	30	Damping rubber	1
9	Left protect net	1	31	Suction pipe	1
10	Pillar	1	32	Valve cover	1
11	PE Sponge	1	33	High-pressure valve	1
12	Partition board	1	34	Low-pressure valve	1
13	Small handle	1	35	Valve installation plate	1
14	Top panel	1	36	Large handle	1
15	Electric box	1	37	Right panel	1
16	Compressor Capacitor	1	38	Power cord	1
17	PU Sponge	1	39	Anti-vibration pad for the compressor	3
18	Condenser	1	40	Compressor	1
19	Capacitor clamp	1	41	Gasket	1
20	Fan Capacitor	1	42	Nut	1
21	Terminal Board	1	43	Base	1
22	Wire Clip	1			

RF7cX2W



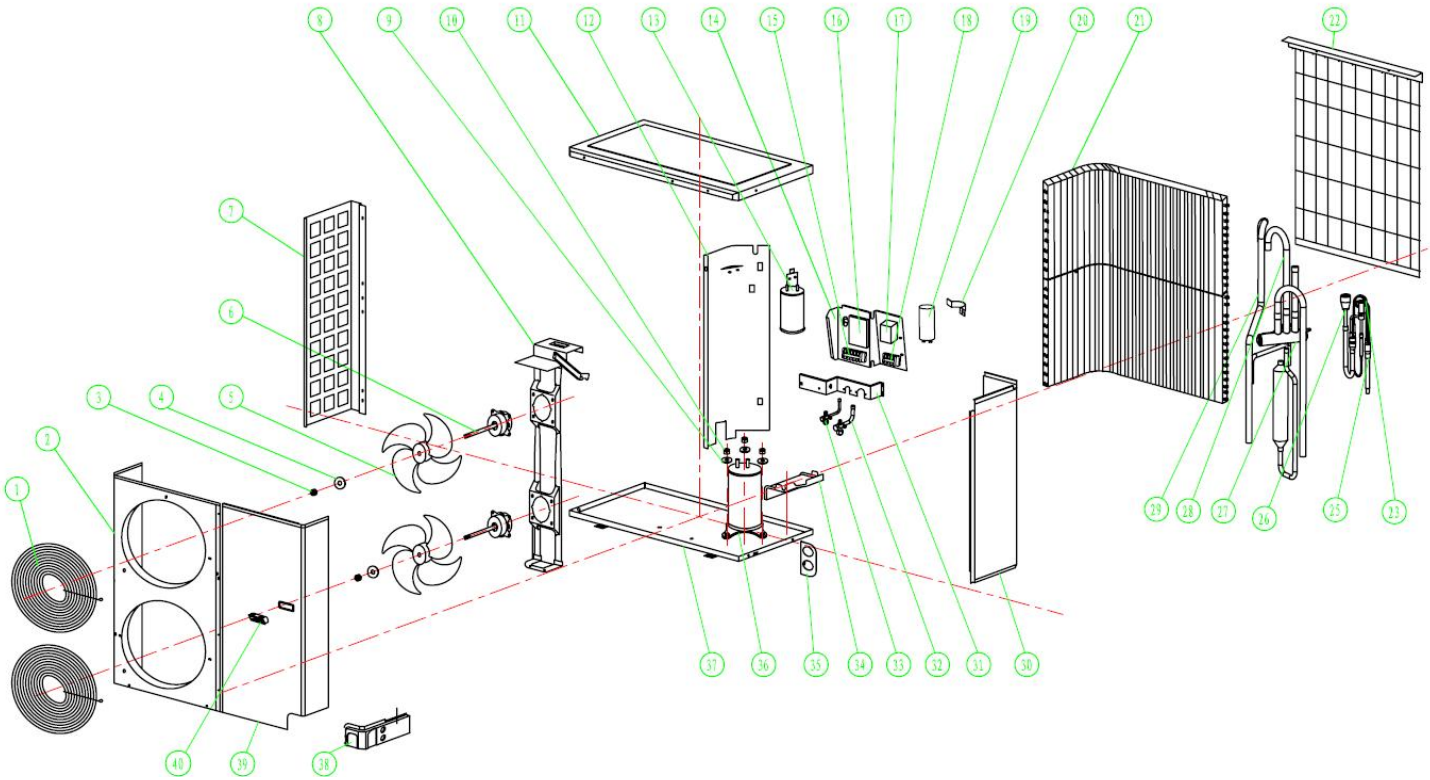
No.	Part Name	Quantity	No.	Part Name	Quantity
1	Front Grill	1	22	Condenser	1
2	Grill Clip	8	23	Rear Grill	1
3	Front Plate	1	24	4-way valve Assy	1
4	Nut	1	25	Capillary Assy	1
5	Gasket	1	26	Right panel	1
6	Axial flow fan	1	27	Large handle	1
7	Motor	1	28	Discharge pipe	1
8	Motor support	1	29	Anti-vibration pad	1
9	Left protect net	1	30	Suction pipe	1
10	Pillar	1	31	Low-pressure valve	1
11	Partition board	1	32	High-pressure valve	1
12	PU Sponge	1	33	Valve installation plate	1
13	Top panel	1	34	Compressor power cord	1
14	Small handle	1	35	Anti-vibration pad for the compressor	4
15	Fan Capacitor	1	36	Compressor	1
16	Electric installation board	1	37	Compressor terminal cover	1
17	Cpacitor clamp	1	38	Nut	4
18	Fan Capacitor	1	39	Gasket	4
19	Terminal Board	1	40	Base	1
20	Wire Clip	1	41	Maintenance plate	1
21	PU Sponge	1			

RF8.8gX2W, RF10cX2W, RF10gX2W, RF12gX2W



No.	Part Name	Quantity	No.	Part Name	Quantity
1	Front Grill	1	22	Rear Grill	1
2	Grill Clip	8	23	Intake pipe for the condensor	1
3	Front Plate	1	24	Capillary Assy	1
4	Nut	1	25	Unloading valve	1
5	Gasket	1	26	Multiplexor	1
6	Axial flow fan	1	27	Filter	1
7	Motor	1	28	4-way valve Assy	1
8	Motor support	1	29	Noise reduction	1
9	Left panel		30	Suction pipe	1
10	Base	1	31	Small handle	1
11	Partition board	1	32	Right panel	1
12	PU Sponge	1	33	Nut	4
13	Top panel	1	34	Gasket	4
14	Accumulator	1	35	Compressor	1
15	PU Sponge	1	36	Anti-vibration pad for the compressor	4
16	Electric installation board	1	37	Compressor power cord	1
17	Terminal Board	1	38	Small handle	1
18	Fan Capacitor	1	39	Maintenance plate	1
19	Fan Capacitor	1	40	Valve installation plate	1
20	Cpacitor clamp	1	41	Low-pressure valve	1
21	Condenser	1	42	High-pressure valve	1

RF14gX2W, RF16gX2W



No.	Name	Quantity	No.	Name	Quantity
1	Front Grill	2	20	Cpacitor clamp	1
2	Front Plate	1	21	Condenser	1
3	Nut	2	22	Rear Grill	1
4	Gasket	2	23	Capillary Assy	1
5	Axial flow fan	2	25	Filter	1
6	Motor	2	26	Multiplexor	1
7	Left panel	1	27	4-way valve Assy	1
8	Motor support	1	28	Intake pipe for the condensor	1
9	Gasket	4	29	Suction pipe	1
10	Nut	4	30	Right panel	1
11	Top panel	1	31	Valve installation plate	1
12	Partition board	1	32	Low-pressure valve	1
13	Accumulator	1	33	High-pressure valve	1
14	Electric installation board	1	34	Protect pipe board	1
15	Terminal Board A	1	36	Compressor	1
16	Soft starter	1	37	Base	1
17	Fan Capacitor	2	38	Right angle plate	1
18	Terminal Board B	1	39	Maintenance plate	1
19	Fan Capacitor	1	40	Small handle	1

Part 4
Installation

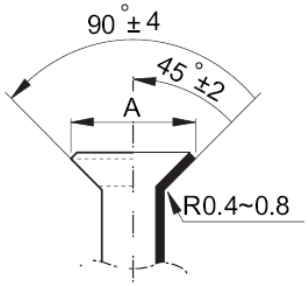
1. Precaution on Installation

1.1. Measure the necessary length of the connecting pipe, and make it by the following way.
a. Connect the indoor unit at first, then the outdoor unit.
Bend the tubing in proper way. Do not harm them.

CAUTIONS:

- Daub the surfaces of the flare pipe and the joint nuts with frozen oil, and wrench it for 3~4 rounds
- With hands before fasten the flare nuts.

Be sure to use two wrenches simultaneously when you connect or disconnect the pipes.

Pipe gauge	Tightening torque	Flare dimension A Min (mm) Max		Flare shape
Φ6.4	15～16N.m (153～163 kgf.cm)	8.3	8.7	
Φ9.5	25～26N.m (255～265kgf.cm)	12.0	12.4	
Φ12.7	35～36N.m (357～367kgf.cm)	15.4	15.8	
Φ15.9	45～47N.m (459～480 kgf.cm)	18.6	19.1	
Φ19.1	65～67N.m (663～684kgf.cm)	22.9	23.3	

b. The stop value of the outdoor unit should be closed absolutely (as original state). Every time you connect it, first loosen the nuts at the part of stop value, then connect the flare pipe immediately (in 5 minutes). If the nuts have been loosened for a long time, dusts and other impurities may enter the pipe system and may cause malfunction later. So please expel the air out of the pipe with refrigerant before connection.
c. Expel the air after connecting the refrigerant pipe with the indoor unit and the outdoor unit. Then fasten the nuts at the repair-points.

1.2. Locate The Pipe
a. Drill a hole in the wall (suitable just for the size of the wall conduit), then set on the fittings such as the wall conduit and its cover.
b. Bind the connecting pipe and the cables together tightly with binding tapes. Do not let air in, which will cause water leakage by condensation.
c. Pass the bound connecting pipe through the wall conduit from outside. Be careful of the pipe allocation to do no damage to the tubing.

1.3. Connect the pipes.

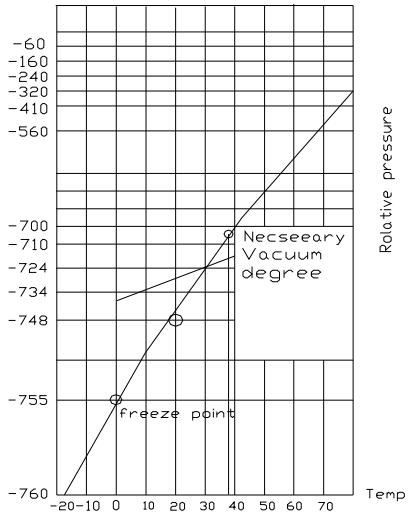
1.4. Then, open the stem of stop values of the outdoor unit to make the refrigerant pipe connecting the indoor unit with the outdoor unit in fluent flow.

1.5. Be sure of no leakage by checking it with leak detector or soap water.

1.6. Cover the joint of the connecting pipe to the indoor unit with the soundproof / insulating sheath (fittings), and bind it well with the tapes to prevent leakage.

2. Vacuum Dry and Leakage Checking

2.1 Vacuum Dry: use vacuum pump to change the moisture (liquid) into steam (gas) in the pipe and discharge it out of the pipe to make the pipe dry. Under one atmospheric pressure, the boiling point of water(steam temperature) is 100℃. Use vacuum pump to make the pressure in the pipe near vacuum state, the boiling point of water falls relatively. When it falls under outdoor temperature, the moisture in the pipe will be vaporized.

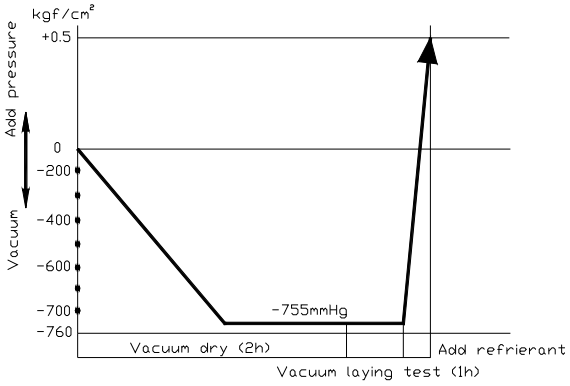


2.2 Vacuum dry procedure

There are two methods of vacuum dry due to different construction environment: common vacuum dry, special vacuum dry.

①. Common vacuum dry procedure

- Vacuum dry (for the first time)---connect the all-purpose detector to the inlet of liquid pipe and gas pipe, and run the vacuum pump more than two hours (the vacuum pump should be below -755mmHg)
- If the pump can't achieve below -755mmHg after pumping 2 hours, moisture or leakage point will still exist in the pipe. At this time, it should be pumped 1 hour more.
- If the pump can't achieve -755mmHg after pumping 3 hours, please check if there are some leakage points.
- Vacuum placement test: place 1 hour when it achieves -755mmHg, pass if the vacuum watch shows no rising. If it rises, it shows there's moisture or leakage point.
- Vacuuming from liquid pipe and gas pipe at the same time.
- Sketch map of common vacuum dry procedure.



②. Special vacuum dry procedure

- This vacuum dry method is used in the following conditions:
- There's moisture when flushing the refrigerant pipe.
- Rainwater may enter into the pipe.
- Vacuum dry for the first time ····· 2h pumping

③. Vacuum destroy for the second time ····· Fill nitrogen to 0.5Kgf/cm^2

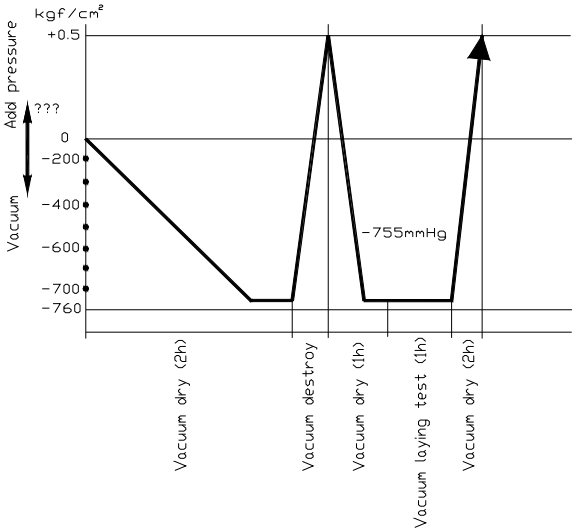
Because nitrogen is for drying gas, it has vacuum drying effect during vacuum destroy. But if the moisture is too much, this method can't dry thoroughly. So, please pay more attention to prevent water entering and forming condensation water.

④. Vacuum dry for the second time·····1h pumping

Determinant: Pass if achieving below -755mmHg. If -755mmHg can't be achieved in 2h, repeat procedure ③ and ④.

⑤. Vacuum placing test ····· 1h

⑥. Sketch map of special vacuum dry procedure



3. Additional Refrigerant Charge

Caution

● Refrigerant cannot be charged until field wiring has been completed.

● Refrigerant may only be charged after performing the leak test and the vacuum pumping.

● When charging a system, care shall be taken that its maximum permissible charge is never exceeded, in view of the danger of liquid hammer.

● Charging with an unsuitable substance may cause explosions and accidents, so always ensure that the appropriate refrigerant is charged.

● Refrigerant containers shall be opened slowly.

● Always use protective gloves and protect your eyes when charging refrigerant.

The outdoor unit is factory charged with refrigerant. Calculate the added refrigerant according to the diameter and the length of the liquid side pipe of the outdoor unit/indoor unit

R(g) D(mm) / L(m)	φ6.4	Φ9.5	Φ12.7
Less than 5m (One-way)	—	—	—
Added Refrigerant When Over 5m(One-way)	30g/m×(L-5)	65g/m×(L-5)	120g/m×(L-5)

Remark:

R (g): Additional refrigerant to be charged

L (m): The length of the refrigerant pipe (one-way)

D (mm): Liquid side piping diameter

4. Water Drainage

4.1 Gradient and Supporting

4.1.1 Keep the drainpipe sloping downwards at a gradient of at least 1/100. Keep the drainpipe as short as possible and eliminate the air bubble.

4.1.2 The horizontal drainpipe should be short. When the pipe is too long, a prop stand must be installed to keep the gradient of 1/100 and prevent bending. Refer to the following table for the specification of the prop stand.

	Diameter	Distance between the prop stands
Hard PVC pipe	25~40mm	1~1.5m

4.1.3. Precautions

① The diameter of drainpipe should meet the drainage requirement at least.

② The drainpipe should be heat-insulated to prevent atomization.

③ Drainpipe should be installed before installing indoor unit. After powering on, there is some water in water-receiver plate. Please check if the drain pump can operate correctly.

④ All connection should be firm.

⑤ Wipe color on PVC pipe to note connection.

⑥ Climbing, horizontal and bending conditions are prohibited.

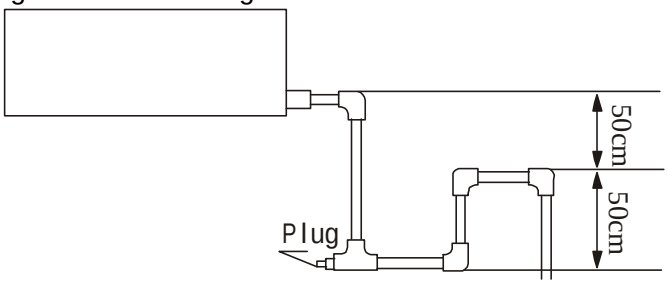
⑦ The dimension of drainpipe can't less than the connecting dimension of indoor drainpipe.

⑧ Heat-insulation should be done well to prevent condensation.

⑨ Indoor units with different drainage type can't share one convergent drainpipe.

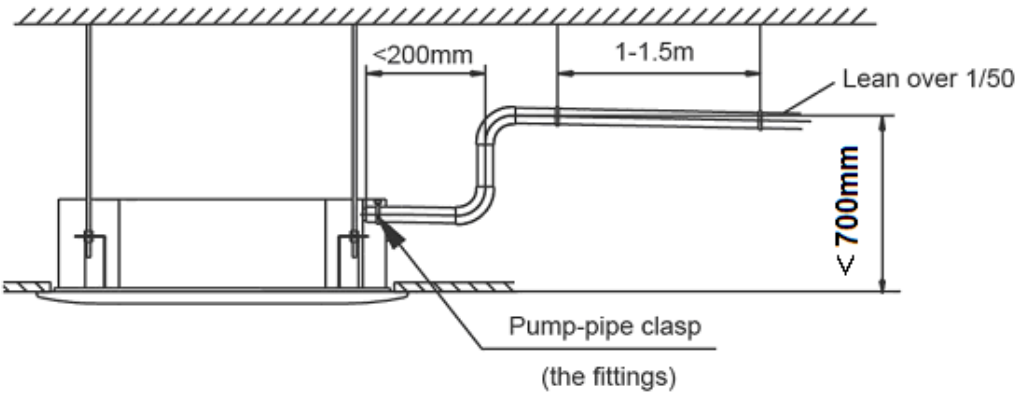
4.2 Drainpipe Trap

4.2.1. If the pressure at the connection of the drainpipe is negative, it needs to design drainpipe trap.
4.2.2. Every indoor unit needs one drainpipe trap.
4.2.3. A plug should be designed to do cleaning.

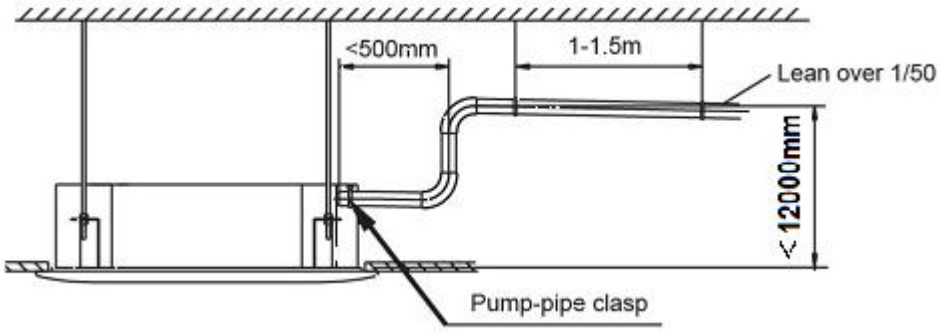


4.3 Upwards drainage (drain pump)

For Four-way cassette(compact)

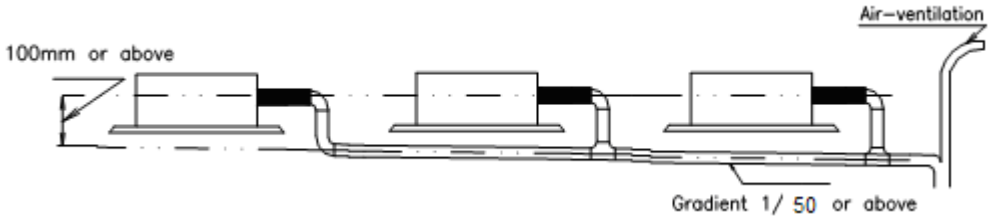


For Four-way cassette



4.4 Convergent drainage

4.4.1. The number of indoor units should be as small as possible to prevent the traverse main pipe overlong.
4.4.2. Indoor unit with drain pump and indoor unit without drain pump should be in different drainage system.



4.4.3. Selecting the diameter

Number of connecting indoor units→Calculate drainage volume→Select the diameter
Calculate allowed volume =Total cooling capacity of indoor units(HP)×2 (l/ hr)

	Allowed volume(lean 1/50) (l/ hr)	I.D. (mm)	Thick
Hard PVC	∽≤14	¢25	3.0
Hard PVC	14＜∽≤88	¢30	3.5
Hard PVC	88＜∽≤334	¢40	4.0
Hard PVC	175＜∽≤334	¢50	4.5
Hard PVC	334＜∽	¢80	6.0

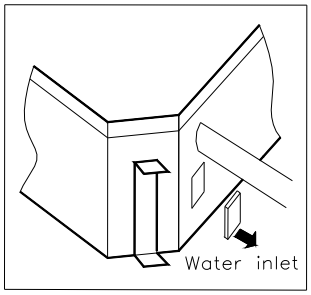
4.5 Drainage test

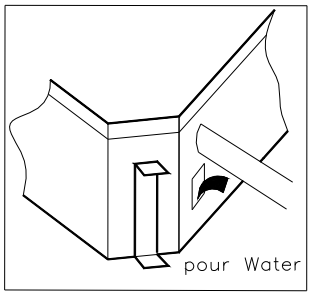
4.5.1Drainage without drain pump

After finishing drainpipe installation, pour some water into the water receiver plate to check if the water flows smoothly.

4.5.2 Drainage with drain pump

① Poke the Water Level Switch, remove the cover, use water pipe to pour 2000ml water into the water receipt plate through the water inlet.





② Turn on the power to Cooling operation. Check the pump's operation and switch on the Water Level Switch. Check the pump's sound and look into the transparent hard pipe in the outlet at the same time to check if the water can discharge normally.

③ Stop the air conditioner running, turn off the power, and put back the cover.

- Stop the air conditioner. After 3 minutes, check if it has abnormity. If the collocation of drainpipes is illogical, the water will flow back overfull, which will cause the alarm lamp flashes, even overflow from the water receipt plate.
- Keep on pouring water until it gives an alarm signal for high water level, check if the pump drains water at once. If the water level can't fall below the alarmed water level after 3 minutes, the air conditioner will stop. Turn off the power and drain the remained water, and then turn on the air conditioner.

Note: the drain stuff in the main water receipt plate is for maintenance. Stuff up the drain stuff to prevent water leakage.

5. Insulation Work

5.1 Insulation material and thickness

5.1.1. Insulation material

Insulation material should adopt the material which is able to endure the pipe's temperature: no less than 70℃ in the high-pressure side, no less than 120℃ in the low-pressure side(For the cooling type machine, no requirements at the low-pressure side.)

u Example: Heat pump type----Heat-resistant Polyethylene foam (withstand above 120℃)
Cooling only type----Polyethylene foam (withstand above 100℃)

5.1.2. Thickness choice for insulation material

Insulation material thickness is as follows:

	Pipe diameter (mm)	Adiabatic material thickness
Refrigerant pipe	Φ6.4—Φ25.4	10mm
	Φ28.6—Φ38.1	15mm
Drainage pipe	Inner diameterΦ20—Φ32	6mm

5.2 Refrigerant pipe insulation

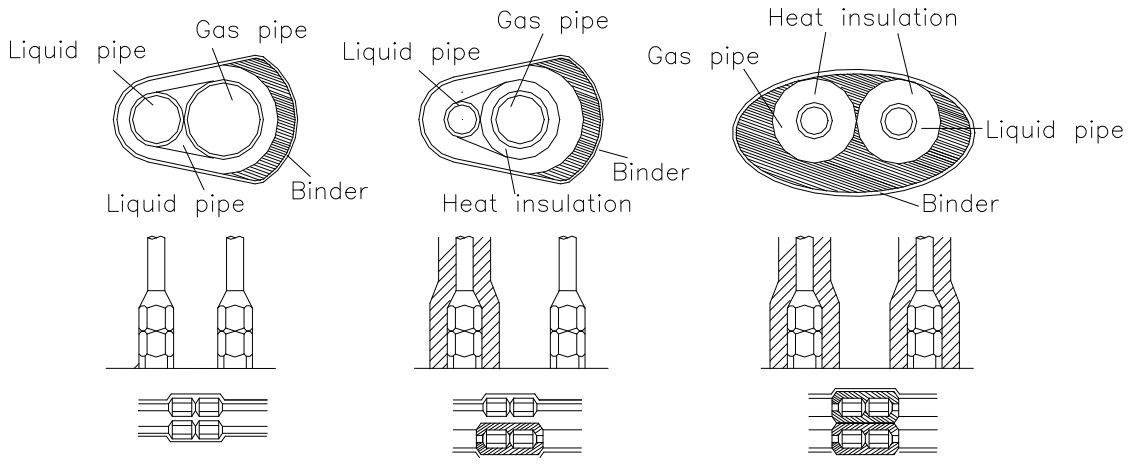
5.2.1. Work Procedure

① Before laying the pipes, the non-jointing parts and non-connection parts should be heat insulated.

② When the gas proof test is eligible, the jointing area, expanding area and the flange area should be heat insulated

5.2.2. Insulation for non-jointing parts and non-connection parts

wrong	right	
Gas pipe and liquid pipe should not be put together to insulate	Insulate the gas pipe (cooling only)	Insulate the gas pipe and liquid pipe

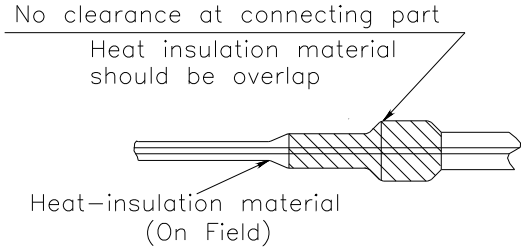


For construction convenience, before laying pipes, use insulation material to insulate the pipes to be deal with, at the same time, at two ends of the pipe, remain some length not to be insulated, in order to be welded and check the leakage after laying the pipes.

5.2.3. Insulate for the jointing area, expanding area and the flange area

① Insulate for the jointing area, expanding area and the flange area should be done after checking leakage of the pipes

② Make sure there's no clearance in the joining part of the accessorial insulation material and local preparative insulation material.



5.3 Drainage pipe insulation

The connection part should be insulated, or else water will be condensing at the non-insulation part.

5.4 Note

5.4.1 The jointing area, expanding area and the flange area should be heat insulated after passing the pressure test

5.4.2 The gas and liquid pipe should be heat insulated individually, the connecting part should be heat insulated individually.

5.4.3 Use the attached heat-insulation material to insulate the pipe connections (pipes' tie-in ,expand nut) of the indoor unit

6. Wiring

Please refer to the Wiring Diagram.

7. Test Operation

(1) The test operation must be carried out after the entire installation has been completed.
(2) Please confirm the following points before the test operation.

- The indoor unit and outdoor unit are installed properly.
- Tubing and wiring are correctly completed.
- The refrigerant pipe system is leakage-checked.
- The drainage is unimpeded.
- The ground wiring is connected correctly.
- The length of the tubing and the added stow capacity of the refrigerant have been recorded.
- The power voltage fits the rated voltage of the air conditioner.
- There is no obstacle at the outlet and inlet of the outdoor and indoor units.
- The gas-side and liquid-side stop values are both opened.
- The air conditioner is pre-heated by turning on the power.

(3) According to the user's requirement, install the remote controller when the remote controller's signal can reach the indoor unit smoothly.
(4) Test operation
Set the air conditioner under the mode of "COOLING" with the remote controller, and check the following points.
Indoor unit

- Whether the switch on the remote controller works well.
- Whether the buttons on the remote controller works well.
- Whether the air flow louver moves normally.
- Whether the room temperature is adjusted well.
- Whether the indicator lights normally.
- Whether the temporary buttons works well.
- Whether the drainage is normal.
- Whether there is vibration or abnormal noise during operation.

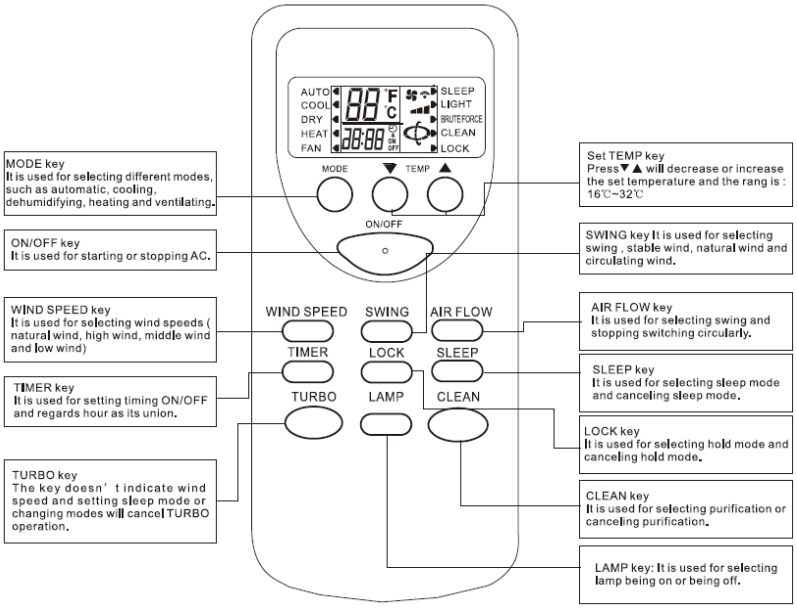
Outdoor unit

- Whether there is vibration or abnormal noise during operation.
- Whether the generated wind, noise, or condensed of by the air conditioner have influenced your neighborhood.
- Whether any of the refrigerant is leaked.

Part 5
Control

1. Wireless Remote Controller

1.1 Jingling Commer



USE OF REMOTE CONTROLLER

The controller below is the Jingling Common Remote Controller, SWING key, TURBO key, LAMP key and CLEAN key is applicable for special latest developed new models instead of normal ones.

FUNCTION KEY

A. ON/OFF key:

Press the key and the remote control will switch circularly in the order : ON→OFF→ON. When it is powered on at first from off state to on state, the default setting of work condition is (The set temperature is 25℃ and the mode , wind speed, swing and air door are all automatic and there is no lamp, no turbo, no purification, no sleep, no timing and no hold function). When it is not powered on firstly from off state to on state, the work condition is as the same as the state before stopping. It will cancel damp, purification, sleep, turbo and timing running mode.

B. MODE key:

Press the key to switch modes in the order : automatic →cooling→dehumidify→heating→ventilating→automatic.

C. " ▼ " key:

In dehumidifying mode and automatic mode, pressing the key cannot change the temperature. In other mode, press the key once and the temperature will decrease 1℃ in the order : 32℃→31℃→…→17℃→16℃ .

D. " ▲ " key:

In dehumidifying mode and automatic mode, pressing the key cannot change the temperature. In other mode, press the key once and the temperature will increase 1℃ in the order: 16℃→17℃→…→31℃→32℃ .

E. SWING key :

In dehumidifying mode, the swing mode is in the stable wind mode without change. In other mode, press the key to switch modes in the order:

swing →stable wind→natural wind →swing

F. AIR FLOW key:

The default air flow is in the swing mode when starting firstly and press the key to switch modes in the order: swing →stop →swing.

G. WIND SPEED key:

The default wind speed is in the automatic wind mode when starting firstly. The remote control won′t react by pressing the key because the wind speed can't be adjusted and in low speed in dehumidifying mode. In other mode, press the key to switch modes in the order :

Automatic wind→ high speed →middle speed→ low speed →automatic wind

H. TIMER key :

The default mode is in no timing state, press the key to set timing time with hour as its union. The switch order is: 1H→2H→…→24H→cancel→1H…. Press the key to set timing starting in the off state and set timing stopping in the on state. After setting timing function, the time keeps decreasing per hour until the time decreasing to the timing on or timing off and the timing display will be cancelled at the same time. Pressing MODE key can't cancel timing in timing mode which will send out the order of timing time by pressing other key.

I. TURBO key:

The default state for the control is no turbo and the key don't work in the automatic mode, dehumidifying mode and ventilating mode (It will not display any contents and not send out any codes). The control, however, will switch between on and off by pressing the key in other mode. The wind speed isn't indicated in turbo mode and it will be cancelled for changing modes and setting sleep mode.

J. SLEEP key :

Press the key to switch modes in the order: sleep→ cancel sleep→ sleep. The sleep function won't be cancelled for changing modes. Press the key to set sleep mode and the wind speed will automatically be switched to low speed and it can adjust the wind speed by pressing the

WIND SPEED key (except dehumidifying mode).

K. LOCK key:

The default state is in no LOCK key state, press the key to select modes in order: LOCK key →cancel LOCK key→ LOCK key ; In LOCK key mode, all keys except LOCK key of the remote control can't work . (NOTE: In LOCK key mode, the remote and operation panel of the unit both will be locked automatically by pressing the key and press the key again , they will be unlocked. As for the split unit , it only hold the control rather than urgent keys and the panel will make a reaction.)

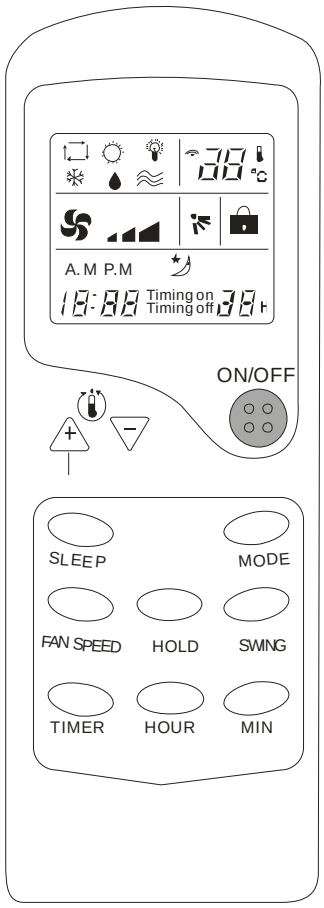
L. LAMP key:

The default state is in no LAMP key state, press the key to select modes in order : LAMP key →cancel LAMP key→ LAMP key; In LAMP key mode, pressing MODE key can't cancel the show of LAMP key.

M. CLEAN key :

The default state is in no purification state, press the key to select modes in order : CLEAN →cancel CLEAN→ CLEAN; In purification mode, pressing CLEAN key can't cancel purification function. Press the key when the remote control is closed, the control will switch modes in the order : CLEAN →cancel CLEAN→ CLEAN; When you stop the unit and turn on the purification switch, except the wind, the stable swing and air door swing speed aren't adjusted.

1.2 Lingtong 7 common



USE OF REMOTE CONTROLLER

The controller below is the Lingtong 7 common Remote Controller, and some keys is just for some special models.

FUNCTION KEY

A. ON/OFF key:

Press the key and the remote control will switch circularly in the order : ON→OFF→ON. When it is powered on at first from off state to on state, the default setting of work condition is (The set temperature is 25℃ and the mode , wind speed, swing and air door are all automatic and there is, no sleep, no timing and no hold function). When it is not powered on firstly from off state to on state, the work condition is as the same as the state before stopping. It will cancel sleep and timing running mode.

B. " - " key:

In dehumidifying mode and automatic mode, pressing the key cannot change the temperature. In other mode, press the key once and the temperature will decrease 1℃ in the order : 32℃→31℃→…→17℃→16℃.

C. " + " key:

In dehumidifying mode and automatic mode, pressing the key cannot change the temperature. In other mode, press the key once and the temperature will increase 1℃ in the order: 16℃→17℃→…→31℃→32℃ .

D. MODE key:

Press the key to switch modes in the order : automatic →cooling→dehumidification→heating→ventilating→automatic.

E. SLEEP key :

Press the key to switch modes in the order: sleep→ cancel sleep→ sleep. The sleep function won't be cancelled for changing modes. Press the key to set sleep mode and the wind speed will automatically be switched to low speed and it can adjust the wind speed by pressing the

WIND SPEED key (except dehumidifying mode).

F. FAN SPEED key:

The default wind speed is in the automatic wind mode when starting firstly. The remote control won′t react by pressing the key because the wind speed can't be adjusted and in low speed in dehumidifying mode. In other mode, press the key to switch modes in the order :

Automatic wind→ high speed →middle speed→ low speed →automatic wind

G. HOLD key:

The default state is in no HOLD key state, press the key to select modes in order: HOLD key →cancel HOLD key→HOLD key ; In HOLD key mode, all keys except HOLD key of the remote control can't work . (NOTE: In HOLD key mode, the remote and operation panel of the unit both will be locked automatically by pressing the key and press the key again , they will be unlocked. As for the split unit , it only hold the control rather than urgent keys and the panel will make a reaction.)

H. SWING key :

In dehumidifying mode, the swing mode is in the stable wind mode without change. In other mode, press the key to switch modes in the order:

swing →stable wind→natural wind →swing

I. TIMER key :

The default mode is in no timing state, press the key to set timing time with hour as its union. The switch order is: 1H→2H→…→24H→cancel→1H…. Press the key to set timing starting in the off state and set timing stopping in the on state. After setting timing function, the time keeps decreasing per hour until the time decreasing to the timing on or timing off and the timing display will be cancelled at the same time. Pressing MODE key can't cancel timing in timing mode which will send out the order of timing time by pressing other key.

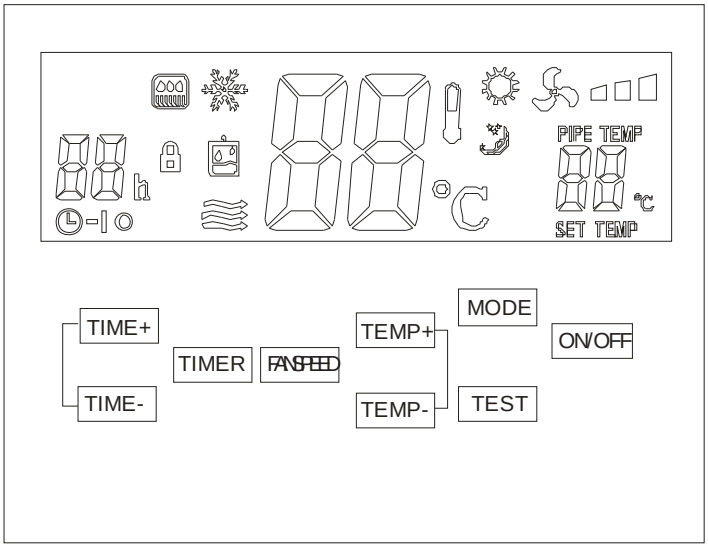
J. HOUR key:

This key is for setting time or hour in timing function. The switch order is: 1H→2H→…→24H→cancel→1H….

K. MIN key:

This key is for setting current time.

2. Wire Controller



Instructions for function:

1. Key function: In the panel, there are 9 keys and their function and defining are:

a. “ON/OFF” key On running, press the key to stop AC; On standby, press it to start AC;

b. “MODE” key The key works as the “MODE” key in the remote controller;

c. SPEED” key The key works as the “SPEED” key in the remote controller;

d. “TIMING” key The key works as the “TIMING” key in the remote controller;

e. Press “TIME ＋” and “TIME －” key to adjust the time. At the timing state, press “TIME ＋” key once and the timing time indicated on the LCD will increase one hour; When it increases to 12 hours and the time will stay at the value. Press “TIME－” key once and the timing time indicated on the LCD will decrease one hour; When it decreases to 1hour and the time will stay at the value.

f. “TEST” key: No matter the unit is running or at the standby state, press the key and LCD will indicate the model and the temperature of the indoor coil instead of timing state or set temperature. Besides, “TEST” key has another function. Press the key and power on, the main panel of the wire controller will begin to check itself and the display is distributed the whole screen of LCD and the buzzer will utter three times. The display and self-inspection will be complete 2 minutes later.

2. Indicator light (red): There is a power indicator light in the main panel of the wire controller. When the system has been supplied power, the red light will be on. When the system goes wrong, the indicator light will flash and give an alarm and it will turn off after the system power-off.

3. Incepting terminal: It is used for accepting the signal of infrared remote controller.

4. Buzzer: The buzzer will utter three times when power-on and starting and it will utter twice when pressing “TIME ＋” and “TIME －” key at the same time. When the controller accepts other signal, it only utters once.