

User Manual

Ducted Split Unit

Please Read the Instructions Carefully Before Operating Unit

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1 To customer

Thanks for your choose of our products. Please read this instruction carefully before installation. If any trouble happened, please do not hesitate to contact our agent or our company.

Troubles caused by improper operation or use units under abnormal conditions is not in our maintenance range.

2 Introduction

Vicot VCN/VED series of ducted split unit, is suitable for to hotel, supermarket, office building, factory, etc. It combines comfort of central air conditioning with flexibility of split unit. The new design considers the features of modern building, spreading cool/heat air to everywhere of the room equally, to form zero temperature difference. Occupying less room, integrating duct and indoor decoration, this series unit become the upgrade production of central air conditioner system and traditional commercial air conditioning.

2.1 Features

2.1.1 Wide range, various type

VED indoor series provides various specifications to satisfy residential and commercial application, with electric heater and heat water fan coil unit, to create a comfortable environment for customers in the whole year.

2.1.2 Flexible application

High static pressure design ensure distant air supply realized, convenient for installation.

VED021~VED032 three-speed drive.

Horizontal airflow discharge of indoor unit, suitable for ceiling installation.

2.1.3 Low noise, easy maintenance

Realize the lowest noise, indoor unit can be ceiling-mounted, reducing noise to the lowest level.

High efficiency, low noise centrifugal fan motor, with sound-absorbing and heat preservation material makes low noise operation realized.

Optimized design provides convenience for maintenance. The unit can be maintained to any component by removing screws from the both sides of unit.

2.1.4 Intelligent control

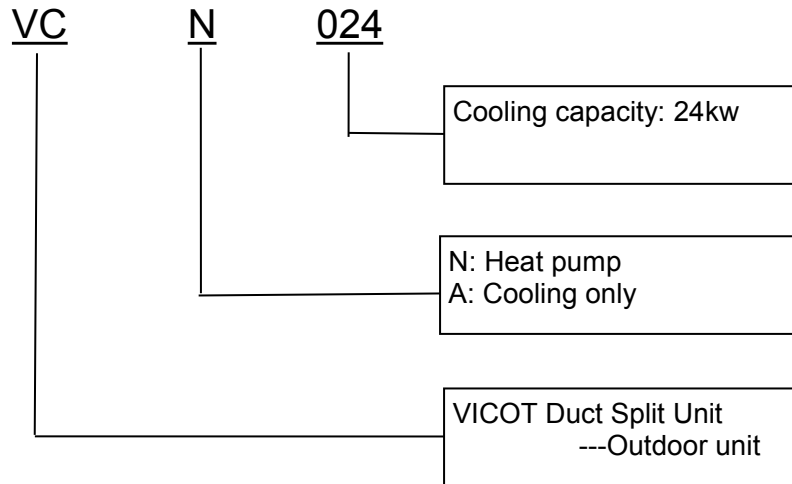
With advanced computer controller to realize cooling, heating, ventilation and automatic control, as well as on-off switch, defrost automatically, fault alarming and phone control.

2.1.5 Excellent performance

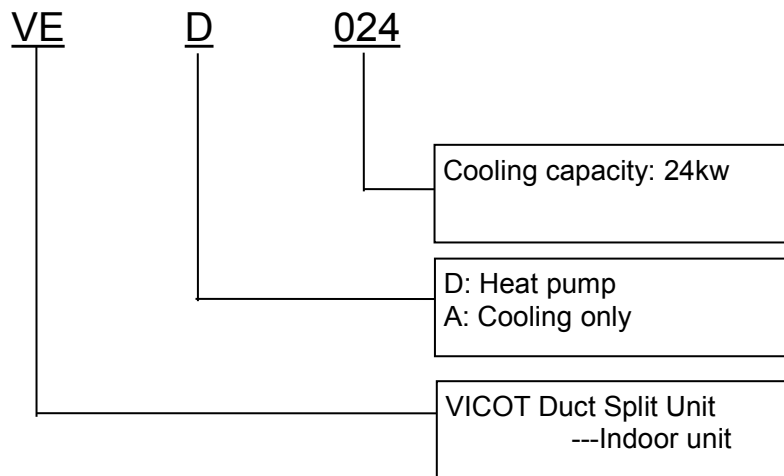
World famous components, strictly tested to match the unit. Adopting multi-blade pitch centrifugal fan coil, high efficiency compressor, controller, motor etc. Ensure the stable operation, low vibration and noise.

2.2 Nomenclature

Outdoor unit



Indoor unit



3 Technical Data

Specification -50Hz

Model		Indoor unit	VED(A)021	VED(A)024	VED(A)028	VED(A)032	VED(A)036	VED(A)048	VED(A)062	VED(A)072
		Outdoor unit	VCN(A)021	VCN(A)024	VCN(A)028	VCN(A)032	VCN(A)036	VCN(A)048	VCN(A)062	VCN(A)072
Nominal cooling capacity		kW(R22)	21.0	23.8	27.6	31.4	35.6	47.6	63.5	71.4
		kW(R407C)	20.2	22.9	26.5	30.1	34.2	45.2	60.3	67.8
Nominal heating capacity		kW(R22)	23.1	26.2	30.3	35.4	40.4	55.2	72.8	80.6
		kW(R407C)	22.2	25.2	29.1	34	38.8	52.4	69.2	76.6
Indoor unit	Airflow	m ³ /h	4400	4400	4400	5800	6400	8700	11640	13000
		CFM	2588	2588	2588	3411	3764	5118	6847	7647
	Static pressure	Pa	80	80	80	120	150	200	300	300
Indoor fan	Drive Mode	Three-speed Drive					Signal-speed Drive			
Rated input power	Cooling	kW	8.1	8.7	11.2	11.6	13.4	17.7	24.1	26.3
	Heating	kW	7.8	8.4	10.8	11.4	13.1	17.5	23.3	25.5
Rated input current	Cooling	A	15.8	16.16	20.8	21.53	24.89	32.79	44.74	48.82
	Heating	A	14.9	15.56	20.1	21.09	24.23	32.37	43.23	47.26
Refrigerant	Type	R22/R407C								
	Charge	kg	2×2.8	2×3.4	2×4.1	2×4.5	2×5.2	9+4.5	2×9.5	2×10.5
Connection	Method	Welding								
	Liquid	mm	12.7/12.7	12.7/12.7	12.7/12.7	12.7/12.7	12.7/12.7	12.7/15.88	15.88/15.88	15.88/15.88
	Gas	mm	19.05/19.05	19.05/19.05	19.05/19.05	19.05/19.05	19.05/19.05	19.05/28	28/28	28/28
Dimension	Outdoor unit	mm	1120×830×1030	1120×830×1030	1180×960×1130	1180×960×1130	1180×960×1130	1640×880×1130	1840×970×1130	2120×970×1130
	Indoor unit	mm	1660×915×480	1660×915×480	1660×915×480	1660×915×580	1660×915×580	2065×1160×680	1870×1230×980	1870×1230×1080
Power	Outdoor unit	380V/3PH/50Hz								
	indoor unit	220V/1PH/50Hz					380V/3PH/50Hz			
Weight	Outdoor unit	kg	180	190	220	240	250	280	340	460
	Indoor unit	kg	95	105	120	150	160	200	230	300
Condensing pipe			G1	G1	G1	G1	G1	G1	G1	G1

Notice

- Nominal cooling capacity is measured under conditions: indoor temp. 27DB/19℃WB ,outdoor temp. 35DB /24℃WB
- Nominal heating capacity is measured under conditions: Indoor temp. 20DB/15℃WB , outdoor temp. 7DB /6℃WB
- The static pressure outside is measured under nominal airflow.
- The data above is obtained from the connection pipe diameter of 7.5m.
- Hot water coil heating capacity is measured, entering water temp. 60℃, leaving water temp. 50℃, air inlet DB temp. 20℃ with nominal air flow.
- Nominal air flow is the air flow of high speed status.
- Using heat pump unit, customer can choose the electric heater.

Specification-60Hz

Model		Indoor	VED(A)021	VED(A)024	VED(A)028	VED(A)032	VED(A)036	VED(A)048	VED(A)062	VED(A)072
		Outdoor	VCN(A)021	VCN(A)024	VCN(A)028	VCN(A)032	VCN(A)036	VCN(A)048	VCN(A)062	VCN(A)072
Nominal cooling capacity		kW(R22)	21	23.8	27.6	31.4	35.6	47.6	60	71.4
		kW(R407C)	20.2	22.9	26.5	30.1	34.2	45.2	60.3	67.8
Nominal heating capacity		kW(R22)	23.1	26.2	30.3	35.4	40.4	55.2	72	80.6
		kW(R407C)	22.2	25.2	29.1	34	38.8	52.4	69.2	76.6
Indoor unit	airflow	m ³ /h	4400	4400	4400	5800	6400	8700	11640	13000
	Static pressure	Pa	100	100	100	150	150	200	300	300
Fan	Drive Mode	Three-speed Drive					Signal-speed Drive			
Rated input power	Cooling	kW	8.3	8.9	11.8	12.2	13.9	18.5	25.1	27.1
	Heating	kW	7.9	8.5	11.2	12.0	13.6	17.9	24.3	25.9
Rated input current	Cooling	A	35.8	40.9	50.2	55.4	60.8	60.3	65.6	79.8
	Heating	A	34.9	40.2	49.5	54.5	59.8	59.6	64.8	78.8
Refrigerant	Type	R22 / R407C								
	Charge	kg	2×2.8	2×3.4	2×4.1	2×4.5	2×5.2	9+4.5	2×9.5	2×10.5
Connect Pipe	Method	Welding								
	Liquid	mm	12.7/12.7	12.7/12.7	12.7/12.7	12.7/12.7	12.7/12.7	12.7/15.88	15.88/15.88	15.88/15.88
	Gas	mm	19.05/19.05	19.05/19.05	19.05/19.05	19.05/19.05	19.05/19.05	19.05/28	28/28	28/28
Dim	Outdoor	mm	1120×830×1030	1120×830×1030	1180×960×1130	1180×960×1130	1180×960×1130	1640×880×1130	1840×970×1130	2120×970×1130
	Indoor	mm	1660×915×480	1660×915×480	1660×915×480	1660×915×580	1660×915×580	2065×1160×680	1870×1230×980	1870×1230×1080
Power	Outdoor	220V/1PH/60Hz					220V/3PH/60Hz			
	Indoor	220V/1PH/60Hz					220V/3PH/60Hz			
Noise	Outdoor	dB(A)	≤60	≤60	≤61	≤61	≤61	≤67	≤67	≤68
	Indoor	dB(A)	≤55	≤55	≤60	≤60	≤61	≤63	≤65	≤66
Weight	Outdoor	kg	180	190	220	240	250	280	340	460
	Indoor	kg	95	105	120	150	160	200	230	300
Condensing pipe			G1	G1	G1	G1	G1	G1	G1	G1

Note

- Nominal cooling capacity is measured under such conditions: indoor temp. 27°C DB/19°C WB, outdoor temp. 35°C DB /24°C WB.
- Nominal heating capacity is measured under such conditions: Indoor temp. 20°C DB/15°C WB, outdoor temp. 7°C DB /6°C WB.
- The static pressure outside is measured under Nominal Airflow.
- The data above is obtained from the connection pipe diameter as 7.5m.
- Nominal air flow is the air flow at high speed status.
- Using heat pump unit, customer can choose the electric heater

Specification-T3 working condition

Model		Indoor	VEA021	VEA024	VEA028	VEA032	VEA036	VEA048	VEA062	VEA072	
		Outdoor	VCA021	VCA024	VCA028	VCA032	VCA036	VCA048	VCA062	VCA072	
★Cooling capacity 1	kW(R22)		21	23.8	27.6	31.4	35.6	47.6	63.5	71.4	
	kW(R407C)		20.2	22.9	26.5	30.1	34.2	45.2	60.3	67.8	
★Cooling capacity 2	kW		18.9	21.4	24.8	28.3	32.1	42.8	57.2	64.3	
	kW(R407C)		17.9	20.3	23.6	26.9	30.5	40.7	54.3	61.1	
Indoor unit	Airflow	m ³ /h	4400	4400	4400	5800	6400	8700	11640	13000	
	Static pressure	Pa	100	100	100	150	150	200	300	300	
Fan	Drive Mode	Three-speed Drive						Signal-speed Drive			
Rated input power		kW	8.1	8.7	11.2	11.6	13.4	17.7	24.1	26.3	
Rated input current		A	15.8	16.16	20.8	21.53	24.89	32.79	44.74	48.82	
Refrigerant	Type	R22 / R407C									
	Charge	kg	2×2.8	2×3.4	2×4.1	2×4.5	2×5.2	9+4.5	2×9.5	2×10.5	
Connect Pipe	Method	Welding									
	Liquid	mm	12.7/12.7	12.7/12.7	12.7/12.7	12.7/12.7	12.7/12.7	12.7/15.88	15.88/15.88	15.88/15.88	
	Gas	mm	19.05/19.05	19.05/19.05	19.05/19.05	19.05/19.05	19.05/19.05	19.05/28	28/28	28/28	
Dim	Outdoor	mm	1120×830 ×1030	1120×830 ×1030	1180×960 ×1130	1180×960 ×1130	1180×960 ×1130	1640×880 ×1130	1840×970 ×1130	2120×970 ×1130	
	Indoor	mm	1660×915 ×480	1660×915 ×480	1660×915 ×480	1660×915 ×580	1660×915 ×580	2065×1160 ×680	1870×1230 ×980	1870×1230 ×1080	
Power	Outdoor	380V/3PH/50Hz									
	Indoor	220V/1PH/50Hz						380V/3PH/50Hz			
Noise	Outdoor	dB(A)	≤60	≤60	≤61	≤61	≤61	≤67	≤67	≤68	
	Indoor	dB(A)	≤55	≤55	≤60	≤60	≤61	≤63	≤65	≤66	
Weight	Outdoor	kg	175	185	215	235	245	275	335	455	
	Indoor	kg	95	105	120	150	160	200	230	300	
Condensing pipe			G1	G1	G1	G1	G1	G1	G1	G1	

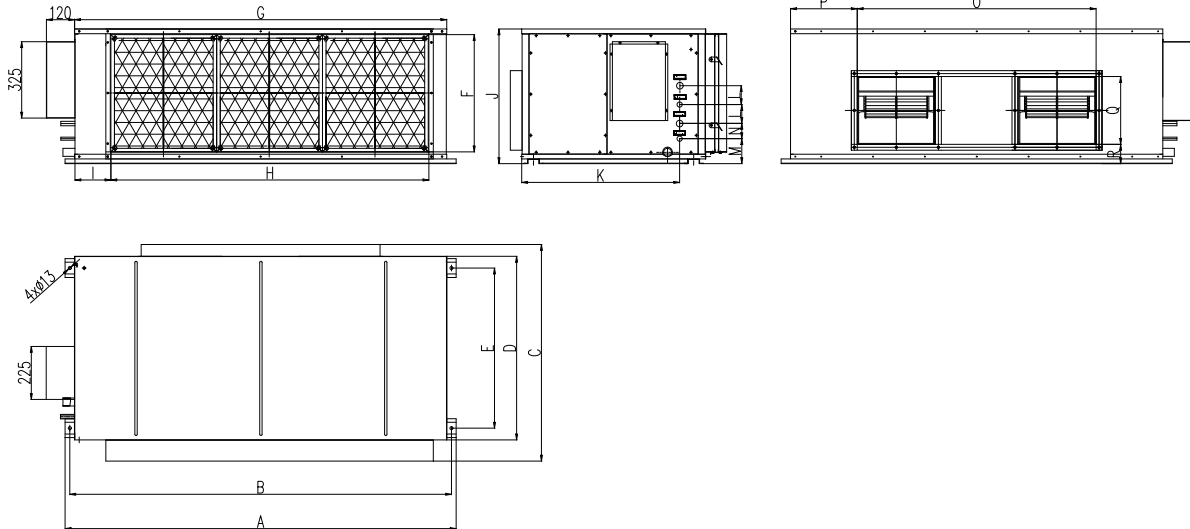
Note:

- ★cooling capacity1 is measured under such conditions: indoor temp. 27℃ DB/19℃ WB, outdoor temp. 35℃ DB /24℃ WB
- ★cooling capacity2 is measured under such conditions: indoor temp. 29℃ DB/19℃ WB, outdoor temp.46℃ DB /24℃ WB
- The static pressure outside is measured under Nominal Airflow.
- The data above is obtained from the connection pipe diameter as 7.5m.
- Nominal air flow is the air flow at high speed status.

4 Dimension

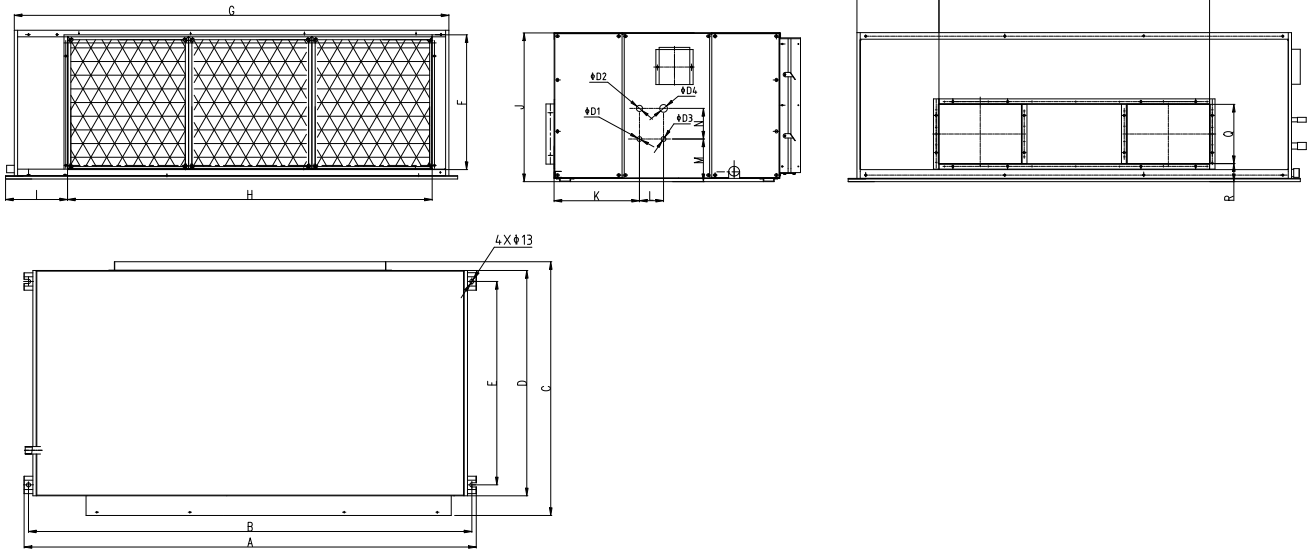
Indoor Unit

VED(A)021 VED(A)024 VED(A)032 VED(A)036



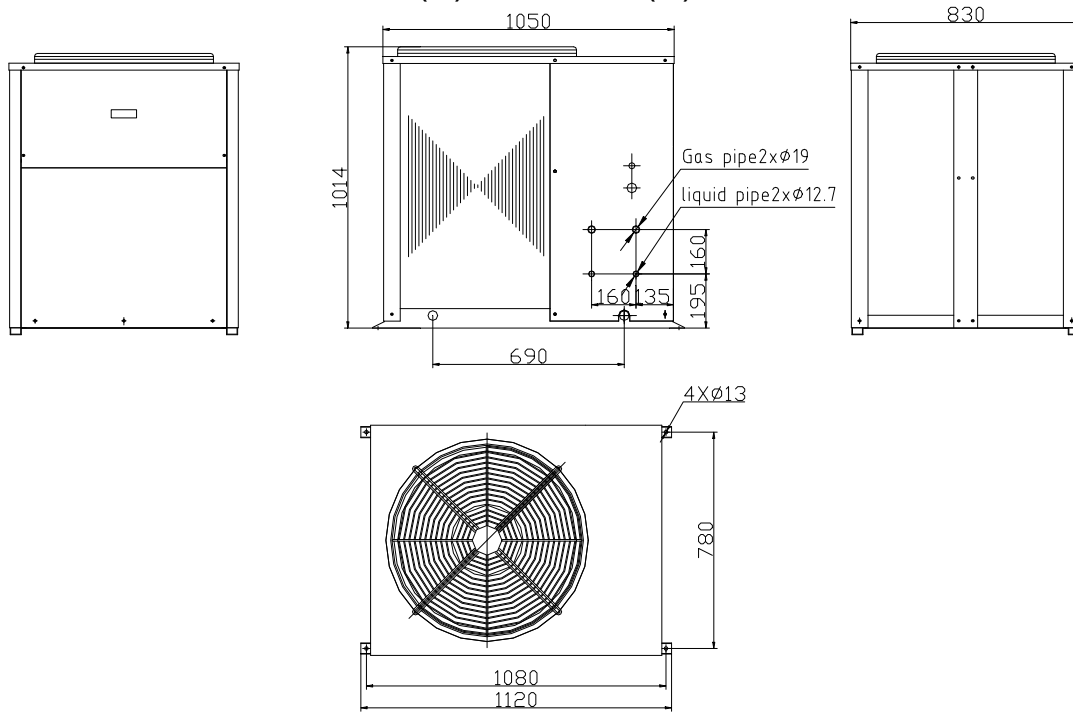
VED(A)048 VED(A)062 VED(A)072

Mode	VED(A)021	VED(A)024	VED(A)028	VED(A)032	VED(A)036	VED(A)048	VED(A)062	VED(A)072
A	1660	1660	1660	1660	1660	2065	1870	1870
B	1620	1620	1620	1620	1620	2025	1830	1830
C	915	915	915	915	915	1160	1230	1230
D	780	780	780	780	780	1030	1100	1100
E	680	680	680	680	680	930	1000	1000
F	405	405	405	505	505	607	904	1004
G	1580	1580	1580	1580	1580	1985	1790	1790
H	1358	1358	1358	1358	1358	1668	1458	1458
I	152	152	152	152	152	283	313	313
J	480	480	480	580	580	680	980	1080
K	670	670	670	670	670	390	396	396
L	80	80	80	80	80	110	110	110
M	153	153	153	106	106	195	332	382
N	65	65	65	65	65	140	140	140
O	969	969	1026	1026	1026	1239	1305	1305
P	307	307	283	283	283	373	242	242
Q	237	237	262	262	262	274	406	403
R	60	60	60	80	80	80	89	89
∅ D1	12.7	12.7	12.7	12.7	12.7	12.7	15.88	15.88
∅ D2	19.05	19.05	19.05	19.05	19.05	19.05	28	28
∅ D3	12.7	12.7	12.7	12.7	12.7	15.88	15.88	15.88
∅ D4	19.05	19.05	19.05	19.05	19.05	28	28	28

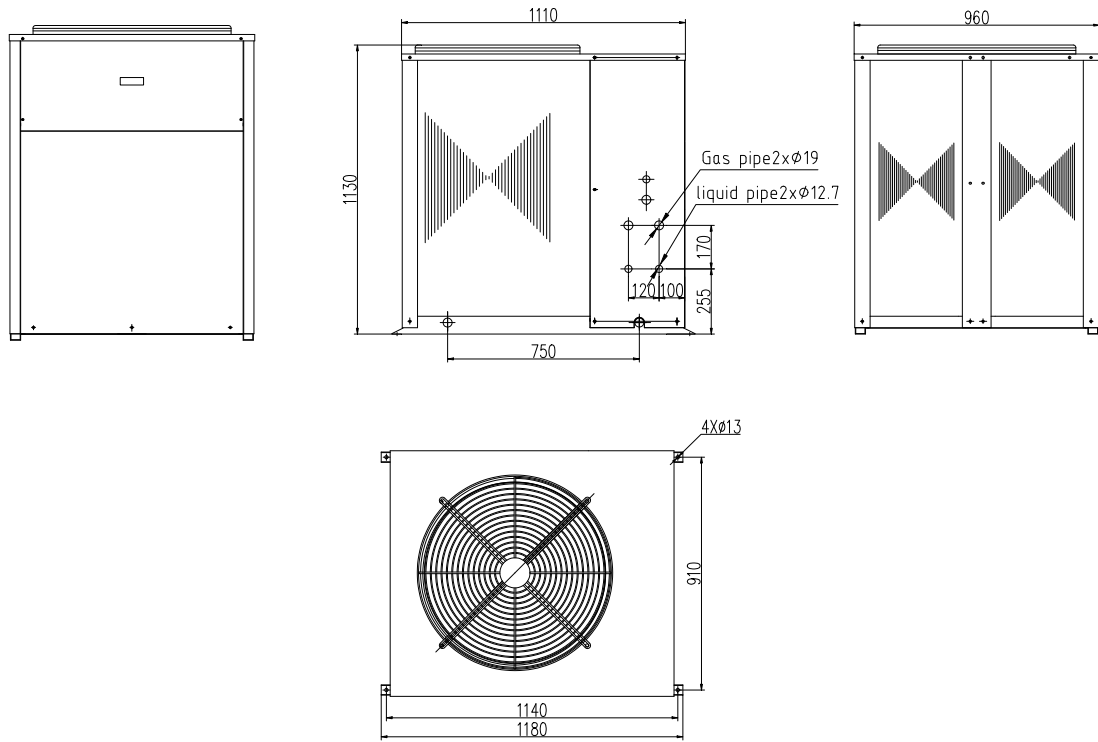


Outdoor Unit

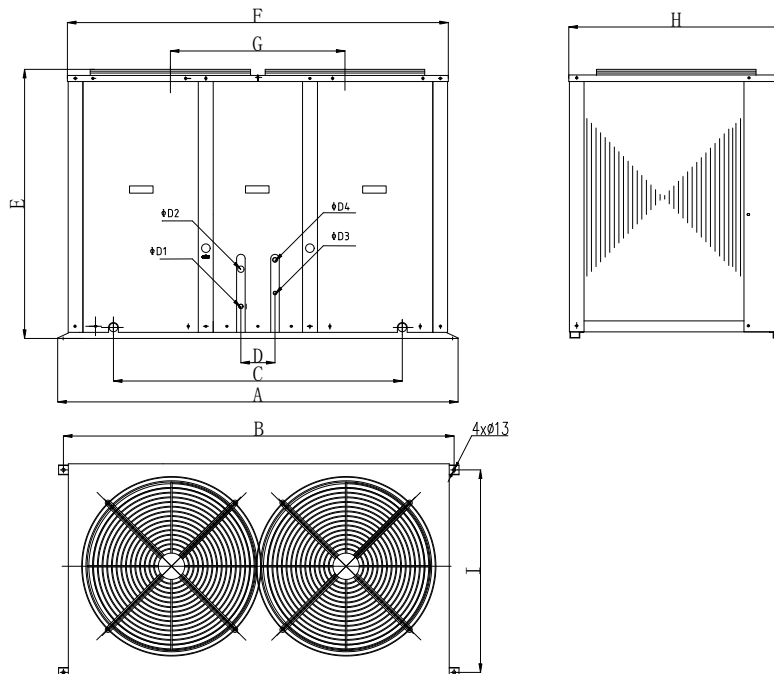
VCN(A)021 VCN(A)024



VCN(A)028 VCN(A)032 VCN(A)036



VCN(A)048 VCN(A)062 VCN(A)072



Model	VCN(A)048	VCN(A)062	VCN(A)072
A	1640	1840	2120
B	1600	1800	2080
C	1183	1383	1673
D	160	160	160
E	1130	1130	1130
F	1560	1760	2050
G	715	800	1090
H	880	970	970
I	830	920	920
∅ D1/∅ D3 (Liquid pipe)	12.7/15.88	15.88/15.88	15.88/15.88
∅ D2/∅ D4 (Gas pipe)	19.05/28	28/28	28/28

5 Installation

5.1 Notice

5.1.1 Qualification

The unit should be installed by professional person, or may cause troubles and damages.

5.1.2 Check

Check the units carefully when receiving units to make sure there is no damage to units,. The units should be with packing list and accessories, please contact the related persons if there is any problem.

5.1.3 Moving

Protect the units during moving.

5.2 Outdoor unit installation

5.2.1 The installation position must be ensured heat that blowing out by condenser will not be sucked back or sucked by other units, ensure enough space for the maintenance.

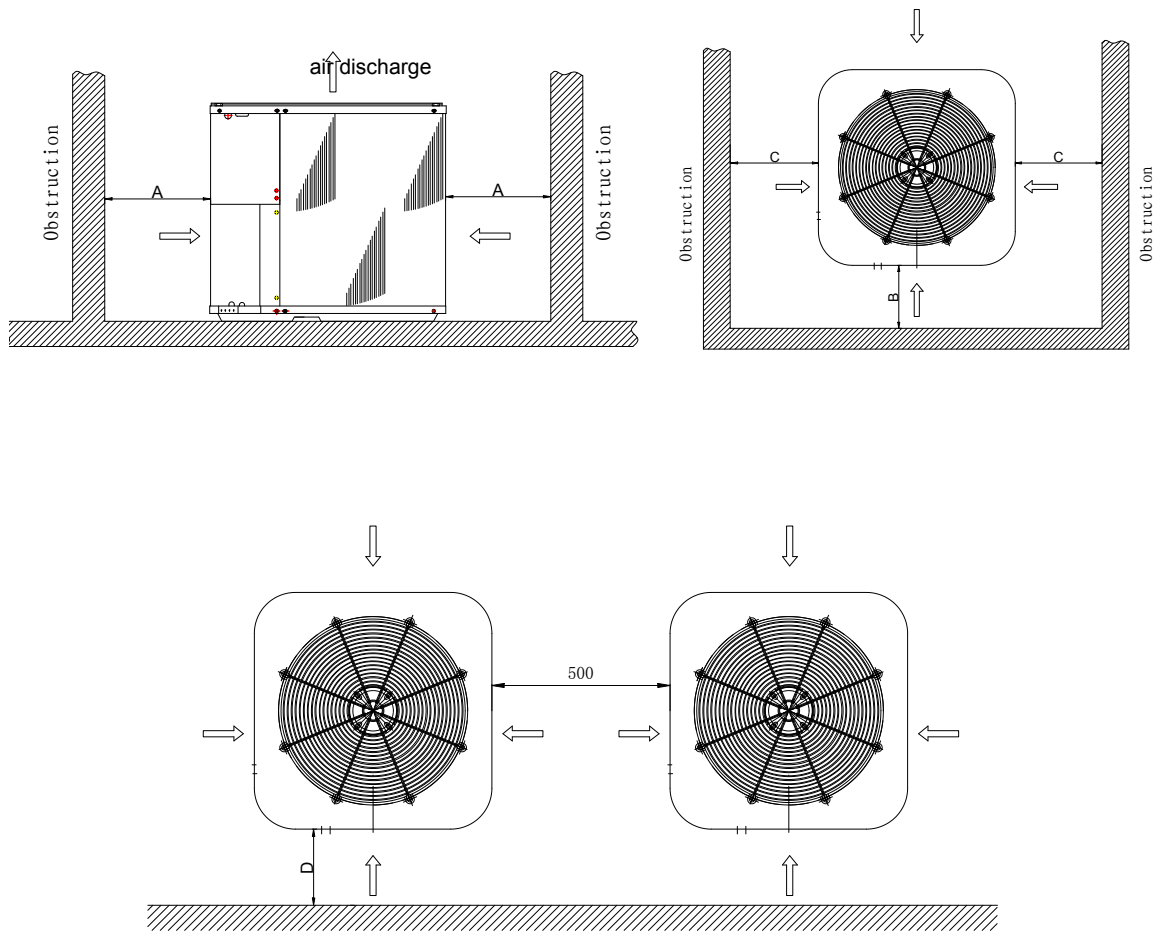
5.2.2 Make sure that no barrier at the passageway of blow in and out pipe to prevent air discharge and suction of the unit.

5.2.3 Unit should have good ventilation, that easily get the heat out and get fresh air in.

5.2.4 Unit be placed on a solid and horizontal foundation, 50~100mm higher than the ground level, to endure the weight and vibration of unit.

5.5.5 Avoid of dirty or smeary place.

5.2.6 To satisfy the following room requirements:



Model	VCN(A)021	VCN(A)024	VCN(A)028	VCN(A)036	VCN(A)048	VCN(A)062	VCN(A)072
A	1000	1000	1000	1000	1500	1500	1500
B	1000	1000	1000	1000	1500	1500	1500
C	1000	1000	1000	1000	1000	1000	1000
D	800	800	800	800	800	800	800

5.3 Indoor Unit Installation

5.3.1 Installation Position

- A. Convenient for connecting wire and pipe;
- B For ceiling-mounted application, choose the place needing short air duct and connecting pipe;
- C For falling ground application, make sure a solid foundation to support the weight.;
- D Indoor installation, keep a distance between air inlet and air outlet ,avoid of short current;
- E Far away from heat or polluting places.

5.3.2 Unit installation

- A Install horizontally to reduce shake, lower noise, and make sure condensing water drain fluently.
- B There should be an air seal with 50mm height in the condensate outlet.
- C Leave at least two maintenance hole in the ceiling, the position should be under electric control box and flexible joint, with the size 400X400 for maintenance.

5.3.3 Air Supply Duct Installation

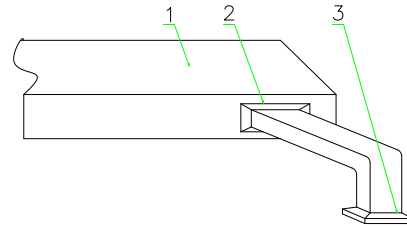
A Two types: rectangle and circular duct.

B Rectangle air duct can be connected directly to air supply inlet of indoor unit

C For circular duct, add a transition duct to the air inlet of indoor unit, and be connected separately to air diffuser, (referring to the drawing),the air inlet velocity of air diffuser should be the same to meet the requirement.

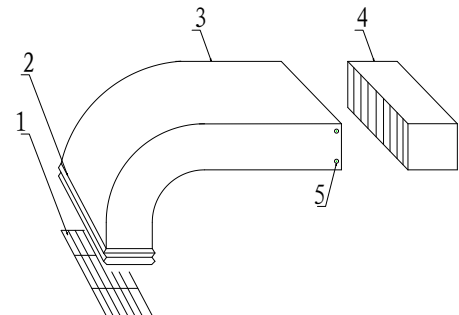
E Suggest using silencer box in the air supply duct of big airflow unit to lower noise.

Model	Item
1	Main duct
2	Branch duct
3	Air supply duct



F Connecting air return duct to return inlet of indoor unit by rivet, the other side of air return duct be connected to air return shutter, with a canvas air duct between them, be fastened by iron wire, adjustable to the ceiling height.

Model	Item
1	Air return shutter
2	Concealed air duct
3	Air return duct
4	Indoor unit
5	Rivet

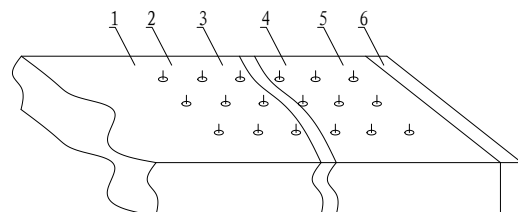


6) For fresh air, keep air inlet clean, not pollution. Install rain-proof blade and filter at the air inlet of outdoor unit, Suggest installing air handling valve at fresh air inlet, with a ratio 10% – 15% of fresh airflow to the total airflow.

5.3.4 Duct Insulation

Air supply and return duct be heat preserved, first, adheres nails to air duct, be covered by heat preserved cotton with a sheet of silver paper, be fixed by Nail cover. Finally, connects the ducts covered with silver adhesive tape to the entrance of unit.

No.	Item
1	Galvanized board
2	Nail
3	Heat preserved cotton
4	Silver paper



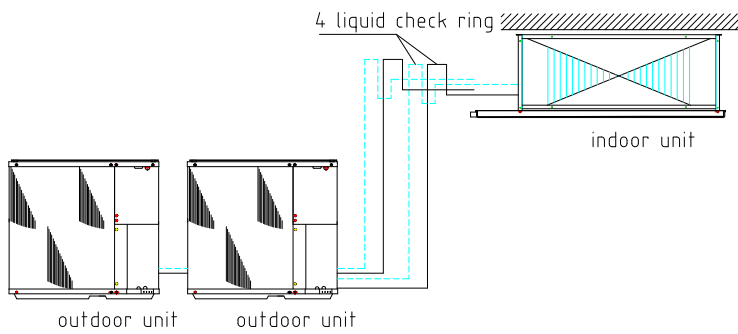
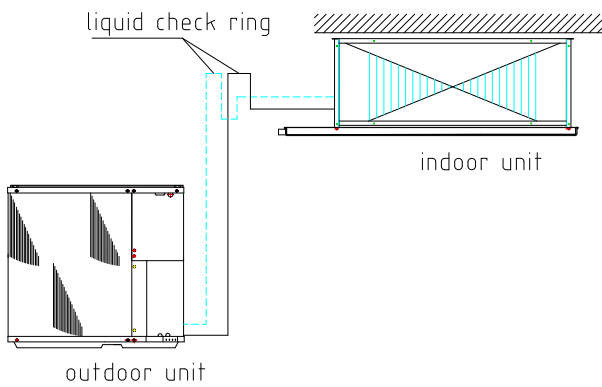
5	Nail cover
6	Adhesive tape

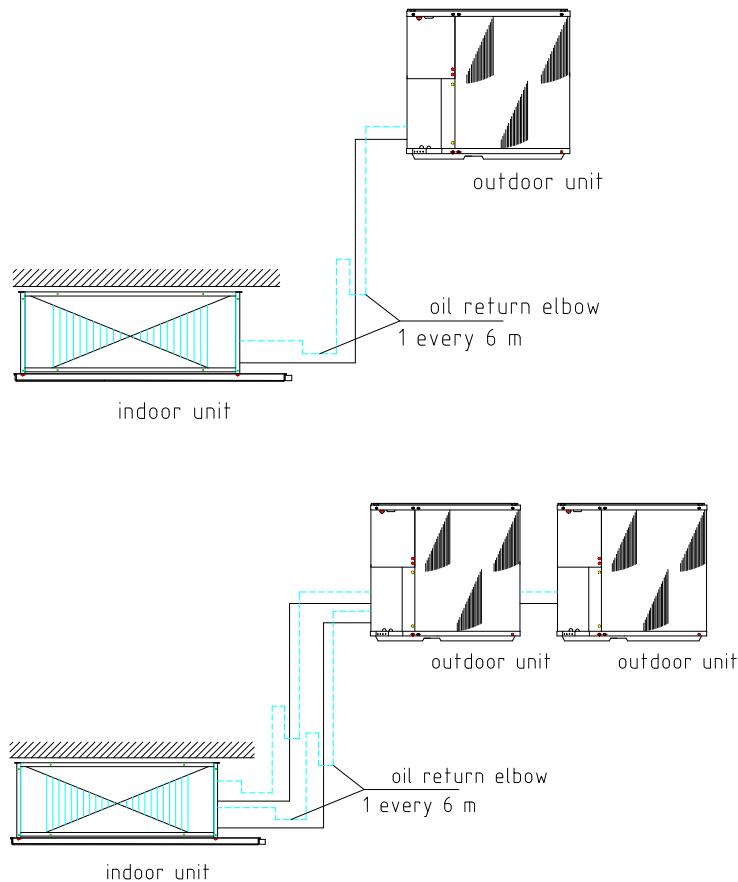
Notice

- a. Fixing air supply and return duct on the prefabricated ceiling by iron supporting stand, with the joint of air duct tightly adhered.
- b. Air return duct edge keeps a distance no less than 150 mm from the wall.
- c. With a pitch of condensing pipe no less than 1%.
- d. Condensing pipe should be heat preserved by heat preservation protector.

5.4 Freon System Installation

5.4.1 Pipe drawing





Notice: Solid line for liquid pipe; dotted line for gas pipe.

5.4.2 Pipe Installation

A If the pipe between condensing unit and air handler is longer than 7.5m, the unit should be charged refrigerant additionally.

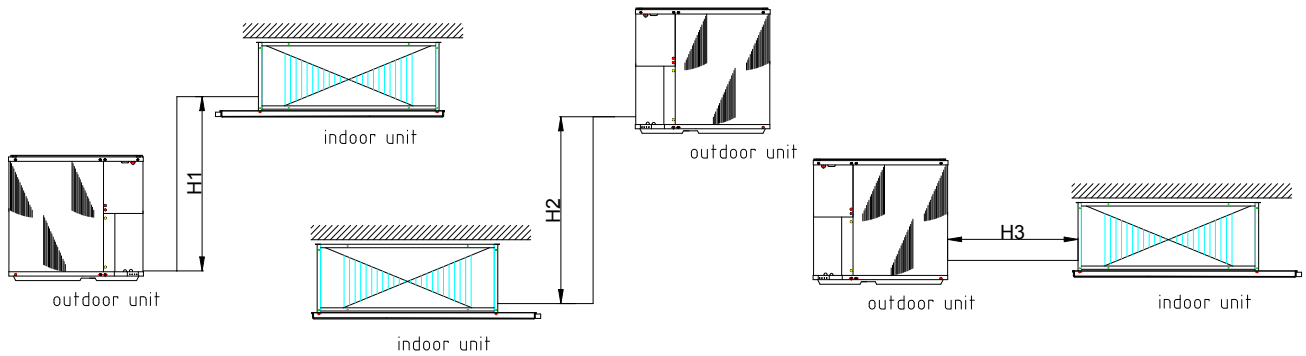
Suggest that the pipe is no longer than 7.5m, or cooling capacity would decline. Some referred data is as follow table.

B Too many pipe bends could increase the friction of refrigerant and reduce cooling (heating) capacity. So less pipe bends are better. Some referred data is as follow table.

C Pipe should be clean, dry and not polluted. Copper pipe should be protected on site to avoid of oxidation.

D The refrigerant pipe should be vacuumed to get rid of air to ensure the cooling efficiency. It is not suggested to use Freon to get rid of air. Some referred data is as follow table

E In order to improve cooling (heating) efficiency and save energy, pipes should be insulated respectively. Suggest the insulation layer is over 10mm thick. Some referred data is as follow table.


Connection pipe

Model	Max.Fall (H1)	Max.Fall(H2)	Max.Connection pipe H3	Max.bends
VCN (A) 021	12	15	30	10
VCN (A) 024	12	15	30	10
VCN (A) 028	12	15	30	10
VCN (A) 032	12	15	30	10
VCN (A) 036	12	15	30	10
VCN (A) 048	12	15	30	15
VCN (A) 062	12	15	30	15
VCN (A) 072	12	15	30	15

Refrigerant Supplementary supply when connection pipe adds 1 m.

Refrigerant pipe	standard	Refrigerant (g/m)
Liquid pipe	$\phi 12.7 \times 1.0 / TP2$	120
	$\phi 15.88 \times 1.0 / TP2$	168
	$\phi 19 \times 1.0 / TP2$	250
Gas pipe	$\phi 22 \times 1.0 / TP2$	7.5
	$\phi 28 \times 1.5 / TP2$	13
	$\phi 35 \times 1.5 / TP2$	20

5.5 Electric Installation

5.5.1. Electric Parameter

Model	Indoor unit	VED(A)021	VED(A)024	VED(A)028	VED(A)032	VED(A)036	VED(A)048	VED(A)062	VED(A)072	
	Outdoor unit	VCN(A)021	VCN(A)024	VCN(A)028	VCN(A)032	VCN(A)036	VCN(A)048	VCN(A)062	VCN(A)072	
Outdoor unit										
Wire	Power	380V/3PH/50Hz								
	Sectional area(mm ²)	3*6 +2*4	3*6 +2*4	3*6 +2*4	3*6 +2*4	3*6 +2*4	3*10 +2*6	3*16 +2*10	3*25 +2*16	
	Amounts	1	1	1	1	1	1	1	1	
Indoor unit										
Wire	Power	220V/1PH/50Hz					Outdoor unit to indoor unit 380V/3PH/50Hz			
	Sectional area(mm ²)	3*2.5	3*2.5	3*2.5	3*2.5	3*2.5	4*2.5	4*2.5	4*2.5	
	Amounts	1	1	1	1	1	1	1	1	

Notice

- All wire should be of copper, connected tightly.
- Wires be kept away from refrigerant pipe, compressor, fan, motor.
- Connection wires between indoor and outdoor unit must be fastened on the line board
- Sectional area of connection wires between indoor and outdoor unit should be not lower the above table regulated.
- The above wire's sectional area in outdoor unit refers to that of single unit.

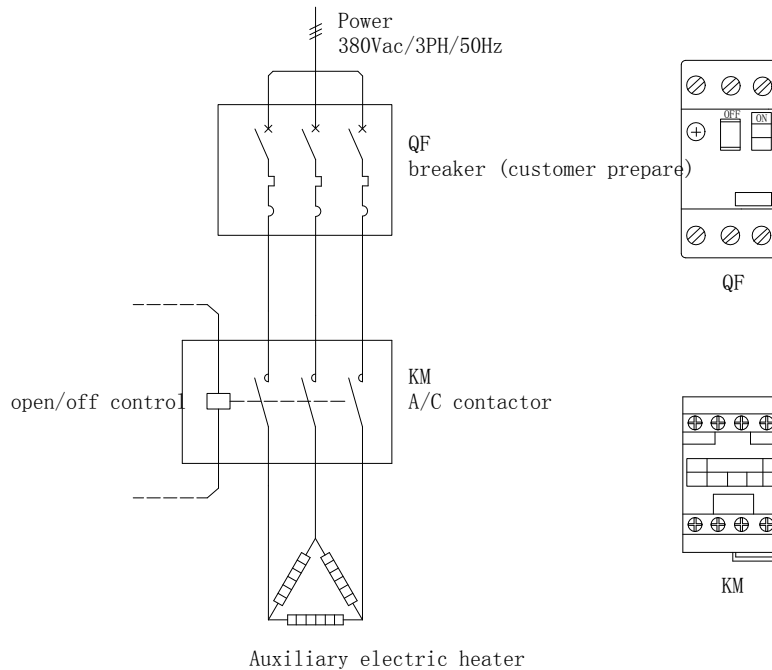
5.2.2 The power wire should abide by the relevant national standards, connect units casing to the ground carefully, avoid danger caused by insulation failure. Indoor ceiling wire should adopt PVC pipe and coved PVC connection box.(box that made of renewable material is forbidden).

5.2.3 Communication wire(temperature sensor connecting wire) should be separate from the power wire.

5.6 Auxiliary heater

When outdoor temperature is lower than -6°C continually, suggest using the units with auxiliary electric heater or hot water heater, to satisfy the indoor temperature.

Auxiliary electric heater wire should not be connected to the outdoor control, but connect wire separately.



Wire specification

Model		VED(A)021	VED(A)024	VED(A)028	VED(A)032	VED(A)036	VED(A)048	VED(A)062	VED(A)072	
Power		380V/3PH/50Hz								
Wire	Sectional area	30%	6	6	6	6	6	6	10	16
		40%	6	6	6	6	6	10	16	16
		50%	6	6	6	6	6	10	16	16
	amount	5	5	5	5	5	5	5	5	

Note

- a If customers need breaker, A/C contactor ,please remark in advance our company only charge the costs.
- b Connection of contactor switch refer to electric principle, wire diagram.

6 Trial operation

6.1 Inspection before installation

- A. Read the wiring diagram and make sure that wiring and communication wiring are correct and meet requirements. Make sure that the unit has ground wire protection.
- B. Make sure that the stop valves are open.
- C. If the unit have been preheated for 6-7 hours.

6.2 First Time Operation

After a complete inspection of the whole system, unit can be trial operated.

- A. Connect the power and watch the thermostat. If the wiring controller does not display “search the power”, the unit can not start until wiring controller displays normally.

- B. Listen carefully if there is any strange sound of the unit, or if the compressor or fan operates normally. Disconnect power to check the unit if there is strange sound.
- C. Examine the temperature of each room to see if the temperature changes are normal. Modify the air dumper of each room to meet required air flow volume. Set the work condition and then examine it to meet the requirement.
- D. After trial operating for some time (about three days), the unit can be used if there is no malfunction.

7 Controlling System

7.1 Brief introduction

Based on many years' experience of cabinet control, SL1500-PU2A has more excellent performance in anti disturbance, all of the port have passed the EMC test: Electrical fast transient 4 KV, Surge 4 KV, conduction anti disturbance 150K~80M, equip with SL108 manual controller, interface is more humane.

7.2 Main functions and characteristics of control board

7.2.1 Main functions

- Power: 3 phase 380VAC/50Hz, Voltage range: 320~450V; 1 Phase: 220VAC/50Hz;
- Empty load power of controller: $\leq 10W$;
- Working environment: Ambient temp: $-10\sim 70^{\circ}C$, $5\%RH\leq RH\leq 95\%RH$ (No condensation);
- Save environment: Ambient temp: $-25\sim 85^{\circ}C$, $RH\leq 95\%RH$ (No condensation)。

7.2.2 Characteristics







- Electrify with power on/off, large range of voltage, guarantee normal electric at the moment of on/off compressor;
- Through multi-level high frequency filter, effective filtration of the current or electromagnetic interference in complex electromagnetic environment;
- The controller's surface is covered by lacquer according to standard IPC-CC-830B, prevent damage by water, salt fog, weak acid, weak base;
- The communication method between unit and control panel is differential with verification, combine the passive receive and active queries, make the unit highly consistent with the control panel, stable and reliable communication;
- All of the input and output port is voltage stabilization control of 5V, effective forbid wrong operate by voltage range;
- Communication distance is 800m (Distance between manual controller and main board) ;
- Internal phase protection;
- Intelligent defrosting, parameter can be set.

7.3 Operating introduction






7.3.1 Interface introduction



7.3.2 Symbol introduction

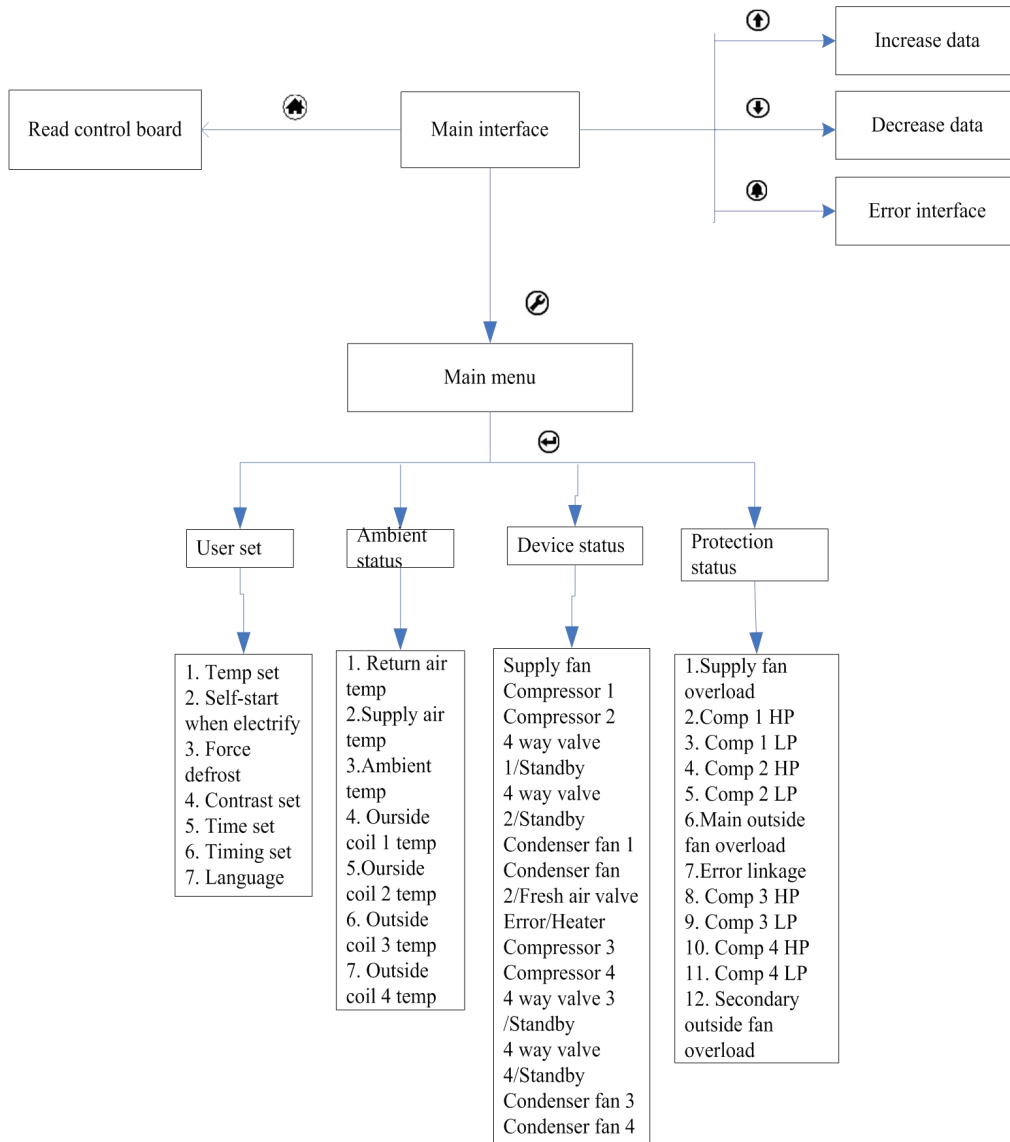
Symbol	Meaning	Symbol	Meaning
	Supply air mode		Power on
	Cooling		Time
	Heating		Failure warning

7.3.3 Button introduction

Button	Meaning	Function
	HOME	1) At checking or setting interface, press it and back to main interface; 2) When setting parameter, press it and cancel setting; 3) Press it for long time and display the info of the main version;
	UP	1) In main interface, press it and increase the setting temp, quickly increase the setting parameter by pressing it for long time; 2) Any interface, if "▲" display, press it and enter last page; 3) In parameter setting, press is and increase the parameter, quickly increase the parameter by pressing It for long time;
	DOWN	1) In main interface, press it and decrease the setting temp, quickly decrease the parameter by pressing it for long time; 2) Any interface, if "◻" display, press it and enter next page; 3) In parameter setting, press it and decrease the parameter, quickly decrease the parameter by pressing it for long time;
	ENT	1) In main interface, press it to reset the failure have removed; 2) When setting parameter, press it confirm the setting and turn to next parameter setting; 3) In main interface press "ENT""SET" for long time and enter password interface, input the passwords and enter factory setting interface; 4) In factory parameter setting interface, press it and enter relevant setting interface;
	SET	1) In main interface, press it and enter user setting interface; 2) In setting interface, press it and enter setting status; if no parameter need to be set, no action. 3) In main interface, press "ENT""SET" for long time and enter password interface, input the passwords and enter factory setting interface; 4) In factory parameter setting interface, press it and enter relevant setting interface;

	ALARM	1) In main interface, press it and enter failure checking interface; 2) In factory parameter setting interface, press it and enter relevant setting interface;
	POWER	1) Any interface, press it to power on/off unit;

7.3.4 Display NAV guide



7.3.5 Electrify display

The welcome page will display for 10 sec, it display the unit information and the version of the display, press any key to cancel and enter main interface.

Welcome to use
SL1500-PU2-V2.0
Rooftop unit control






7.3.6 Main interface

Turn to main interface after electrify for 10 sec, as below picture:





26.0 °C


⌚ 12:00 SET:25.0°C

The first line show the working status:  is Supply air,  is Cooling,  is Heating,  means unit is working,  is Failure;


The second line is temperature;

The third line show the time and setting temp, press“”“

7.3.7 Power on/off


In main interface, press “

7.3.8 User parameter setting

In main interface press “

Menu

User set	ENT
Ambient state	ENT
Device state	ENT
Protect state	ENT

In setting status, press “


Item	Value	Unit	Default	Remark
Temp set	5.0~50.0	°C	25.0	Set the temperature
Self-start when electrify	Off/On	--	Off	Self-start when electrify
Force defrost	Off/On	--	Off	Not consider the time interval, force enter the defrost
Contrast set	20~50		32	Set the contrast
Time set	--	--	--	Set the time
Timing set	--	--	--	--

Language	Chinese	--	Chinese	--
----------	---------	----	---------	----

7.3.9 Check the input and output

In "Main Menu" interface, user can enter the relevant interface to check the ambient status、device status and failure protection status as below:

Menu	
User set	ENT
Ambient state	ENT
Device state	ENT
Protect state	ENT
Ambient state	
Return T.	-12.3°C
Supply T.	-12.3°C
Ambient T.	-12.3°C [~]
Device state	
Air blower	○
Compr. 1	○
Compr. 2	○
4-way VLV1	○ [~]
Protection state	
Blower overload	○
Compr. 1 PH	○
Compr. 1 PL	○
Compr. 2 PH	○ [~]


 When the status checking, press "⏪" back to last menu, press "⏩" for long time back to main interface.

7.3.10 Time set

In "User setting" interface, enter "Time set" interface; The first line show the time, press "↶" move the cursor, press "↑"、"↓" to change the value.

7.3.11 Timing set

In "User setting" interface, enter "Timing set" interface. Press "⏪" enter setting interface, press "↶" to select the timing date and timing on/off, press "↑"、"↓" to change the value; press "↶" to select the setting parameter: Date→Timing on, hour set→Timing on, minute set→Timing off, hour set→Timing off, minute set; when set the power on date, the date will flicker, press "↑" to active the date, press "↓" to cancel setting; when set the time, press "↑"、"↓" to adjust the value; press "⏪" to confirm the setting, press "⏩" back to last menu.

 If the time set is 00:00, it means not activate the timing function.

7.3.12 Error linkage

Error linkage input port, used to detective outside alarming signal, such as fire.


7.4 Failure input and Protection alarming

7.4.1 Failure list



All ports are normally closed according system set, if the port makes a loop with COM(Public port) of the relevant socket, it means ok; or it means failure. If you need to shield this switch input fault, only need to short of jumpers of the corresponding failure ports. System will display the error code when error happen. (*means the parameter can be set)

Failure	Condition	Delay	Duration	Corresponding action	Reset	Remark
Supply fan error Blower overload	Any time	0 sec	2 sec	Shut off unit	Manual	If error exist before unit turn on, fail to turn on, alarming and display error
HP protection	Any time	0 sec	2 sec	Shut off corresponding comp	Manual	If error exist before unit turn on, fail to start comp, alarming and display error
LP protection	When comp start	*120 sec	2 sec	Shut off corresponding comp	Manual	Delay check after comp turn on, alarming and display error
Condenser Fan overload	Any time	0 sec	2 sec	Shut off all comp	Manual	If error exist before unit turn on, fail to start comp, alarming and display error
Supply T.High	When system start	0 sec	2 sec	Shut off all E-heater	Auto	Check when heating, if temp diff between inlet and outlet is 3℃, reset
Supply T.low	When system start	0 sec	2 sec	Shut off all comp	Auto	Check when cooling, if temp diff between inlet and outlet is 3℃, reset, comp restart 10 min delay
Insuff heat	When start heating	0 sec	10 min	Shut off unit	Auto / Manual	Check when heating,keep the set temp of supply air for 10 min, protect turn off, reset if temp diff between inlet and outlet, or manual Recovery
Return T. sensor	Any time	0 sec	2 sec	Shut off unit	Auto	After reset
Supply T. sensor	Any time	0 sec	2 sec	Alarming	Auto	No action
Ambient T. sensor	Any time	0 sec	2 sec	Alarming	Auto	If error happen, not considering temp diff when defrost, not considering start logic when heating
Fin sensor	Any time	0 sec	2 sec	Alarming, condenser fan turn to compressor link control	Auto	

7.4.2 Failure checking

The failure will display automatically when failure happen. User can check the unreset error info by pressing “

7.4.3 Reset failure

- 1) Press “


Before reset the failure, please confirm the external failure is removed, or failure can't be reset.

8. Maintenance

8.1 At first use of every quarter, the unit should be electric heated for 6-7 hours before it starts.

8.2 The on/off the units should not exceed four times per hour, otherwise the use life of the units will be reduced.

8.3 The unit's area should keep clean and tidy. Clean the leaves and trash, etc which is sucked by the fins.

8.4 Clean air return filter (indoor unit) every three months to guarantee the air quality.

8.5 Check if condensing water pipe is smooth in drain. Make sure the running is smooth.

8.6 If the units stop because of failure, do not start it by force when no reason is found. Contact the agent or manufacturer in time.

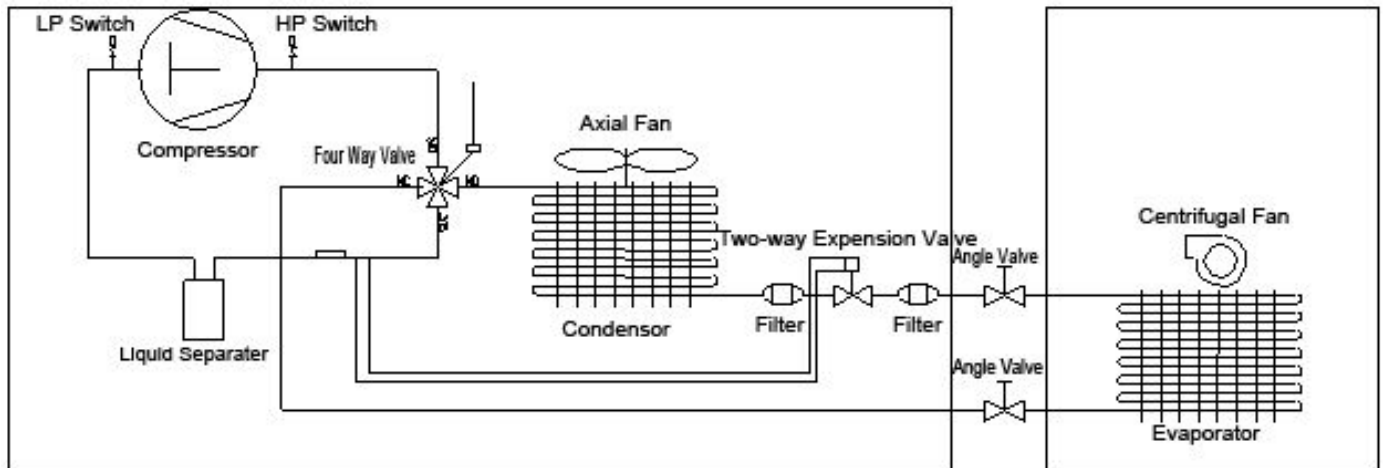
8.7 All the parameters have been set at before delivery. If the customers need to adjust the parameter, please contact the agent or Vicot technicians. Self-adjustment of parameters is not allowed.

9. Common failure and treatment

Malfunction	Cause	Treatment
No signal of panel	No power connection	Check the power supply
	Lack of phase and inverse phase	Check the power supply and phase modulation
	Main controller fuse broken	Change fuse
	Indoor controller fuse (signal on units controller)	Change fuse
	Controller is broken	Change
Indicator light glitters	Wrong connection of communication wire	Connect the communication wire correctly
	Communication wire loose	Good connection of the communication wire
	Controller doesn't work	Alter
Compressor start failure	Power supply problem	Well connected power supply
	Temperature controller setup value is higher or lower	Reset
	Loose connection	Check and repair
	Relay or fuse failure	Repair or alter
	Compressor failure	change
Key-process not work	Controller crashed	Turn off the power and connect again
	Controller not work	Change

Compressor start frequently	Too much refrigerant or inadequate resulted in the happening of on/off of high/low pressure	Leak hunting, repair and add/drop some refrigerant
	The value of the return temperature difference is too small	Reset
	Flow switch Incorrect adjustment or disconnect of wire	Reset or connect the leads wire properly
Loud noise of compressor	Refrigerant flow into the compressor	Check if the expansion valve works or temp.sensor loose
	Internal components of compressor damaged	Change the compressor
Cooling effect is not good	Refrigerant inadequate	Charge refrigerants
	Bad heat radiating effect of compressor	Clean the condenser
	Cooling system prevented	Check or alter the dry filter
High pressure protector	Bad heat radiating effect of compressor	Clean the condenser
	Too much refrigerant	Let out the redundant refrigerant
	High pressure switch problem	Change
	Bad units ventilation; air inlet prevention	Improve cooling conditions
	Exhaust temperature protector problem	Alter exhaust temperature protector
Compressor running, but cooling efficient is bad	Refrigerant leak	Check and charge refrigerant
	Compressor problem	change
	Units exhaust not smooth	Clear the barrier
	Refrigerant leak	Check and charge refrigerant
	Dirt in the heat exchanger	Wash the heat exchanger
Condensing fan Stop	Relay trouble	Change
	Fan or motor damaged	Change
	Fan motor loose . fan slides motor shaft	Tighten the bolt

10. Unit Principle Drawing



Remarks: cooling only type is without four-way valve

11. Warranty

Thanks for your purchase of our products. If any malfunction happened, please do not hesitate to contact our agent or company. We have high-efficiency sales network and perfect service system which will offer you the most excellent service. The maintenance service for our ducted split units:

A. If the malfunction was caused by quality problem within 12 months since the delivery date, the customer can be access to free maintenance by purchasing invoice and guarantee card.

B.The following conditions are not in our maintenance range. We can offer paid services.

a.Malfunction caused by improper operation or use units under abnormal conditions (abnormal voltage, improper storage)

b.Self-disassembly , refit any part of the units (such as line, components) and man-made damage.

c.Malfunction caused by installation, commission or maintenance which is not by authorized person.

d. Beyond expiry of maintenance period

e. Other malfunction beyond our responsibility

Our products are continuously updated.

Vicot reserves the right for any modification without prior notice.

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