INVENTOR INV VRF SYSTEMS

D.C. INVERTER MULTI VRF
INV-Pdm

Service Manual

Service Manual

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PRODUCT

PRODUCT

1 MODELS LIST

1.1 Outdoor Unit

Units Series	Model	Capacity		Ref.	Power Supply	Appearance
		Cooling (Btu/h)	Heating (Btu/h)			
MODULAR D.C. INVERTER MULTI VRF	INV-Pdm224W/NaB-M	76429	85300	R410A	380-415V 3N~50Hz	
	INV-Pdm280W/NaB-M	95536	107478			
	INV-Pdm335W/NaB-M	114302	127950	R410A	380-415V 3N~50Hz	
	INV-Pdm400W/NaB-M	136480	153540			
	INV-Pdm450W/NaB-M	153540	170600			
	INV-Pdm504W/NaB-M	171965	192778	R410A	380-415V 3N~50Hz	
	INV-Pdm560W/NaB-M	191072	214956			
	INV-Pdm615W/NaB-M	209838	235428	R410A	380-415V 3N~50Hz	
	INV-Pdm670W/NaB-M	232016	261018			
	INV-Pdm730W/NaB-M	249076	278078			
	INV-Pdm785W2/NaB-M	267842	298550	R410A	380-415V 3N~50Hz	
	INV-Pdm850W2/NaB-M	290020	324140			
	INV-Pdm900W2/NaB-M	307080	341200			
	INV-Pdm950W3/NaB-M	327552	368496	R410A	380-415V 3N~50Hz	
	INV-Pdm1008W3/NaB-M	344612	385556			
	INV-Pdm1065W3/NaB-M	363378	406028			
	INV-Pdm1130W3/NaB-M	385556	431618			
	INV-Pdm1180W3/NaB-M	402616	448678			
	INV-Pdm1235W3/NaB-M	421382	469150	R410A	380-415V 3N~50Hz	
	INV-Pdm1300W3/NaB-M	443560	494740			
	INV-Pdm1350W3/NaB-M	460620	511800			
	INV-Pdm1405W4/NaB-M	481092	539096	R410A	380-415V 3N~50Hz	
	INV-Pdm1456W4/NaB-M	498152	556156			

Continue

Units Series	Model	Capacity		Ref.	Power Supply	Appearance
		Cooling (Btu/h)	Heating (Btu/h)			
MODULAR D.C. INVERTER MULTI VRF	INV-Pdm1512W4/NaB-M	516918	576628	R410A	380-415V 3N~50Hz	
	INV-Pdm1570W4/NaB-M	528860	602218			
	INV-Pdm1650W4/NaB-M	556156	619278			
	INV-Pdm1700W4/NaB-M	574922	639750	R410A	380-415V 3N~50Hz	
	INV-Pdm1750W4/NaB-M	597100	665340			
	INV-Pdm1800W4/NaB-M	614160	682400			

Notes: a. Design of this unit accords with the Standard GB/T 18837-2002.
b. Cooling only unit (INVL type) has no items on heating;
c. Noise was tested in semi-silenced room, so the actual noise value will be a little higher for change of ambient.
d. The charge amount of R410A in the list is only the sealed amount when outdoor unit outgoing. When installing, calculate the additional charge amount according to actual length of pipe and the matched indoor units;
e. Nominal capacities are based on the following conditions.

Cooling	Heating
Indoor :27℃ (80.6 °F)/19℃(66.2°F) Outdoor: 35℃(95°F)/-	Indoor: 20°C(68°F)/- Outdoor : 7°C(44.6°F)/6°C(42.8°F);

1.2 Indoor Unit

1.2.1 Duct type

Model	Capacity		Ref	Power Supply	Appearance
	Cooling (Btu/h)	Heating (Btu/h)			
INV-R22P/Na-K	7507	8530	R410A	220V 50Hz	
INVL-R22P/Na-K		/			
INV-R25P/Na-K	8530	10236			
INVL-R25P/Na-K		/			
INV-R28P/Na-K	9554	10918			
INVL-R28P/Na-K		/			
INV-R32P/Na-K	10919	12283			
INVL-R32P/Na-K		/			
INV-R36P/Na-K	12284	13648			
INVL-R36P/Na-K		/			
INV-R40P/Na-K	13649	15354			
INVL-R40P/Na-K		/			
INV-R45P/Na-K	15355	17060			
INVL-R45P/Na-K		/			
INV-R50P/Na-K	17061	19790			
INVL-R50P/Na-K		/			
INV-R56P/Na-K	19108	21496			
INVL-R56P/Na-K		/			
INV-R63P/Na-K	21496	23884			
INVL-R63P/Na-K		/			
INV-R71P/Na-K	24226	27296			
INVL-R71P/Na-K		/			
INV-R80P/Na-K	27297	30026			
INVL-R80P/Na-K		/			
INV-R90P/Na-K	30709	34120			
INVL-R90P/Na-K		/			
INV-R100P/Na-K	34121	37532			
INVL-R100P/Na-K		/			
INV-R112P/Na-K	38216	42650			
INVL-R112P/Na-K		/			
INV-R125P/Na-K	42652	46060			
INVL-R125P/Na-K		/			
INV-R140P/Na-K	47770	51180			
INVL-R140P/Na-K		/			
INV-R224P/Na-M	76432	85304		380V 50Hz	
INVL-R224P/Na-M		/			
INV-R280P/Na-M	95540	105780			
INVL-R280P/Na-M		/			

Model	Capacity		Ref	Power Supply	Appearance
	Cooling (Btu/h)	Heating (Btu/h)			
INV-R22P/NaB-K	7507	8530	R410A	220V 50Hz	
INVL-R22P/NaB-K		/			
INV-R25P/NaB-K	8530	10236			
INVL-R25P/NaB-K		/			
INV-R28P/NaB-K	9554	10918			
INVL-R28P/NaB-K		/			
INV-R36P/NaB-K	12284	13648			
INVL-R36P/NaB-K		/			
INV-R45P/NaB-K	15355	17060			
INVL-R45P/NaB-K		/			
INV-R56P/NaB-K	19108	21496			
INVL-R56P/NaB-K		/			
INV-R71P/NaB-K	24226	27296			
INVL-R71P/NaB-K		/			
INV-R90P/NaB-K	30709	34120			
INVL-R90P/NaB-K		/			
INV-R112P/NaB-K	38216	42650			
INVL-R112P/NaB-K		/			
INV-R140P/NaB-K	47770	51180			
INVL-R140P/NaB-K		/			

1.2.2 Cassette type

Model	Capacity		Ref	Power Supply	Appearance
	Cooling (Btu/h)	Heating (Btu/h)			
INV-R28T/Na-K	9550	10900	R410A	220V 50Hz	
INVL-R28T/Na-K		/			
INV-R36T/Na-K	12280	13650			
INVL-R36T/Na-K		/			
INV-R45T/Na-K	15360	17060			
INVL-R45T/Na-K		/			
INV-R50T/Na-K	17060	19790			
INVL-R50T/Na-K		/			
INV-R56T/Na-K	19100	21500			
INVL-R56T/Na-K		/			
INV-R71T/Na-K	24230	27300			
INVL-R71T/Na-K		/			
INV-R90T/Na-K	30700	34120			
INVL-R90T/Na-K		/			
INV-R112T/Na-K	38210	42650			
INVL-R112T/Na-K		/			

1.2.3 Wall mounted type

Model	Capacity				Appearance
	Cooling (Btu/h)	Heating (Btu/h)			
INV-R22G/NaB-K	7507	8530	Ref	Power Supply	
INVL-R22G/NaB-K		/			
INV-R28G/NaB-K	9554	10919			
INVL-R28G/NaB-K		/			
INV-R36G/NaB-K	12284	13649			
INVL-R36G/NaB-K		/			
INV-R45G/NaB-K	15355	17061			
INVL-R45G/NaB-K		/			
INV-R50G/NaB-K	17061	19790			
INVL-R50G/NaB-K		/			
INV-R56G/NaB-K	19108	21496			
INVL-R56G/NaB-K		/			
INV-R22G/NaC-K	7507	8530			
INVL-R22G/NaC-K		/			
INV-R28G/NaC-K	9554	10919			
INVL-R28G/NaC-K		/			
INV-R36G/NaC-K	12284	13649			
INVL-R36G/NaC-K		/			
INV-R45G/NaC-K	15355	17061			
INVL-R45G/NaC-K		/			
INV-R50G/Na-K	17061	19790			
INVL-R50G/Na-K		/			
INV-R56G/Na-K	19108	21496			
INVL-R56G/Na-K		/			
INV-R71G/Na-K	24226	27297			
INVL-R71G/Na-K		/			
INV-R80G/Na-K	27297	30709			
INVL-R80G/Na-K		/			

1.2.4 Floor ceiling type

Model	Capacity		Ref	Power Supply	Appearance
	Cooling (Btu/h)	Heating (Btu/h)			
INV-R28Zd/Na-K	9554	10919	R410A	220V 50Hz	
INVL-R28Zd/Na-K		/			
INV-R36Zd/Na-K	12284	13649			
INVL-R36Zd/Na-K		/			
INV-R50Zd/Na-K	17061	19790			
INVL-R50Zd/Na-K		/			
INV-R71Zd/Na-K	24226	27297			
INVL-R71Zd/Na-K		/			
INV-R90Zd/Na-K	30709	34121			
INVL-R90Zd/Na-K		/			
INV-R112Zd/Na-K	38216	42652			
INVL-R112Zd/Na-K		/			
INV-R125Zd/Na-K	42652	46064			
INVL-R125Zd/Na-K		/			

Note:1Ton =12000Btu/h = 3.517kW

Notes: a. Design of this unit accords with the Standard GB/T 18837-2002.
b. Cooling only unit (INVL type) has no items on heating;
c. Noise was tested in semi-silenced room, so the actual noise value will be a little higher for change of ambient.
d. Nominal capacities are based on the following conditions.

Cooling	Heating
Indoor :27℃(80.6℉)/19℃(66.2℉) Outdoor: 35℃(95℉)/-	Indoor: 20℃(68℉)/- Outdoor : 7℃(44.6℉)/6℃(42.8℉)

2 NOMENCLATURE

2.1 Nomenclature of Outdoor Unit

INV	□	L	-	Pdm	224	W	/	Na	B	—	M
1	2	3		4	5	6		7	8		9

NO.	Description	Options
1	INV	INVENTOR Multi Variable
2	Code for weather	Default:T1 T2:T2 weather T3:T3 weather
3	Modular Digital	L: Cooling Only Default: Heat pump
4	Units Series	Pdm: MODULAR DC inverter VRF
5	Nominal cooling capacity	224 represents 22.4kW Btu/h=kW×3412
6	W	Outdoor unit
7	Refrigerant	Na: R410A
8	Sequences	B: The second generation
9	Power complement	M: 380V, 3N~, 50 Hz

2.2 Nomenclature of Indoor Unit

INV	□	L	—	R	36	P	/	Na	B	—	K
1	2	3		4	5	6		7	8		9

NO.	Description	Options
1	INV	INVENTOR Multi Variable
2	Code for weather	Default:T1 T2:T2 weather T3:T3 weather
3	Code for model	L: Cooling Only Default: Heat pump
4	Code for function	R: R-R series
5	Nominal cooling capacity	36 represents 3.6kW Btu/h=kW×3412
6	Code for unit type	P=Duct type T=Cassette type G=Wall mounted Zd=Floor ceiling
7	Refrigerant	Na: R410A
8	Sequences	B: The second generation
9	Power supply	K: 220-240V 50Hz

Example: INV-R22G/NaB-K. A wall mounted indoor unit of INVENTOR, and the nominal cooling capacity is 2.2kw. It's the second generation product, and It could connect the outdoor unit with digital scroll, the power supply is 220V-240V, 50Hz.

3 FUNCTION

For Comfortable Air Conditioning	Auto Restart
	Fan Operation Mode
	LCD Remote Controller (Option)
	Auto Swing Function
	Ceiling Soiling Prevention
	Program Dry
	High Fan Speed Mode
	High Ceiling Application
	Two Select Thermo Sensor
	Hot Start
	Timer Selector
For Easy Construction and Maintenance	Fresh Air Intake Directly from The Unit
	Drain Pump
	Long Life Filter
	Ultra-Long life Filter (Option)
	Mold Resistant Treatment for Filter
	Filter Sign
	Mold Resistant Drain Pan
	Emergency Operation
	Self Diagnoses Function
For Flexible Control	Set Back Time Clock
	Double Remote Control
	Group Control By 1 Remote Controller
	Control By External Command
	Remote/Centralized Control

4 PRODUCT DATA

4.1 Product data of outdoor

Model			INV-Pdm224W/NaB-M	INV-Pdm280W/NaB-M
Cooling capacity		kW	22.4	28.0
Heating capacity		kW	25.0	31.5
Sound Pressure Level		dB(A)	58	58
R410A charge amount		kg	12	13
Power Supply			380-415V 3N~50Hz	380-415V 3N~50Hz
Rated power	Cooling	kW	5.52	7.52
	Heating	kW	5.82	7.70
Rated current	Cooling	A	9.87	13.44
	Heating	A	10.40	13.76
IPLV			4.15	3.95
Dimension （mm）（W×D×H）			930×770×1670	930×770×1670
Compressor			(D.C.Inverter Scroll type compressor +constant speed scroll compressor)	(D.C.Inverter Scroll type compressor +constant speed scroll compressor)
Water proof level			IP24	IP24
Climate type			T1	T1
Connection pipe	Gas pipe	mm	Φ22.2	Φ22.2
		Inch	7/8	7/8
	Liquid pipe	mm	Φ9.52	Φ9.52
		Inch	3/8	3/8
	Connecting mode		Brazing Connection	Brazing Connection
Net weight		kg	255	255
Recommended power cord		mm^2×pc	6.0×5	6.0×5

Note:

a. The data will change with the change of products. Refer to those parameters listed on nameplate.

b. Noise was tested in semi-silenced room, so the actual noise value will be a litter higher for change of ambient.

c. The charge amount of refrigerant in the list is the datum when there is not drop height vertically between indoor unit and outdoor unit, without consideration of connection pipe. So calculate the additional charge amount according to actual condition during installation.

d. Section area of lead wire is only applicable for 15-m distance.If above, increase the section area to avoid overload of current which would cause burnout of lead wire.

e. The outdoor fan of this unit is without static pressure.If static pressure is required, please specially notice it on purchase order.

f. Running condition of cooling : outdoor tem -5℃～48℃; running condition of heating: outdoor tem-20℃～27℃.

Model			INV-Pdm335W/NaB-M	INV-Pdm400W/NaB-M
Cooling capacity		kW	33.5	40.0
Heating capacity		kW	37.5	45.0
Sound Pressure Level		dB(A)	60	61
R410A charge amount		kg	15	16
Power Supply			380-415V 3N~50Hz	380-415V 3N~50Hz
Rated power	Cooling	kW	9.23	12.45
	Heating	kW	9.38	11.2
Rated current	Cooling	A	16.50	22.25
	Heating	A	16.77	20.02
IPLV			4.15	3.95
Dimension （mm）（W×D×H）			1340×770×1670	1340×770×1670
Compressor			(D.C.Inverter Scroll type compressor +constant speed scroll compressor×2)	(D.C.Inverter Scroll type compressor +constant speed scroll compressor×2)
Water proof level			IP24	IP24
Climate type			T1	T1
Connection pipe	Gas pipe	mm	Φ28.6	Φ28.6
		Inch	9/8	9/8
	Liquid pipe	mm	Φ12.7	Φ12.7
		Inch	1/2	1/2
	Connecting mode		Brazing Connectio	Brazing Connection
Net weight		kg	350	350
Recommended power cord		mm^2×pc	10.0×5	10.0×5

Note:

a. The data will change with the change of products. Refer to those parameters listed on nameplate.

b. Noise was tested in semi-silenced room, so the actual noise value will be a litter higher for change of ambient.

c. The charge amount of refrigerant in the list is the datum when there is not drop height vertically between indoor unit and outdoor unit, without consideration of connection pipe. So calculate the additional charge amount according to actual condition during installation.

d. Section area of lead wire is only applicable for 15-m distance.If above, increase the section area to avoid overload of current which would cause burnout of lead wire.

e. The outdoor fan of this unit is without static pressure.If static pressure is required, please specially notice it on purchase order.

f. Running condition of cooling : outdoor tem -5℃～48℃; running condition of heating: outdoor tem-20℃～27℃.

Model（Combined unit）			INV-Pdm450W/NaB-M	INV-Pdm504W/NaB-M
Model（Single unit）				INV-Pdm224W/NaB-M +INV-Pdm280W/NaB-M
Cooling capacity		kW	45.0	50.4
Heating capacity		kW	50.0	56.5
Sound Pressure Level		dB(A)	61	62
R410A charge amount		kg	17	12+13
Power Supply			380-415V 3N~50Hz	380-415V 3N~50Hz
Rated power	Cooling	kW	14.32	5.52+7.52
	Heating	kW	13.90	5.82+7.70
Rated current	Cooling	A	25.60	9.87+13.44
	Heating	A	24.85	10.40+13.76
IPLV			4.15	-
Dimension （mm） （W×D×H）			（1340×770×1670）	（930×770×1670） +（930×770×1670）
Compressor			(D.C.Inverter Scroll type compressor +constant speed scroll compressor×2)	(D.C.Inverter Scroll type compressor +constant speed scroll compressor)×2
Water proof level			IP24	IP24
Climate type			T1	T1
Connection pipe	Gas pipe	mm	Φ28.6	Φ28.6
		Inch	9/8	9/8
	Liquid pipe	mm	Φ12.7	Φ15.9
		Inch	1/2	5/8
	Oil equalizing pipe	mm	-	Φ12.7
		Inch	-	1/2
	Connecting mode		Brazing Connectio	Brazing Connection
Net weight		kg	370	255+255
Recommended power cord		mm^2×pc	10.0×5	6.0×5+6.0×5

Note:

a. The data will change with the change of products. Refer to those parameters listed on nameplate.

b. Noise was tested in semi-silenced room, so the actual noise value will be a litter higher for change of ambient.

c. The charge amount of refrigerant in the list is the datum when there is not drop height vertically between indoor unit and outdoor unit, without consideration of connection pipe. So calculate the additional charge amount according to actual condition during installation.

d. Section area of lead wire is only applicable for 15-m distance.If above, increase the section area to avoid overload of current which would cause burnout of lead wire.

e. The outdoor fan of this unit is without static pressure.If static pressure is required, please specially notice it on purchase order.

f. Running condition of cooling : outdoor tem -5℃～48℃; running condition of heating: outdoor tem-20℃～27℃.

Model （Combined unit）			INV-Pdm560W2/NaB-M	INV-Pdm615W2/NaB-M
Model（Single unit）			INV-Pdm280W/NaB-M + INV-Pdm280W/NaB-M	INV-Pdm280W/NaB-M + INV-Pdm335W/NaB-M
Cooling capacity		kW	56.0	61.5
Heating capacity		kW	63.0	69.0
Sound Pressure Level		dB(A)	62	62
R410A charge amount		kg	13+13	13+15
Power Supply			380-415V 3N~50Hz	380-415V 3N~50Hz
Rated power	Cooling	kW	7.52+7.52	7.52+9.23
	Heating	kW	7.70+7.70	7.70+9.38
Rated current	Cooling	A	13.44+13.44	13.44+16.50
	Heating	A	13.76+13.76	13.76+16.77
Dimension （mm） （W×D×H）			（930×770×1670） +（930×770×1670）	（930×770×1670） +（1340×770×1670）
Compressor			（D.C.Inverter Scroll type compressor +constant speed scroll compressor）×2	（D.C.Inverter Scroll type compressor +constant speed scroll compressor）+（D.C.Inverter Scroll type compressor +constant speed scroll compressor×2）
Water proof level			IP24	IP24
Climate type			T1	T1
Connection pipe	Gas pipe	mm	Φ28.6	Φ28.6
		Inch	9/8	9/8
	Liquid pipe	mm	Φ15.9	Φ15.9
		Inch	5/8	5/8
	Oil equalizing pipe	mm	Φ12.7	Φ12.7
		Inch	1/2	1/2
	Connecting mode		Brazing Connectio	Brazing Connection
Net weight		kg	255+255	255+350
Recommended power cord		mm^2×pc	6.0×5+6.0×5	6.0×5+10.0×5

Note:

a. The data will change with the change of products. Refer to those parameters listed on nameplate.

b. Noise was tested in semi-silenced room, so the actual noise value will be a litter higher for change of ambient.

c. The charge amount of refrigerant in the list is the datum when there is not drop height vertically between indoor unit and outdoor unit, without consideration of connection pipe. So calculate the additional charge amount according to actual condition during installation.

d. Section area of lead wire is only applicable for 15-m distance.If above, increase the section area to avoid overload of current which would cause burnout of lead wire.

e. The outdoor fan of this unit is without static pressure.If static pressure is required, please specially notice it on purchase order.

f. Running condition of cooling : outdoor tem -5℃～48℃; running condition of heating: outdoor tem-20℃～27℃.

Model （Combined unit）			INV-Pdm670W2/NaB-M	INV-Pdm730W2/NaB-M
Model（Single unit）			INV-Pdm280W/NaB-M + INV-Pdm400W/NaB-M	INV-Pdm280W/NaB-M + INV-Pdm450W/NaB-M
Cooling capacity		kW	68.0	73.0
Heating capacity		kW	76.5	81.5
Sound Pressure Level		dB(A)	62	63
R410A charge amount		kg	13+16	13+17
Power Supply			380-415V 3N~50Hz	380-415V 3N~50Hz
Rated power	Cooling	kW	7.52+12.45	7.52+14.32
	Heating	kW	7.70+11.2	7.70+13.90
Rated current	Cooling	A	13.44+22.25	13.44+25.60
	Heating	A	13.76+20.02	13.76+24.85
Dimension （mm）（W×D×H）			（930×770×1670）+（1340×770×1670）	（930×770×1670）+（1340×770×1670）
Compressor			（D.C.Inverter Scroll type compressor +constant speed scroll compressor×1）+（D.C.Inverter Scroll type compressor +constant speed scroll compressor×2）	（D.C.Inverter Scroll type compressor +constant speed scroll compressor×1）+（D.C.Inverter Scroll type compressor +constant speed scroll compressor×2）
Water proof level			IP24	IP24
Climate type			T1	T1
Connection pipe	Gas pipe	mm	Φ34.9	Φ34.9
		Inch	11/8	11/8
	Liquid pipe	mm	Φ15.9	Φ19.05
		Inch	5/8	3/4
	Oil equalizing pipe	mm	Φ12.7	Φ12.7
		Inch	1/2	1/2
	Connecting mode		Brazing Connectio	Brazing Connection
Net weight		kg	255+350	255+370
Recommended power cord		mm^2×pc	6.0×5+10.0×5	6.0×5+10.0×5

Note:

a. The data will change with the change of products. Refer to those parameters listed on nameplate.

b. Noise was tested in semi-silenced room, so the actual noise value will be a litter higher for change of ambient.

c. The charge amount of refrigerant in the list is the datum when there is not drop height vertically between indoor unit and outdoor unit, without consideration of connection pipe. So calculate the additional charge amount according to actual condition during installation.

d. Section area of lead wire is only applicable for 15-m distance.If above, increase the section area to avoid overload of current which would cause burnout of lead wire.

e. The outdoor fan of this unit is without static pressure.If static pressure is required, please specially notice it on purchase order.

f. Running condition of cooling : outdoor tem -5℃～48℃; running condition of heating: outdoor tem-20℃～27℃.

Model （Combined unit）			INV-Pdm785W2/NaB-M	INV-Pdm850W2/NaB-M
Model（Single unit）			INV-Pdm335W/NaB-M + INV-Pdm450W/NaB-M	INV-Pdm400W/NaB-M + INV-Pdm450W/NaB-M
Cooling capacity		kW	78.5	85.0
Heating capacity		kW	87.5	95.0
Sound Pressure Level		dB(A)	63	63
R410A charge amount		kg	15+16	16+17
Power Supply			380-415V 3N~50Hz	380-415V 3N~50Hz
Rated power	Cooling	kW	9.23+14.32	12.45+14.32
	Heating	kW	9.38+13.90	11.2+13.90
Rated current	Cooling	A	16.50+25.60	22.25+25.60
	Heating	A	16.77+24.85	20.02+24.85
Dimension （mm）（W×D×H）			（1340×770×1670）+（1340×770×1670）	（1340×770×1670）+（1340×770×1670）
Compressor			（D.C.Inverter Scroll type compressor +constant speed scroll compressor×2）×2	（D.C.Inverter Scroll type compressor +constant speed scroll compressor×2）×2
Water proof level			IP24	IP24
Climate type			T1	T1
Connection pipe	Gas pipe	mm	Φ34.9	Φ34.9
		Inch	11/8	11/8
	Liquid pipe	mm	Φ19.05	Φ19.05
		Inch	3/4	3/4
	Oil equalizing pipe	mm	Φ12.7	Φ12.7
		Inch	1/2	1/2
	Connecting mode		Brazing Connectio	Brazing Connection
Net weight		kg	350+370	350+370
Recommended power cord		mm^2×pc	10.0×5+10.0×5	10.0×5+10.0×5

Note:

a. The data will change with the change of products. Refer to those parameters listed on nameplate.

b. Noise was tested in semi-silenced room, so the actual noise value will be a litter higher for change of ambient.

c. The charge amount of refrigerant in the list is the datum when there is not drop height vertically between indoor unit and outdoor unit, without consideration of connection pipe. So calculate the additional charge amount according to actual condition during installation.

d. Section area of lead wire is only applicable for 15-m distance.If above, increase the section area to avoid overload of current which would cause burnout of lead wire.

e. The outdoor fan of this unit is without static pressure.If static pressure is required, please specially notice it on purchase order.

f. Running condition of cooling : outdoor tem -5℃～48℃; running condition of heating: outdoor tem-20℃～27℃.

Model （Combined unit）			INV-Pdm900W2/NaB-M	INV-Pdm950W3/NaB-M
Model（Single unit）			INV-Pdm450W/NaB-M + INV-Pdm450W/NaB-M	INV-Pdm280W/NaB-M +INV-Pdm280W/NaB-M + INV-Pdm400W/NaB-M
Cooling capacity		kW	90.0	96.0
Heating capacity		kW	100.0	108.0
Sound Pressure Level		dB(A)	63	64
R410A charge amount		kg	17+17	13+13+16
Power Supply			380-415V 3N~50Hz	380-415V 3N~50Hz
Rated power	Cooling	kW	14.32+14.32	7.52+7.52+12.45
	Heating	kW	13.90+13.90	7.70+7.70+11.2
Rated current	Cooling	A	25.60+25.60	13.44+13.44+22.25
	Heating	A	24.85+24.85	13.76+13.44+20.02
Dimension （mm）（W×D×H）			（1340×770×1670）+（1340×770×1670）	（930×770×1670）+（930×770×1670）+（1340×770×1670）
Compressor			（D.C.Inverter Scroll type compressor +constant speed scroll compressor×2）×2	（D.C.Inverter Scroll type compressor +constant speed scroll compressor×2）+（D.C.Inverter Scroll type compressor +constant speed scroll compressor）×2
Water proof level			IP24	IP24
Climate type			T1	T1
Connection pipe	Gas pipe	mm	Φ34.9	Φ34.9
		Inch	11/8	11/8
	Liquid pipe	mm	Φ19.05	Φ19.05
		Inch	3/4	3/4
	Oil equalizing pipe	mm	Φ12.7	Φ12.7
		Inch	1/2	1/2
	Connecting mode		Brazing Connection	Brazing Connection
Net weight		kg	370+370	255+255+350
Recommended power cord		mm^2× pc	10.0×5+10.0×5	6.0×5+6.0×5+10.0×5

Note:

a. The data will change with the change of products. Refer to those parameters listed on nameplate.

b. Noise was tested in semi-silenced room, so the actual noise value will be a litter higher for change of ambient.

c. The charge amount of refrigerant in the list is the datum when there is not drop height vertically between indoor unit and outdoor unit, without consideration of connection pipe. So calculate the additional charge amount according to actual condition during installation.

d. Section area of lead wire is only applicable for 15-m distance.If above, increase the section area to avoid overload of current which would cause burnout of lead wire.

e. The outdoor fan of this unit is without static pressure.If static pressure is required, please specially notice it on purchase order.

f. Running condition of cooling : outdoor tem -5℃~48℃; running condition of heating: outdoor tem-20℃~27℃.

Model （Combined unit）			INV-Pdm1008W3/NaB-M	INV-Pdm1065W3/NaB-M
Model（Single unit）			INV-Pdm280W/NaB-M +INV-Pdm280W/NaB-M + INV-Pdm450W/NaB-M	INV-Pdm280W/NaB-M +INV-Pdm335W/NaB-M + INV-Pdm450W/NaB-M
Cooling capacity		kW	101.0	106.5
Heating capacity		kW	113.0	119.0
Sound Pressure Level		dB(A)	64	64
R410A charge amount		kg	13+13+17	13+15+17
Power Supply			380-415V 3N~50Hz	380-415V 3N~50Hz
Rated power	Cooling	kW	7.52+7.52+14.32	7.52+9.23+14.32
	Heating	kW	7.70+7.70+13.90	7.70+9.38+13.90
Rated current	Cooling	A	13.44+13.44+25.60	13.44+16.50+25.60
	Heating	A	13.76+13.76+24.85	13.76+16.77+24.85
Dimension （mm）（W×D×H）			（930×770×1670）+（930×770×1670）+（1340×770×1670）	（930×770×1670）+（1340×770×1670）+（1340×770×1670）
Compressor			（D.C.Inverter Scroll type compressor +constant speed scroll compressor×2）+（D.C.Inverter Scroll type compressor +constant speed scroll compressor）×2	（D.C.Inverter Scroll type compressor +constant speed scroll compressor）+（D.C.Inverter Scroll type compressor +constant speed scroll compressor×2）×2
Water proof level			IP24	IP24
Climate type			T1	T1
Connection pipe	Gas pipe	mm	Φ41.3	Φ41.3
		Inch	13/8	13/8
	Liquid pipe	mm	Φ19.05	Φ19.05
		Inch	3/4	3/4
	Oil equalizing pipe	mm	Φ12.7	Φ12.7
		Inch	1/2	1/2
	Connecting mode		Brazing Connection	Brazing Connection
Net weight		kg	255+255+370	255+350+370
Recommended power cord		mm^2×pc	6.0×5+6.0×5+10.0×5	6.0×5+10.0×5+10.0×5

Note:

a. The data will change with the change of products. Refer to those parameters listed on nameplate.

b. Noise was tested in semi-silenced room, so the actual noise value will be a litter higher for change of ambient.

c. The charge amount of refrigerant in the list is the datum when there is not drop height vertically between indoor unit and outdoor unit, without consideration of connection pipe. So calculate the additional charge amount according to actual condition during installation.

d. Section area of lead wire is only applicable for 15-m distance.If above, increase the section area to avoid overload of current which would cause burnout of lead wire.

e. The outdoor fan of this unit is without static pressure.If static pressure is required, please specially notice it on purchase order.

f. Running condition of cooling : outdoor tem -5℃～48℃; running condition of heating: outdoor tem-20℃～27℃.

Model （Combined unit）			INV-Pdm1130W3/NaB-M	INV-Pdm1180W3/NaB-M
Model（Single unit）			INV-Pdm280W/NaB-M + INV-Pdm400W/NaB-M + INV-Pdm450W/NaB-M	INV-Pdm280W/NaB-M + INV-Pdm450W/NaB-M + INV-Pdm450W/NaB-M
Cooling capacity		kW	113.0	118.0
Heating capacity		kW	126.5	131.5
Sound Pressure Level		dB(A)	64	64
R410A charge amount		kg	13+16+17	13+17+17
Power Supply			380-415V 3N~50Hz	380-415V 3N~50Hz
Rated power	Cooling	kW	7.52+12.45+14.32	7.52+14.32+14.32
	Heating	kW	7.70+11.2+13.90	7.70+13.90+13.90
Rated current	Cooling	A	13.44+22.25+25.60	13.44+25.60+25.60
	Heating	A	13.76+20.02+24.85	13.76+24.85+24.85
Dimension （mm） （W×D×H）			（930×770×1670）+（1340×770×1670） +（1340×770×1670）	（930×770×1670）+ （1340×770×1670） +（1340×770×1670）
Compressor			（D.C.Inverter Scroll type compressor +constant speed scroll compressor）+（D.C.Inverter Scroll type compressor +constant speed scroll compressor×2）×2	（D.C.Inverter Scroll type compressor +constant speed scroll compressor）+（D.C.Inverter Scroll type compressor +constant speed scroll compressor×2）×2
Water proof level			IP24	IP24
Climate type			T1	T1
Connection pipe	Gas pipe	mm	Φ41.3	Φ41.3
		Inch	13/8	13/8
	Liquid pipe	mm	Φ19.05	Φ19.05
		Inch	3/4	3/4
	Oil equalizing pipe	mm	Φ12.7	Φ12.7
		Inch	1/2	1/2
	Connecting mode		Brazing Connection	Brazing Connection
Net weight		kg	255+350+370	255+370+370
Recommended power cord		mm^2×pc	6.0×5+10.0×5+10.0×5	6.0×5+10.0×5+10.0×5

Note:

a. The data will change with the change of products. Refer to those parameters listed on nameplate.

b. Noise was tested in semi-silenced room, so the actual noise value will be a litter higher for change of ambient.

c. The charge amount of refrigerant in the list is the datum when there is not drop height vertically between indoor unit and outdoor unit, without consideration of connection pipe. So calculate the additional charge amount according to actual condition during installation.

d. Section area of lead wire is only applicable for 15-m distance.If above, increase the section area to avoid overload of current which would cause burnout of lead wire.

e. The outdoor fan of this unit is without static pressure.If static pressure is required, please specially notice it on purchase order.

f. Running condition of cooling : outdoor tem -5℃～48℃; running condition of heating: outdoor tem-20℃～27℃.

Model （Combined unit）			INV-Pdm1235W3/NaB-M	INV-Pdm1300W3/NaB-M
Model（Single unit）			INV-Pdm335W/NaB-M + INV-Pdm450W/NaB-M + INV-Pdm450W/NaB-M	INV-Pdm400W/NaB-M + INV-Pdm450W/NaB-M + INV-Pdm450W/NaB-M
Cooling capacity		kW	123.5	130.0
Heating capacity		kW	137.5	145.0
Sound Pressure Level		dB(A)	65	65
R410A charge amount		kg	15+17+17	16+17+17
Power Supply			380-415V 3N~50Hz	380-415V 3N~50Hz
Rated power	Cooling	kW	9.23+14.32+14.32	12.45+14.32+14.32
	Heating	kW	9.38+13.90+13.90	11.2+13.90+13.90
Rated current	Cooling	A	16.50+25.60+25.60	22.25+25.60+25.60
	Heating	A	16.77+24.85+24.85	20.02+24.85+24.85
Dimension （mm）（W×D×H）			（1340×770×1670）+（1340×770×1670）+（1340×770×1670）	（1340×770×1670）+（1340×770×1670）+（1340×770×1670）
Compressor			（D.C.Inverter Scroll type compressor +constant speed scroll compressor×2）×3	（D.C.Inverter Scroll type compressor +constant speed scroll compressor×2）×3
Water proof level			IP24	IP24
Climate type			T1	T1
Connection pipe	Gas pipe	mm	Φ41.3	Φ41.3
		Inch	13/8	13/8
	Liquid pipe	mm	Φ19.05	Φ19.05
		Inch	3/4	3/4
	Oil equalizing pipe	mm	Φ12.7	Φ12.7
		Inch	1/2	1/2
	Connecting mode		Brazing Connection	Brazing Connection
Net weight		kg	350+370+370	350+370+370
Recommended power cord		mm^2×pc	10.0×5+10.0×5+10.0×5	10.0×5+10.0×5+10.0×5

Note:

a. The data will change with the change of products. Refer to those parameters listed on nameplate.

b. Noise was tested in semi-silenced room, so the actual noise value will be a litter higher for change of ambient.

c. The charge amount of refrigerant in the list is the datum when there is not drop height vertically between indoor unit and outdoor unit, without consideration of connection pipe. So calculate the additional charge amount according to actual condition during installation.

d. Section area of lead wire is only applicable for 15-m distance.If above, increase the section area to avoid overload of current which would cause burnout of lead wire.

e. The outdoor fan of this unit is without static pressure.If static pressure is required, please specially notice it on purchase order.

f. Running condition of cooling : outdoor tem -5℃～48℃; running condition of heating: outdoor tem-20℃～27℃.

Model （Combined unit）			INV-Pdm1350W3/NaB-M	INV-Pdm1405W4/NaB-M
Model（Single unit）			INV-Pdm450W/NaB-M + INV-Pdm450W/NaB-M + INV-Pdm450W/NaB-M	INV-Pdm280W/NaB-M + INV-Pdm280W/NaB-M + INV-Pdm400W/NaB-M + INV-Pdm450W/NaB-M
Cooling capacity		kW	135.0	141.0
Heating capacity		kW	150.0	158.0
Sound Pressure Level		dB(A)	65	65
R410A charge amount		kg	17+17+17	13+13+16+17
Power Supply			380-415V 3N~50Hz	380-415V 3N~50Hz
Rated power	Cooling	kW	14.32+14.32+14.32	7.52+7.52+12.45+14.32
	Heating	kW	13.90+13.90+13.90	7.70+7.70+11.2+13.90
Rated current	Cooling	A	25.60+25.60+25.60	13.44+13.44+22.25+25.60
	Heating	A	24.85+24.85+24.85	13.76+13.76+20.02+24.85
Dimension （mm）（W×D×H）			（1340×770×1670）+（1340×770×1670）+（1340×770×1670）	（930×770×1670）+（930×770×1670）+（1340×770×1670）+（1340×770×1670）
Compressor			（D.C.Inverter Scroll type compressor +constant speed scroll compressor×2）×3	（D.C.Inverter Scroll type compressor +constant speed scroll compressor）×2+（D.C.Inverter Scroll type compressor +constant speed scroll compressor×2）×2
Water proof level			IP24	IP24
Climate type			T1	T1
Connection pipe	Gas pipe	mm	Φ41.3	Φ44.5
		Inch	13/8	7/4
	Liquid pipe	mm	Φ19.05	Φ22.2
		Inch	3/4	7/8
	Oil equalizing pipe	mm	Φ12.7	Φ12.7
		Inch	1/2	1/2
	Connecting mode		Brazing Connection	Brazing Connection
Net weight		kg	370+370+370	255+255+350+370
Recommended power cord		mm^2×pc	10.0×5+10.0×5+10.0×5	6.0×5+6.0×5+10.0×5+10.0×5

Note:

a. The data will change with the change of products. Refer to those parameters listed on nameplate.

b. Noise was tested in semi-silenced room, so the actual noise value will be a litter higher for change of ambient.

c. The charge amount of refrigerant in the list is the datum when there is not drop height vertically between indoor unit and outdoor unit, without consideration of connection pipe. So calculate the additional charge amount according to actual condition during installation.

d. Section area of lead wire is only applicable for 15-m distance.If above, increase the section area to avoid overload of current which would cause burnout of lead wire.

e. The outdoor fan of this unit is without static pressure.If static pressure is required, please specially notice it on purchase order.

f. Running condition of cooling : outdoor tem -5℃～48℃; running condition of heating: outdoor tem-20℃～27℃.

Model （Combined unit）			INV（L）-Pdm1456W4/NaB-M	INV（L）-Pdm1512W4/NaB-M
Model（Single unit）			INV（L）-Pdm280W/NaB-M + INV（L）-Pdm280W/NaB-M + INV（L）-Pdm450W/NaB-M + INV（L）-Pdm450W/NaB-M	INV（L）-Pdm280W/NaB-M + INV（L）-Pdm335W/NaB-M + INV（L）-Pdm450W/NaB-M + INV（L）-Pdm450W/NaB-M
Cooling capacity		kW	146.0	151.5
Heating capacity		kW	163.0	169.0
Sound Pressure Level		dB(A)	65	65
R410A charge amount		kg	13+13+17+17	13+15+17+17
Power Supply			380-415V 3N~50Hz	380-415V 3N~50Hz
Rated power	Cooling	kW	7.52+7.52+14.32+14.32	7.52+9.23+14.32+14.32
	Heating	kW	7.70+7.70+13.90+13.90	7.70+9.38+13.90+13.90
Rated current	Cooling	A	13.44+13.44+25.60+25.60	13.44+16.50+25.60+25.60
	Heating	A	16.3+16.3+24.85+24.85	13.76+16.77+24.85+24.85
Dimension （mm）（W×D×H）			（930×770×1670）+（930×770×1670）+（1340×770×1670）+（1340×770×1670）	（930×770×1670）+（1340×770×1670）+（1340×770×1670）+（1340×770×1670）
Compressor			（D.C.Inverter Scroll type compressor +constant speed scroll compressor）×2+（D.C.Inverter Scroll type compressor +constant speed scroll compressor×2）×2	（D.C.Inverter Scroll type compressor +constant speed scroll compressor）+（D.C.Inverter Scroll type compressor +constant speed scroll compressor×2）×3
Water proof level			IP24	IP24
Climate type			T1	T1
Connection pipe	Gas pipe	mm	Φ44.5	Φ44.5
		Inch	7/4	7/4
	Liquid pipe	mm	Φ22.2	Φ22.2
		Inch	7/8	7/8
	Oil equalizing pipe	mm	Φ12.7	Φ12.7
		Inch	1/2	1/2
	Connecting mode		Brazing Connection	Brazing Connection
Net weight		kg	255+255+370+370	255+350+370+370
Recommended power cord		mm^2×pc	6.0×5+6.0×5+10.0×5+10.0×5	6.0×5+10.0×5+10.0×5+10.0×5

Note:

a. The data will change with the change of products. Refer to those parameters listed on nameplate.

b. Noise was tested in semi-silenced room, so the actual noise value will be a litter higher for change of ambient.

c. The charge amount of refrigerant in the list is the datum when there is not drop height vertically between indoor unit and outdoor unit, without consideration of connection pipe. So calculate the additional charge amount according to actual condition during installation.

d. Section area of lead wire is only applicable for 15-m distance.If above, increase the section area to avoid overload of current which would cause burnout of lead wire.

e. The outdoor fan of this unit is without static pressure.If static pressure is required, please specially notice it on purchase order.

f. Running condition of cooling : outdoor tem -5℃～48℃; running condition of heating: outdoor tem-20℃～27℃.

Model （Combined unit）			INV-Pdm1570W4/NaB-M	INV-Pdm1650W4/NaB-M
Model（Single unit）			INV-Pdm280W/NaB-M + INV-Pdm400W/NaB-M + INV-Pdm450W/NaB-M + INV-Pdm450W/NaB-M	INV-Pdm280W/NaB-M + INV-Pdm450W/NaB-M + INV-Pdm450W/NaB-M + INV-Pdm450W/NaB-M
Cooling capacity		kW	155.0	163.0
Heating capacity		kW	176.5	181.5
Sound Pressure Level		dB(A)	65	66
R410A charge amount		kg	13+16+17+17	13+17+17+17
Power Supply			380-415V 3N~50Hz	380-415V 3N~50Hz
Rated power	Cooling	kW	7.52+12.45+14.32+14.32	7.52+14.32+14.32+14.32
	Heating	kW	7.70+11.2+13.90+13.90	7.70+13.90+13.90+13.90
Rated current	Cooling	A	13.44+22.25+25.60+25.60	13.44+25.60+25.60+25.60
	Heating	A	13.76+20.02+24.85+24.85	13.76+24.85+24.85+24.85
Dimension （mm） （W×D×H）			（930×770×1670）+ （1340×770×1670）+ （1340×770×1670）+ （1340×770×1670）	（930×770×1670）+ （1340×770×1670）+ （1340×770×1670）+ （1340×770×1670）
Compressor			（D.C.Inverter Scroll type compressor +constant speed scroll compressor）+ （D.C.Inverter Scroll type compressor +constant speed scroll compressor×2）×3	（D.C.Inverter Scroll type compressor +constant speed scroll compressor）+ （D.C.Inverter Scroll type compressor +constant speed scroll compressor×2）×3
Water proof level			IP24	IP24
Climate type			T1	T1
Connection pipe	Gas pipe	mm	Φ44.5	Φ54.1
		Inch	7/4	17/8
	Liquid pipe	mm	Φ22.2	Φ25.4
		Inch	7/8	1
	Oil equalizing pipe	mm	Φ12.7	Φ12.7
		Inch	1/2	1/2
	Connecting mode		Brazing Connection	Brazing Connection
Net weight		kg	255+350+370+370	255+370+370+370
Recommended power cord		mm^2×pc	6.0×5+10.0×5+10.0×5+10.0×5	6.0×5+10.0×5+10.0×5+10.0×5

Note:

a. The data will change with the change of products. Refer to those parameters listed on nameplate.

b. Noise was tested in semi-silenced room, so the actual noise value will be a litter higher for change of ambient.

c. The charge amount of refrigerant in the list is the datum when there is not drop height vertically between indoor unit and outdoor unit, without consideration of connection pipe. So calculate the additional charge amount according to actual condition during installation.

d. Section area of lead wire is only applicable for 15-m distance.If above, increase the section area to avoid overload of current which would cause burnout of lead wire.

e. The outdoor fan of this unit is without static pressure.If static pressure is required, please specially notice it on purchase order.

f. Running condition of cooling : outdoor tem -5℃～48℃; running condition of heating: outdoor tem-20℃～27℃.

Model （Combined unit）			INV-Pdm1700W4/NaB-M	INV-Pdm1750W4/NaB-M
Model（Single unit）			INV-Pdm335W/NaB-M + INV-Pdm450W/NaB-M + INV-Pdm450W/NaB-M + INV-Pdm450W/NaB-M	INV-Pdm400W/NaB-M + INV-Pdm450W/NaB-M + INV-Pdm450W/NaB-M + INV-Pdm450W/NaB-M
Cooling capacity		kW	168.5	175.0
Heating capacity		kW	187.5	195.0
Sound Pressure Level		dB(A)	66	66
R410A charge amount		kg	15+17+17+17	16+17+17+17
Power Supply			380-415V 3N~50Hz	380-415V 3N~50Hz
Rated power	Cooling	kW	9.23+14.32+14.32+14.32	12.45+14.32+14.32+14.32
	Heating	kW	9.38+13.90+13.90+13.90	11.2+13.90+13.90+13.90
Rated current	Cooling	A	16.50+25.60+25.60+25.60	22.25+25.60+25.60+25.60
	Heating	A	16.77+24.85+24.85+24.85	20.02+24.85+24.85+24.85
Dimension （mm）（W×D×H）			（1340×770×1670） +（1340×770×1670） +（1340×770×1670） +（1340×770×1670）	（1340×770×1670） +（1340×770×1670） +（1340×770×1670） +（1340×770×1670）
Compressor			（D.C.Inverter Scroll type compressor ×1+constant speed scroll compressor ×2）×4	（D.C.Inverter Scroll type compressor ×1+constant speed scroll compressor ×2）×4
Water proof level			IP24	IP24
Climate type			T1	T1
Connection pipe	Gas pipe	mm	Φ54.1	Φ54.1
		Inch	17/8	17/8
	Liquid pipe	mm	Φ25.4	Φ25.4
		Inch	1	1
	Oil equalizing pipe	mm	Φ12.7	Φ12.7
		Inch	1/2	1/2
	Connecting mode		Brazing Connection	Brazing Connection
Net weight		kg	350+370+370+370	350+370+370+370
Recommended power cord		mm^2×pc	10.0×5+10.0×5+10.0×5+10.0×5	10.0×5+10.0×5+10.0×5+10.0×5

Note:

a. The data will change with the change of products. Refer to those parameters listed on nameplate.

b. Noise was tested in semi-silenced room, so the actual noise value will be a litter higher for change of ambient.

c. The charge amount of refrigerant in the list is the datum when there is not drop height vertically between indoor unit and outdoor unit, without consideration of connection pipe. So calculate the additional charge amount according to actual condition during installation.

d. Section area of lead wire is only applicable for 15-m distance.If above, increase the section area to avoid overload of current which would cause burnout of lead wire.

e. The outdoor fan of this unit is without static pressure.If static pressure is required, please specially notice it on purchase order.

f. Running condition of cooling : outdoor tem -5℃～48℃; running condition of heating: outdoor tem-20℃～27℃.

Model （Combined unit）			INV（L）-Pdm1800W4/NaB-M
Model（Single unit）			INV-Pdm450W/NaB-M+ INV-Pdm450W/NaB-M + INV-Pdm450W/NaB-M+ INV-Pdm450W/NaB-M
Cooling capacity		kW	180.0
Heating capacity		kW	200.0
Sound Pressure Level		dB(A)	66
R410A charge amount		kg	17+17+17+17
Power Supply			380-415V 3N~50Hz
Rated power	Cooling	kW	14.32+14.32+14.32+14.32
	Heating	kW	13.90+13.90+13.90+13.90
Rated current	Cooling	A	25.60+25.60+25.60+25.60
	Heating	A	24.85+24.85+24.85+24.85
Dimension （mm） （W×D×H）			（1340×770×1670）+（1340×770×1670） +（1340×770×1670）+（1340×770×1670）
Compressor			（D.C.Inverter Scroll type compressor ×1+constant speed scroll compressor×2）×4
Water proof level			IP24
Climate type			T1
Connection pipe	Gas pipe	mm	Φ54.1
		Inch	17/8
	Liquid pipe	mm	Φ25.4
		Inch	1
	Oil equalizing pipe	mm	Φ12.4
		Inch	1/2
	Connecting mode		Brazing Connection
Net weight		kg	370+370+370+370
Recommended power cord		mm^2×pc	10.0×5+10.0×5+10.0×5+10.0×5

Note:

a. The data will change with the change of products. Refer to those parameters listed on nameplate.

b. Noise was tested in semi-silenced room, so the actual noise value will be a litter higher for change of ambient.

c. The charge amount of refrigerant in the list is the datum when there is not drop height vertically between indoor unit and outdoor unit, without consideration of connection pipe. So calculate the additional charge amount according to actual condition during installation.

d. Section area of lead wire is only applicable for 15-m distance.If above, increase the section area to avoid overload of current which would cause burnout of lead wire.

e. The outdoor fan of this unit is without static pressure.If static pressure is required, please specially notice it on purchase order.

f. Running condition of cooling : outdoor tem -5℃～48℃; running condition of heating: outdoor tem-20℃～27℃.

4.2 Product data of indoor

4.2.1 Duct Type

Model			INV(L)-R22P/Na-K	INV(L)-R25P/Na-K	INV(L)-R28P/Na-K
Cooling Capacity		kW	2.2	2.5	2.8
		Btu	7506	8530	9554
Heating Capacity		kW	2.5	3.0	3.2
		Btu	8530	10236	10918
Air Flow Rate		m3/h	450	450	570
		CFM	265	265	336
Sound Pressure Level (H/L)		dB(A)	37/33	37/33	39/35
External Static Pressure		Pa	25	25	25
Power Supply			220-240V～50Hz	220-240V～50Hz	220-240V～50Hz
Fan Motor	Output	kW	0.02	0.02	0.02
	Running Current	A	0.17	0.17	0.16
Connecting Pipes	Gas Pipe	mm	φ9.52	φ9.52	φ9.52
		inch	φ3/8 "	φ3/8 "	φ3/8 "
	Liquid Pipe	mm	φ6.35	φ6.35	φ6.35
		inch	φ1/4 "	φ1/4 "	φ1/4 "
	Connection Method		Flare Connection	Flare Connection	Flare Connection
Drain Pipes （External Dia. × Thickness）		mm	φ20×1.5	φ20×1.5	φ20×1.5
Unit Dimensions (W×D×H)		mm	875×680×220	875×680×220	875×680×220
Package Dimensions (W×D×H)		mm	1012×708×275	1012×708×275	1012×708×275
Weight（Net/Gross）		kg	27/31	27/31	27/31

Notes:
① The design of this unit comply with the national executing standard of GB/T 18837-2002;
② Refer to the product nameplate for parameters and specification of the unit;
③ The model with INVL code is cooling only unit; while the model with INV code is heat pump unit; the cooling only units dose not have any parameters of performing heating;
④ The sound level is tested under circumstance of semi-anechoic chamber; the value of noise could be a little higher in actual operation.

Model			INV(L)-R32P/Na-K	INV(L)-R36P/Na-K	INV(L)-R40P/Na-K
Cooling Capacity		kW	3.2	3.6	4.0
		Btu	10919	12284	13649
Heating Capacity		kW	3.6	4.0	4.5
		Btu	12283	13648	15354
Air Flow Rate		m3/h	570	570	840
		CFM	336	336	494
Sound Pressure Level (H/L)		dB(A)	39/35	39/35	40/36
External Static Pressure		Pa	25	25	20
Power Supply			220-240V～50Hz	220-240V～50Hz	220-240V～50Hz
Fan Motor	Output	kW	0.02	0.02	0.07
	Running Current	A	0.16	0.16	0.69
Connecting Pipes	Gas Pipe	mm	φ12.7	φ12.7	φ12.7
		inch	φ1/2 "	φ1/2 "	φ1/2 "
	Liquid Pipe	mm	φ6.35	φ6.35	φ6.35
		inch	φ1/4 "	φ1/4 "	φ1/4 "
	Connection Method		Flare Connection	Flare Connection	Flare Connection
Drain Pipes （External Dia. × Thickness）		mm	φ20×1.5	φ20×1.5	φ30×1.5
Unit Dimensions (W×D×H)		mm	875×680×220	875×680×220	980×736×266
Package Dimensions (W×D×H)		mm	1012×708×275	1012×708×275	1068×766×320
Weight（Net/Gross）		kg	27/31	27/31	36/39

Notes:
① The design of this unit comply with the national executing standard of GB/T 18837-2002;
② Refer to the product nameplate for parameters and specification of the unit;
③ The model with INVL code is cooling only unit; while the model with INV code is heat pump unit; the cooling only units dose not have any parameters of performing heating;
④ The sound level is tested under circumstance of semi-anechoic chamber; the value of noise could be a little higher in actual operation.

Model			INV(L)-R45P/Na-K	INV(L)-R50P/Na-K	INV(L)-R56P/Na-K
Cooling Capacity		kW	4.5	5.0	5.6
		Btu	15355	17061	19108
Heating Capacity		kW	5.0	5.8	6.3
		Btu	17060	19790	21496
Air Flow Rate		m3/h	840	840	1400
		CFM	494	494	824
Sound Pressure Level (H/L)		dB(A)	40/36	40/36	42/38
External Static Pressure		Pa	40	40	100
Power Supply			220-240V～50Hz	220-240V～50Hz	220-240V～50Hz
Fan Motor	Output	kW	0.07	0.07	0.15
	Running Current	A	0.69	0.69	1.32
Connecting Pipes	Gas Pipe	mm	φ12.7	φ12.7	φ15.9
		inch	φ1/2 "	φ1/2 "	φ5/8 "
	Liquid Pipe	mm	φ6.35	φ6.35	φ9.52
		inch	φ1/4 "	φ1/4 "	φ3/8 "
	Connection Method		Flare Connection	Flare Connection	Flare Connection
Drain Pipes （External Dia. × Thickness）		mm	φ30×1.5	φ30×1.5	φ30×1.5
Unit Dimensions (W×D×H)		mm	980×736×266	980×736×266	1112×756×300
Package Dimensions (W×D×H)		mm	1068×766×320	1068×766×320	1245×785×360
Weight（Net/Gross）		kg	36/39	36/39	55/59

Notes:
① The design of this unit comply with the national executing standard of GB/T 18837-2002;
② Refer to the product nameplate for parameters and specification of the unit;
③ The model with INVL code is cooling only unit; while the model with INV code is heat pump unit; the cooling only units dose not have any parameters of performing heating;
④ The sound level is tested under circumstance of semi-anechoic chamber; the value of noise could be a little higher in actual operation.

Model			INV(L)-R63P/Na-K	INV(L)-R71P/Na-K	INV(L)-R80P/Na-K
Cooling Capacity		kW	6.3	7.1	8.0
		Btu	21496	24226	27297
Heating Capacity		kW	7.0	8.0	8.8
		Btu	23884	27296	30026
Air Flow Rate		m3/h	1400	1400	1400
		CFM	824	824	824
Sound Pressure Level (H/L)		dB(A)	42/38	42/38	42/38
External Static Pressure		Pa	100	100	100
Power Supply			220-240V～50Hz	220-240V～50Hz	220-240V～50Hz
Fan Motor	Output	kW	0.15	0.15	0.15
	Running Current	A	1.32	1.32	1.32
Connecting Pipes	Gas Pipe	mm	φ15.9	φ15.9	φ15.9
		inch	φ5/8 "	φ5/8 "	φ5/8 "
	Liquid Pipe	mm	φ9.52	φ9.52	φ9.52
		inch	φ3/8 "	φ3/8 "	φ3/8 "
	Connection Method		Flare Connection	Flare Connection	Flare Connection
Drain Pipes （External Dia. × Thickness）		mm	φ30×1.5	φ30×1.5	φ30×1.5
Unit Dimensions (W×D×H)		mm	1112×756×300	1112×756×300	1112×756×300
Package Dimensions (W×D×H)		mm	1245×785×360	1245×785×360	1245×785×360
Weight（Net/Gross）		kg	55/59	55/59	55/59

Notes:
① The design of this unit comply with the national executing standard of GB/T 18837-2002;
② Refer to the product nameplate for parameters and specification of the unit;
③ The model with INVL code is cooling only unit; while the model with INV code is heat pump unit; the cooling only units dose not have any parameters of performing heating;
④ The sound level is tested under circumstance of semi-anechoic chamber; the value of noise could be a little higher in actual operation.

Model			INV(L)-R90P/Na-K	INV(L)-R100P/Na-K	INV(L)-R112P/Na-K
Cooling Capacity		kW	9.0	10.0	11.2
		Btu	30709	34121	38216
Heating Capacity		kW	10.0	11.0	12.5
		Btu	34120	37532	42650
Air Flow Rate		m3/h	2000	2000	2000
		CFM	1177	1177	1177
Sound Pressure Level (H/L)		dB(A)	44/40	44/40	44/40
External Static Pressure		Pa	100	100	100
Power Supply			220-240V～50Hz	220-240V～50Hz	220-240V～50Hz
Fan Motor	Output	kW	0.225	0.225	0.225
	Running Current	A	2.14	2.14	2.14
Connecting Pipes	Gas Pipe	mm	φ15.9	φ15.9	φ15.9
		inch	φ5/8 "	φ5/8 "	φ5/8 "
	Liquid Pipe	mm	φ9.52	φ9.52	φ9.52
		inch	φ3/8 "	φ3/8 "	φ3/8 "
	Connection Method		Flare Connection	Flare Connection	Flare Connection
Drain Pipes （External Dia. × Thickness）		mm	φ30×1.5	φ30×1.5	φ30×1.5
Unit Dimensions (W×D×H)		mm	1385×736×300	1385×736×300	1385×736×300
Package Dimensions (W×D×H)		mm	1514×795×360	1514×795×360	1514×795×360
Weight（Net/Gross）		kg	75/79	75/79	75/79

Notes:
① The design of this unit comply with the national executing standard of GB/T 18837-2002;
② Refer to the product nameplate for parameters and specification of the unit;
③ The model with INVL code is cooling only unit; while the model with INV code is heat pump unit; the cooling only units dose not have any parameters of performing heating;
④ The sound level is tested under circumstance of semi-anechoic chamber; the value of noise could be a little higher in actual operation.

Model			INV(L)-R125P/Na-K	INV(L)-R140P/Na-K	INV(L)-R224P/Na-K
Cooling Capacity		kW	12.5	14.0	22.4
		Btu	42652	47770	76432
Heating Capacity		kW	13.5	15.0	25.0
		Btu	46060	51180	85304
Air Flow Rate		m3/h	2000	2000	4000
		CFM	1177	1177	2354
Sound Pressure Level (H/L)		dB(A)	44/40	45/41	54(H)
External Static Pressure		Pa	100	50	120
Power Supply			220-240V～50Hz	220-240V～50Hz	380V,3N～50Hz
Fan Motor	Output	kW	0.225	0.225	1.1
	Running Current	A	2.14	2.14	2.8
Connecting Pipes	Gas Pipe	mm	φ15.9	φ15.9	φ19.05
		inch	φ5/8 "	φ5/8 "	φ3/4 "
	Liquid Pipe	mm	φ9.52	φ9.52	φ9.52
		inch	φ3/8 "	φ3/8 "	φ3/8 "
	Connection Method		Flare Connection	Flare Connection	Flare Connection
Drain Pipes （External Dia. × Thickness）		mm	φ30×1.5	φ30×1.5	1 " screwed joint
Unit Dimensions (W×D×H)		mm	1385×736×300	1385×736×300	1500×1000×500
Package Dimensions (W×D×H)		mm	1514×795×360	1514×795×360	1840×1200×673
Weight（Net/Gross）		kg	75/79	75/79	150/200

Notes:
① The design of this unit comply with the national executing standard of GB/T 18837-2002;
② Refer to the product nameplate for parameters and specification of the unit;
③ The model with INVL code is cooling only unit; while the model with INV code is heat pump unit; the cooling only units dose not have any parameters of performing heating;
④ The sound level is tested under circumstance of semi-anechoic chamber; the value of noise could be a little higher in actual operation.

Model			INV(L)-R280P/Na-K	INV(L)-R22P/NaB-K	INV(L)-R25P/NaB-K
Cooling Capacity		kW	28.0	2.2	2.5
		Btu	95540	7507	8530
Heating Capacity		kW	31.0	2.5	3.0
		Btu	105780	8530	10236
Air Flow Rate		m3/h	4800	450	450
		CFM	2825	265	265
Sound Pressure Level (H/L)		dB(A)	57(H)	37/33	37/33
External Static Pressure		Pa	120	50/20	50/20
Power Supply			380V,3N～50Hz	220-240V～50Hz	220-240V～50Hz
Fan Motor	Output	kW	1.5	0.075	0.075
	Running Current	A	3.3	0.30	0.30
Connecting Pipes	Gas Pipe	mm	φ22.2	φ9.52	φ9.52
		inch	φ7/8 "	φ3/8 "	φ3/8 "
	Liquid Pipe	mm	φ9.52	φ6.35	φ6.35
		inch	φ3/8 "	φ1/4 "	φ1/4 "
	Connection Method		Flare Connection	Flare Connection	Flare Connection
Drain Pipes （External Dia. × Thickness）		mm	1 " screwed joint	φ20×1.5	φ20×1.5
Unit Dimensions (W×D×H)		mm	1500×1000×500	875×680×260	875×680×260
Package Dimensions (W×D×H)		mm	1840×1200×673	1012×780×315	1012×780×315
Weight（Net/Gross）		kg	170/220	27/31	27/31

Notes:
① The design of this unit comply with the national executing standard of GB/T 18837-2002;
② Refer to the product nameplate for parameters and specification of the unit;
③ The model with INVL code is cooling only unit; while the model with INV code is heat pump unit; the cooling only units dose not have any parameters of performing heating;
④ The sound level is tested under circumstance of semi-anechoic chamber; the value of noise could be a little higher in actual operation.

Model			INV(L)-R28P/NaB-K	INV(L)-R36P/NaB-K	INV(L)-R45P/NaB-K
Cooling Capacity		kW	2.8	3.6	4.5
		Btu	9554	12284	15355
Heating Capacity		kW	3.2	4.0	5.0
		Btu	10918	13648	17060
Air Flow Rate		m3/h	570	570	840
		CFM	335	336	494
Sound Pressure Level (H/L)		dB(A)	39/35	39/35	40/36
External Static Pressure		Pa	50/20	50/20	50/20
Power Supply			220-240V～50Hz	220-240V～50Hz	220-240V～50Hz
Fan Motor	Output	kW	0.08	0.08	0.14
	Running Current	A	0.40	0.40	0.60
Connecting Pipes	Gas Pipe	mm	φ9.52	φ12.7	φ12.7
		inch	φ3/8 "	φ1/2 "	φ1/2 "
	Liquid Pipe	mm	φ6.35	φ6.35	φ6.35
		inch	φ1/4 "	φ1/4 "	φ1/4 "
	Connection Method		Flare Connection	Flare Connection	Flare Connection
Drain Pipes （External Dia. × Thickness）		mm	φ20×1.5	φ20×1.5	Φ30×1.5
Unit Dimensions (W×D×H)		mm	875×680×260	875×680×260	980×736×266
Package Dimensions (W×D×H)		mm	1012×780×315	1012×780×315	1068×766×320
Weight（Net/Gross）		kg	27/31	27/31	34/37

Notes:
① The design of this unit comply with the national executing standard of GB/T 18837-2002;
② Refer to the product nameplate for parameters and specification of the unit;
③ The model with INVL code is cooling only unit; while the model with INV code is heat pump unit; the cooling only units dose not have any parameters of performing heating;
④ The sound level is tested under circumstance of semi-anechoic chamber; the value of noise could be a little higher in actual operation.

Model			INV(L)-R56P/NaB-K	INV(L)-R71P/NaB-K	INV(L)-R90P/NaB-K
Cooling Capacity		kW	5.6	7.1	9.0
		Btu	19108	24226	30709
Heating Capacity		kW	6.3	8.0	10.0
		Btu	21496	27296	34120
Air Flow Rate		m3/h	1400	1400	2000
		CFM	824	824	1177
Sound Pressure Level (H/L)		dB(A)	42/38	42/38	44/40
External Static Pressure		Pa	60/30	60/30	80/40
Power Supply			220-240V～50Hz	220-240V～50Hz	220-240V～50Hz
Fan Motor	Output	kW	0.24	0.24	0.36
	Running Current	A	1.00	1.00	1.60
Connecting Pipes	Gas Pipe	mm	Φ15.9	Φ15.9	Φ15.9
		inch	Φ5/8 "	Φ5/8 "	Φ5/8 "
	Liquid Pipe	mm	Φ9.52	Φ9.52	Φ9.52
		inch	Φ3/8 "	Φ3/8 "	Φ3/8 "
	Connection Method		Flare Connection	Flare Connection	Flare Connection
Drain Pipes （External Dia. × Thickness）		mm	Φ30×1.5	Φ30×1.5	Φ30×1.5
Unit Dimensions (W×D×H)		mm	1112×756×300	1112×756×300	1425×756×300
Package Dimensions (W×D×H)		mm	1245×785×360	1245×785×360	1514×785×360
Weight（Net/Gross）		kg	49/56	49/56	62/71

Notes:
① The design of this unit comply with the national executing standard of GB/T 18837-2002;
② Refer to the product nameplate for parameters and specification of the unit;
③ The model with INVL code is cooling only unit; while the model with INV code is heat pump unit; the cooling only units dose not have any parameters of performing heating;
④ The sound level is tested under circumstance of semi-anechoic chamber; the value of noise could be a little higher in actual operation.

Model			INV(L)-R112P/NaB-K	INV(L)-R140P/NaB-K
Cooling Capacity		kW	11.2	14.0
		Btu	38216	47770
Heating Capacity		kW	12.5	15.0
		Btu	42650	51180
Air Flow Rate		m3/h	2000	2500
		CFM	1177	1471
Sound Pressure Level (H/L)		dB(A)	44/40	45/41
External Static Pressure		Pa	80/40	100/50
Power Supply			220-240V～50Hz	220-240V～50Hz
Fan Motor	Output	kW	0.36	0.50
	Running Current	A	1.60	2.00
Connecting Pipes	Gas Pipe	mm	Φ15.9	Φ15.9
		inch	Φ5/8 "	Φ5/8 "
	Liquid Pipe	mm	Φ9.52	Φ9.52
		inch	Φ3/8 "	Φ3/8 "
	Connection Method		Flare Connection	Flare Connection
Drain Pipes （External Dia. × Thickness）		mm	Φ30×1.5	Φ30×1.5
Unit Dimensions (W×D×H)		mm	1425×756×300	1463×756×300
Package Dimensions (W×D×H)		mm	1514×785×360	1555×810×345
Weight（Net/Gross）		kg	62/71	63.5/73

Notes:
① The design of this unit comply with the national executing standard of GB/T 18837-2002;
② Refer to the product nameplate for parameters and specification of the unit;
③ The model with INVL code is cooling only unit; while the model with INV code is heat pump unit; the cooling only units dose not have any parameters of performing heating;
④ The sound level is tested under circumstance of semi-anechoic chamber; the value of noise could be a little higher in actual operation.

4.2.2Cassete Type

Model			INV(L)-R28T/Na-K	INV(L)-R36T/Na-K	INV(L)-R45T/Na-K
Cooling Capacity		kW	2.8	3.6	4.5
		Btu	9550	12280	15360
Heating Capacity		kW	3.2	4.0	5.0
		Btu	10900	13650	17060
Air Flow Rate		m3/h	680	680	680
		CFM	400	400	400
Sound Pressure Level (H/L)		dB(A)	37/34	37/34	37/34
External Static Pressure		Pa			
Power Supply			220-240V～50Hz	220-240V～50Hz	220-240V～50Hz
Fan Motor	Output	kW	0.035	0.035	0.035
	Running Current	A	0.19	0.19	0.28
Connecting Pipes	Gas Pipe	mm	Φ9.52	Φ12.7	Φ12.7
		inch	Φ3/8	Φ1/2	Φ1/2
	Liquid Pipe	mm	Φ6.35	Φ6.35	Φ6.35
		inch	Φ1/4	Φ1/4	Φ1/4
	Connection Method		Flare Connection	Flare Connection	Flare Connection
Drain Pipes （External Dia. × Thickness）		mm	Φ30×1.5	Φ30×1.5	Φ30×1.5
Unit Dimensions (W×D×H)		mm	840×840×190	840×840×190	840×840×190
Package Dimensions (W×D×H)		mm	950×950×60	950×950×60	950×950×60
Weight（Net/Gross）		kg	25/31.5	25/31.5	25/31.5

Notes:
① The design of this unit comply with the national executing standard of GB/T 18837-2002;
② Refer to the product nameplate for parameters and specification of the unit;
③ The model with INVL code is cooling only unit; while the model with INV code is heat pump unit; the cooling only units dose not have any parameters of performing heating;
④ The sound level is tested under circumstance of semi-anechoic chamber; the value of noise could be a little higher in actual operation.

Model			INV(L)-R50T/Na-K	INV(L)-R56T/Na-K	INV(L)-R71T/Na-K
Cooling Capacity		kW	5.0	5.6	7.1
		Btu	17060	19100	24230
Heating Capacity		kW	5.8	6.3	8.0
		Btu	19790	21500	27300
Air Flow Rate		m3/h	680	1180	1180
		CFM	400	695	695
Sound Pressure Level (H/L)		dB(A)	37/34	39/35	39/35
External Static Pressure		Pa			
Power Supply			220-240V～50Hz	220-240V～50Hz	220-240V～50Hz
Fan Motor	Output	kW	0.035	0.035	0.035
	Running Current	A	0.28	0.28	0.28
Connecting Pipes	Gas Pipe	mm	Φ12.7	Φ15.9	Φ15.9
		inch	Φ1/2	Φ5/8	Φ5/8
	Liquid Pipe	mm	Φ6.35	Φ9.52	Φ9.52
		inch	Φ1/4	Φ3/8	Φ3/8
	Connection Method		Flare Connection	Flare Connection	Flare Connection
Drain Pipes （External Dia. × Thickness）		mm	Φ30×1.5	Φ30×1.5	Φ30×1.5
Unit Dimensions (W×D×H)		mm	840×840×190	840×840×240	840×840×240
Package Dimensions (W×D×H)		mm	950×950×60	950×950×60	950×950×60
Weight（Net/Gross）		kg	25/31.5	30/36.5	30/36.5

Notes:
① The design of this unit comply with the national executing standard of GB/T 18837-2002;
② Refer to the product nameplate for parameters and specification of the unit;
③ The model with INVL code is cooling only unit; while the model with INV code is heat pump unit; the cooling only units dose not have any parameters of performing heating;
④ The sound level is tested under circumstance of semi-anechoic chamber; the value of noise could be a little higher in actual operation.

Model			INV(L)-R90T/Na-K	INV(L)-R112T/Na-K
Cooling Capacity		kW	9.0	11.2
		Btu	30700	38210
Heating Capacity		kW	10.0	12.5
		Btu	34120	42650
Air Flow Rate		m3/h	1860	1860
		CFM	1095	1095
Sound Pressure Level (H/L)		dB(A)	40/36	40/36
External Static Pressure		Pa		
Power Supply			220-240V～50Hz	220-240V～50Hz
Fan Motor	Output	kW	0.06	0.06
	Running Current	A	0.59	0.59
Connecting Pipes	Gas Pipe	mm	Φ15.9	Φ15.9
		inch	Φ5/8	Φ5/8
	Liquid Pipe	mm	Φ9.52	Φ9.52
		inch	Φ3/8	Φ3/8
	Connection Method		Flare Connection	Flare Connection
Drain Pipes（External Dia. × Thickness）		mm	Φ30×1.5	Φ30×1.5
Unit Dimensions(W×D×H)		mm	840×840×320	840×840×320
Package Dimensions(W×D×H)		mm	950×950×60	950×950×60
Weight（Net/Gross）		kg	38/44.5	38/44.5

Notes:
① The design of this unit comply with the national executing standard of GB/T 18837-2002;
② Refer to the product nameplate for parameters and specification of the unit;
③ The model with INVL code is cooling only unit; while the model with INV code is heat pump unit; the cooling only units dose not have any parameters of performing heating;
④ The sound level is tested under circumstance of semi-anechoic chamber; the value of noise could be a little higher in actual operation.

4.2.3Wall mounted Type

Model			INV(L)-R22G/NaB-K	INV(L)-R28G/NaB-K	INV(L)-R36G/NaB-K
Cooling Capacity		kW	2.2	2.8	3.6
		Btu	7507	9554	12284
Heating Capacity		kW	2.5	3.2	4.0
		Btu	8530	10919	13649
Air Flow Rate		m3/h	360	360	500
		CFM	212	212	294
Sound Pressure Level (H/L)		dB(A)	37/28	37/28	43/28
External Static Pressure		Pa			
Power Supply			220-240V~50Hz	220-240V~50Hz	220-240V~50Hz
Fan Motor	Output	kW	0.014	0.014	0.022
	Running Current	A	0.15	0.15	0.22
Connecting Pipes	Gas Pipe	mm	Φ9.52	Φ9.52	Φ12.7
		inch	Φ3/8	Φ3/8	Φ1/2
	Liquid Pipe	mm	Φ6.35	Φ6.35	Φ6.35
		inch	Φ1/4	Φ1/4	Φ1/4
	Connection Method		Flare Connection	Flare Connection	Flare Connection
Drain Pipes （External Dia. × Thickness）		mm	φ20×1.5	φ20×1.5	φ20×1.5
Unit Dimensions (W×D×H)		mm	830×189×285	830×189×285	830×189×285
Package Dimensions (W×D×H)		mm	995×394×268	995×394×268	995×394×268
Weight（Net/Gross）		kg	8/14.3	8/14.3	11/15.8

Notes:
① The design of this unit comply with the national executing standard of GB/T 18837-2002;
② Refer to the product nameplate for parameters and specification of the unit;
③ The model with INVL code is cooling only unit; while the model with INV code is heat pump unit; the cooling only units dose not have any parameters of performing heating;
④ The sound level is tested under circumstance of semi-anechoic chamber; the value of noise could be a little higher in actual operation.

Model			INV(L)-R45G/NaB-K	INV(L)-R50G/NaB-K	INV(L)-R56G/NaB-K
Cooling Capacity		kW	4.5	5.0	5.6
		Btu	15355	17061	19108
Heating Capacity		kW	5.0	5.8	6.3
		Btu	17061	19790	21496
Air Flow Rate		m3/h	500	700	750
		CFM	294	412	441
Sound Pressure Level (H/L)		dB(A)	43/28	45/40	45/40
External Static Pressure		Pa			
Power Supply			220-240V~50Hz	220-240V~50Hz	220-240V~50Hz
Fan Motor	Output	kW	0.022	0.02	0.02
	Running Current	A	0.22	0.25	0.26
Connecting Pipes	Gas Pipe	mm	Φ12.7	Φ12.7	Φ15.9
		inch	Φ1/2	Φ1/2	Φ5/8
	Liquid Pipe	mm	Φ6.35	Φ6.35	Φ9.52
		inch	Φ1/4	Φ1/4	Φ3/8
	Connection Method		Flare Connection	Flare Connection	Flare Connection
Drain Pipes （External Dia. × Thickness）		mm	Φ20×1.5	Φ30×1.5	Φ30×1.5
Unit Dimensions (W×D×H)		mm	830×189×285	1020×228×310	1020×228×310
Package Dimensions (W×D×H)		mm	1006×385×265	1178×325×390	1178×325×390
Weight（Net/Gross）		kg	11/15.8	15.5/20.5	15.5/20.5

Notes:
① The design of this unit comply with the national executing standard of GB/T 18837-2002;
② Refer to the product nameplate for parameters and specification of the unit;
③ The model with INVL code is cooling only unit; while the model with INV code is heat pump unit; the cooling only units dose not have any parameters of performing heating;
④ The sound level is tested under circumstance of semi-anechoic chamber; the value of noise could be a little higher in actual operation.

Model			INV(L)-R22G/NaC-K	INV(L)-R28G/NaC-K	INV(L)-R36G/NaC-K
Cooling Capacity		kW	2.2	2.8	3.6
		Btu	7507	9554	12284
Heating Capacity		kW	2.5	3.2	4.0
		Btu	8530	10919	13649
Air Flow Rate		m3/h	360	360	500
		CFM	212	212	294
Sound Pressure Level (H/L)		dB(A)	37/28	37/28	43/28
External Static Pressure		Pa			
Power Supply			220-240V~50Hz	220-240V~50Hz	220-240V~50Hz
Fan Motor	Output	kW	0.014	0.014	0.022
	Running Current	A	0.15	0.15	0.22
Connecting Pipes	Gas Pipe	mm	Φ9.52	Φ9.52	Φ12.7
		inch	Φ3/8	Φ3/8	Φ1/2
	Liquid Pipe	mm	Φ6.35	Φ6.35	Φ6.35
		inch	Φ1/4	Φ1/4	Φ1/4
	Connection Method		Flare Connection	Flare Connection	Flare Connection
Drain Pipes （External Dia. × Thickness）		mm	φ20×1.5	φ20×1.5	φ20×1.5
Unit Dimensions (W×D×H)		mm	770×190×250	770×190×250	830×189×285
Package Dimensions (W×D×H)		mm	955×330×272	955×272×330	1006×395×295
Weight（Net/Gross）		kg	8/14.3	8/14.3	11/15.8

Notes:
① The design of this unit comply with the national executing standard of GB/T 18837-2002;
② Refer to the product nameplate for parameters and specification of the unit;
③ The model with INVL code is cooling only unit; while the model with INV code is heat pump unit; the cooling only units dose not have any parameters of performing heating;
④ The sound level is tested under circumstance of semi-anechoic chamber; the value of noise could be a little higher in actual operation.

Model			INV(L)-R45G/NaC-K	INV(L)-R50G/Na-K	INV(L)-R56G/Na-K
Cooling Capacity		kW	4.5	5.0	5.6
		Btu	15355	17061	19108
Heating Capacity		kW	5.0	5.8	6.3
		Btu	17061	19790	21496
Air Flow Rate		m3/h	500	700	750
		CFM	294	412	441
Sound Pressure Level (H/L)		dB(A)	43/28	42/38	45/40
External Static Pressure		Pa			
Power Supply			220-240V~50Hz	220-240V~50Hz	220-240V~50Hz
Fan Motor	Output	kW	0.022	0.02	0.02
	Running Current	A	0.22	0.15	0.15
Connecting Pipes	Gas Pipe	mm	Φ12.7	Φ12.7	Φ15.9
		inch	Φ1/2	Φ1/2	Φ5/8
	Liquid Pipe	mm	Φ6.35	Φ6.35	Φ9.52
		inch	Φ1/4	Φ1/4	Φ3/8
	Connection Method		Flare Connection	Flare Connection	Flare Connection
Drain Pipes （External Dia. × Thickness）		mm	Φ30×1.5	Φ30×1.5	Φ30×1.5
Unit Dimensions (W×D×H)		mm	830×189×285	907×195×290	907×195×290
Package Dimensions (W×D×H)		mm	1006×395×295	1158×366×317	1158×366×317
Weight（Net/Gross）		kg	11/15.8	12/16.8	12/16.8

Notes:
① The design of this unit comply with the national executing standard of GB/T 18837-2002;
② Refer to the product nameplate for parameters and specification of the unit;
③ The model with INVL code is cooling only unit; while the model with INV code is heat pump unit; the cooling only units dose not have any parameters of performing heating;
④ The sound level is tested under circumstance of semi-anechoic chamber; the value of noise could be a little higher in actual operation.

Model			INV(L)-R71G/Na-K	INV(L)-R80G/Na-K
Cooling Capacity		kW	7.1	8.0
		Btu	24226	27297
Heating Capacity		kW	8.0	9.0
		Btu	27297	30709
Air Flow Rate		m3/h	1200	1200
		CFM	706	706
Sound Pressure Level (H/L)		dB(A)	49/42	49/42
External Static Pressure		Pa		
Power Supply			220-240V~50Hz	220-240V~50Hz
Fan Motor	Output	kW	0.026	0.026
	Running Current	A	0.29	0.39
Connecting Pipes	Gas Pipe	mm	Φ15.9	Φ15.9
		inch	Φ5/8	Φ5/8
	Liquid Pipe	mm	Φ9.52	Φ9.52
		inch	Φ3/8	Φ3/8
	Connection Method		Flare Connection	Flare Connection
Drain Pipes（External Dia. × Thickness）		mm	φ30×1.5	φ30×1.5
Unit Dimensions(W×D×H)		mm	1178×227×326	1178×227×326
Package Dimensions(W×D×H)		mm	1365×417×333	1365×417×333
Weight（Net/Gross）		kg	17.5/23	17.5/23

Notes:
① The design of this unit comply with the national executing standard of GB/T 18837-2002;
② Refer to the product nameplate for parameters and specification of the unit;
③ The model with INVL code is cooling only unit; while the model with INV code is heat pump unit; the cooling only units dose not have any parameters of performing heating;
④ The sound level is tested under circumstance of semi-anechoic chamber; the value of noise could be a little higher in actual operation.

4.2.4Floor Ceiling Type

Model			INV(L)-R28Zd/Na-K	INV(L)-R36Zd/Na-K	INV(L)-R50Zd/Na-K
Cooling Capacity		kW	2.8	3.6	5.0
		Btu	9554	12284	17061
Heating Capacity		kW	3.2	4.0	5.8
		Btu	10919	13649	19790
Air Flow Rate		m3/h	550	600	700
		CFM	324	353	412
Sound Pressure Level (H/L)		dB(A)	43/-	44/-	50/-
External Static Pressure		Pa	0	0	0
Power Supply			220-240V~50Hz	220-240V~50Hz	220-240V~50Hz
Fan Motor	Output	kW	0.01	0.01	0.04
	Running Current	A	0.1	0.1	0.4
Connecting Pipes	Gas Pipe	mm	Φ9.52	Φ12.7	Φ12.7
		inch	Φ3/8	Φ1/2	Φ1/2
	Liquid Pipe	mm	Φ6.35	Φ6.35	Φ6.35
		inch	Φ1/4	Φ1/4	Φ1/4
	Connection Method		Flare Connection	Flare Connection	Flare Connection
Drain Pipes （External Dia. × Thickness）		mm	Φ17×1.75	Φ17×1.75	Φ17×1.75
Unit Dimensions (W×D×H)		mm	840×238×695	840×238×695	840×238×695
Package Dimensions (W×D×H)		mm	1035×295×805	1035×295×805	1035×295×805
Weight（Net/Gross）		kg	28/37	28/37	28/37

Notes:
① The design of this unit comply with the national executing standard of GB/T 18837-2002;
② Refer to the product nameplate for parameters and specification of the unit;
③ The model with INVL code is cooling only unit; while the model with INV code is heat pump unit; the cooling only units dose not have any parameters of performing heating;
④ The sound level is tested under circumstance of semi-anechoic chamber; the value of noise could be a little higher in actual operation.

Model			INV(L)-R71Zd/Na-K	INV(L)-R90Zd/Na-K
Cooling Capacity		kW	7.1	9.0
		Btu	24226	30709
Heating Capacity		kW	8.0	10.0
		Btu	27297	34121
Air Flow Rate		m3/h	1170	2100
		CFM	689	1236
Sound Pressure Level (H/L)		dB(A)	48/-	51/-
External Static Pressure		Pa	0	0
Power Supply			220-240V～50Hz	220-240V～50Hz
Fan Motor	Output	kW	0.1	0.15
	Running Current	A	1	1.5
Connecting Pipes	Gas Pipe	mm	Φ15.9	Φ15.9
		inch	Φ5/8	5/8
	Liquid Pipe	mm	Φ9.52	Φ9.52
		inch	Φ3/8	3/8
	Connection Method		Flare Connection	Flare Connection
Drain Pipes (External Dia. × Thickness)		mm	Φ17×1.75	Φ17×1.75
Unit Dimensions (W×D×H)		mm	1300×188×600	1590×238×695
Package Dimensions (W×D×H)		mm	1514×248×724	1714×330×830
Weight (Net/Gross)		kg	34/38	44/53

Notes:
① The design of this unit comply with the national executing standard of GB/T 18837-2002;
② Refer to the product nameplate for parameters and specification of the unit;
③ The model with INVL code is cooling only unit; while the model with INV code is heat pump unit; the cooling only units dose not have any parameters of performing heating;
④ The sound level is tested under circumstance of semi-anechoic chamber; the value of noise could be a little higher in actual operation.

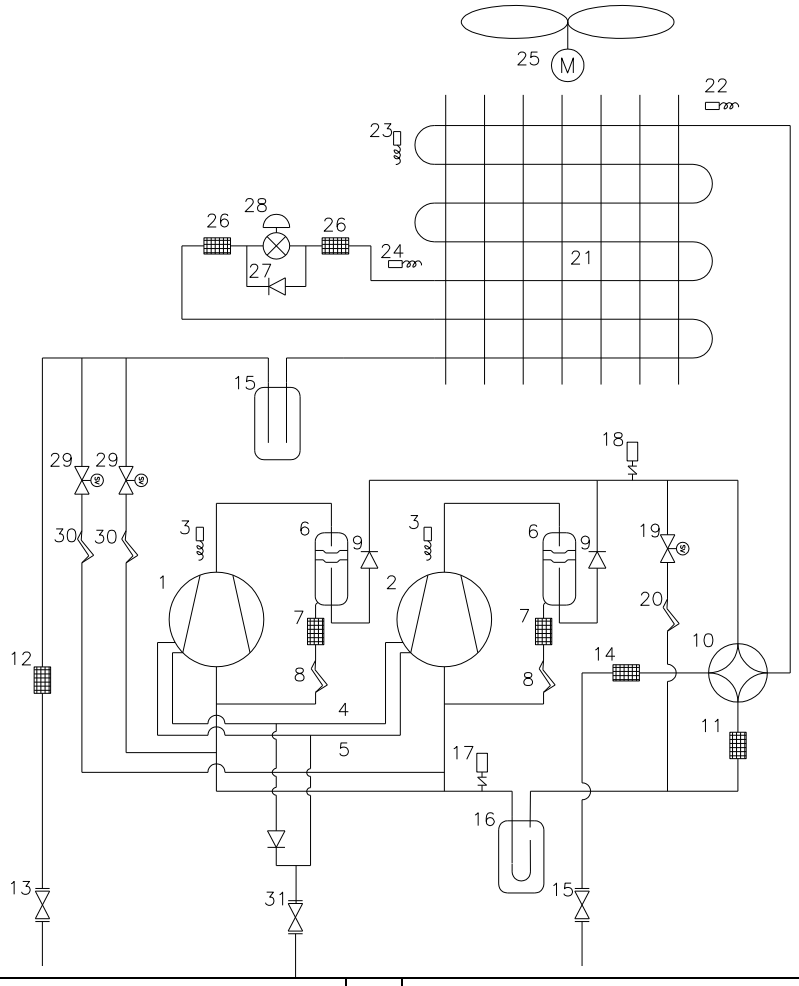
Model			INV(L)-R112Zd/Na-K	INV(L)-R125Zd/Na-K
Cooling Capacity		kW	11.2	12.5
		Btu	38216	42652
Heating Capacity		kW	12.5	13.5
		Btu	42652	46064
Air Flow Rate		m3/h	2200	2300
		CFM	1295	1354
Sound Pressure Level (H/L)		dB(A)	54/-	55/-
External Static Pressure		Pa	0	0
Power Supply			220-240V～50Hz	220-240V～50Hz
Fan Motor	Output	kW	0.18	0.18
	Running Current	A	1.8	1.8
Connecting Pipes	Gas Pipe	mm	Φ15.9	Φ15.9
		inch	5/8	5/8
	Liquid Pipe	mm	Φ9.52	Φ9.52
		inch	3/8	3/8
	Connection Method		Flare Connection	Flare Connection
Drain Pipes（External Dia. × Thickness）		mm	Φ17×1.75	Φ17×1.75
Unit Dimensions (W×D×H)		mm	1590×238×695	1590×238×695
Package Dimensions (W×D×H)		mm	1714×330×830	1714×330×830
Weight（Net/Gross）		kg	44/53	44/53

Notes:
① The design of this unit comply with the national executing standard of GB/T 18837-2002;
② Refer to the product nameplate for parameters and specification of the unit;
③ The model with INVL code is cooling only unit; while the model with INV code is heat pump unit; the cooling only units dose not have any parameters of performing heating;
④ The sound level is tested under circumstance of semi-anechoic chamber; the value of noise could be a little higher in actual operation.

4.3 Operation Range

Model	Range of Outdoor Temperature℃(℉)
Cooling	-5~48℃(23~118.8℉)
Heating	-20~27℃(-4~81℉)

5 PIPING DIAGRAM



1	compressor	18	High pressure sensor
2	D.C.Inverter Scroll type compressor	19	Gas by-pass value sub-assy:electromagnetic value
3	Discharge temperature sensor	20	Gas by-pass value sub-assy:capillary
4	Gas equilibrium pipe	21	condenser
5	Oil equilibrium pipe	22	Condenser inlet temperature sensor
6	Oil separator	23	Condenser middle temperature sensor
7	Oil separator sub-assy:Filter	24	Condenser outlet temperature sensor
8	Oil separator sub-assy:Capillary	25	Outdoor motor
9	Check Valve	26	Filter
10	4-way valve	27	Check Valve
11	Filter	28	Electronic expansion value
12	Filter	29	Liquid by-pass value sub-assy: electromagnetic value
13	Liquid valve	30	Liquid by-pass value sub-assy: capillary
14	Filter	31	Oil valve
15	Liquid valve		
16	Vapour Liquid Separator		
17	Low pressure sensor		

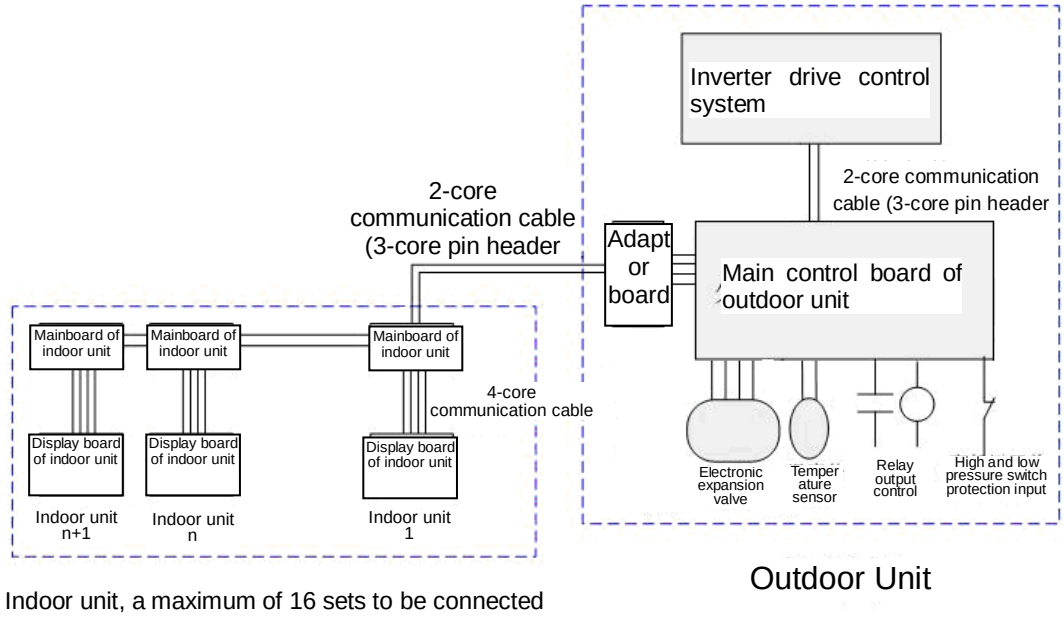
CONTROL

CONTROL

1 CONTROL OF THE UNIT

1.1 Concept of Integral Control of the Unit

1.1.1 Unit Control Schematic Diagram



Air conditioning units can be divided into indoor unit and outdoor unit. A maximum of 16 sets of indoor units can be connected to an outdoor unit. 2-core (3-core pin header) communication cable is used for the connection between indoor unit and outdoor unit. Indoor unit is connected to display board via 4-core communication cable. In engineering installation, address dial-up of the display board and the mainboard of indoor unit shall be dialed. The address dial-up of the mainboard of indoor unit must be identical with that of the display board of the same indoor unit. Address dial-up of different indoor unit must vary. Multi VRF indoor unit is applicable to all digital or inverter outdoor units.

Controller of outdoor unit falls into two categories in terms of its function, i.e. main control system and inverter drive control system

1.1.2 DC Inverter Unit

（1）Main control system

A、 Functions: main control system shall be connected to indoor unit through 2-core (3-core pin header) communication cable in order to receive start or stop commands, mode, setting temperature and ambient temperature from indoor unit, determine operation mode of outdoor unit, and through calculation based on capacity, decide proper running frequency which shall be sent to the drive control system through 2-core (3-core pin header) communication cable. Fan speed shall be regulated according to system pressure. Real-time monitoring of temperature sensors, operation state and protection of unit shall be performed to ensure normal and stable operation of the whole system. Protection codes of outdoor unit shall be displayed on the LED on the main control board when failure occurs. When drive is at fault, E5 shall be displayed on the display board of indoor unit, and specific failure type shall be indicated on the LED on the main control board of outdoor unit.

B、 Input and output controlled variables

Sensors include ambient temp. sensor, tube-inlet temp. sensor, tube-middle temp. sensor, tube-outlet temp. sensor, compressor exhaust temp. sensor, compressor casing top temp. sensor, high pressure sensor and low pressure sensor.

Switch protection: high pressure protection, over-current protection

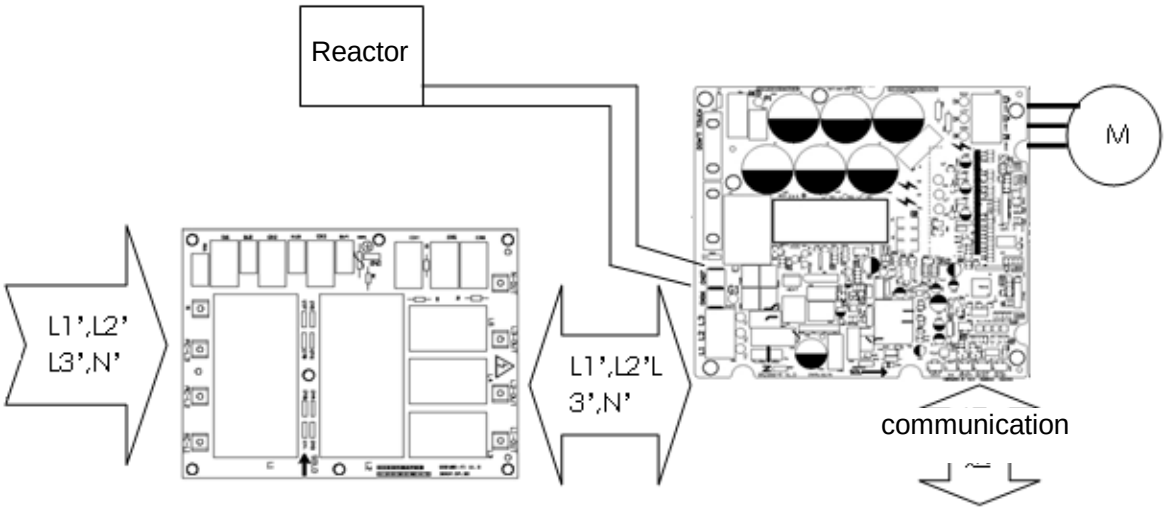
Output control objects: fan frequency, compressor heat tape (controlled by drive board), compressor AC contactor (3-phase, controlled by drive board), gas bypass valve, 4-way valve, solenoid valve A, oil equilibrium valve, liquid

bypass valve and capillary solenoid valve.

C 485 communication interface：indoor unit communication network and adaptor board CN1 shall be connected to the mainboard of indoor unit through 2-core (3-core pin header) communication cable; drive communication network and the mainboards CN11~CN14 of outdoor unit shall be connected to the drive board through 2-core (3-core pin header) communication cable.

2）Drive control system

①3-phase power supply unit



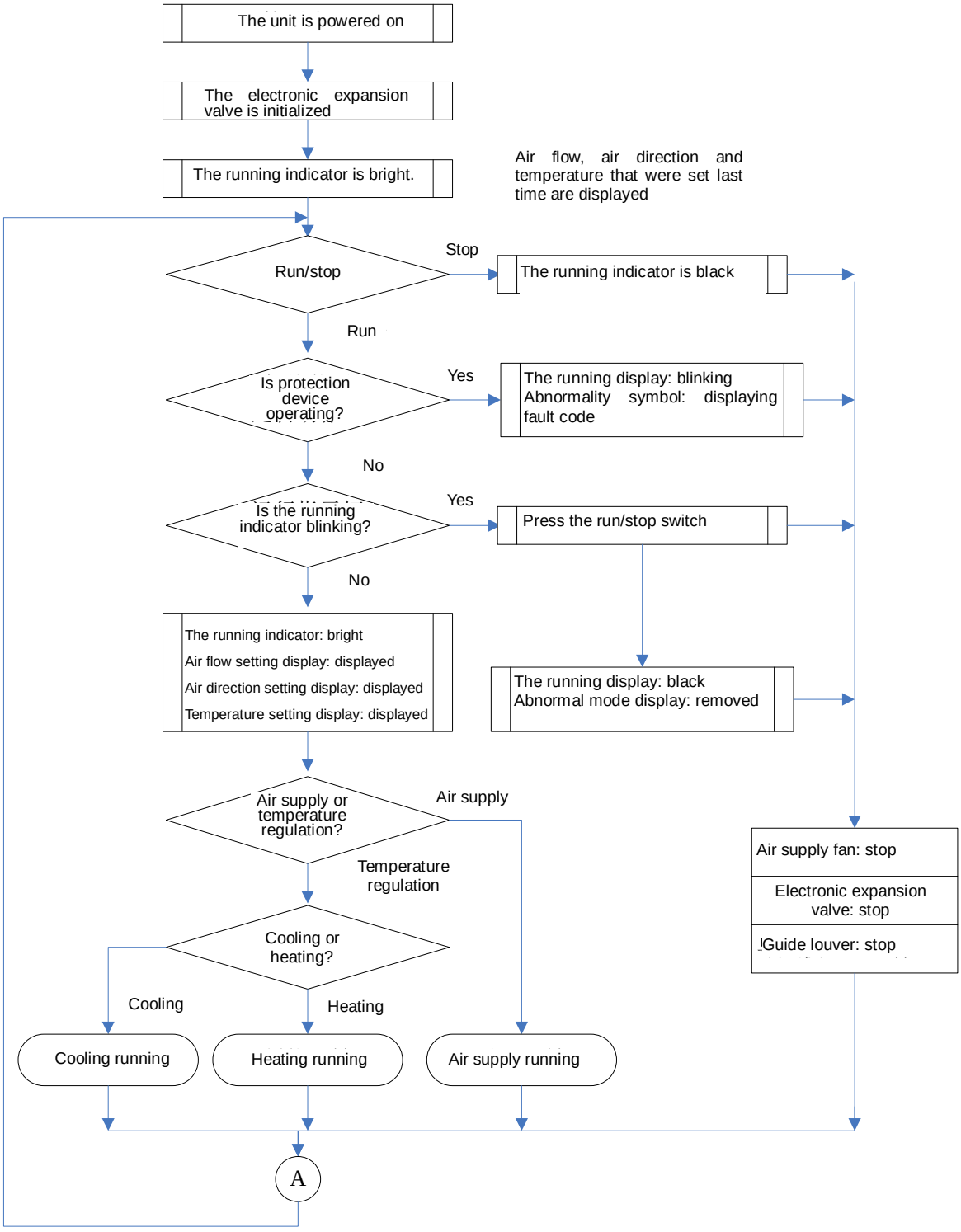
Functions of various modules:

A Filter plate：one of the two key functions is to filter and eliminate power interferences and ensure anti-interference capability of the unit even in a rugged power supply environment; the other one is to suppress interferences from power supply in order to prevent the operation of the unit from affecting other appliances such as TV. Because inverter unit works in a special way that is relatively sensitive to interferences, filter plate is normally arranged. Because 3-phase power supply is used for the unit, 3-phase filter plate that uses 3-stage filtering mode shall be employed. Input terminals of 3-phase filter plate are respectively AC-L1, AC-L2,AC-L3 and N, and corresponding output terminals are respectively L1-OUT,L2-OUT, L3-OUT and N-OUT.

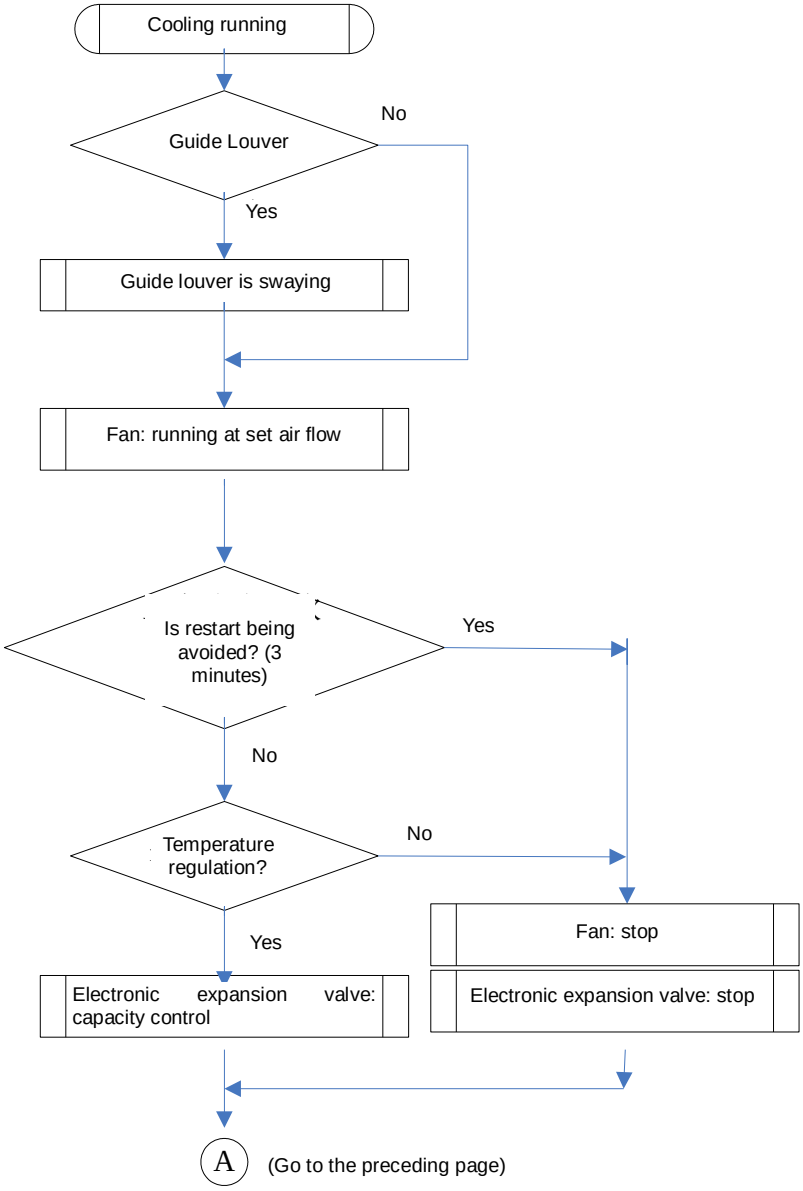
B Drive board is a key part of control system. Receiving commands from the main control board, the drive board can transform 380V, 50Hz, 3-phase commercial power into AC power with adjustable amplitude and frequency, capable to drive compressor.

1.2 Operation Flow Chart of the Unit

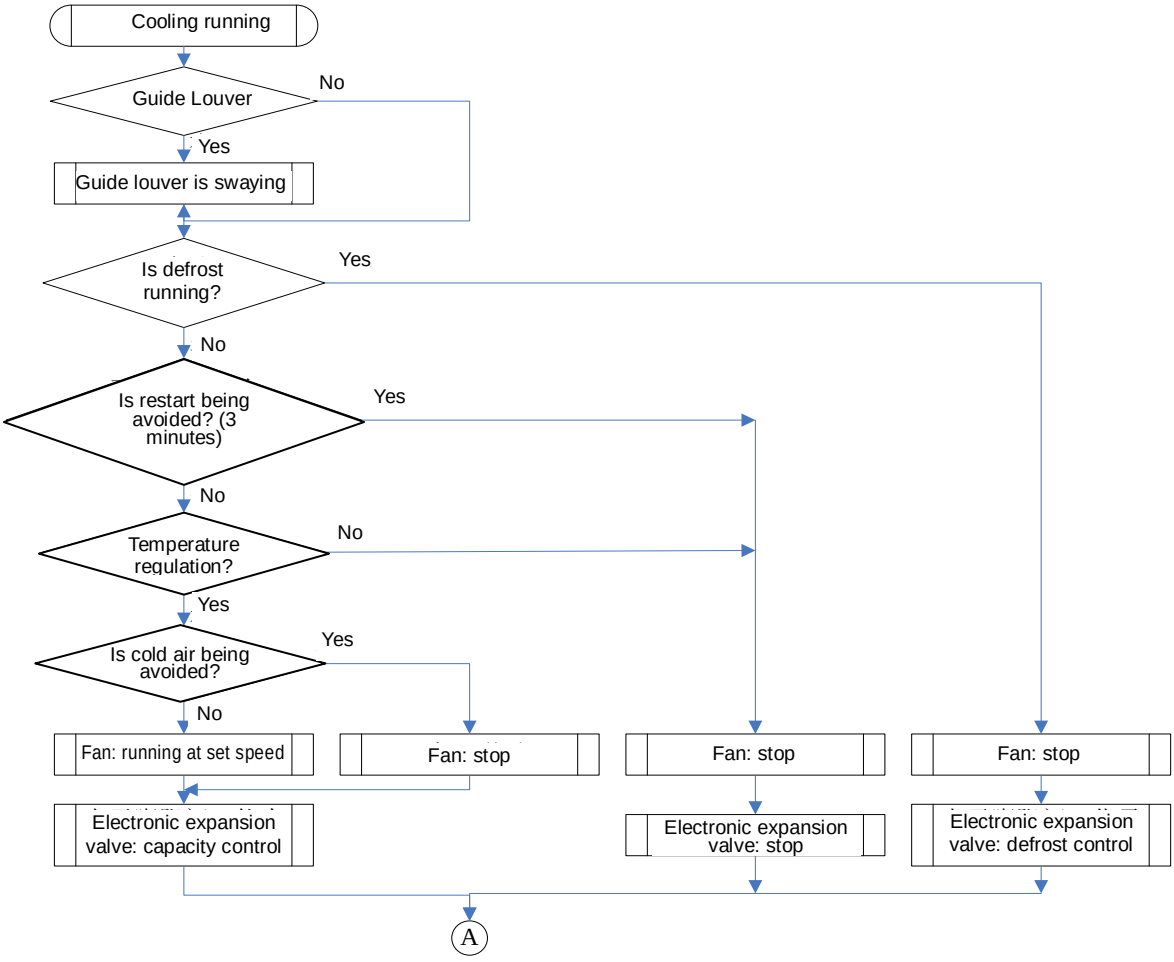
1.2.1 Operation Flow Chart of the Unit



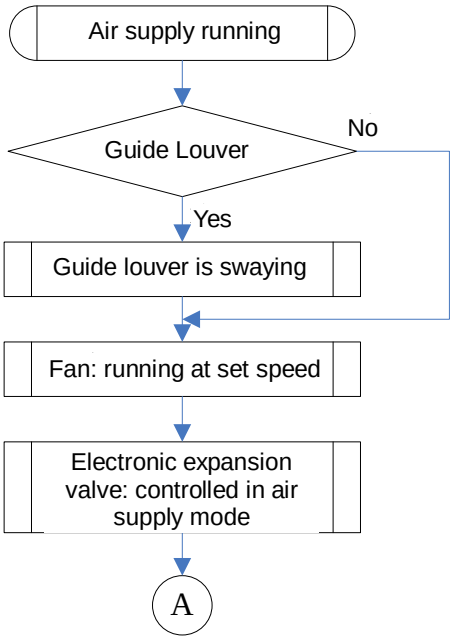
◆Cooling running



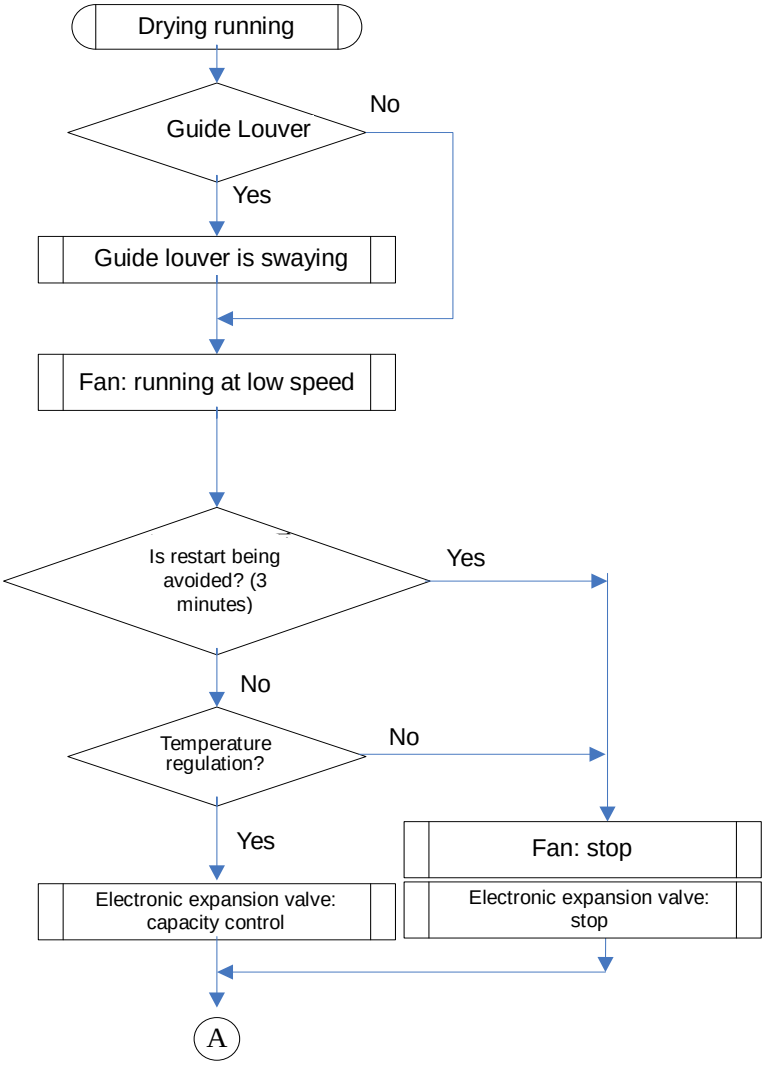
◆Heating running



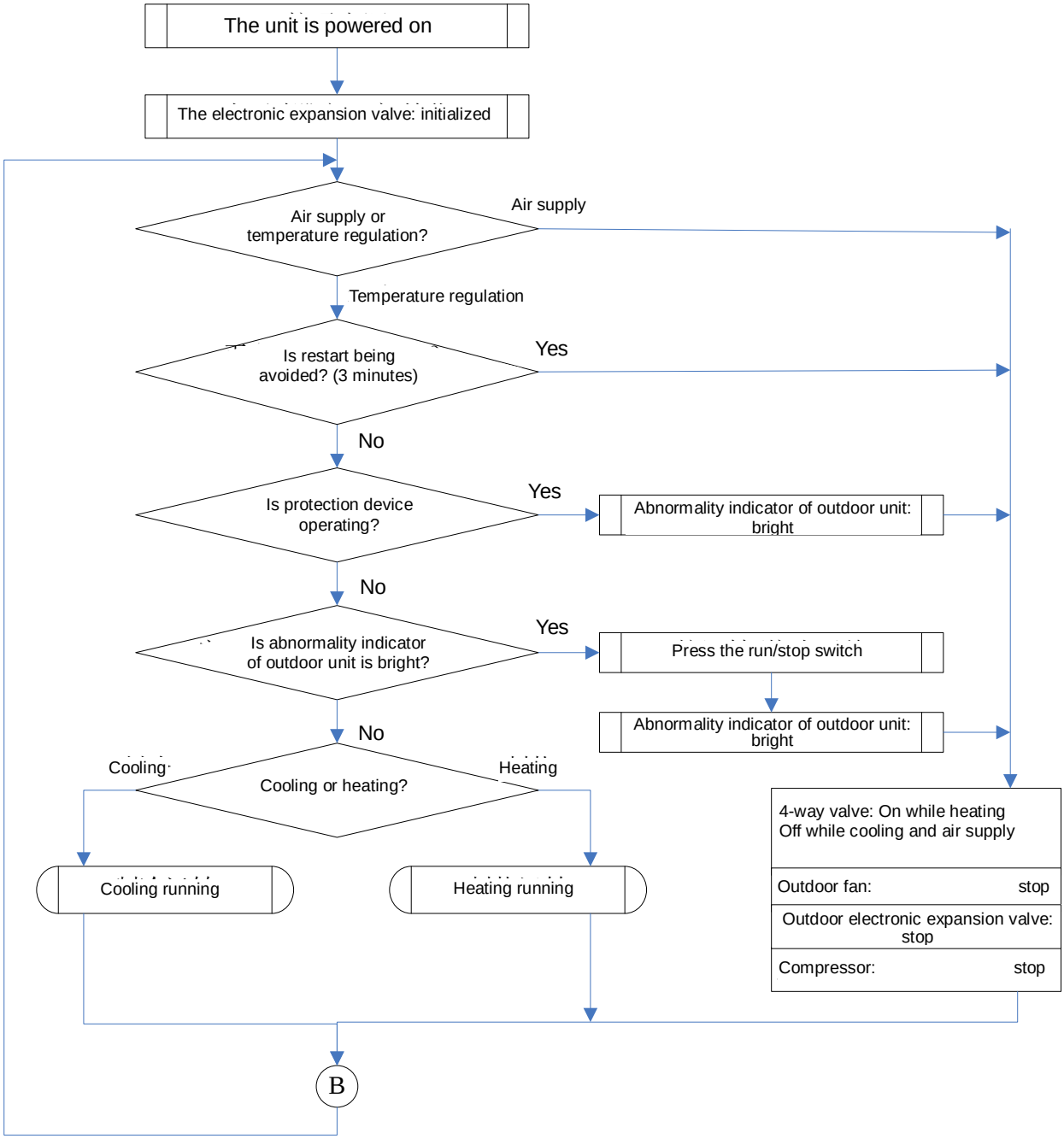
◆Air supply running



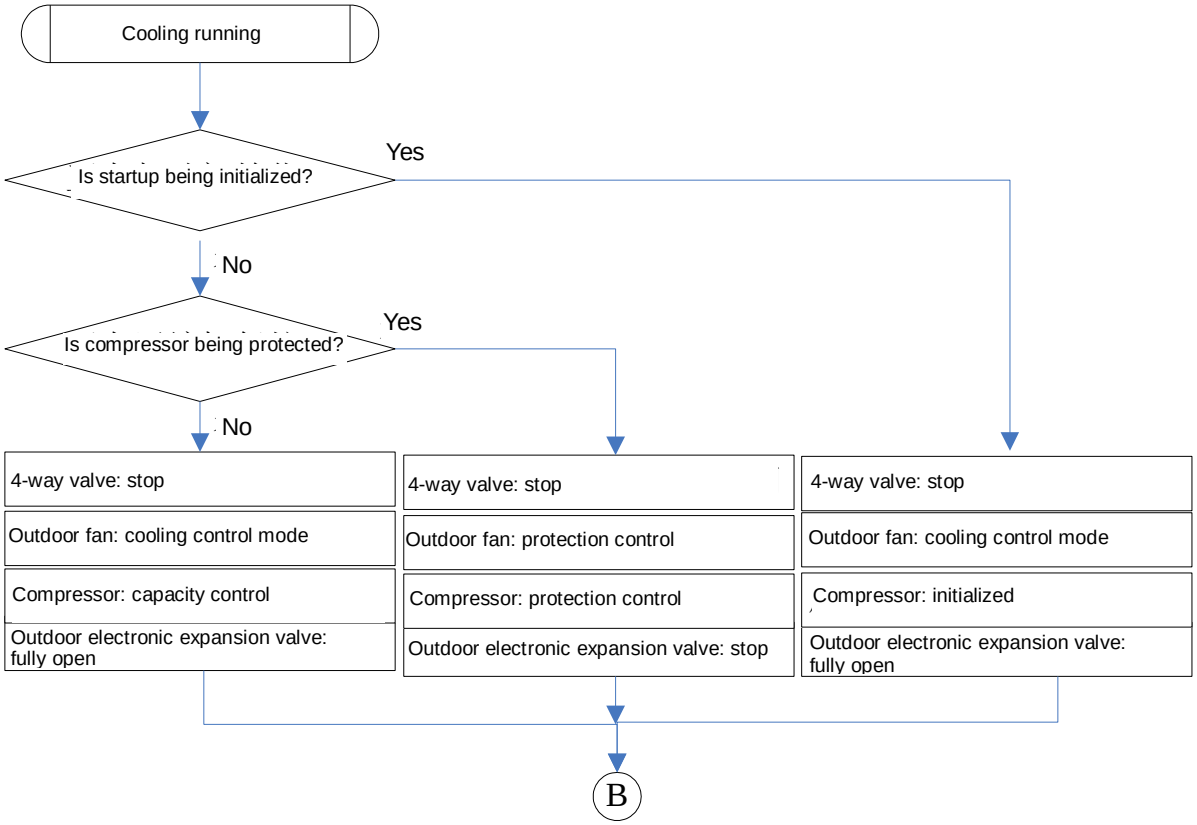
◆Drying running



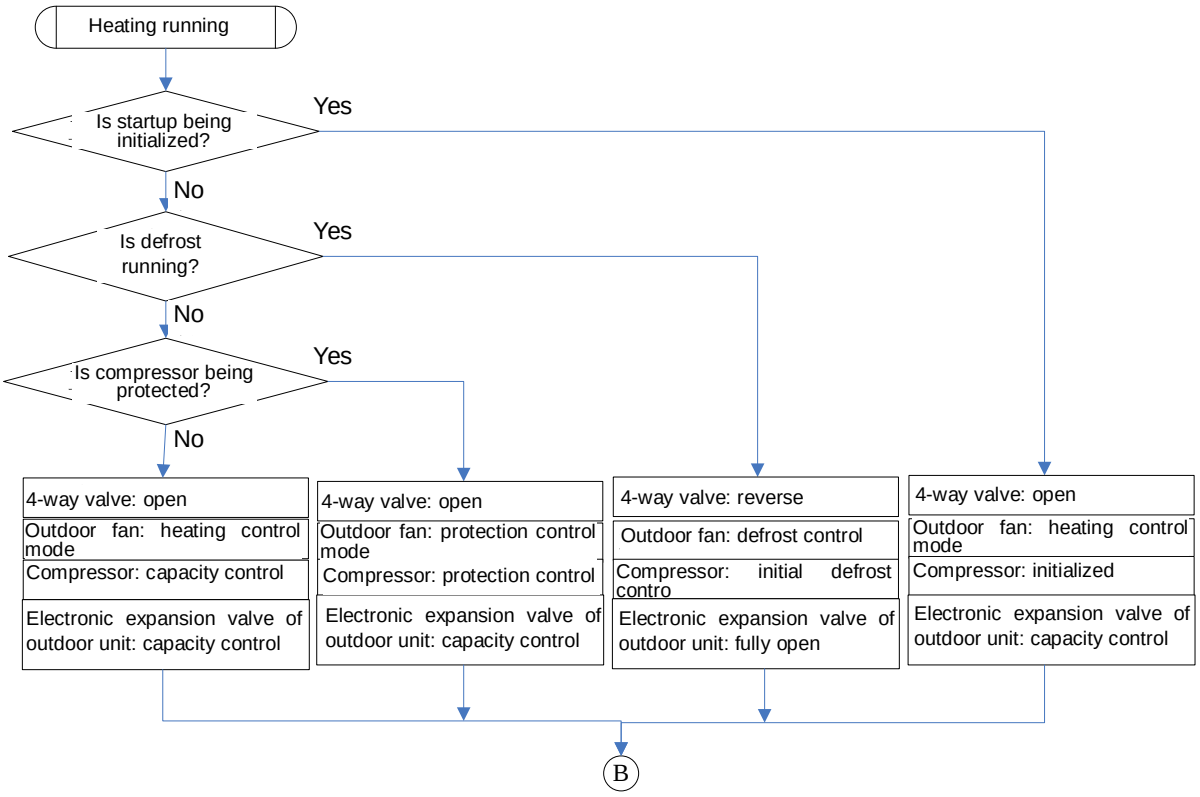
1.2.2 Operation Flow Chart of Outdoor Unit



◆Cooling Running



◆Heating running



1.3 Control Functions of the Unit

1.3.1 Control Functions of Outdoor Unit

1) Capacity distribution of compressor

Principle: after the total capacity is distributed to the single unit of various modules, inverter compressor and fixed frequency compressor shall be assigned by means of overflow method, i.e. if inverter compressor fails to meet the capacity, fixed-frequency compressor 1 will be started; and if still fails, fixed-frequency compressor 2 will be started. After the p_out of various modules is calculated, the following table shall be based upon.

Operation condition	Operation control		
p_out	Fixed frequency compressor 1	Fixed frequency compressor 2	Running frequency of inverter compressor
p_out/1.6≤100	OFF	OFF	p_out/1.6*0.9
100< p_out/1.6≤170	ON	OFF	（p_out/1.6-70）*0.9
170< p_out/1.6	ON	ON	（p_out/1.6-140）*0.9

2) Control of startup initialization of compressor (inverter compressor)

Once started, inverter compressor shall be initialized pursuant to the following processes. During up-conversion, the compressor will stop 30 seconds at 40Hz, 2 minutes at 55Hz, and 1 minute at 80Hz.

3) Startup control of compressor (fixed frequency compressor)

In this case, inverter compressor and fixed-frequency compressor of certain module shall be controlled independently from those of other modules.

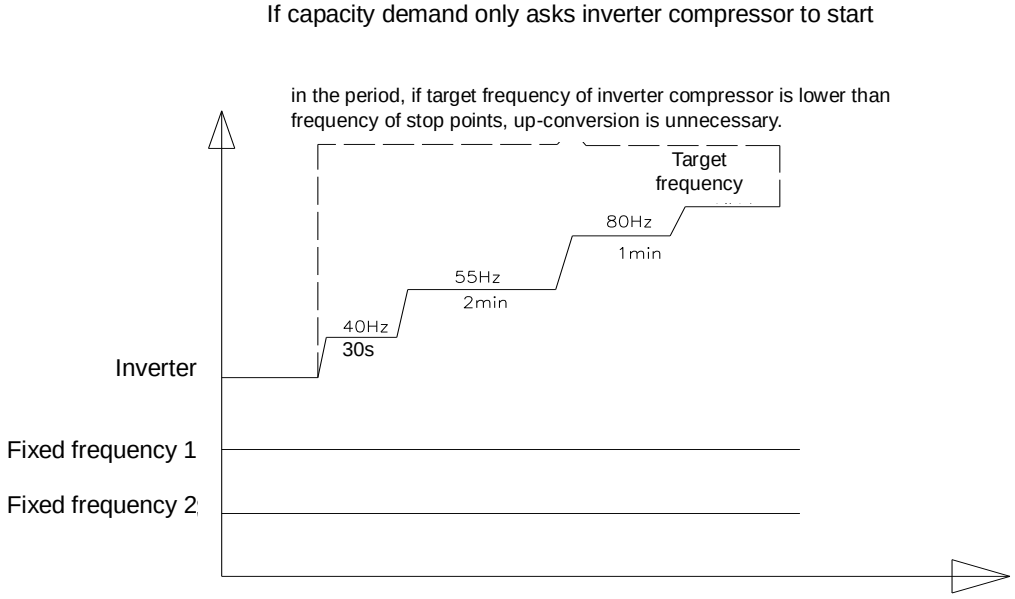
★After startup, capacity demand is increasing:

If capacity demand asks fixed-frequency compressor 1 to start: after initialization, inverter compressor converts its frequency to 40Hz and remains for 10s; then fixed-frequency compressor 1 is started; after 30s, in the up-conversion course to reach target frequency, inverter compressor will stop 2 minutes at 55Hz and 1 minute at 80Hz.

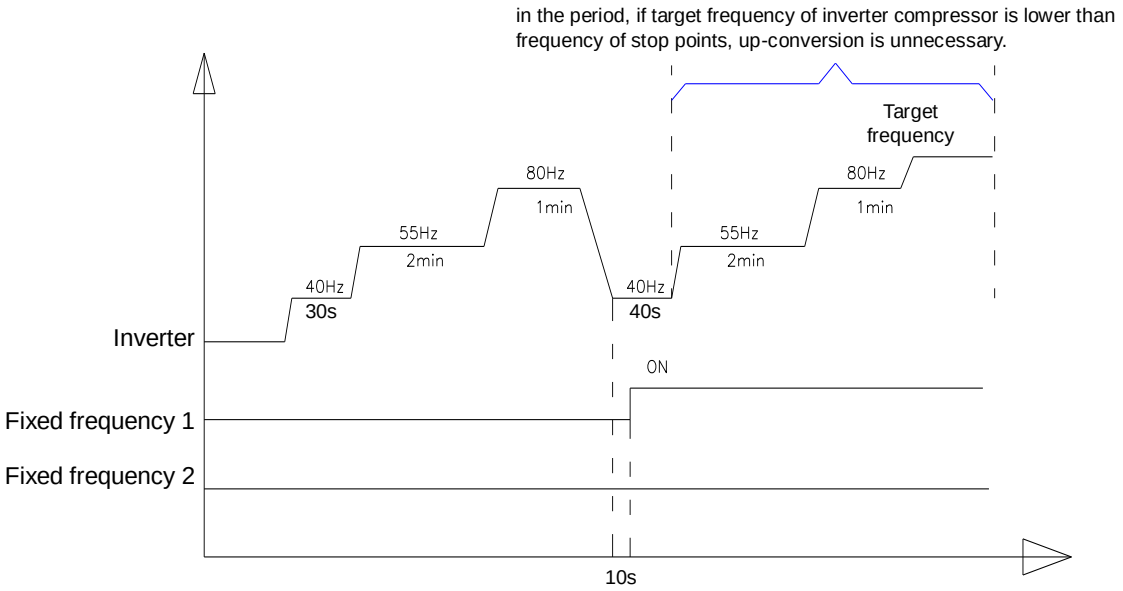
If capacity demand asks fixed-frequency compressor 2 to start (fixed frequency compressor 1 has been started): inverter compressor converts its frequency to 40Hz and remains for 10s; then fixed-frequency compressor 1 is started; after 30s, in the up-conversion course to reach target frequency, inverter compressor will stop 2 minutes at 55Hz and 1 minute at 80Hz.

Note: oil return, defrost and oil equilibrium compressor startup processes are free from such logical control.

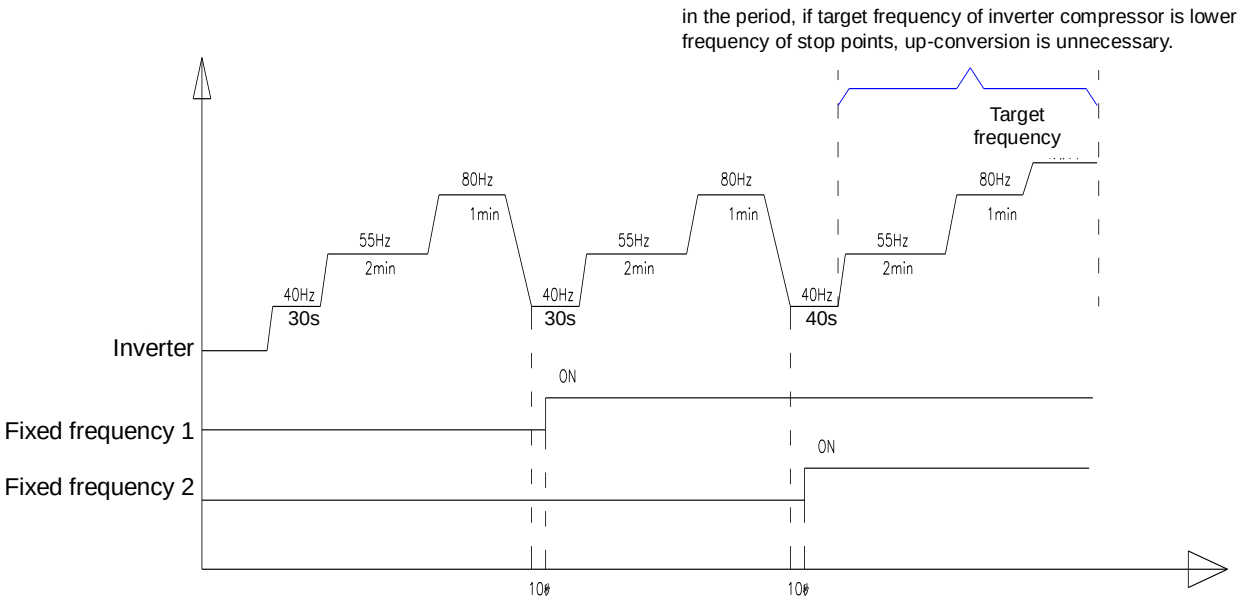
Time sequence diagram is as below:



If capacity demand asks inverter ＋ fixed frequency 1 to start



If capacity demand asks inverter ＋ fixed frequency 1 ＋ fixed frequency 2 to start



★When capacity demand is reducing:

If a request to ask fixed frequency compressor to stop is present, fixed frequency compressor will directly stop and inverter compressor will be regulated to calculated frequency.

4) Control of outdoor fan

★Cooling mode

Stop module fan stops at 0 grade.

● Initialization：3 minutes after startup, initialization fan frequency shall be set according to ambient temperature, applicable to startup.

Output capacity		P＜25%	25%≤P＜40%	40%≤P＜60%	60%≤P＜80%	P≥80%
Fan frequency	T≤0	0Hz	0Hz	5Hz	5Hz	5Hz
	0＜T≤12	0Hz	5Hz	8Hz	10Hz	10Hz
	12＜T≤20	10Hz	15Hz	20Hz	23Hz	25Hz
	20＜T≤35	28Hz	33Hz	38Hz	44Hz	Max. Value
	35＜T≤40	36Hz	38Hz	41Hz	44Hz	Max. Value
	T＞40	Max. Value	Max. Value	Max. Value	Max. Value	Max. Value
Remarks: the maximum valve shall be 50Hz for dual-compressor parallel system 224 and 280; and 55Hz for system 335, 400 and 450						

● After 3 minutes, fan frequency shall be regulated according to pressure change (in normal operation).

(According to high pressure regulation), 3 minutes after startup, exhaust pressure shall be detected. According to the average of exhaust pressure, fan frequency shall be regulated once for each cycle, in order to stabilize high pressure at [35℃，41℃]. This shall be realized by logical processes as below:

Current frequency of outdoor fan = Original frequency + Variable frequency:

1.When the actual high pressure ＜35℃, then: variable frequency = (Corresponding temperature of actual high pressure) x 1Hz;

2.When the actual high pressure ＞41℃, then: variable frequency = Corresponding temperature of actual high pressure - 41) x 1Hz;

3.When 35℃≤Actual high pressure≤41℃, the existing frequency is maintained

★Heating mode

● Initialization: the fan is started and goes to an initialization grade according to ambient temperature, and remains for 3 minutes.

If calculated capacity of the complete unit ＞40％

Ambient temperature	T≤11℃	11℃＜T≤15℃	15℃＜T≤22℃	T＞22℃
Fan frequency	Max. Value	41Hz	33Hz	28Hz
Remarks: the maximum valve shall be 50Hz for dual-compressor parallel system 224 and 280; and 55Hz for systems 335, 400 and 450				

If calculated capacity of the complete unit ≤40％

Ambient temperature	T≤3	3＜T≤7	7＜T≤11	11＜T≤15	18＜T≤22	T＞22
Fan frequency	Max. Value	41Hz	33Hz	28Hz	23Hz	21Hz
Remarks: the maximum valve shall be 50Hz for dual-compressor parallel system 224 and 280; and 55Hz for systems 335, 400, 450 and 504						

● After 3 minutes, fan frequency shall be regulated in terms of pressure.

(According to high pressure regulation), 3 minutes after startup, exhaust pressure shall be detected. According to the average of exhaust pressure, fan frequency shall be regulated once for each cycle, in order to stabilize high pressure at [46℃，52℃]. This shall be realized by logical processes as below:

Current frequency of outdoor fan = Original frequency + Variable frequency

1 When the actual high pressure＜46℃，variable frequency＝（46－Corresponding temperature of actual high pressure）×1Hz;

2 When the actual high pressure＞52℃，variable frequency＝（52－Corresponding temperature of actual high pressure）×1Hz;

3 When 46℃≤When the actual high pressure≤52℃，the existing frequency is maintained.

1.3.2 Control Function of Indoor Unit

Contain:

1) Cooling Operation

a) Cooling

According to the capacity demand of the running indoor unit, the outdoor unit decides the frequency under which the compressor runs.

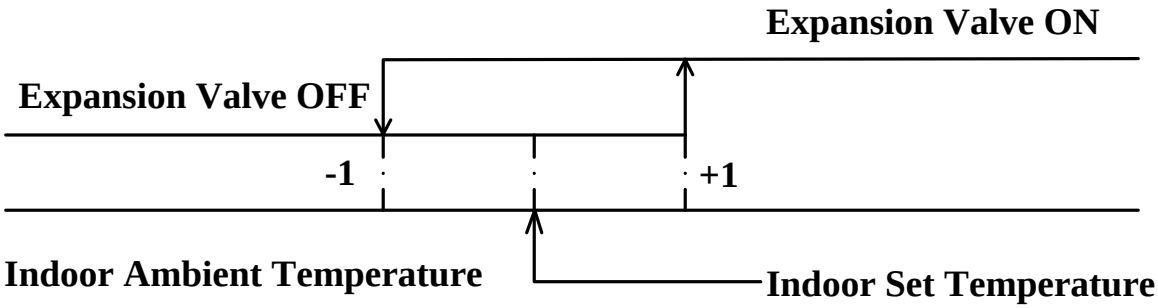
control of the outdoor unit, the indoor unit decides the openness of the electronic expansion valve. The electronic expansion valve is set once every 40 seconds.

b) Temperature Control

Through the openness and close of the indoor electronic expansion valve, the indoor unit realizes the control to the temperature (refer to the following figure).

When the capacity demand of the indoor unit is 0, the electronic expansion valve closes.

When the capacity demand of the indoor unit is not 0, the electronic expansion valve opens.

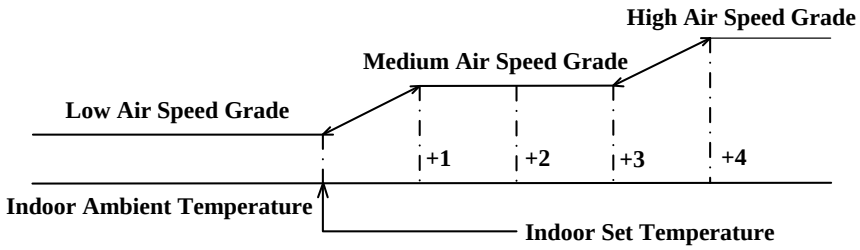


If the indoor units of the same unit group all reach the temperature point, and the demand of the unit group is 0, the outdoor unit shall stop the operation of the compressor and the electronic expansion valve of the indoor unit closes.

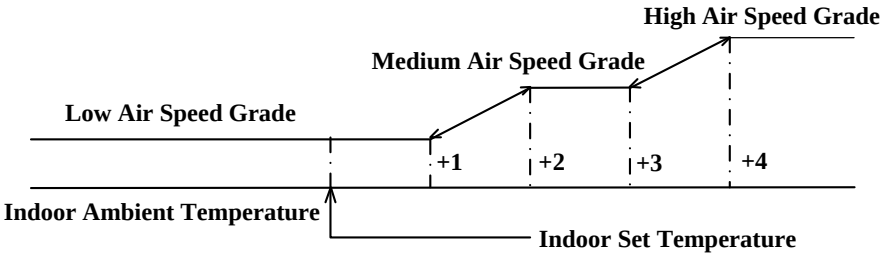
c) Indoor Fan Motor Action

When the indoor unit operates and the fan motor is not set at the automatic air speed grade, the indoor fan motor continue operating at the set air speed whether the capacity demand is 0.

When the indoor fan motor is set at the automatic air speed grade, the fan motor decides the fan motor air speed according to the change of ambient temperature indoors. Refer to the following figure:



Automatic Air Speed Grade For Cooling (General)



Automatic Air Speed Grade For Cooling(Linge Wind)

The switch under the automatic air speed grade is inspected once every 30 seconds.

If the indoor fan motor stops before, the fan motor will be started to carry out compulsory operation under high air speed grade for 8 seconds and then operates under set air speed.

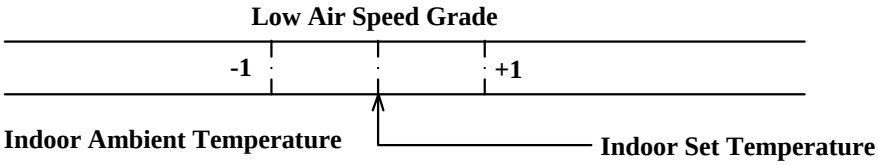
d) Control of Blowing off Residual Cold Air

When the indoor unit stops, the fan motor operates under set air speed or automatic air speed condition for 0-60 seconds.

When the capacity demand of the indoor unit is 0, the electronic expansion valve of the indoor unit closes and the fan motor continue operating under set air speed or automatic air speed condition.

2) Dehumidifying Operation

When the unit operates under the dehumidifying mode, the indoor unit can only operates under the low air speed grade (regardless of the set air speed grade). Other actions are the same as that of the cooling operation. Please refer to the section of cooling operation.



If the indoor fan motor stops before, the fan motor will be started to carry out compulsory operation under high air speed grade for 8 seconds and then operates under set air speed.

3) Heating Operation

a) Heating

According to the capacity demand of the running indoor unit, the outdoor unit decides the frequency under which the compressor runs.

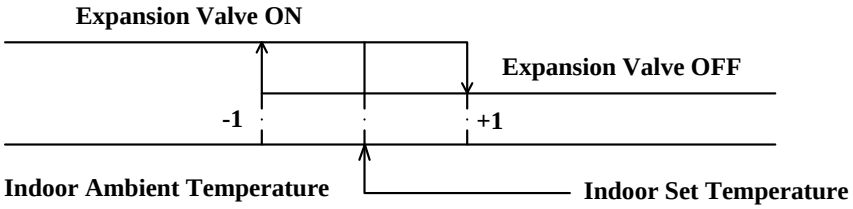
After control of the outdoor unit, the indoor unit decides the openness of the electronic expansion valve. The electronic expansion valve is set once every 40 seconds.

b) Temperature Control

Through the openness and close of the indoor electronic expansion valve, the indoor unit realizes the control of the temperature (refer to the following figure).

When the capacity demand of the indoor unit is 0, the electronic expansion valve closes.

When the capacity demand of the indoor unit is not 0, the electronic expansion valve opens.

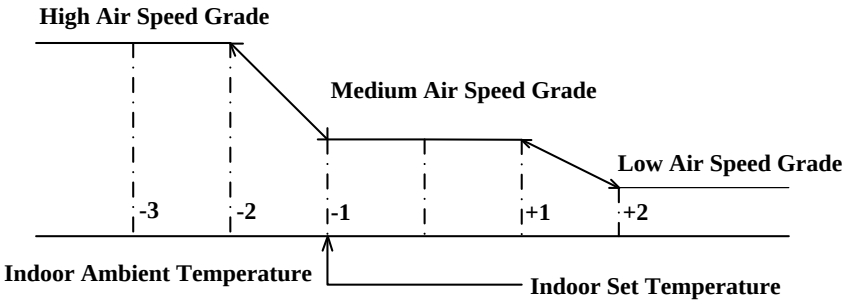


c) Fan Motor Control

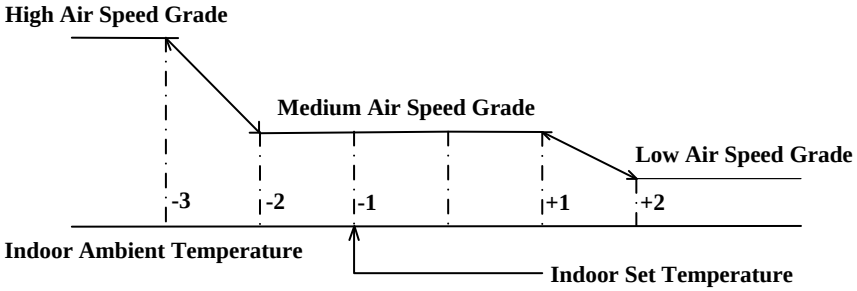
When the indoor unit has capacity demand:

If automatic air speed grade is not set, the fan motor of the indoor unit will operate under set air speed grade;

When the indoor fan motor is set at the automatic air speed grade, the fan motor decides the fan motor air speed according to the change of ambient temperature indoors. Refer to the following figure:



Automatic Air Speed Grade For Heating (General)



Automatic Air Speed Grade For Heating (Linge Wind)

The switch under the automatic air speed grade is inspected to be once every 30 seconds.

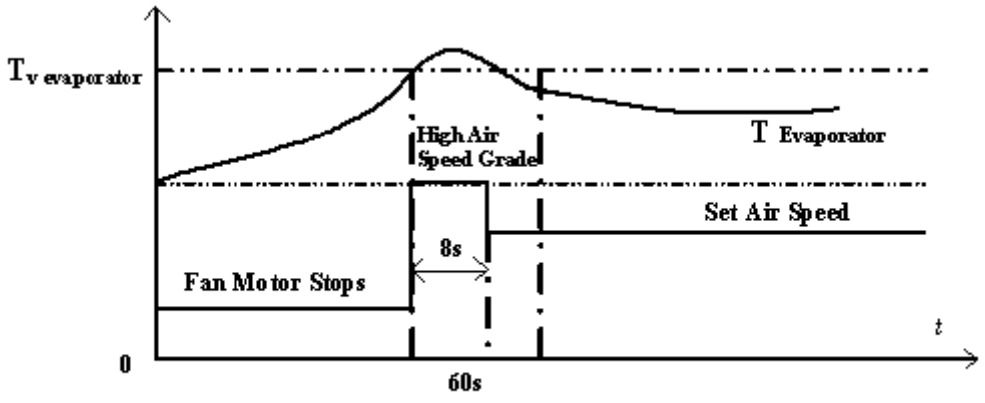
If the indoor fan motor stops before, the fan motor will start compulsory operation under high air speed grade for 8 seconds and then operates under set air speed.

d) Operation of Preventing Cold Air

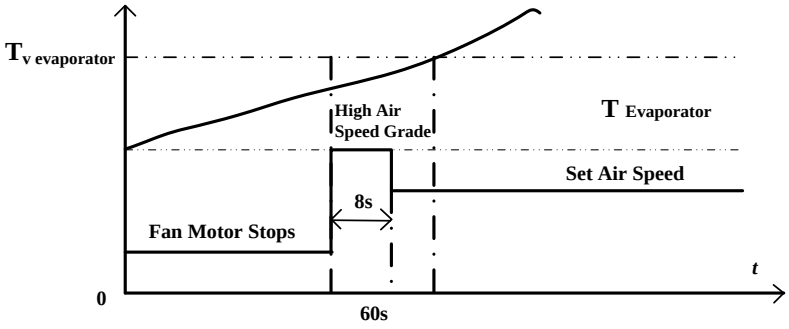
When the indoor unit has capacity demand, the indoor fan motor will be compulsorily turned to close status and operate under the following conditions:

If the evaporator temperature ($t_{evaporator}$) of the indoor unit reaches the threshold $T_{v\ evaporator}$, the indoor fan motor will carry out compulsory operation under high air speed grade for 8 seconds and then operates under set air speed; If the evaporator temperature ($t_{evaporator}$) of the indoor unit still does not reach the threshold $T_{v\ evaporator}$ 1 minute later, the indoor fan motor will carry out compulsory operation under high air speed grade for 8 seconds and then operates under set air speed; Refer to the following figure.

Cold Air Prevention threshold $T_{v\ evaporator}$ Table (℃)	Model	Cassette and Air Duct Series	Wall Mounted Unit Series
	$T_{v\ evaporator}$	35	39



T Evaporator Reaching Threshold Within 1 Minute



T Evaporator Not Reaching Threshold Within 1 Minute

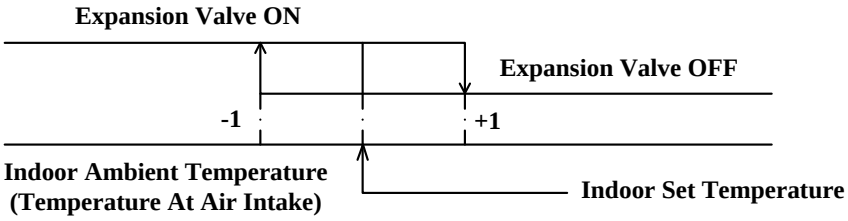
After the indoor unit starts heating operation and the fan motor stops for any reason (including unit starting, defrosting, failure and no demand capacity), the operation of preventing cold air is carried out before the fan motor starts again.

After the indoor fan motor starts, the operation of preventing cold air is not carried out even if the $t_{evaporator}$ is less than the threshold $T_{v\ evaporator}$ again, except the fan motor stops.

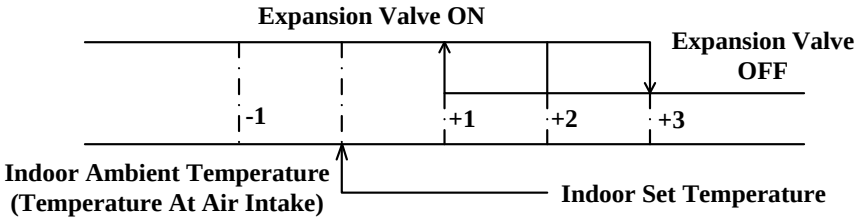
4) Heating Temperature Compensation

When the air-conditioner operates under standard conditions, the unit group adjusts the capacity output of the indoor unit according to the set temperature and the air inlet temperature, so as to adjust the room temperature to the set temperature. If the installation height of the air-conditioner is somewhat high, the hot air tends to rise to the upper space when heating operation is carried out, which is the result of difference of density. Now the temperature of the living space may not reach the set temperature so people may feel uncomfortable.

Therefore, it is required to use the temperature compensation function during heating: the air inlet temperature minus 2℃is adopted to reflect the real temperature of the living space. Using this method, comfortable temperature will be maintained in the living space.



Temperature Adjustment Under Standard Conditions



Temperature Adjustment With Temperature Compensation

5) Anti-Frosting Control Under Cooling And Dehumidifying Modes

To prevent the frosting as a result of low temperature of the evaporator during the operation of cooling or dehumidifying of the indoor unit from bringing adverse effect to the cooling efficiency, the indoor unit will carry out anti-frosting operation when necessary.

If it is detected that the evaporator inlet pipe temperature T_{Inlet} is $\leq T_{Frosting\ Temperature}$ for $T_{Anti\text{-}frosting}$ minutes after the compressor operates for $T_{Compressor}$ minutes under the modes of cooling or dehumidifying, the anti-frosting operation will be carried out and now the indoor fan motor and the swing motor remain the original status; When the T_{Inlet} is $\geq T_{Recovery\ Temperature}$, the indicating light is off and the controller will operate under set mode.

The parameters $T_{Compressor}$, $T_{Anti\text{-}frosting}$, $T_{Frosting\ Temperature}$,and $T_{Recovery\ Temperature}$ are different for different unit models. Refer to the following table:

Unit Model	$T_{Compressor}$（m）	$T_{Anti\text{-}frosting}$（m）	$T_{Frosting\ Temperature}$（℃）	$T_{Recovery\ Temperature}$（℃）
Duct Cassette Series	15	10	-4	15
Wall Mount Series	6	3	0	10

6) Automatic Swing Control

The wall mount series and the cassette series indoor units have swing function. Using swing function can increase air convection indoors to increase the uniformity of the indoor temperature.

◆Reset

When the unit is powered on for the first time, the swing louvers will swing automatically once to let the swing louver return to the initial position, thus the correctness of the swing louver action is ensured.

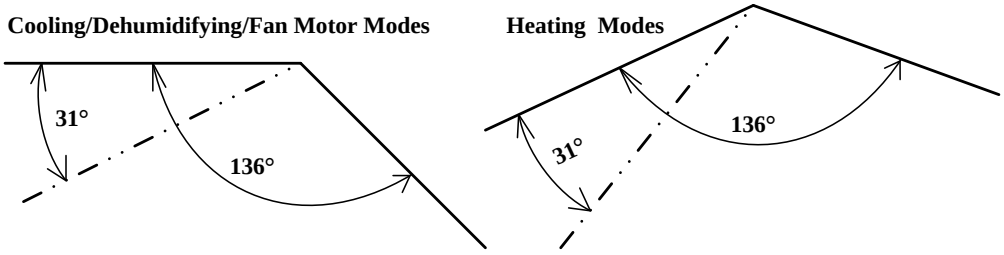
◆Using the keys on the indoor unit to turn on the unit

When using the keys on the indoor unit to turn on the unit, the default automatic swing will be started and the swing louvers swing back and forth from the maximum location and the minimum location (for different modes, the maximum locations and the minimum locations are different).

◆Using wire controller or remote controller to control

When using the wire controller or the remote controller to turn on the unit and the automatic swing signal is not set then, the swing louvers will stop at the default position when the unit is turned on (for different modes, the default locations are different). If the automatic swing signal is set when the unit is turned on, the automatic swing will be started and the swing louvers swing back and forth from the maximum location and the minimum location (for different modes, the maximum locations and the minimum locations are different).

Cooling/Dehumidifying/Fan Motor Modes **Heating Modes**



When the wire controller or the remote controller sends the signal of automatic swing, the indoor unit will start automatic swing and the swing louvers will start to swing from the current location.

When the wire controller or the remote controller sends the signal of stopping automatic swing, the indoor unit will stop automatic swing operation and the swing louvers will stop at the current location.

◆Others

When the indoor unit receives the signal of switching-off, detects the failure signals other than the auxiliary electrical heating protection signal, and detects the defrosting signal, the indoor unit, regardless of which state the swing louvers are in, will stop to return to the initial position after the indoor fan motor stops.

When the indoor unit detects the auxiliary electrical heating protection signal, the automatic swing will start regardless of which state the indoor unit is in, and the indoor fan motor will operate under high speed.

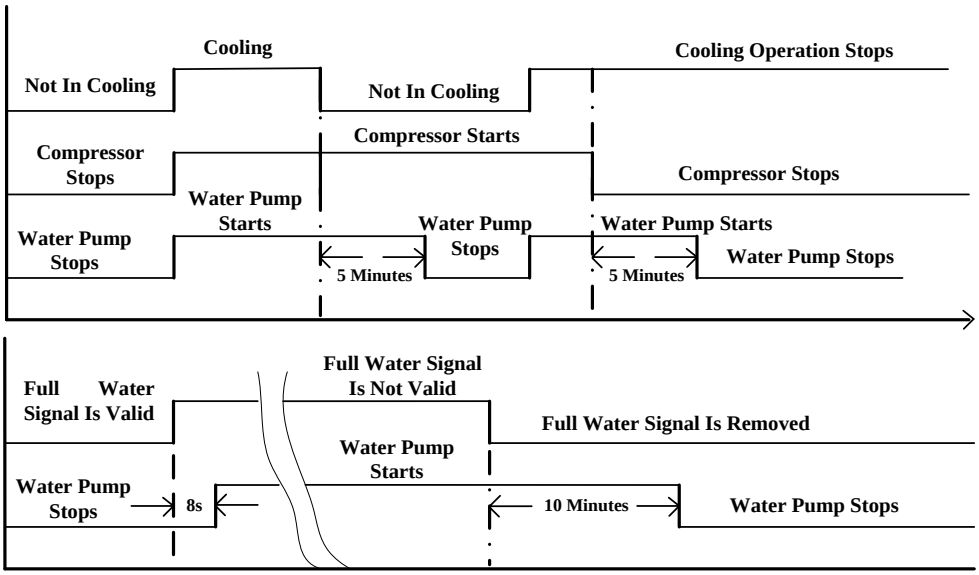
7) Drainage Pump Motor Control

The cassette series indoor unit is equipped with the drainage pump which can drain the condensate water produced during the cooling or the dehumidifying operation.

◆When the indoor unit carries out cooling or dehumidifying operation, the water pump and the compressor starts simultaneously.

◆When the unit is turned off or the cooling operation is stopped, or when the dehumidifying operation is stopped or the unit turns to other mode, the power supply to the water pump will only be cut off 5 minutes later.

◆When it is detected that the water level overflows for 8 seconds regardless of which mode (including switching-off of unit) the unit is in, the water pump will start immediately and will not stop if the signal of water level overflow is not removed; But the water pump will continue operating for 10 minutes further after the signal of water level overflow is removed.



8) Electronic Expansion Valve Control

A. Reset Control of Indoor Electronic Expansion Valve

When the indoor unit is powered on, the indoor unit will automatically carry out the reset of the electronic expansion valve, so that the valve return to the initial position to ensure the correctness of the action of the valve.

B. Control of Superheat Degree During Cooling Operation

During the process of cooling or dehumidifying, the unit group shall control the open degree of the electronic expansion valve of the indoor unit according to the fact that how the difference between the inlet temperature and the outlet temperature is deviated from the set superheat degree. The purpose is to keep proper superheat degree and the detection is carried out every 40 seconds. When the unit is turned off, the operation of the unit is stopped when the set temperature is reached, or there is any failure, this control process is ended.

C. Control of Subcooling Degree During Heating Operation

During the process of heating, the unit group shall control the open degree of the electronic expansion valve of the indoor unit according to the fact that how the difference between the inlet temperature and the outlet temperature is deviated from the set superheat degree. The purpose is to keep proper subcooling degree and the detection is carried out every 40 seconds. When the unit is turned off, the operation of the unit is stopped when the set temperature is reached, there is any failure or defrosting is carried out, this control process is ended.

9) Sensor Inspection Control

◆Ambient Temp. Sensor

When it is detected that the ambient temperature is continuously lower than -20℃ for 1 minute or is continuously higher than 100℃ for 1 minutes, the signal of ambient temp. sensor failure (failure code: F0) is sent and the indoor unit stops operation because of abnormality.

If it is detected that the ambient temperature is continuously larger than -20℃ but lower than 100℃ for 1 minute

under the status of ambient temp. sensor failure, the signal of ambient temp. sensor failure is removed and the indoor unit resumes the original operating status.

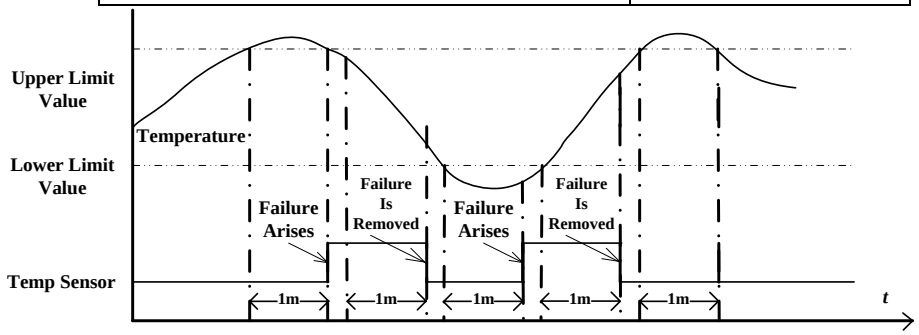
◆Evaporator Tube Temp. Sensor

When it is detected that the evaporator tube temperature is continuously lower than -30℃ for 1 minute or is continuously higher than 100℃ for 1 minutes, the signal of evaporator tube temp. sensor failure is sent and the indoor unit stops operation because of the abnormality.

If it is detected that the evaporator tube temperature is continuously larger than -20℃ but lower than 100℃ for 1 minute under the status of evaporator tube temp. sensor failure, the signal of evaporator tube temp. sensor failure is removed and the indoor unit resumes the original operating status.

◆All the detection time is not counted.

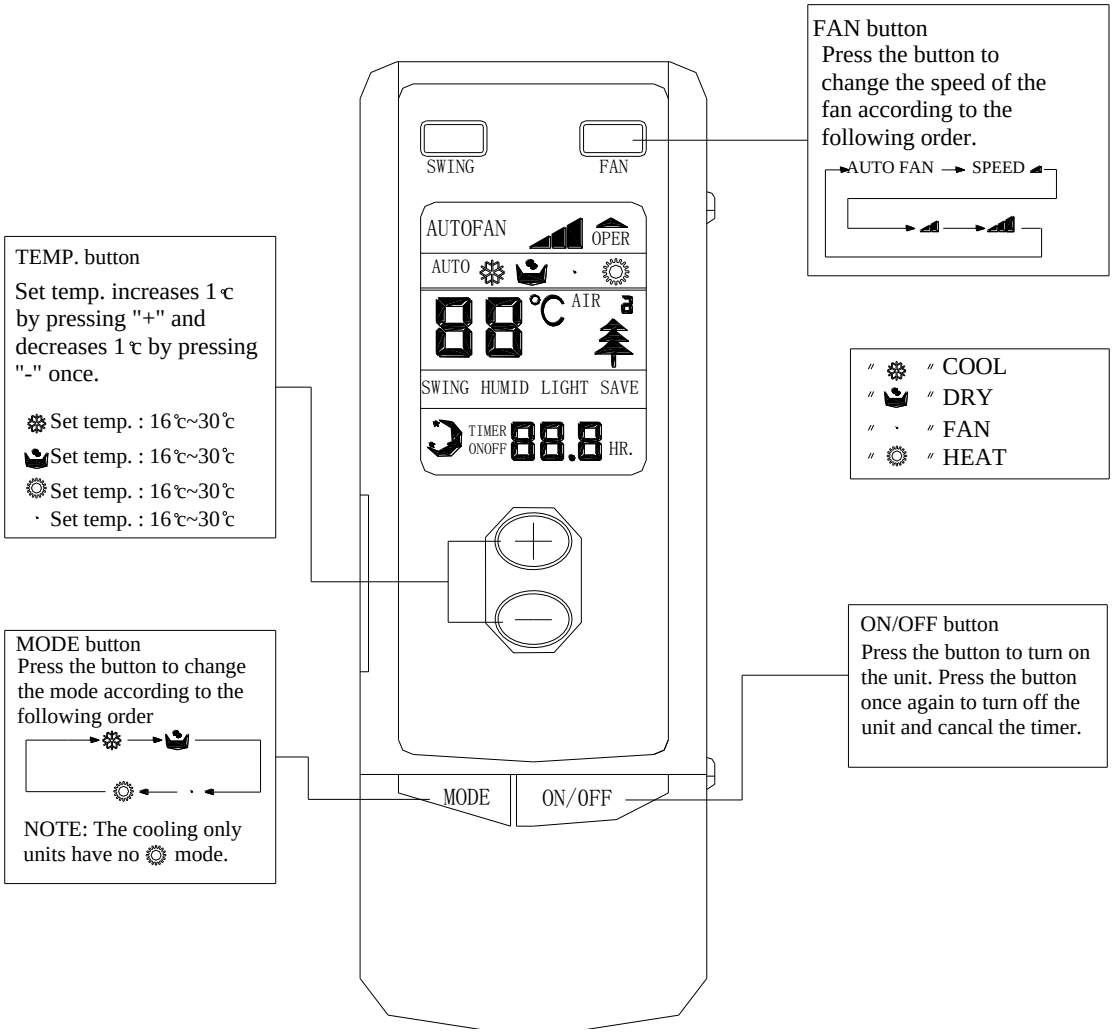
Failure Type	Failure Code
Indoor Ambient Temp. Sensor Failure	F0
Indoor Inlet Pipe Temp. Sensor Failure	F1
Indoor Intermediate Pipe Temp. Sensor Failure	F2
Indoor Outlet Pipe Temp. Sensor Failure	F2



2 WIRELESS REMOTE CONTROLLER

NOTE!

- Make sure that there is no obstruction between the remote control and the signal receptor.
- The remote control signal can be received at the distance of up to about 10m.
- Don't drop or throw the remote control.
- Don't let any liquid flow into the remote control.
- Don't put the remote control directly under the sunlight or any place where is very hot.

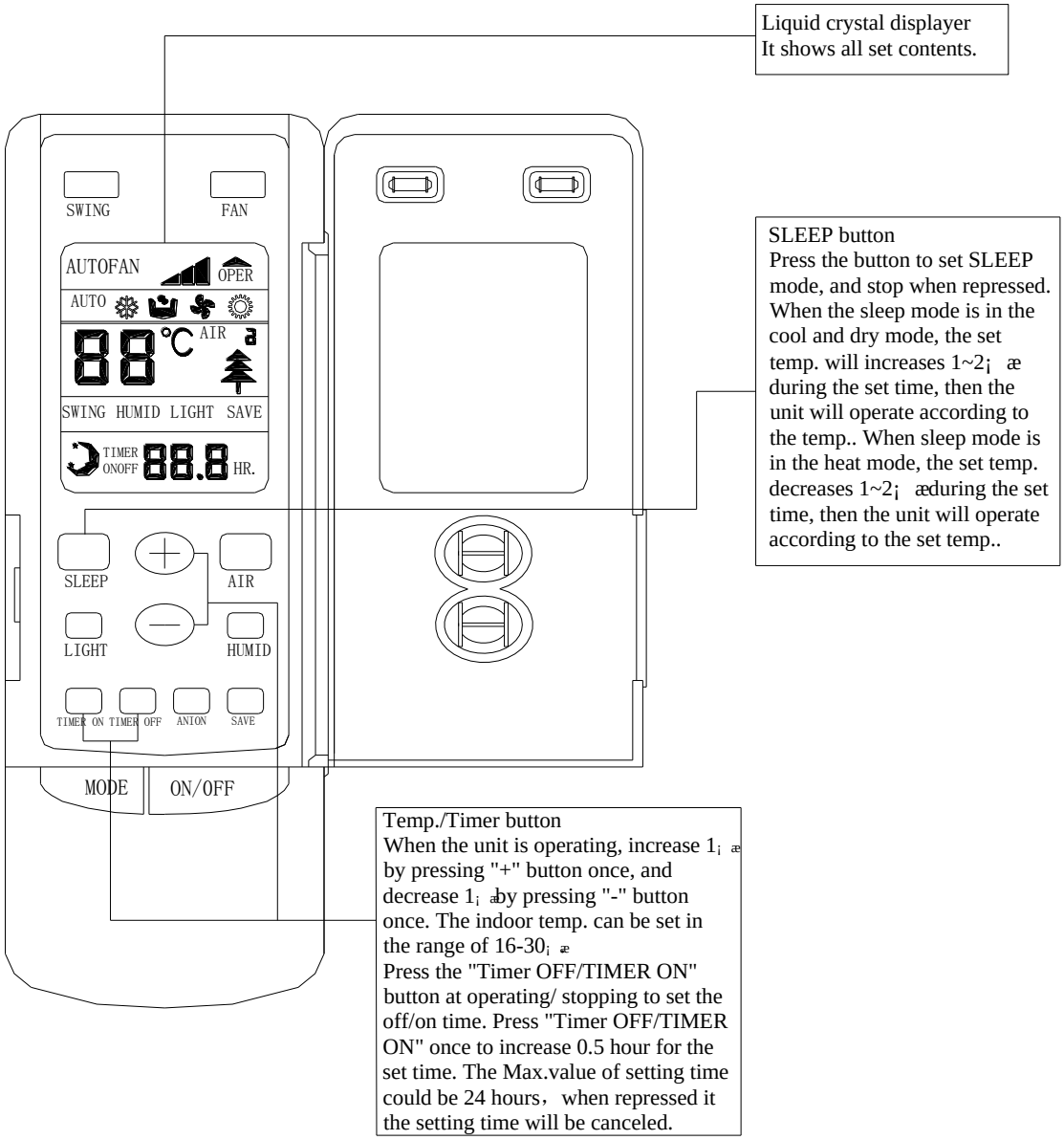


NOTE!

After every indoor unit received the turn off signal, the fan and electric inflate valve will continue to work for 20-70mins to make use of the rest cool or rest heat, while for preparation for the nest work. And this is normal phenomenon.

NOTE!

This type of remote control is a kind of general use remote control that is suitable for several types (function) of air conditioner units. Please understand that the functions and buttons that are not suitable for this air conditioner will not be introduced.



Operation procedure

Normal procedure

1. Press ON/OFF button after connected with the power, then the unit is operating.
2. Press MODE button to choose the need operation mode.
3. Press FAN button to set the fan speed.
4. Press +/- button to set the need temp.

Selectable procedure

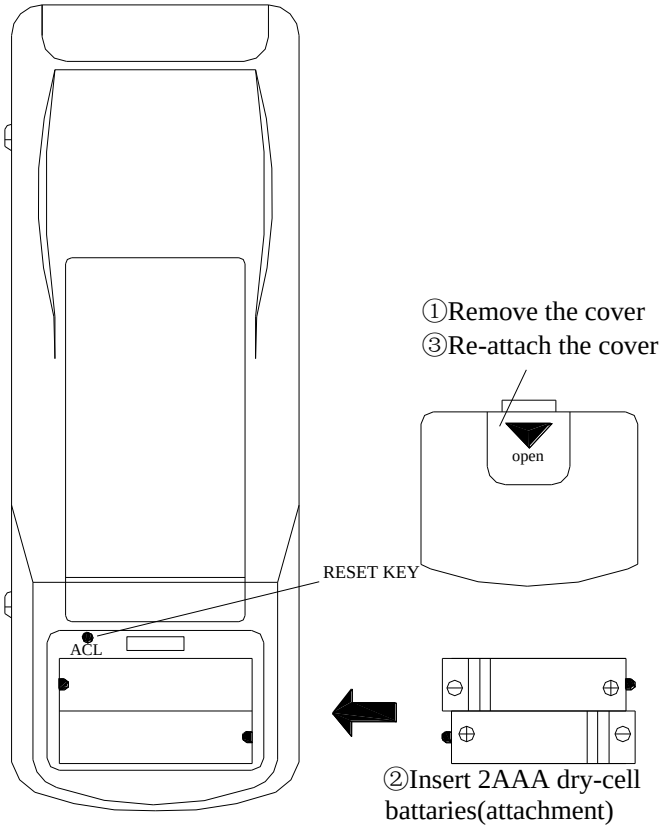
5. Press SLEEP mode to set the sleep state.
6. Press TIMER OFF button to set the set time.

Note: When the operating mode selected by the indoor unit is clash with the one selected by the outdoor unit, the remote controller will display the operating clash after 5 seconds and the power light will flicker, then the indoor unit turns off. At this time, the units will become normal after the operating mode of the indoor unit is changed to cooperate with the outdoor unit. Cool mode can cooperate with dry mode, and fan mode can cooperate with any mode.

How to insert batteries

Two batteries (Two AAA dry-cell batteries) are used by the remote control

1. Remote the cover from the back of the remote control downward, take out the worn batteries and insert two new ones (Make sure the two poles are correct)
2. Re-attach the cover.



1.All the prints and code no. will be showed on the displayer after the insert of batteries. The remote control can be operated after 10sec.
2.The lifetime of the batteries is about one year.
3.Don't confuse the new and worn or different types of batteries.
4.Remove batteries when the remote control is not in use for a longtime to avoid mal-function caused by liquid leakage.
5.The remote control should be placed about 1m or more from the TV set or any other electric appliances.
6.The remote control should be used in the receivable range (the reception range is 10m)
7.When the remote control can not be controlled in the situation of inserted batteries, please remove the back cover and press "ACL" button to make it normal.

3 WIRED REMOTE CONTROLLER_

3.1 Operation View

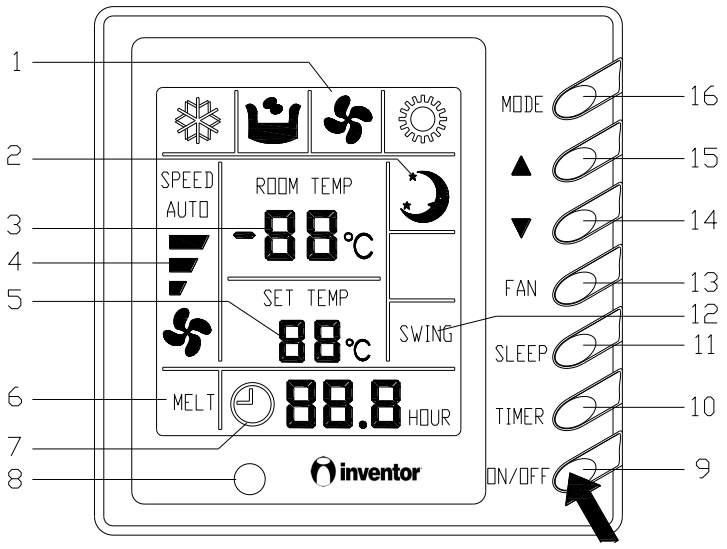


Fig.4.1

Various Components of Wired Remote Controller			
1	Operating mode display (Cool, Dry, Fan, Heat)	9	On/Off button
2	Sleep mode display	10	Timer button
3	Environmental temp. display /Malfunction display	11	Sleep button
4	Fan control display (automatic, high, media, low)	12	Swing display
5	Set Temp. display	13	Fan control button
6	Defrosting display	14	Temp./ Timer decrease button
7	Timer display	15	Temp./ Timer increase button
8	Signal receptor	16	Mode button

3.2 Dimension

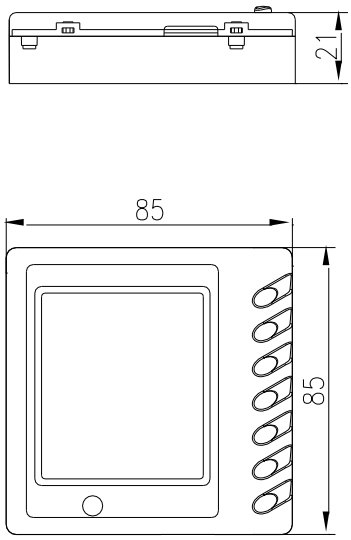


Fig.4.3.1 Outlinr dimension of wireless remote controller controller

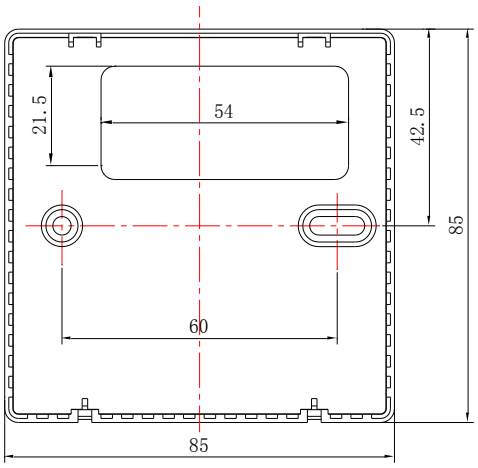


Fig.4.3.2 Installation dimension of wireless remote

3.3 Installation

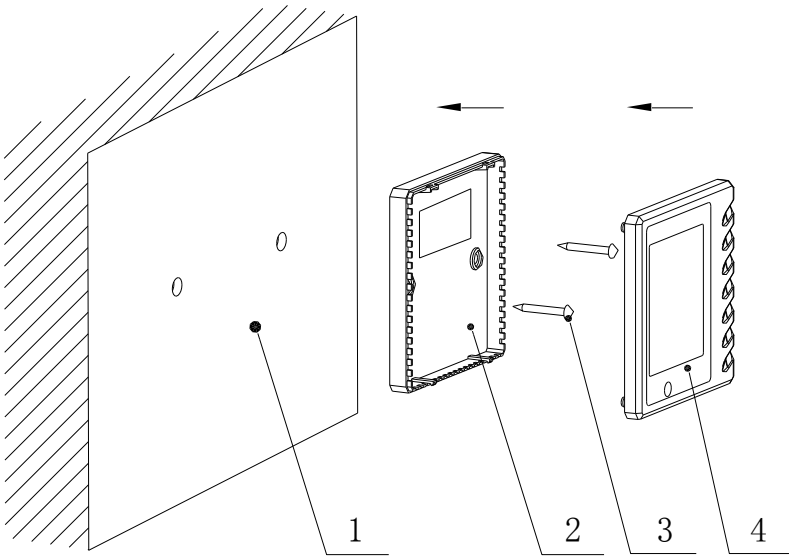


Fig.4.4 Installation of wire remote controller

SN	1	2	3	4
Name	Casing base, installed into the wall	Controller Soleplate	Screw M4X25	Controller Panel

●Notice for installation under the guidance of Fig.10

1. Cut off power supply before install the electrical components. It is forbidden to carry out the installation with power on;
2. Get one end of the 4 core communication cable, and put it through the rectangular hole on the base board on the wire remote controller;
3. hold the base board of controller on the wall, then fix it to the wall with M4x25 screw;
4. Plug the 4 core communication cable into the slot on the wired remote controller, then fix the controller panel with base board together;

4 MINI CENTRALIZED CONTROLLER

4.1 Function

Region monitoring control and region wired control are the two main control functions for mini centralized controller (region controller).
Region monitoring controller can monitor or control 16 indoor units of a group for inquiry and single or centralized control.
Region wired controller can replace 1-16 selected wired controllers to uniformly set or control the indoor units.
Refer to Fig.1.1, Fig.1.2 about the Sketch map to the relation among the mini centralized controller (region controller), region monitoring controller and region wired controller.

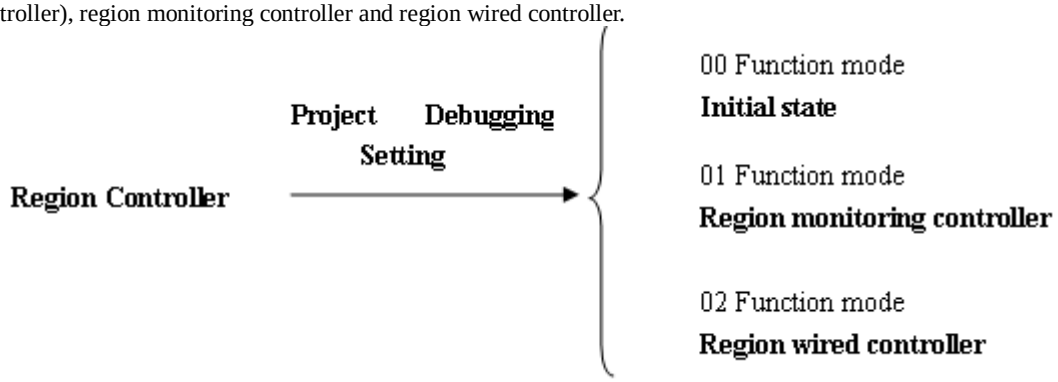


Fig.4.1

Before using, the controller functions must be selected by the personnel who performance the installation with the requirements of users. Please refer to **Project Debugging Setting** section for the details.
Note: If the controller is set to be region wired controller, the wired controller of the selected indoor unit must be removed.

The mini centralized controller (region controller) can be matched with long-distance monitor. As a region monitoring controller, its control is subject to that of the long-distance monitor. In the same group, one of the mini centralized controllers (region controllers) can be used as region monitoring controller and matches one or more region wired controller which replace(s) one or more wired controller, in which case, the region monitoring controller can also monitor or control the region wired controller.

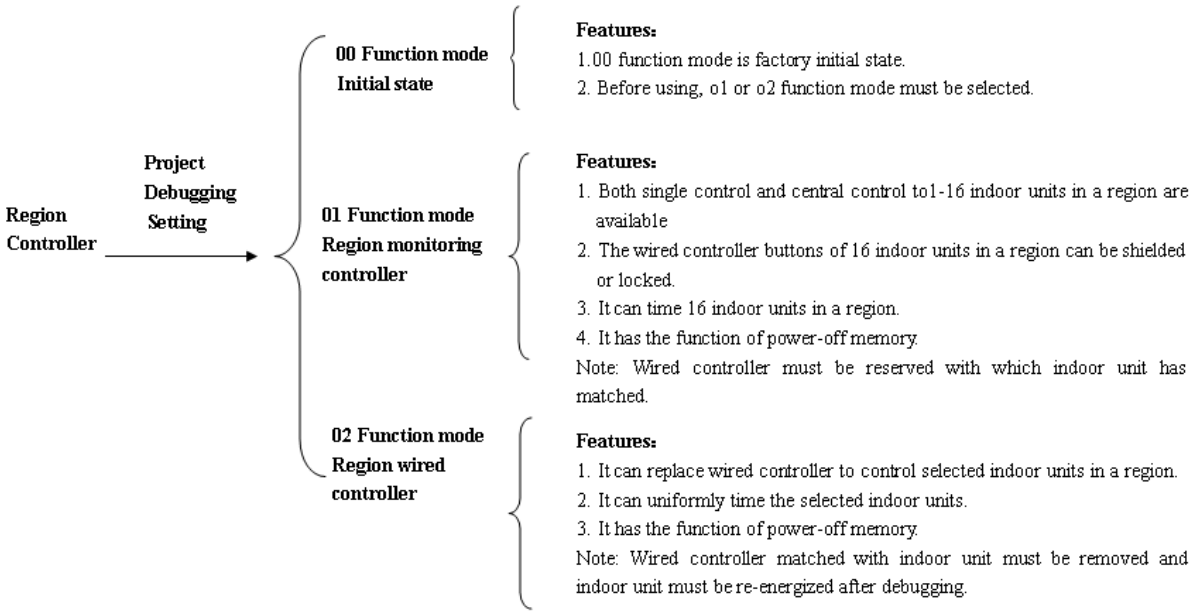
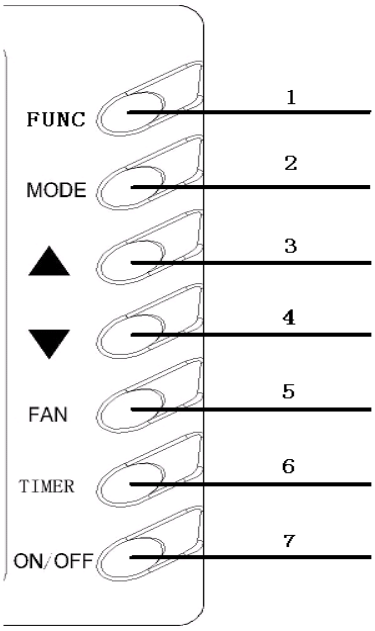


Fig.1.2 Sketch map to the relation among the mini centralized controller (region controller), region monitoring controller and region wired controller

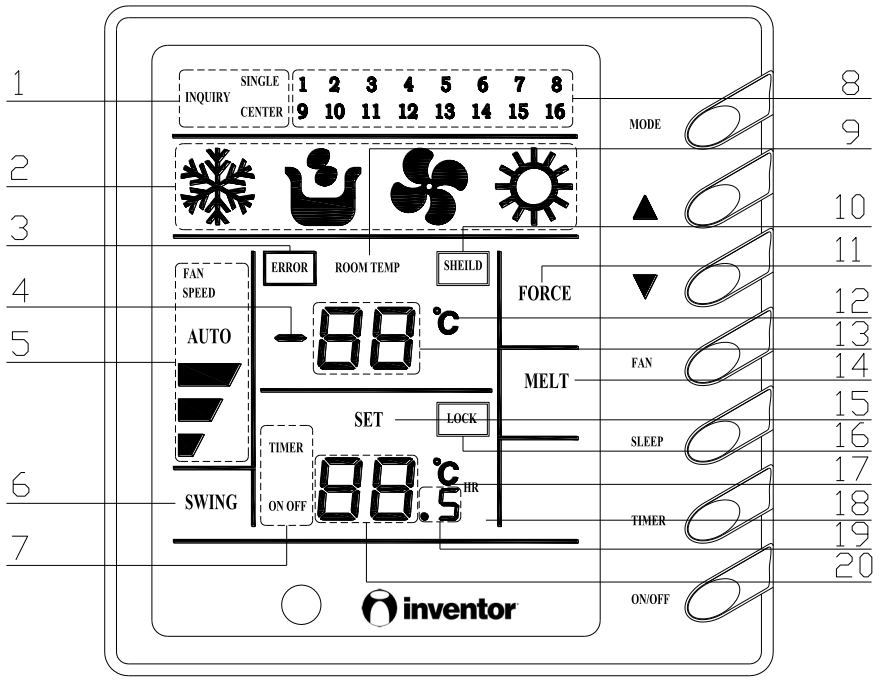
4.2 Operation View



（Fig.4.2）

No.	Name	Function
1	FUNC (FUNCTION)	A. Switch the control mode of inquiry/single/ central control. B. In central control status, give the central order by successively pressing FUNC button.
2	MODE	Set cooling/heating/fan/dry mode for indoor unit
3	▲	A. Inquiry status: cycle, increase or decrease No. of indoor units to easily inquire the status of each indoor unit. B. Single/Central control status: set running temp. of indoor unit, maximum is 30℃ and minimum is 16℃. C. Timer setting status: increase or decrease the timer on/off time, maximum is 24hr and minimum is 0.
4	▼	
5	FAN	A. Set the indoor fan speed of hi/mid/low/auto. B. Successively press FAN button to set on/off swing.
6	TIMER	A. Under single/central control mode, set on /off timer of selected indoor unit B. Under inquiry status, inquire the timer setting of the indoor unit with current address.
7	ON/OFF	Set ON/OFF of the indoor unit.
2MODE and 7 ON/OFF	Lock	Under single/central control, press MODE and ON/OFF buttons simultaneously to start/ stop the lock of operation to buttons of wired controller for selected indoor units.
2MODE and 6 TIMER	Shield mode	Under single/central control, press MODE and TIMER simultaneously to start/ stop the shield of operation to MODE button of wired controller for selected indoor unit.
4 ▼and 6 TIMER	Shielding Temp.	Under single/central control, press ▼ and TIMER simultaneously to start/ stop the shield of operation to Temp button of wired controller for selected indoor unit.
7 ON/OFF and 6 TIMER	Shielding ON/OFF	Under single/central control, press ON/OFF and TIMER simultaneously to start/ stop the shield of operation to ON/OFF button of wired controller for selected indoor unit.
2 MODE and 3 ▲	Memory mode	Refer to **power-off memory function** about the details.
4 ▼and 7 ON/OFF	Selection of function	A. Check the control mode of region monitoring controller / region wired controller B. Set the control mode of region monitoring controller / region wired controller
Note: 1.The characters with gray back ground indicate buttons. Following part is the same to it. 2. The time of single press of the button is more than 3s, which means successively-press. 3. There isn‘t the function that the region wired controller shields other indoor wired controller.		

4.3 Display View



(Fig.4.3)

No.	Display name	Instruction to display
1	Control mode	Inquiry state, “INQUIRY” is displayed. Single control state,”SINGLE” is displayed. Centralized control state, “CENTER” is displayed.
2	Running mode	Each indoor unit running mode is displayed.
3	Error	“ERROR” is displayed during any malfunction to indoor or outdoor unit in a group.
4	—	“— “ is displayed when there is no malfunction to selected indoor unit and the ambient temp. is below zero.
5	Fan speed display	Hi, mid, low or auto speed of indoor fan is displayed.
6	Swing	Swing running of indoor unit is displayed.
7	Timer	“TIMER ON/OFF” is displayed when setting timer or inquiring timer state.
8	No. of indoor unit	Under inquiry state, No. of online indoor units are displayed and No. of selected indoor unit will blink. Under single control state, only No. of selected indoor unit is displayed. Under centralized state, No. of all online indoor units are displayed.
9	Room temp.	“ROOMTEMP” is displayed for no malfunction, but isn’t for malfunction.
10	Shield	Centralized controller A. Under inquiry state,” SHIELD” will be displayed when selected indoor unit is shielded. B. Under control state,” SHIELD” will be displayed during setting or giving the shield order. Region wired controller:” SHIELD” will be displayed when selected units are shielded during long-distance monitoring.
11	Force	“FORCE” is displayed when indoor unit is forced to run.
12	℃(room temp.)	“ ℃” is displayed when there is no malfunction.
13	Room temp. or error code	Room temp. value is displayed during no malfunction to selected indoor or outdoor unit. Error code is displayed during malfunction to selected indoor or outdoor unit.
14	Melt	“Melt” is displayed during defrosting.
15	Lock	Region monitoring controller A: Inquiry state: “LOCK” is displayed when selected indoor unit is locked. B: Control state: “LOCK” is displayed during setting or giving the lock order. Region wired controller: “LOCK” is displayed when selected unit is locked in long-distance monitoring.
16	Set	“SET” blinks when the unit is on and commanded. “SET” is displayed when the unit is on without command.
17	℃(set temp.)	Set temp. value is displayed when the selected indoor unit is on and not in timer inquiry or setting status.
18	HR (hour)	“HR” is displayed during timer inquiry or setting.
19	.5	“.5” is displayed when the timer time value includes 0.5 hr and the unit is during timer inquiry or setting.
20	Setting temp. and timer time	During timer inquiry, integer of setting time of timer is displayed. During timer setting, integer of setting time of timer is displayed. Set temp. value is displayed when the unit is not during timer inquiry or setting.

Note:
1. Contents in the double quotation marks indicate the display in LCD. Following part is the same to it.
2. Online indoor units to Mini Centralized Controller indicate that in a region. Following part is the same to it.
3. No signal control function for region wired controller, and “SINGLE” won’t be displayed either.

4.4 Connection Between Controller and Unit

Insert the 4-core twisted pair line to wired controller, if which is with the indoor unit, into mini centralized controller (region controller) wiring terminal CN1 (or CN2), and then connect the other wiring terminal CN2 (or CN1) with the main board of indoor unit.

If there is no wired controller with indoor unit, introduce a 4-core twisted pair line to indoor unit main board and connect it with mini centralized controller (region controller) wiring terminal CN1 (or CN2).

Note: Any main board of the indoor unit controlled by the mini centralized controller (region controller) can be connected. If the mini centralized controller (region controller) is used as a region wired controller, wired controller with the indoor unit must be removed.

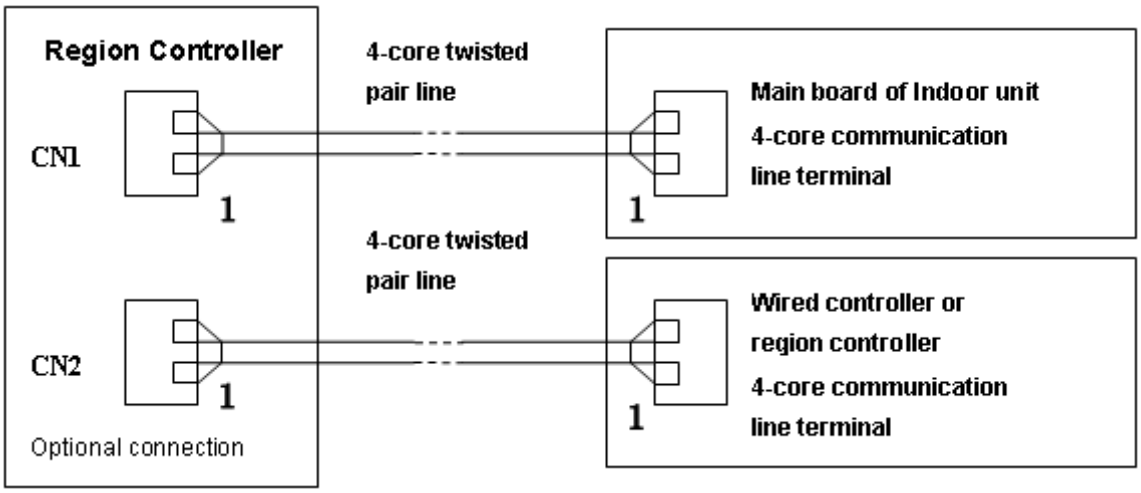


Fig2.1 Power cords and communication lines for mini centralized controller (region controller)

Before installation and connection, make sure the power supply is off. After installation and connection, check the connection result again to prevent loose or short.

There are 4 connection lines (included in the 4-core twisted pair line) to the controller, from CN1 or the upper and right CN2 to the upper they respectively are: Ground line (GND), communication line A (A), communication line B(B) and power cord (+12 v).

Note:

During following connection of wirings, pay special attention to them to avoid malfunction to units for electromagnetic interference.

1. Keep the signal lines or wirings (communication) of mini centralized controller (region controller) or wired controller at least 20 cm from the power cords or connecting lines between indoors and outdoors to prevent abnormal communication.

2. Shielding twisted pair line must be adopted as signal line or wiring (communication) once the unit is installed in the place where there is serious electromagnetic interference.

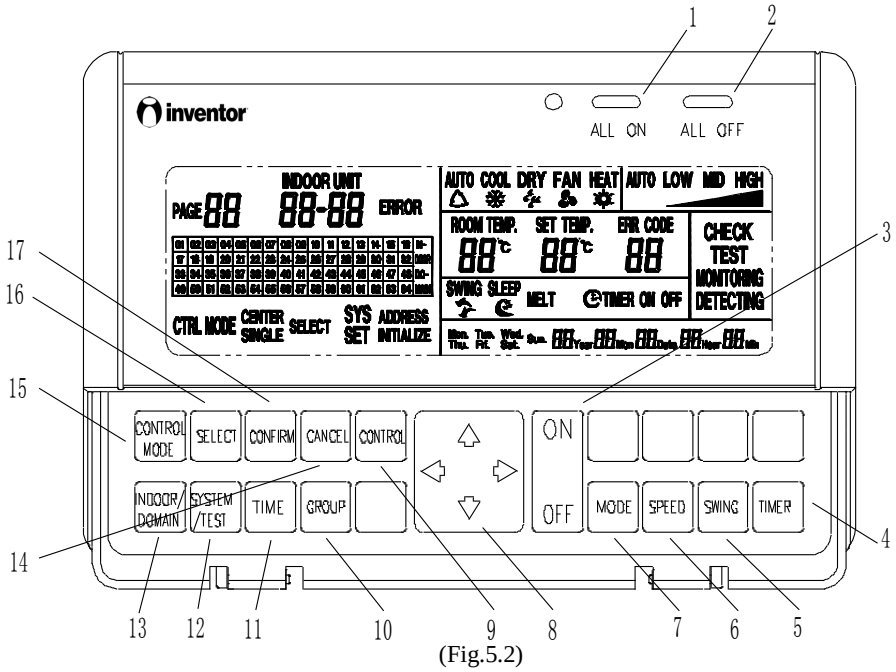
5 CENTRALIZED CONTROLLER

5.1 Function

Main characteristics of Centralized Controller:

- A set of Centralized Controller can control 64 communication modules and can connect to as much as 1024 indoor units. It can conduct individual control with any separated area or unified control. It can monitor or control On/Off, Mode, Temperature setting and Timer On/Off of indoor unit etc.
- It can realize the central, single or select control to all indoor units.
- It can organize several indoor units into groups as you desired and conduct unified control—Group select control.
- Error contents are shown by codes. Corresponding communication module numbers of the indoor units with error contents would blink for rapid inspection and repair (There is sound warning for a few errors).
- Timer function. Every indoor unit can set Timer On/Off time by central, single or select control. Both Timer On time and Timer Off time can be set at the same time, and it is available to set the timer to which day among the 7 days from Sunday to Saturday works.
- Clock function displays in year, month, day, hour, minute and week, and the clock can be manually adjusted.
- Indoor and outdoor units online auto detect, display and working state indication.
- Self-inspection function is remained.
- Centralized Controller and several communication modules formed communication net, the length of communication wire of the net can be as long as 1km (without using communication repeaters).

5.2 Operation View

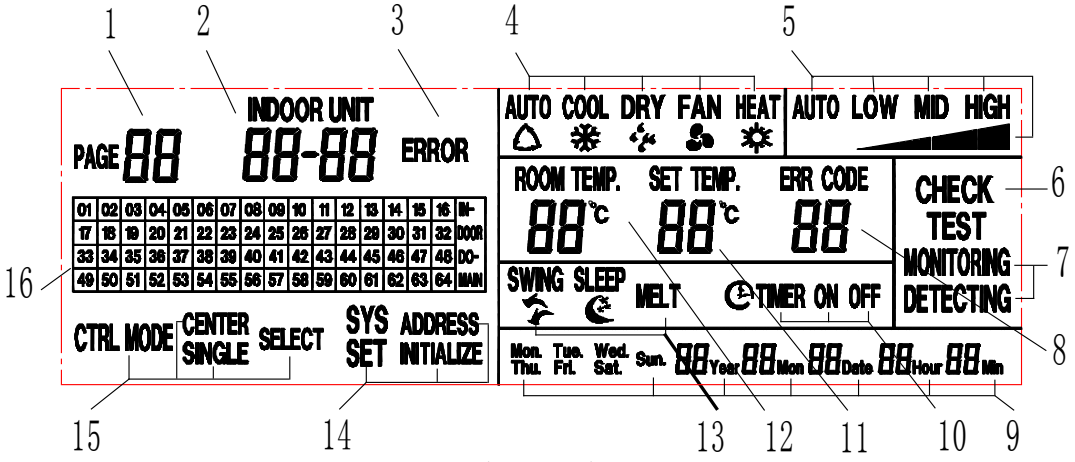


(Fig.5.2)

1	ALL ON	This central control has Sequence On function, that enable conduction to sequence control to communication modular in interval of 2 seconds, communication modular controls Sequence On of indoor units (to lower impact to power network).
2	ALL OFF	This central control has Sequence Off function, that enable conduction of sequence control to communication modular in interval of 2 seconds, communication module controls Sequence Off of indoor units (to lower impact to power network).
3	ON/OFF (2)	For controlling units' on and off.
4	TIMER	Set and check the time of Timer On and Timer Off of indoor unit and date mode.
5	SWING	Set if indoor unit swings
6	SPEED	Set fan speeds of High, Medium, Low or Auto for indoor unit
7	MODE	Set modes of Cool, Dry, Fan or Heat for indoor unit
8	LEFT/RIGHT UP/DOWN	It works as direction and adjusting under every operation function. Such as: When checking, it can move to the required indoor unit or communication modular by using this button; when adjusting time, press LEFT (/RIGHT) to shift "Y/M/D" etc. and press UP (/DOWN) to adjust value
9	CONTROL	Under control mode, press this button after setting state of indoor unit, control to indoor unit would be conducted by corresponding control mode.
10	GROUP	Press button under checking state to begin information check and set of grouped indoor unit, grouped information is for select control.
11	TIME	Set system time
12	SYSTEM/TEST	Begin setting of central control run mode, it is not recommended to be used by users.
13	INDOOR/DOMAIN	Shift display domain and indoor wired air condition control. **DOMAIN** corresponding to display on line communication modular, **INDOOR** corresponding to display on line indoor control.
14	CANCEL	Press this button during process of setting function to exit the already made function setting operation. Such as, if central control mode were selected, press CANCEL at this time would back to control mode selecting state.
15	CONTROL MODE	Begin control setting mode, and Central Control, Select Control and Single Control can be selected. Central Control: Control all indoor units under domain by present set state. Single Control: Control present indoor unit by present set state. Select Control: Control selected indoor unit by present set state, it also called grouped control
16	SELECT	Select required control or setting object; repress the button to the object is to cancel.
17	CONFIRM	Confirm the operated operation is effective

5.3 Display View

Sketch for LCD part:



(Fig.5.3.2)

1	Pagination/displays present domain	Under select control mode, **group no.** that is present controlling is displayed; Under addresses setting state, present **Soft Add** is displayed.
2	Present unit no.	Displays the soft address of communication module that the present checking or controlling indoor unit is belonged as well as the address of indoor unit; Format: Soft add—Indoor unit add
3	Error	Displays when there is error at any indoor or outdoor unit.
4	Operation mode	Displays every operation state mode of indoor unit
5	Speed display	Displays High, Medium, Low and Auto speed of indoor unit
6	Check	Under group control mode, it is displayed when checking grouping information; Under address setting mode, it is displayed when checking hard address.
7	Operation monitoring and controlling /monitoring	When central control works in normal, operation monitoring displays; when control signal is transmitted, operation monitoring and controlling is displayed.
8	Error code	Displays when abnormal occur on operation state of present indoor unit.
9	System time	Displays present time, format is Y, M, D, H, M and week.
10	Timer setting	**Timer On/Off** on when Timer On/Off is set to present indoor unit
11	Pre-set temperature	Displays value of pre-set temperature
12	Ambient temperature	Displays value of ambient temperature of present indoor unit
13	Swing and Defrost	Displays operation of swing at indoor unit and defrost at outdoor unit
14	System setting	Setting operation mode of central control. It should be completed by installation personnel, but not for users.
15	Control mode	Displays 3 control modes of Central, Single and Select controls
16	Displays of soft address	When **Indoor** on, addresses of present online indoor unit is displayed; When **domain** on, soft address of present online communication module is displayed; Specific location of controlled indoor unit can only be ascertained when soft address fits **Project Installation List**.

Instruction to display interface:

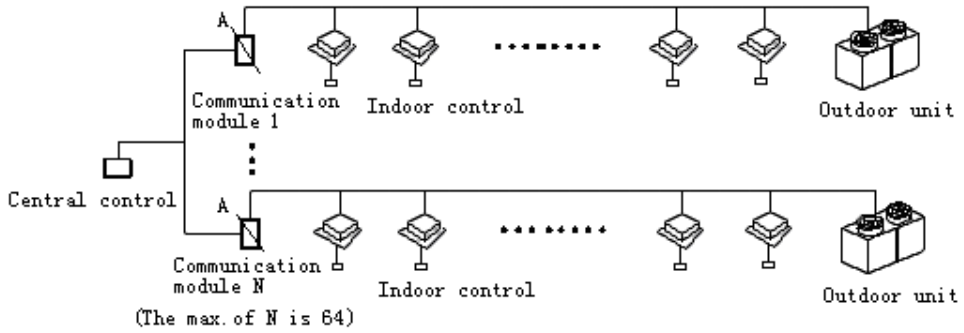
System Setting: Including Address Setting and other functions, and it is set when installation personnel are adjusting units. It is not recommended that users operate it. The usage of this function requires password.

Address Setting: Since characters from **01** to **64** are fixed as the **addresses of controlling communication modules displayed by central control** (hereinafter called **soft addresses**), and the **addresses of communication modules themselves** (hereinafter called **hard addresses**) are value from 0~254, thus there is address matching problem between central control and controlled communication module. In order to solve this problem, **address mapping setting is required to be conducted before project adjusting!**

5.4 Connection Between Controller and Unit

5.4.1 Communication network

The following is a brief sketch of communication net of multi variable units:

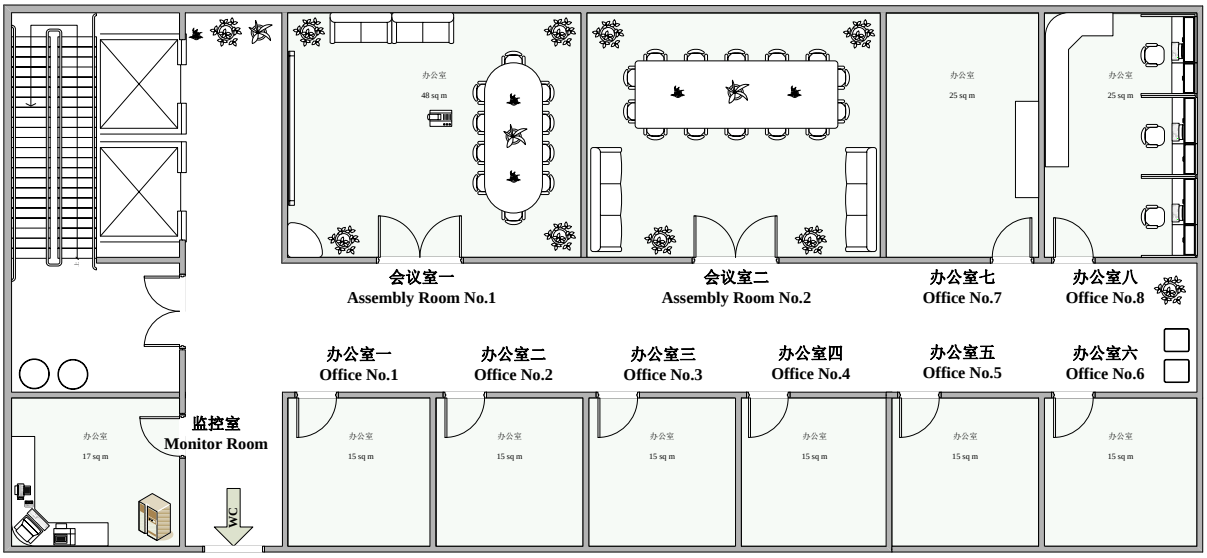


As shown in figure, the ”\” at A are parting lines for communication net. Left side of the “\” is the communication net between central control and communication module while the right side is that between multi variable outdoor unit and indoor units. The 2 nets are individual nets.

Before normal use of central control, do conduct addresses setting and adjusting to communication system by installation personnel. Only after that can the central control offered to be used by user.

5.5 Case Study

Take one floor of an office building for example to illustrate wiring and debugging of the centralized control system. In this floor, there are 2 assembly rooms, 8 offices and 1 monitor room. Refer to the following illustration for its plane structure.

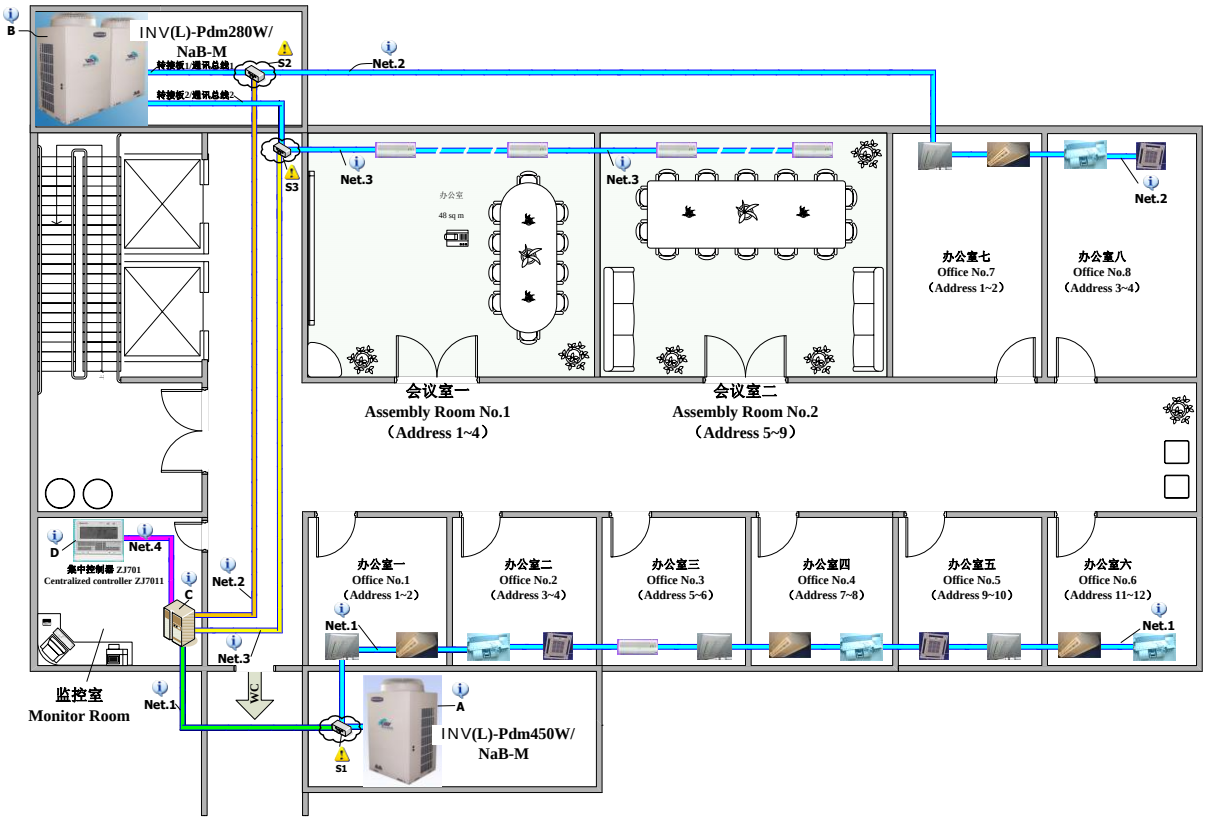


1）Instruction to Distribution of Unit and Installation of Equipment

This office building has been installed with 2 sets of INV units, as shown in the table below.

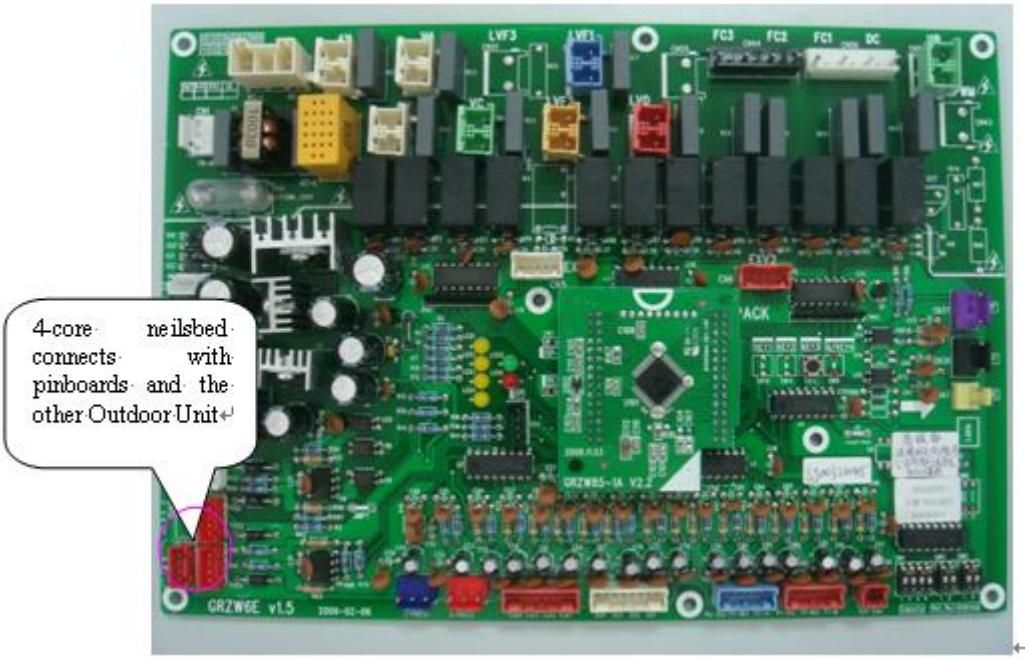
Name	Models	Quantity of required communication modules (pinboard)	Quantity of indoor units	Corresponding rooms of indoor units		
				Room	Address of communication module	Address of indoor unit
Unit1	INV-Pdm450W/ NaB-M	1（0）	12	Office 1	01	1，2
				Office 2		3，4
				Office 3		5，6
				Office 4		7，8
				Office 5		9，10
				Office 6		11，12
Unit 2	INV-Pdm280W/ NaB-M	2（2）	20	Room	Address of communication module	Address of indoor unit
				Office 7	02	1, 2
				Office 8		3, 4
				Assembly room 1	03	1，2，3，4
				Assembly room 2		5，6，7，8，9

2）Frame Diagram of System Net



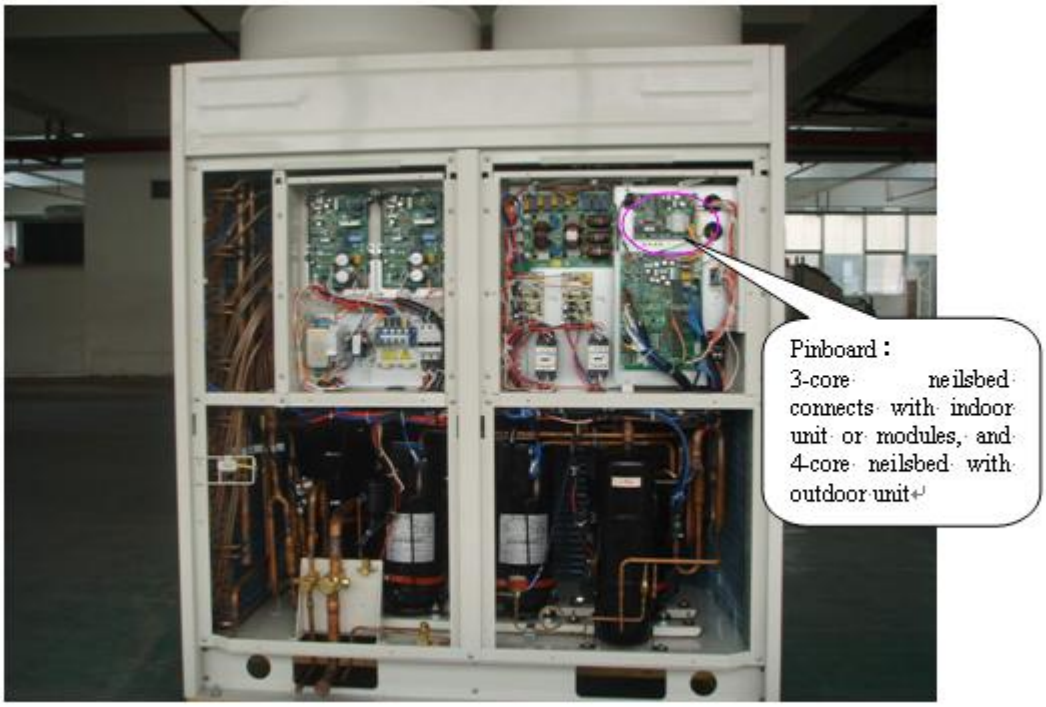
Instruction to Frame Diagram of System Net

Mark A: Outdoor Unit INV(L)-Pdm 450W/NaB-M can be connected with up to 16 indoor units. In this project, this outdoor unit is connected with the communication module with address of 01 and indoor units (address 01~12）of office 1-6, corresponding with independent communication **Net.2**. The mainboard of outdoor unit is as follow:



Mark B: Outdoor Unit INV（L）- Pdm 280W/NaB-M can be connected with up to 32 indoor units by two pinboards ,either of which can connect with up to 16 indoor units . What's more, the quantity of communication modules used is the same as that of pinboards.

In this project, pinboard 1 is connected with the communication module with address of 02 and indoor units (address 01~04）of office 7-8, corresponding with independent communication **Net.2.** Pinboard 2 is connected with communication module of address 03 and indoor units (address 01~08）of office 1-2, corresponding with independent communication **Net.3**. The outdoor figure is as follow:



Mark C: Centralized controller cabinet is mainly used to put communication modules together. Refer to Section 3 Instruction to Installation Procedure of System about its figure and connection method of communication modules.

Mark D: Centralized Controller ZJ701. For the first use of it, address mapping setting must be made to specify addresses of communication modules which should be controlled. In this project example there are 3 communication modules with the address of 01, 02 and 03 which are displayed in the centralized controller correspondingly.

Mark S1, S2, and S3: Telephone 3-way triple adapters are used to connect communication modules with communicating net of indoor and outdoor units. Refer to Section 3 Instruction to Installation Procedure of System for its connection method.

3） Instruction to Installation Procedure of System

● Step 1: Integral Design of the Whole System.

In consideration of features of building and installation of the unit, the building is divided into a lot of monitoring regions and then confirm required systems, their quantity and installation locations. As for this example:

A. Division of monitoring regions: According to needs of the users, the whole floor is divided into 3 monitoring regions, south area (office 1-6), north area (assembly room1-2 and office 7-8) and monitor room.

B. Confirmation of quantity of systems

Name	Qty	Installation Location	Notes
Communication modules	3	Centralized control cabinet	The quantity required for the pinboards is the same as communication modules. If no pinboard, only one module is needed. So, there should be 3 modules in total.
Centralized control cabinet	1	Monitor room	Installed indoors according to user’s conditions.
Centralized controller	1	Monitor room	Installed indoors

● Step 2: Wiring and Installation

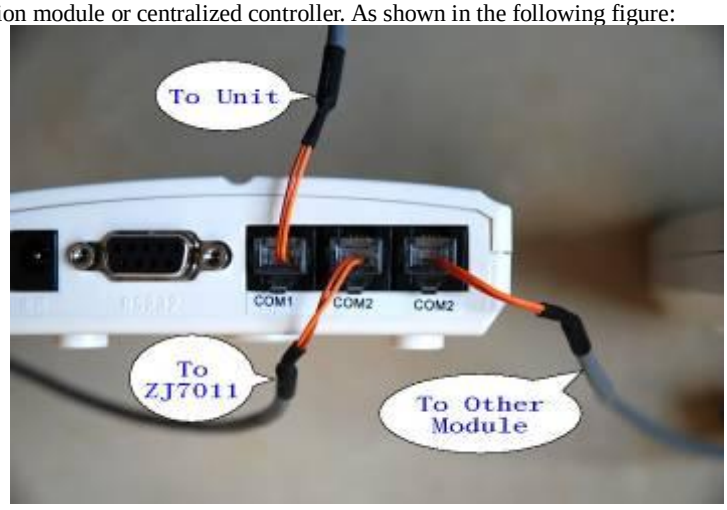
A. Centralized controller as extension function of INV unit can be installed and debugged after communication connection between outdoor unit and indoor unit and normal operation of the unit.

B. Make of centralized control cabinet

If a lot of communication modules are used, centralized control cabinet is recommended. Heavy current wires and communication lines should be wired separately. The distance between them should keep above 15cm.The following figure is an example of centralized control cabinet, but its design should be according to quantity of communication modules.

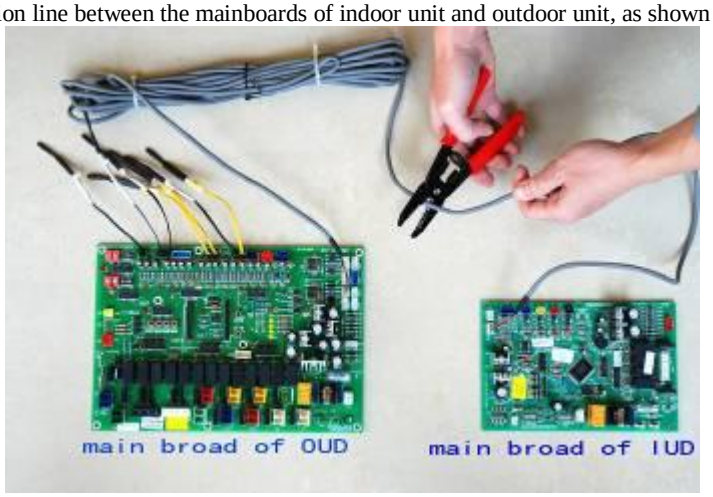
C. Connection of communication modules

COM 1 of communication module can connect with indoor and outdoor unit. The two COM2 can connect with other communication module or centralized controller. As shown in the following figure:

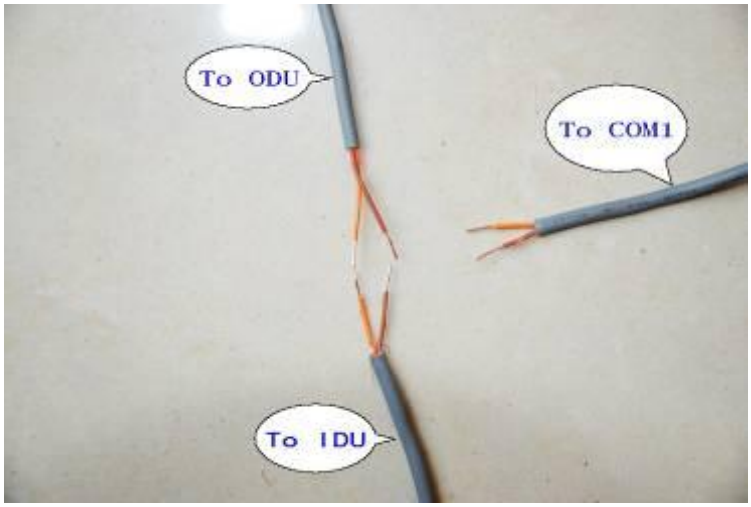


D. Connection between communication module and indoor and outdoor units

According to the net diagram, connect the communication line between indoor unit and outdoor unit. Then cut off the communication line between the mainboards of indoor unit and outdoor unit, as shown below.



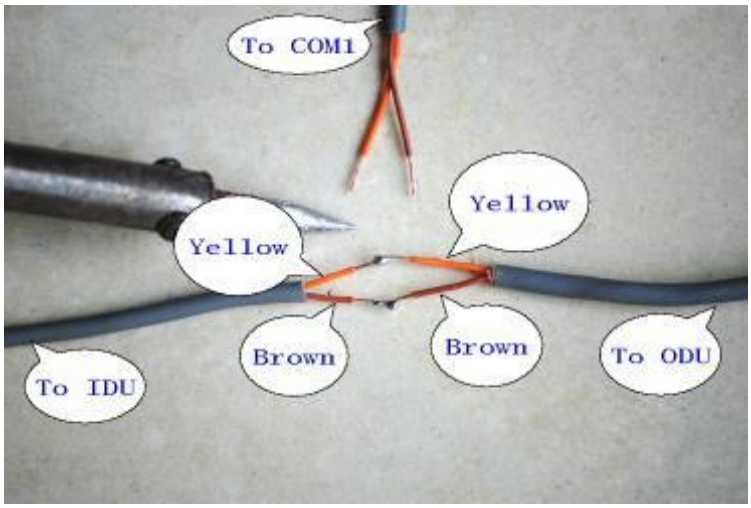
Align the cutting terminals and terminals of communication line to COM1, as shown below:



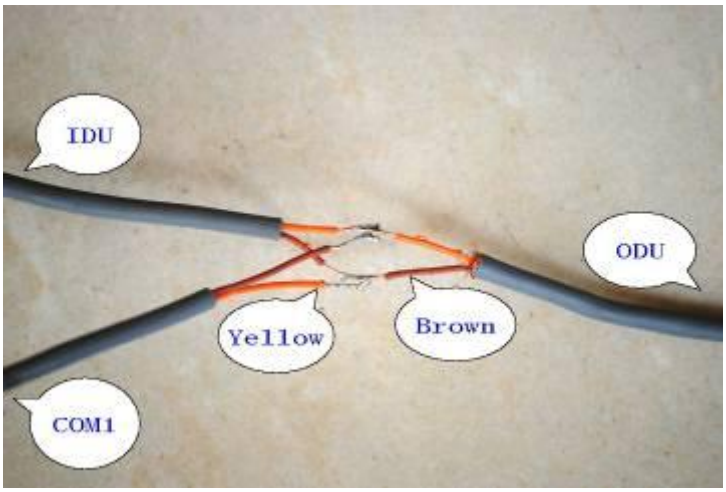
In this case, there are two methods to connection of them.

Method 1: Welding

Weld the two cutting terminals by yellow to yellow and brown to brown, as shown below:



And then weld the terminals of communication line to COM1 with the welding spots in the above figure together by **yellow wire to brown wire**, as shown below:

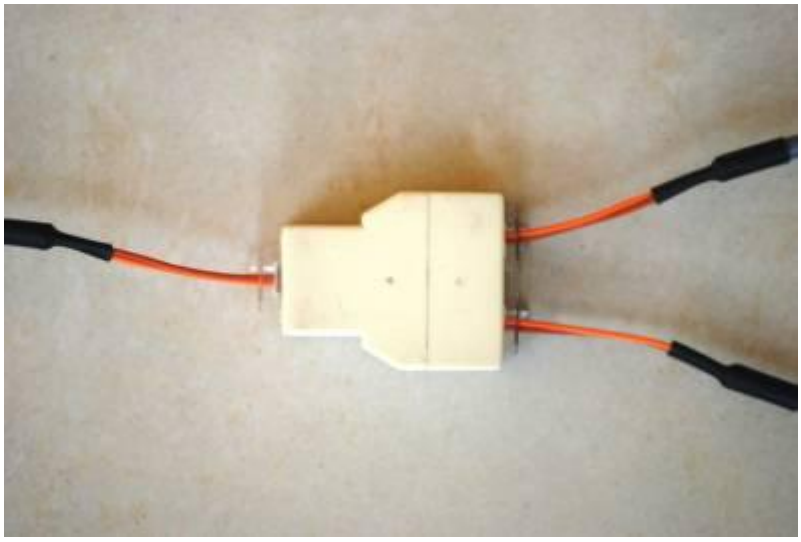


At last, wrap the welding spots with insulating tape and test conduction performance of the three communication lines, as shown below:

Method 2: Triple adapter

Make crystal heads for the three lines. The connection direction should be the sameas in the above welding figures, i.e. yellow to yellow and brown to brown wire of indoor and outdoor units, but yellow to brown wire of communication line to COM1.The crystal heads are as follow:

Insert the three crystal heads into the triple adopter and test conduction performance of them, as shown below:



E. Connection of Communication Modules and Centralized Controller

Connection of COM1 of communication module which has 3 COM in total has been introduced as the above. COM2 can connect with another communication module or centralized controller, as shown below:

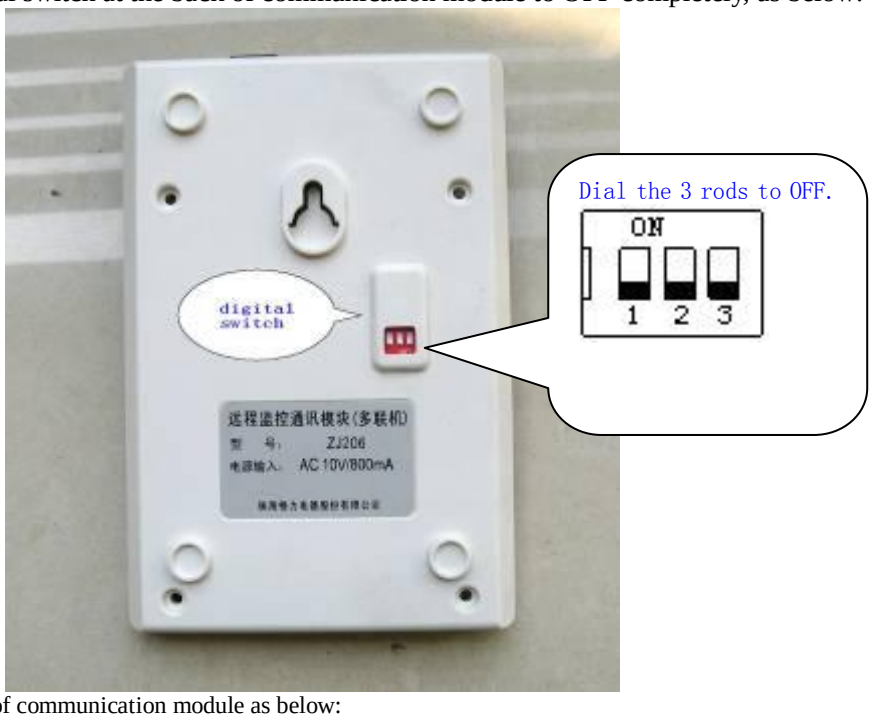
Note: The above figure is only for reference to relation among the equipments. The actual wiring is subject to the above frame diagram of system

●**Step 3: There are two methods of DIP address setting of communication module**

Method 1: The address of each communication module has been fixed in the factory and marked on the label at the back of it. It is unnecessary for users to set anything. In addition, the 3-digital DIP can not be dialed to OFF completely, as shown below:

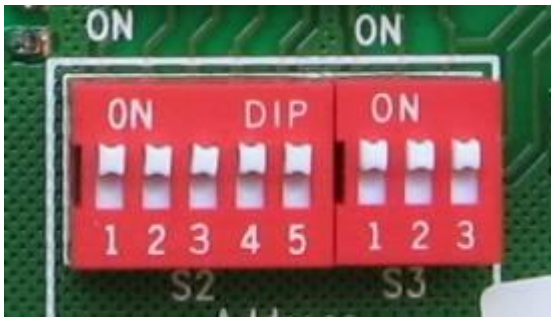
Method 2: Manual setting of address, as operated the following:

1. Dial the digital switch at the back of communication module to OFF completely, as below:



2.Open the cover of communication module as below:

The 8-digital DIP is as below:



Set DIP for address according to the following table.

Set DIP for address according to the following table.

Address from 0 to 31								Address	Address from 32 to 63								Address
DIP S2					DIP S3				DIP S2					DIP S3			
1	2	3	4	5	1	2	3		1	2	3	4	5	1	2	3	
0	0	0	0	0	0	0	0	**0**	0	0	0	0	0	1	0	0	**32**
1	0	0	0	0	0	0	0	**1**	1	0	0	0	0	1	0	0	**33**
0	1	0	0	0	0	0	0	**2**	0	1	0	0	0	1	0	0	**34**
1	1	0	0	0	0	0	0	**3**	1	1	0	0	0	1	0	0	**35**
0	0	1	0	0	0	0	0	**4**	0	0	1	0	0	1	0	0	**36**
1	0	1	0	0	0	0	0	**5**	1	0	1	0	0	1	0	0	**37**
0	1	1	0	0	0	0	0	**6**	0	1	1	0	0	1	0	0	**38**
1	1	1	0	0	0	0	0	**7**	1	1	1	0	0	1	0	0	**39**
0	0	0	1	0	0	0	0	**8**	0	0	0	1	0	1	0	0	**40**
1	0	0	1	0	0	0	0	**9**	1	0	0	1	0	1	0	0	**41**
0	1	0	1	0	0	0	0	**10**	0	1	0	1	0	1	0	0	**42**
1	1	0	1	0	0	0	0	**11**	1	1	0	1	0	1	0	0	**43**
0	0	1	1	0	0	0	0	**12**	0	0	1	1	0	1	0	0	**44**
1	0	1	1	0	0	0	0	**13**	1	0	1	1	0	1	0	0	**45**
0	1	1	1	0	0	0	0	**14**	0	1	1	1	0	1	0	0	**46**
1	1	1	1	0	0	0	0	**15**	1	1	1	1	0	1	0	0	**47**
0	0	0	0	1	0	0	0	**16**	0	0	0	0	1	1	0	0	**48**
1	0	0	0	1	0	0	0	**17**	1	0	0	0	1	1	0	0	**49**
0	1	0	0	1	0	0	0	**18**	0	1	0	0	1	1	0	0	**50**
1	1	0	0	1	0	0	0	**19**	1	1	0	0	1	1	0	0	**51**
0	0	1	0	1	0	0	0	**20**	0	0	1	0	1	1	0	0	**52**
1	0	1	0	1	0	0	0	**21**	1	0	1	0	1	1	0	0	**53**
0	1	1	0	1	0	0	0	**22**	0	1	1	0	1	1	0	0	**54**
1	1	1	0	1	0	0	0	**23**	1	1	1	0	1	1	0	0	**55**
0	0	0	1	1	0	0	0	**24**	0	0	0	1	1	1	0	0	**56**
1	0	0	1	1	0	0	0	**25**	1	0	0	1	1	1	0	0	**57**
0	1	0	1	1	0	0	0	**26**	0	1	0	1	1	1	0	0	**58**
1	1	0	1	1	0	0	0	**27**	1	1	0	1	1	1	0	0	**59**
0	0	1	1	1	0	0	0	**28**	0	0	1	1	1	1	0	0	**60**
1	0	1	1	1	0	0	0	**29**	1	0	1	1	1	1	0	0	**61**
0	1	1	1	1	0	0	0	**30**	0	1	1	1	1	1	0	0	**62**
1	1	1	1	1	0	0	0	**31**	1	1	1	1	1	1	0	0	**63**

Address from 64 to 95								Address	Address from 96 to 127								Address
DIP S2					DIP S3				DIP S2					DIP S3			
1	2	3	4	5	1	2	3		1	2	3	4	5	1	2	3	
0	0	0	0	0	0	1	0	**64**	0	0	0	0	0	1	1	0	**96**
1	0	0	0	0	0	1	0	**65**	1	0	0	0	0	1	1	0	**97**
0	1	0	0	0	0	1	0	**66**	0	1	0	0	0	1	1	0	**98**
1	1	0	0	0	0	1	0	**67**	1	1	0	0	0	1	1	0	**99**
0	0	1	0	0	0	1	0	**68**	0	0	1	0	0	1	1	0	**100**
1	0	1	0	0	0	1	0	**69**	1	0	1	0	0	1	1	0	**101**
0	1	1	0	0	0	1	0	**70**	0	1	1	0	0	1	1	0	**102**
1	1	1	0	0	0	1	0	**71**	1	1	1	0	0	1	1	0	**103**
0	0	0	1	0	0	1	0	**72**	0	0	0	1	0	1	1	0	**104**
1	0	0	1	0	0	1	0	**73**	1	0	0	1	0	1	1	0	**105**
0	1	0	1	0	0	1	0	**74**	0	1	0	1	0	1	1	0	**106**
1	1	0	1	0	0	1	0	**75**	1	1	0	1	0	1	1	0	**107**
0	0	1	1	0	0	1	0	**76**	0	0	1	1	0	1	1	0	**108**
1	0	1	1	0	0	1	0	**77**	1	0	1	1	0	1	1	0	**109**
0	1	1	1	0	0	1	0	**78**	0	1	1	1	0	1	1	0	**110**
1	1	1	1	0	0	1	0	**79**	1	1	1	1	0	1	1	0	**111**
0	0	0	0	1	0	1	0	**80**	0	0	0	0	1	1	1	0	**112**
1	0	0	0	1	0	1	0	**81**	1	0	0	0	1	1	1	0	**113**
0	1	0	0	1	0	1	0	**82**	0	1	0	0	1	1	1	0	**114**
1	1	0	0	1	0	1	0	**83**	1	1	0	0	1	1	1	0	**115**
0	0	1	0	1	0	1	0	**84**	0	0	1	0	1	1	1	0	**116**
1	0	1	0	1	0	1	0	**85**	1	0	1	0	1	1	1	0	**117**
0	1	1	0	1	0	1	0	**86**	0	1	1	0	1	1	1	0	**118**
1	1	1	0	1	0	1	0	**87**	1	1	1	0	1	1	1	0	**119**
0	0	0	1	1	0	1	0	**88**	0	0	0	1	1	1	1	0	**120**
1	0	0	1	1	0	1	0	**89**	1	0	0	1	1	1	1	0	**121**
0	1	0	1	1	0	1	0	**90**	0	1	0	1	1	1	1	0	**122**
1	1	0	1	1	0	1	0	**91**	1	1	0	1	1	1	1	0	**123**
0	0	1	1	1	0	1	0	**92**	0	0	1	1	1	1	1	0	**124**
1	0	1	1	1	0	1	0	**93**	1	0	1	1	1	1	1	0	**125**
0	1	1	1	1	0	1	0	**94**	0	1	1	1	1	1	1	0	**126**
1	1	1	1	1	0	1	0	**95**	1	1	1	1	1	1	1	0	**127**

Step 4: System Setting of Centralized Controller

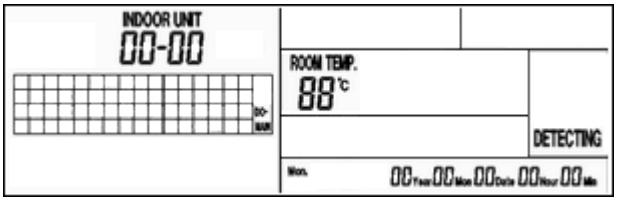
SYSTEM SETTING includes **ADDRESS SETTING** and **INITIALIZE SETTING.** The former one is used for setting address of control object (communication module), and the latter one for initializing the data in the centralized controller （including clear all the finished address settings）.

Since the centralized controller can control at most 64 communication modules and the address of them is 0 to 253 (0 is generally unused), it must specify the address of communication module needed to be controlled. It is **ADDRESS SETTING**, which is not recommended to operate by users.

The debugging personnel can press **SYSTEM/DEBUG** into system setting interface. After pressing **UP**, **DOWN**, **LEFT** and **RIGHT** buttons, press **CONFIRM** button into the interface for selection between **ADDRESS SETTING** and **INITIALIZE SETTING**.

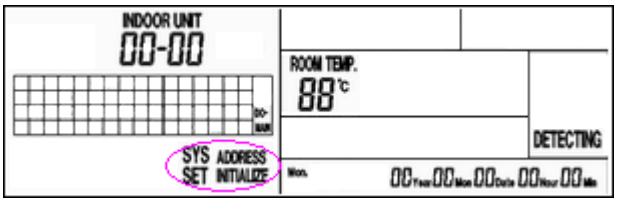
The operation procedure of **ADDRESS SETTING**:

1. The centralized controller without energizing and setting will display following.

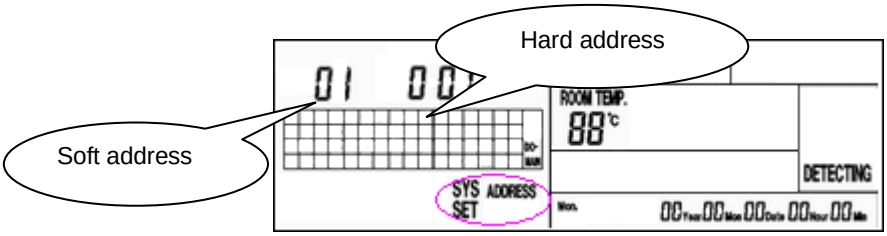


Display Present Unit No. 00-00 which means soft address 00-No. 00 indoor unit. (Soft address is the No. displayed in 1-64 grid of LCD.

Press **SYSTEM/DEBUG** into system setting interface. After pressing **UP**, **DOWN**, **LEFT** and **RIGHT** buttons, press **CONFIRM** button into the interface for selection between **ADDRESS SETTING** and **INITIALIZE SETTING**. Then press UP or DOWN button to switch between them.



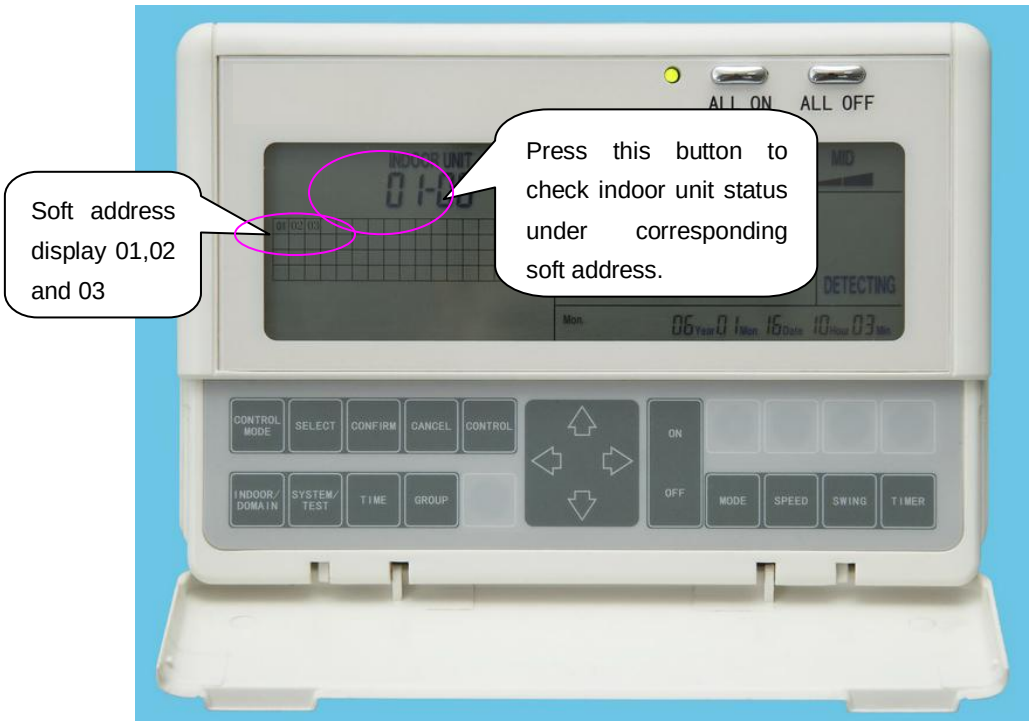
2. When ADDRESS SETTING is blinking, press SELECT button into address setting interface.



Press **LEFT** or **RIGHT** button to switch between SOFT and Hard ADDRESS settings, and **UP** or **Down** button to adjust their values。After adjustment, press **CONFIRM** button to make the address values corresponding and effective. If the cursor stops at hard address position (hard address is blinking), press **CANCEL** button to make the setting value ineffective, in which case, the "- -"will be displayed.(Soft address is the No. displayed in 1-64 grid of LCD and hard address is the actual one of communication module.)

In this example, the centralized controller controls 3 communication modules with the address of 01, 02 and 03 (i.e. hard address is 01,02 and 03).For convenient management, soft address will be set to the same as hard address, i.e. "01 001", "02 002"and "03 003".

If communication is normal after setting, the centralized controller will display as the following figure:



I. 01,02 and 03 of soft address is displayed, which indicates normal communication of these 3 communication modules.

II. PRESENT UNIT NO. displays "01-08", which indicates No. 08 indoor unit under 01 communication module is being checked.

III. Press ROOM/REGION button to check other indoor units' status under present communication module. Indoor units' status is automatically detected, without setting in centralized controller.

- **Step 5: Troubleshooting during Installation of Centralized Controller**

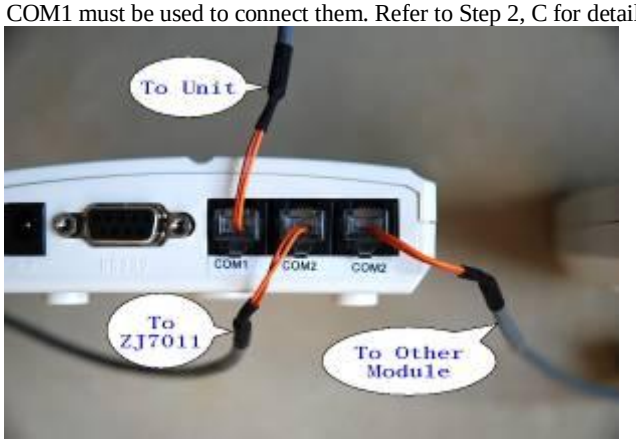
Generally speaking, **connection of communication lines**, a**ddress DIP of communication module** and a**ddress mapping setting of centralized controller** are the common problems during installation of centralized controller. These problems can be reflected from running indicator (green) of communication module. Meanwhile, it is recommended to debug the centralized controller after making communication of outdoor and indoor units smooth to simplify the problems.

A. Connection of communication lines

①If incorrect or non-connection of communication module, centralized controller and communication line of indoor and outdoor units, the green indicator will be black all the time.

②It indicates connection problem between communication module and centralized controller that green indicator blinks once every 2s.In this case, COM2 must be used to connect them.

③It indicates connection problem of communication module and indoor and outdoor units that green indicator blinks twice every 2s. In this case, COM1 must be used to connect them. Refer to Step 2, C for details.



B. Address DIP of communication module

There are two methods for address setting. The one is that communication module has been set by software store, but the 3-digital DIP switch can not be dialed to OFF completely. The other one is to set it manually, but the 3-digital

DIP switch should be dialed to OFF completely. Refer to step 3 for details.

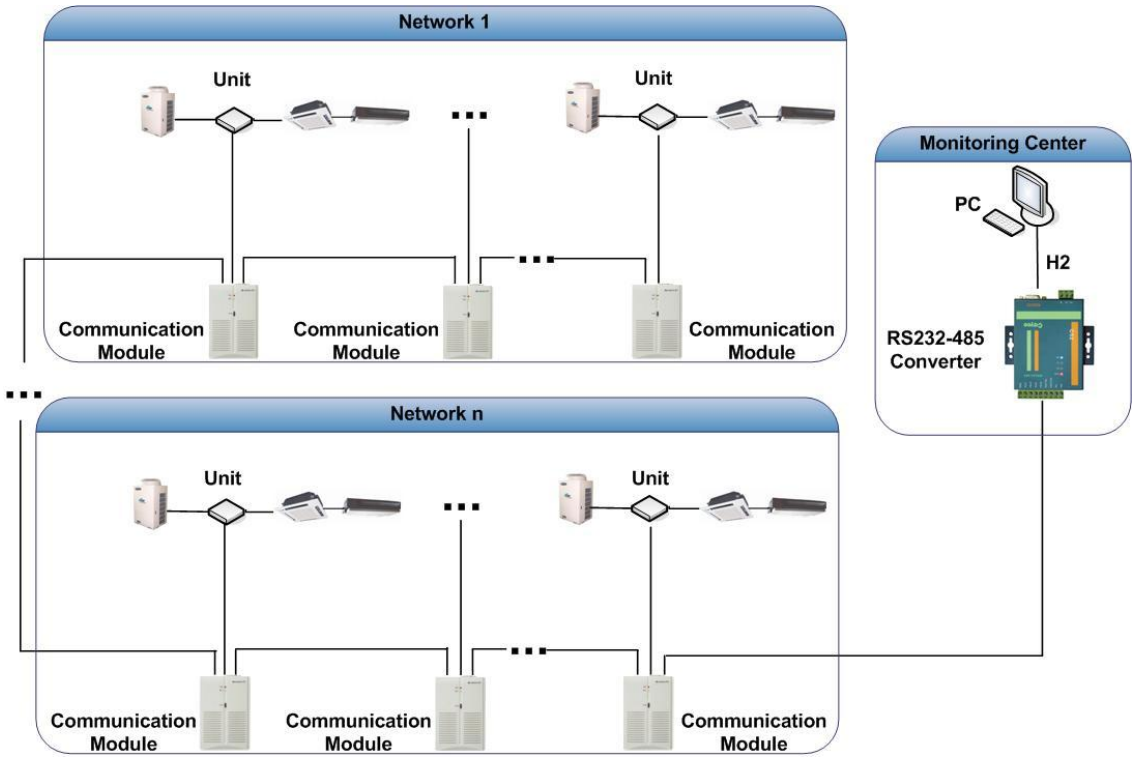
C. Address mapping setting of centralized controller

The centralized controller only can normally operate after specifying address of communication module needed to control. If not, the operation status of communication and indoor units can not be displayed by it. Refer to Step 4 for details.

6 MONITORING SOFTWARE

6.1 Function

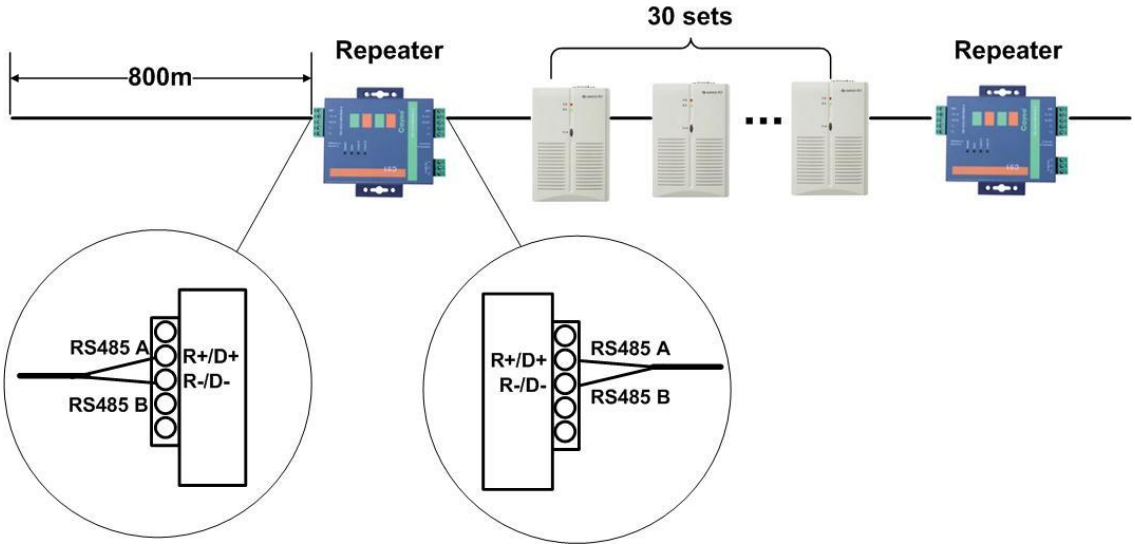
As the development and improvement of manufacturing technology and in order to solve the problems of complex distribution of the central AC in the buildings and difficult control and maintenance of them, an platform easy and reliable to operate must be provided to the users for daily management and maintenance. So this long-distance monitoring system combining electronic communication and computer technologies is developed to collect the running state of the units and to monitor and control the units from a long distance. Its structure is as follow:



6.2 Connection Between the Computer and the Unit

1.Notice：

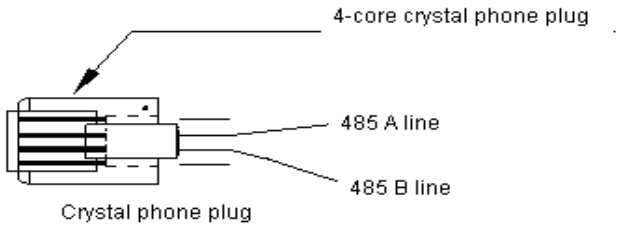
- The address code of the communication modules should not be conflicted in one project.
- Optoelectronic Isolated Repeater :One every 800m of communication distance equipped with one and One every 30 communication modules equipped with one.



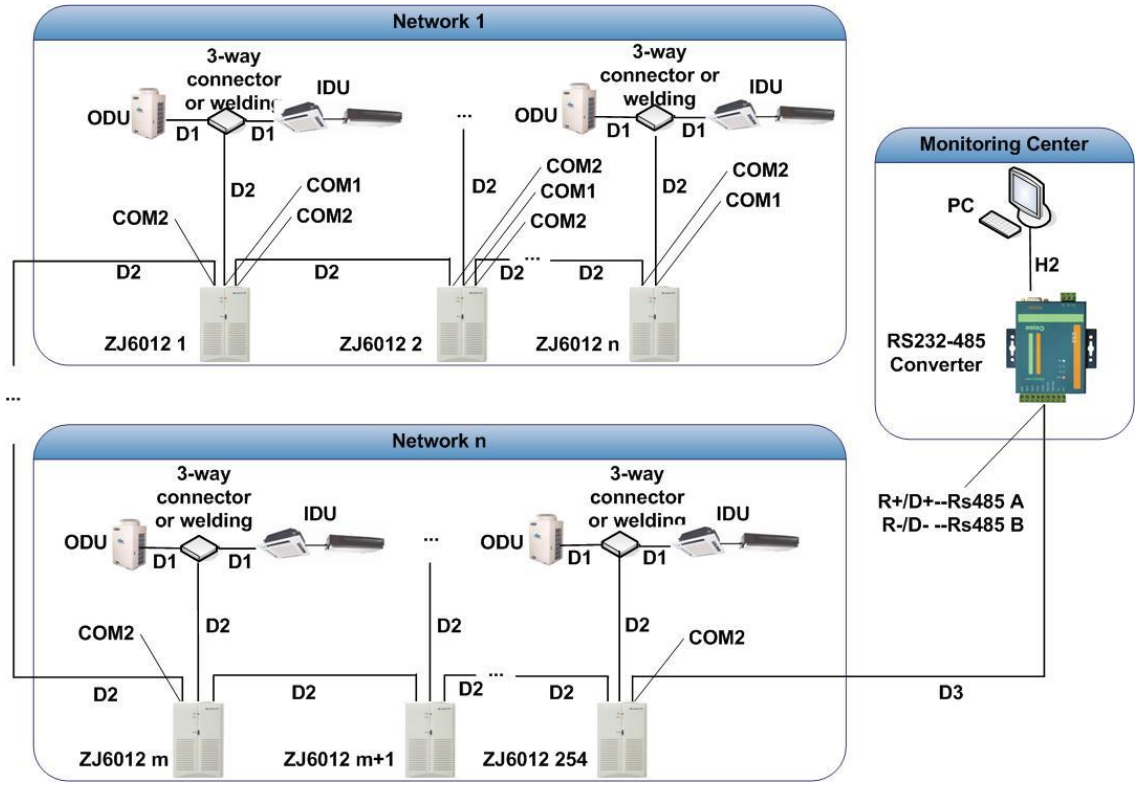
- the communication cable and heavy-current wire should be separated and the distance between them can not be below

15cm

- line A and line B of Bus 485 should respectively correspond with line A and line B.
- crystal head（crystal head buckle is downwards）



2.Wiring Diagram



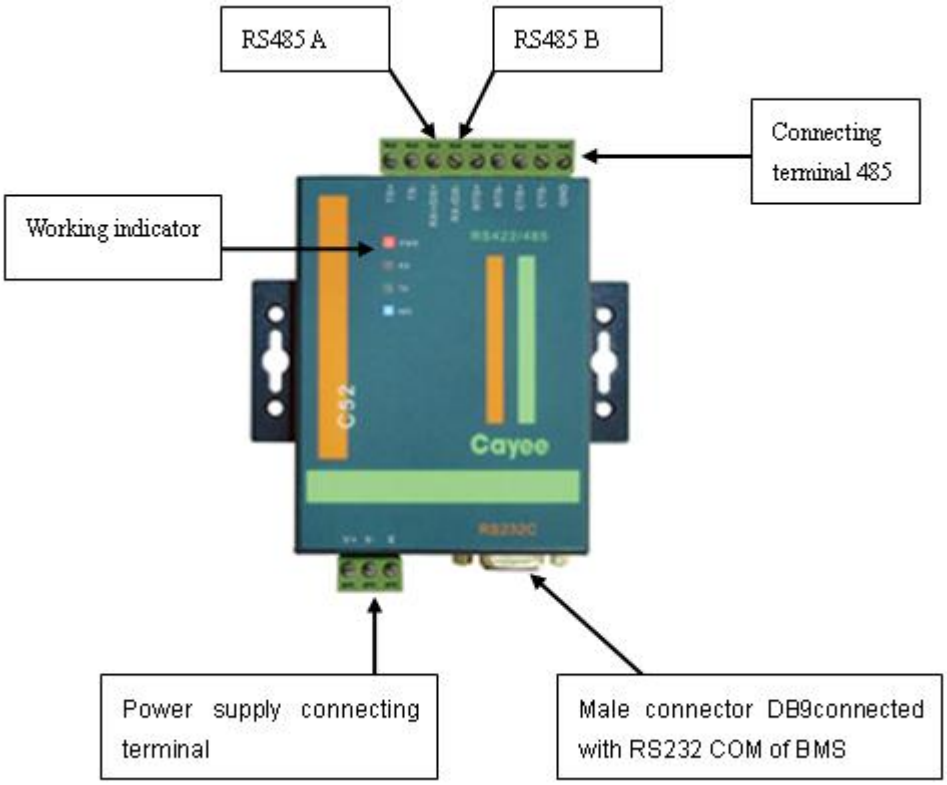
Description of above communication cables

Cable	Description
D1	crystal head and the other end is XH 4-core pin connector（2-core Type-V twisted pair wire）
D2	both crystal head(Standard parts)
D3	crystal head and the other end connects of it connects with wiring terminal of converter.（2-core Type-V twisted pair wire）
H2	both 9-core head (Standard parts)

6.3 Hardware

1. Introduction to Main Devices

1.1 R232-R485 Optoelectronic Isolated Converter (standard parts)



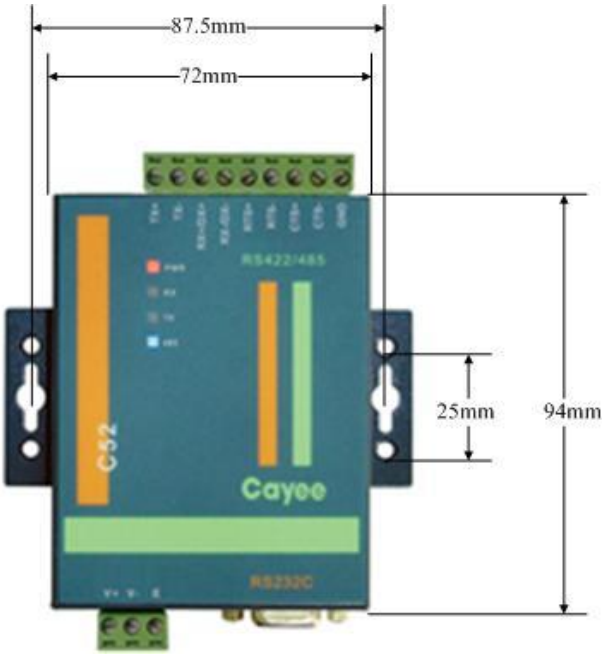
1）Function Introduction:

- R232-R485 optoelectronic Isolated converter is used to convert the signal 232 of PC COM and signal of bus 485.

2）Dimension

Description	L（mm）	W（mm）	H（mm）
optoelectronic isolated converter	94	72	23

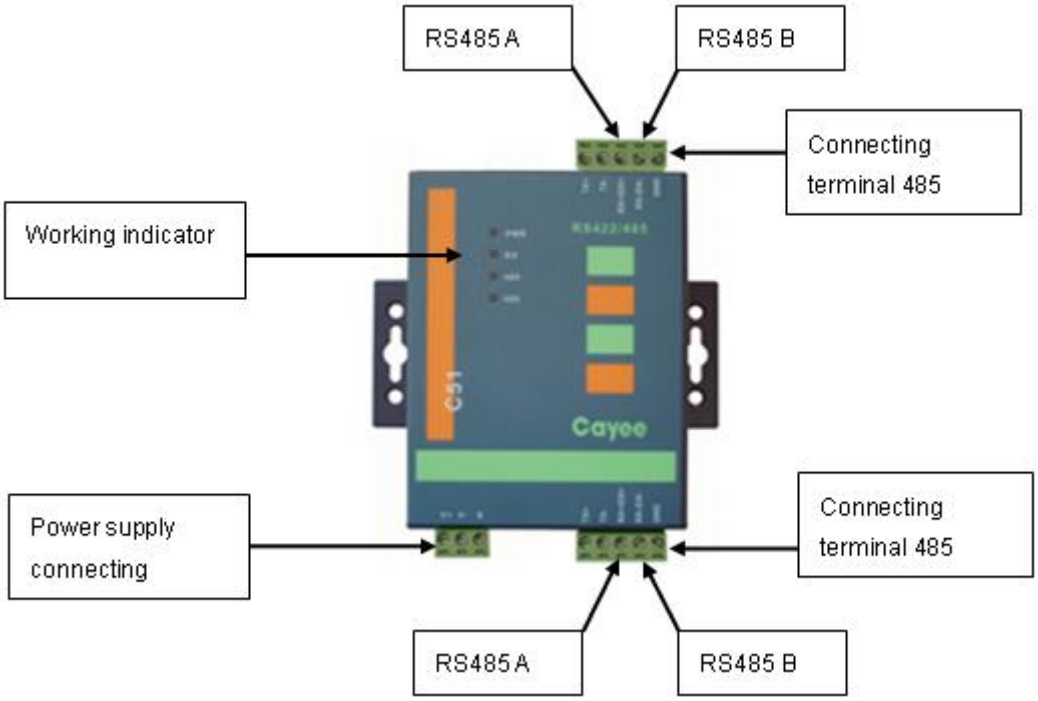
3）Installation Dimension



4）Installation Criteria:

- It must be installed indoors to avoid knock, insolation or rainwater and is better to be put in the monitoring room.
- This device must be the original one in the factory. Never self-buy the models for replacement.
- 220-V AC socket must be installed for independent power supply.
- Power supply specification: 12～30VDC 800mA

1.2 Optoelectronic Isolated Repeater(optional parts)

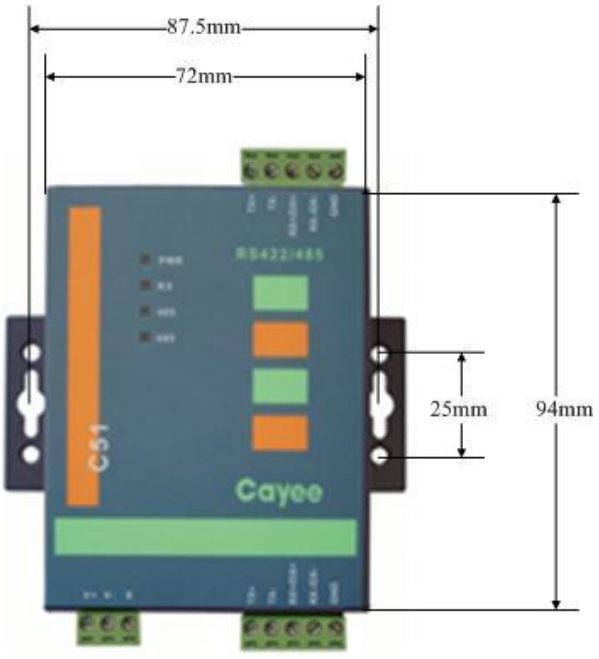


1）Function Introduction:

- Optoelectronic Isolated repeater is mainly used to collect increase of communication distance and nodes when the quantity of communication modules is above 30 or communication distance is above 800m.Refer to Project and Installation section for details.
- 2）Dimension

Description	L（mm）	W（mm）	H（mm）
Optoelectronic Isolated Repeater	94	72	23

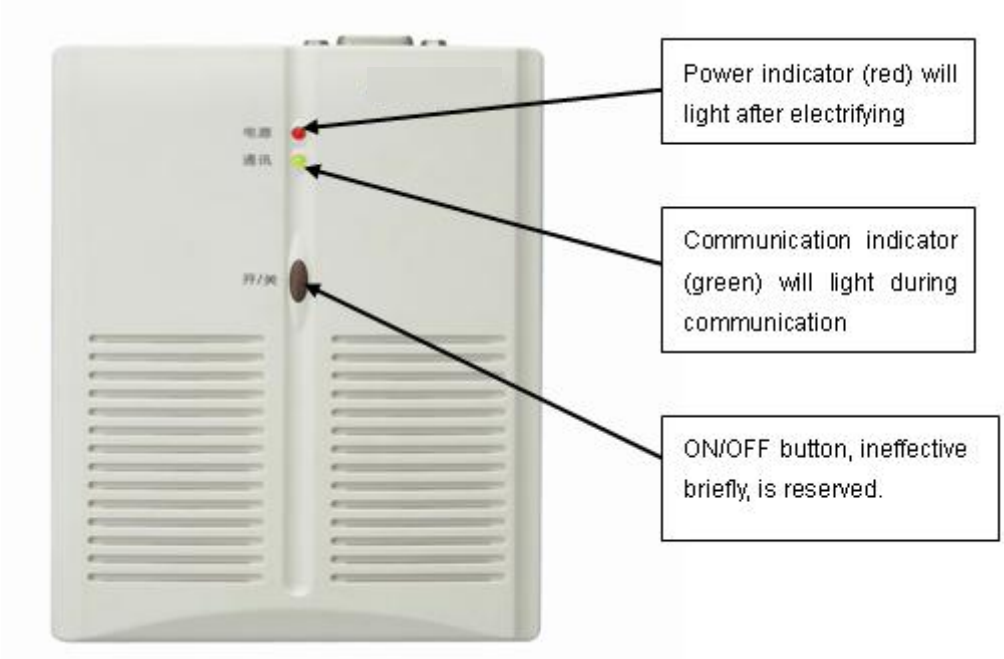
3）Installation Dimension



4）Installation Criteria:

- It must be installed indoors to avoid knock, insolation or rainwater and is better to be put in centralized control cabinet
- This device must be the original one in the factory. Never self-buy the models for replacement.
- 220-V AC socket must be installed for independent power supply.
- 12～30VDC 800mA Power supply specification: 12～30VDC 800mA

1.3 Communication Module (standard parts)

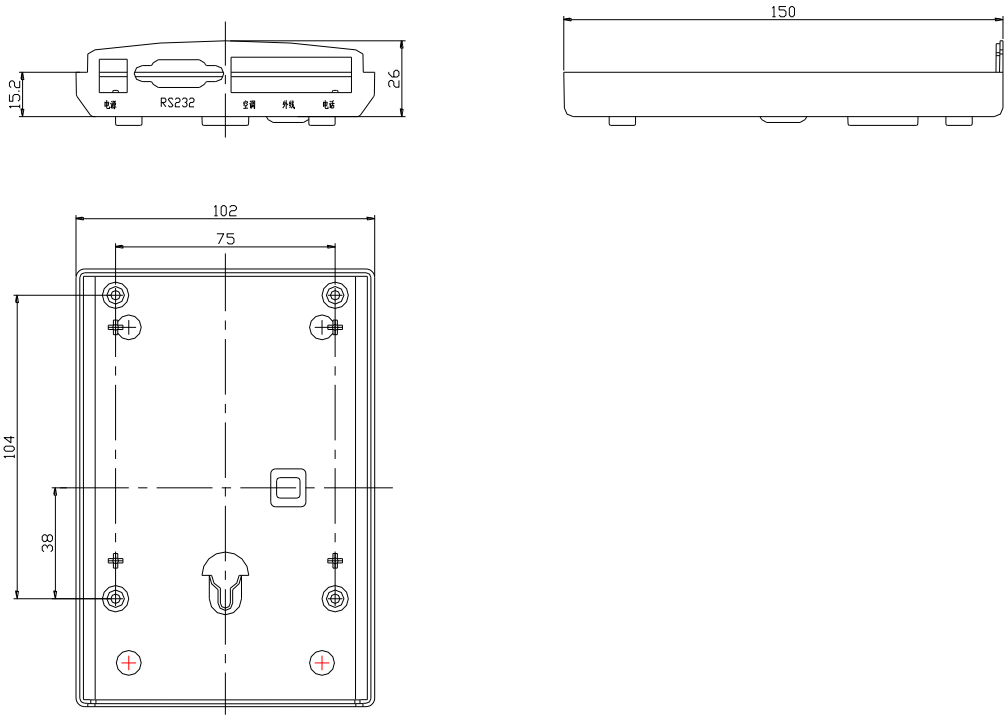


1）Function Introduction

- Communication module is used for conversion and transfer of signal of PC and air conditioner during the communication of them, making the role of communication controller. Refer to User Instruction to Communication Module for details.

2）Dimension:

Description	L（mm）	W（mm）	H（mm）
Communication module	150	102	30

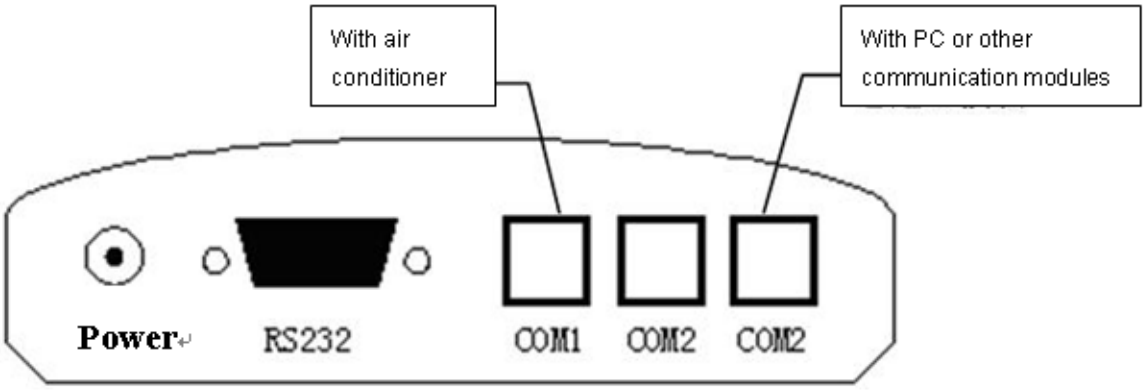


3）Installation Dimension:

Description	Distance to top side（mm）	Diameter（mm）
Hanging Hole	35	5

4）Use Instruction to Communication Module

- The Sketch Map of COM, as shown below:



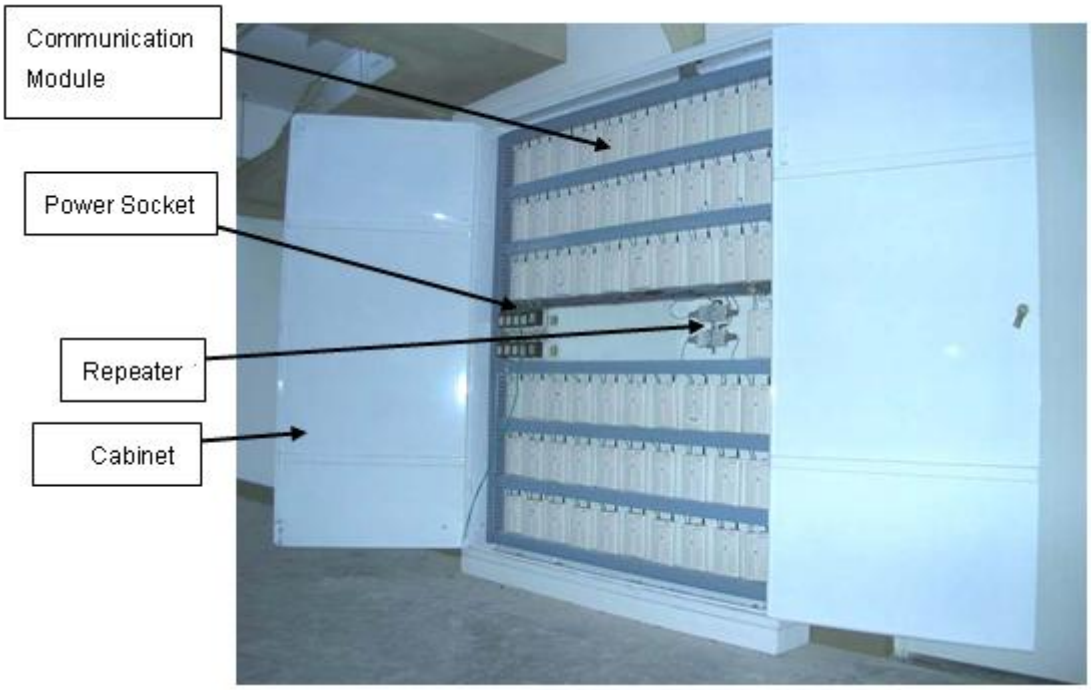
- Use Instruction

Please check the user manual of communication module for details information.

5）Installation Criteria of Communication Module:

- Ensure the specification of power adapter to avoid malfunction or damage to the communication module.
- Ensure unique DIP address of each communication module in the project to avoid malfunction.
- Ensure communication cable connects with correct COM to avoid malfunction.
- The communication modules should be put in centralized control cabinet together to avoid direct sunlight or high temperature and wet environment.
- Power transformer specification: input AC200V～50HZ and output DC9V～800mA

1.4 Centralized Control Cabinet (user provided parts)



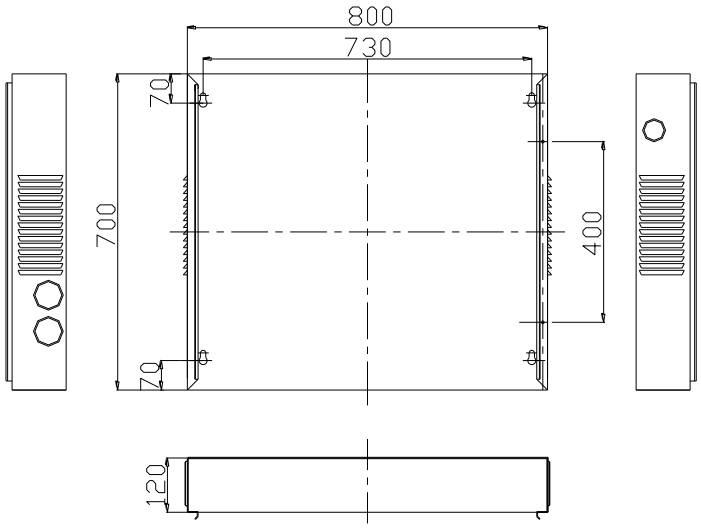
1）Function Instruction:

- It can put the communication modules together for convenient centralized management and reliable operation.

2）Dimension:

- The following dimension is for reference. The cabinet is designed according to 10 communication modules into. If more modules are needed, the cabinet should be designed once again. The internal structure should accord to actual state.

The external dimension of the cabinet (Unit: mm)

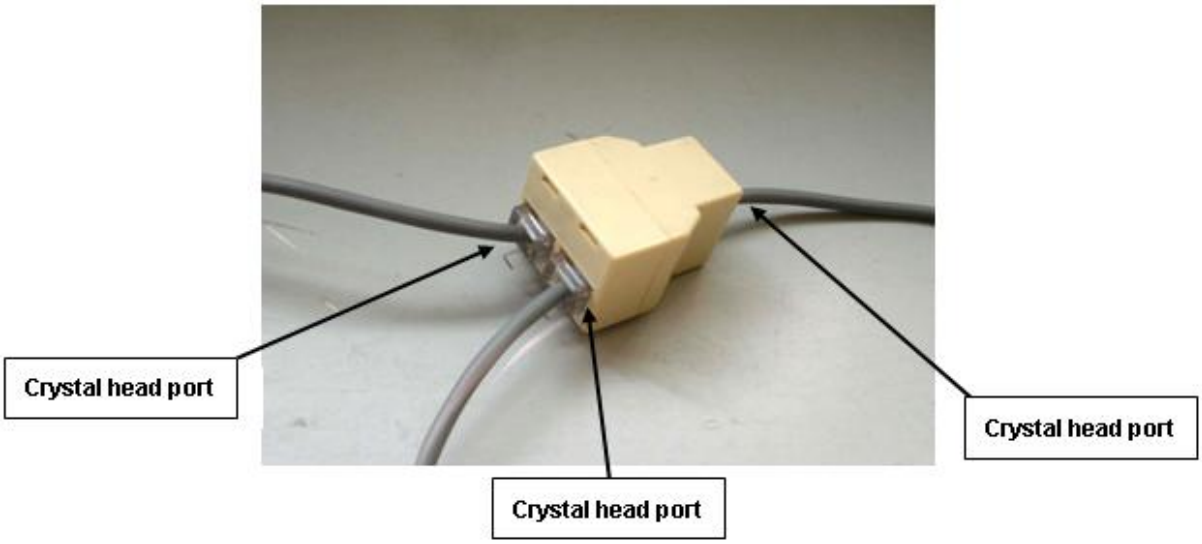


3）Installation Criteria:

- The dimension of the cabinet should be designed according to quantity , arrangement and put position of the communication modules before make of it.
- Independent power supply for each communication module is needed, so enough 220v AC sockets should be installed in the cabinet.
- The communication cable and heavy-current wire should be separated for the distance above 15cm.
- The cabinet should be put indoors and locked to avoid insolation and rainwater or contact of non-manager.

1.5 3-way Phone Connector(user provided parts)

Note: Lines without 3-way telephone connector can be connected by welding and protected with insulating tape to avoid oxidization and short circuit.



1）Function Instruction: Common 3-way phone connector is applied to connect 3 pieces of communication cable.

Dimension ：

Description	L（mm）	W（mm）	H（mm）
3-way connector	33	27	21

2）Installation Criteria:

- Avoid knock, insolation or rainwater.
- Ensure tightness of each bayonet without load.
- Perform conduction test after installation. Replace the ones of poor contact.
- The welding method is better than 3-way connector.
- After the connection of communication cables with 3-way connector, it must be fixed by insulating tape to avoid loose and poor contact of crystal head.

INSTALLATION

INSTALLATION

1 PRECAUTIONS FOR INSTALLATION

1.1 Precautions for Safety

Before installation, please ensure if the installing site, power ratings, possible operating range (pipe distance, height difference between indoor and outdoor unit, power voltage) and installing space are correct and suitable. The outdoor unit is general to all models according to its power.

- To ensure correct installation, please make sure to read the Safety Considerations thoroughly before starting the installation works.
- The considerations stated below are classified into ⚠WARNING and ⚠CAUTION. Those that might cause death or severe injury in case of wrong installation are identified in ⚠WARNING. However, those that are stated in ⚠CAUTION may also cause severe accidents sometimes. Therefore, both of them relate to important safety considerations and must be strictly followed.
- After completing the installation and test run and confirming that all are normal, please introduce to the client on how to use and repair the machine according to the Operating Instructions. Besides, please deliver the considerations herein to the clients together with the Operating Instructions, and ask them to keep properly.

⚠ **WARNING!**

- The installation shall be performed by the vendor or professional dealer from which you buy the machine. If you install by yourself, any improper installation might cause water leakage, electric shock or fire accident.
- The installation shall be done correctly according to installation instructions. Improper installation may cause water leakage, electric shock or fire.
- To install a large air-conditioning system in a small room, please make sure to take measures to prevent that the refrigerant will not exceed the limit concentration in case of leakage. For the measures to prevent the refrigerant from exceeding the limit concentration, please consult your dealer. If no proper measures, it might cause human suffocation in case of refrigerant leakage.
- Please install at a position that is strong enough to support the weight of machine. If the installing position is of low strength, the machine may drop down and thus cause human injury.
- Please carry out installation in accordance with the rules for preventing the typhoon or earthquake. The machine may tip over if the installation does not comply with the requirements.
- The electrical cabling shall be carried out by qualified electricians in accordance with the Safety Code for Electrical Equipment, relevant local rules and the installation instructions. Make sure to use the special-purpose circuit. If the power circuit capacity is low or the construction is improper, it might cause electric shock or fire accidents.
- Please use suitable cables and connect them securely. Please fix the terminal joints securely. The terminal connection shall not be affected due to any external force applied onto the cable. Improper connection and fixing may cause heating and fire accidents.
- Keep the cables in correct shape and prevent them from protruding upward. Please protect them securely with repair board. Improper installation may cause heating and fire accidents.
- When erecting or relocating the air conditioner, do not let any air enter into cooling circulation system except the specified refrigerant. If any air is mixed, abnormal high pressure will occur in the cooling circulation system, thus causing crack or human injury accidents.
- During installation, please always use the attached parts or designated parts. Failure to use the designated parts may cause water leakage, electric shock, fire or refrigerant leakage.

⚠ **CAUTION**

- Please earth securely. Do not connect the earth wires to gas pipe, water pipe, lightning rod or telephone line. Improper earthing might cause electric shock.
- Leakage circuit breaker must be installed at some place. No installation of leakage circuit breaker might cause electric shock.
- Do not install at a place where inflammable gas might leak. Gas leakage and despot around the machine might cause fire accidents.
- To ensure correct drainage of water, the drainage pipe shall be installed according to the installation instructions. Also the heat insulation shall be provided to avoid condensing. Improper installation of the pipe might result in water leakage and lead to possible wetting of the articles in the room.

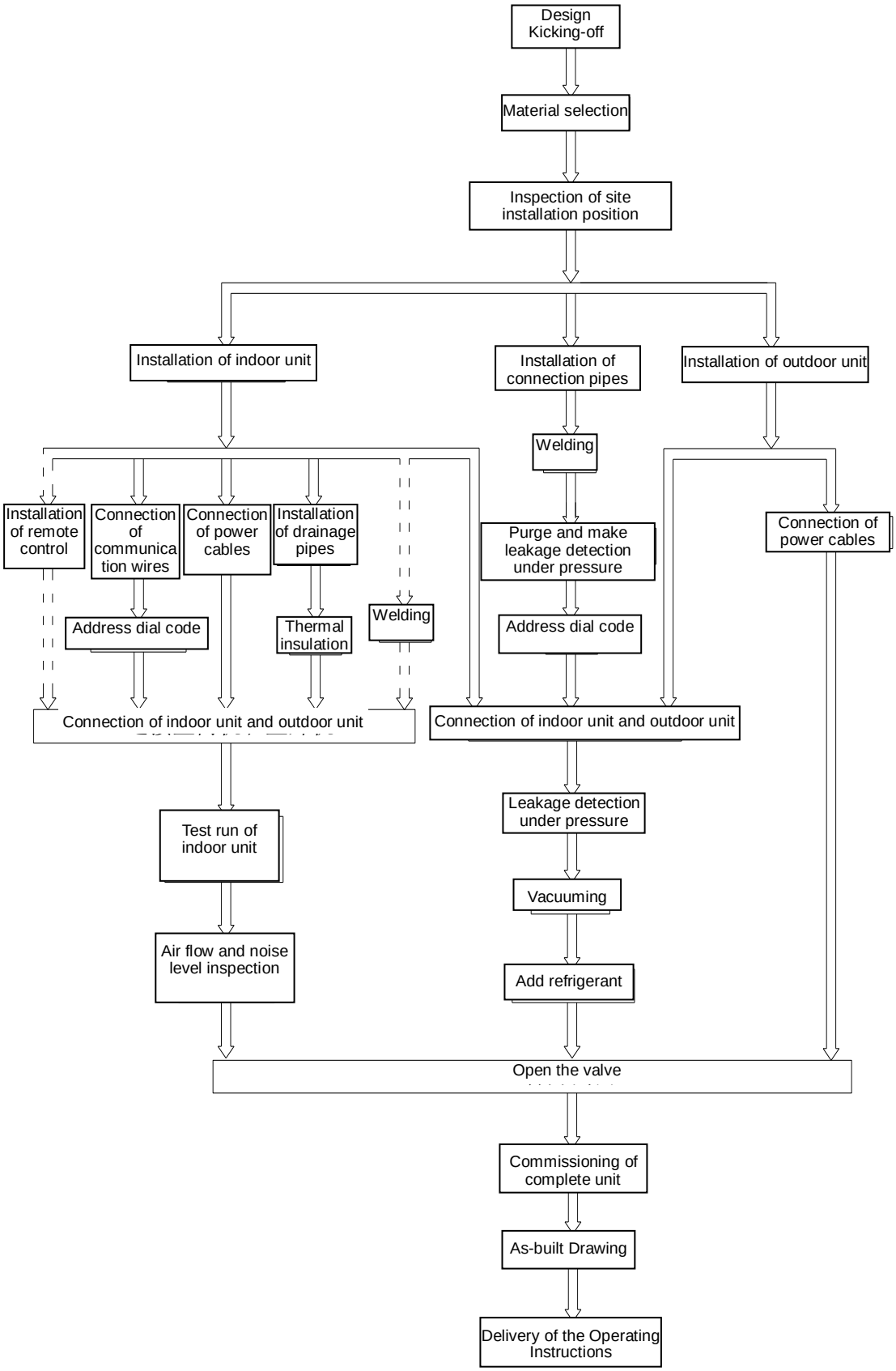
1.2 Key Points of Installation

<table>
<tr><th colspan="3">Installation Procedures</th><th>Description and Acceptance Criteria</th></tr>
<tr><td colspan="3">Material Selection and Equipment Inspection</td><td>1. The materials specified on the engineering drawing shall be purchased as specified (e.g. copper tube, thermal insulation tube, PVC pipe, power cables, air switch, etc);
2. The materials not specified on the engineering drawing shall be purchased according to the actual quantity of works (e.g. hanger frame, cable duct, etc);
3. Check if the outdoor unit, indoor unit, communication wires and accessories are complete.</td></tr>
<tr><td rowspan="8">Installation of indoor unit</td><td rowspan="2">Communication wire</td><td>Connection</td><td>1. The power cables shall be separated from communication wires at a least distance of 10cm.
2. To avoid breaking the communication wires, please do not use strong force;
3. For multiple units, please mark them properly.
4. Switch on indoor and outdoor unit, and ensure there is no display of “Communication Wire Error E6”.</td></tr>
<tr><td>Address dial code</td><td>1. Each indoor unit under the same system has a unique address dial code.
2. The wired controller and its corresponding indoor unit have the same address dial code.</td></tr>
<tr><td colspan="2">Remote Control</td><td>1. Select the remote control mode;
2. The centralized controller and communication module shall be installed free from the source of interference.</td></tr>
<tr><td colspan="2">Power cord</td><td>1. The power cable must meet the specifications.
2. The indoor units under the same system must be arranged under unified power supply.</td></tr>
<tr><td rowspan="2">Drainage Pipe</td><td>Installation</td><td>1. The PVC pipes must meet the specifications.
2. A specific gradient must be provided along the water flow direction.
3. Carry out water detection after installation.
4. Carry out thermal insulation to the drainage pipe only after the water detection is accepted.</td></tr>
<tr><td>Thermal insulation</td><td>1. The thermal insulation tube must meet the specifications.
2. Seal between the thermal insulation pipes to avoid air entry.</td></tr>
<tr><td colspan="2">Installation of Air Duct (when with high static pressure duct-type unit)</td><td>1. Design the length of air duct according to static pressure;
2. The air inlet shall be optimally designed to avoid too small size.</td></tr>
<tr><td rowspan="3">Installation of connection pipes</td><td colspan="2">Welding</td><td>1. The copper tube must meet the specifications.
2. Ensure it is dry and clean inside the tube.
3. Make sure to charge nitrogen as required for protection when welding the tubes.
4. Please keep to the welding process and ensure the system free of leakage.
5. Add a dual-way filter on liquid pipe side.
6. For multiple systems, please mark them properly.
7. Carry out leakage detection under pressure after welding.</td></tr>
<tr><td colspan="2">Purge and make leakage detection under pressure</td><td>1. Purge the system clean.
2. Keep the pressure for 24 hours.
Except for the influence by temperature, it is deemed acceptable if pressure drop is within 0.02MPa. (With the temperature change by 1℃, the pressure will change by approx. 0.01MPa).</td></tr>
<tr><td colspan="2">Thermal insulation</td><td>1. The thermal insulation tube must meet the specifications.
2. Seal between the thermal insulation pipes to avoid air entry.</td></tr>
<tr><td colspan="3">Installation of outdoor unit</td><td>1. Select the installing position correctly.
2. Build the foundation according to the anchor bolt position and the dimension of outdoor unit;
3. Build the damping device properly.
4. Avoid sharp knock when handling the outdoor unit. The inclination angle shall not be higher than 15°.</td></tr>
<tr><td colspan="3">Connection of indoor unit and outdoor unit</td><td>1. Tighten the nuts;
2. Provide proper protection to the outdoor connection pipe, communication wires and power supply.</td></tr>
</table>

Leakage detection under pressure	Keep the pressure for 24 hours. Except for the influence by temperature, it is deemed acceptable if pressure drop is within 0.02MPa. (With the temperature change by 1℃, the pressure will change by approx. 0.01MPa).
Vacuuming	1. Establish vacuum simultaneously in the gas pipe and liquid pipe; 2. The vacuuming time shall be long enough. Put still for 1 hour after vacuuming. It is deemed acceptable if the pressure will not rise.
Add refrigerant	Add refrigerant according to the volume as specified on the engineering drawing.
Open the valve of outdoor unit	
Commissioning of complete unit	

Remarks:
1) Described above are general working procedures. The procedures might vary with the site conditions.
2) For detailed installation rules, please see the description in each chapter.

2 FLOW CHART OF INSTALLATION



3 INSTALLATION OF OUTDOOR UNIT

3.1 Hoisting of Unit

Transport the unit to a place as close as possible to the installing site before taking it out of the packaging box.

⚠ CAUTIONS!

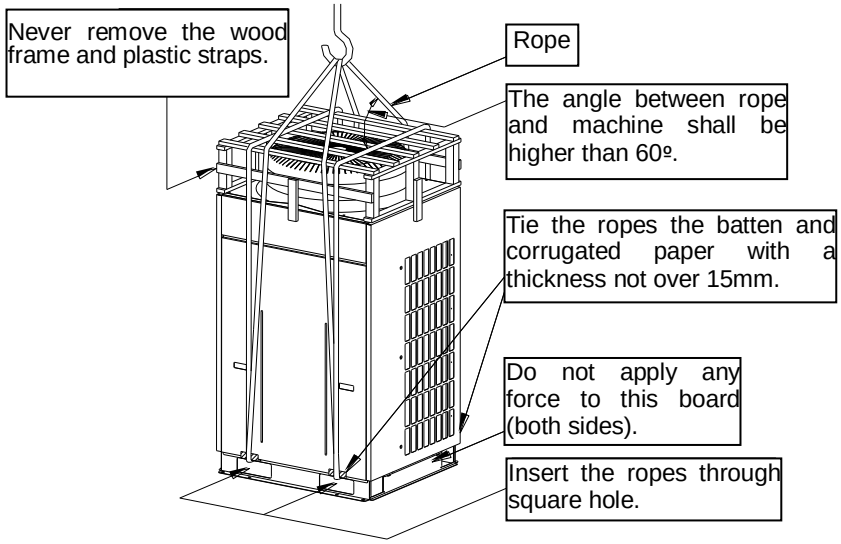
Never put any object on top of the unit before and after installation.
To lift the machine with crane, please use two ropes to lift the outdoor unit.

◆Hoisting Method

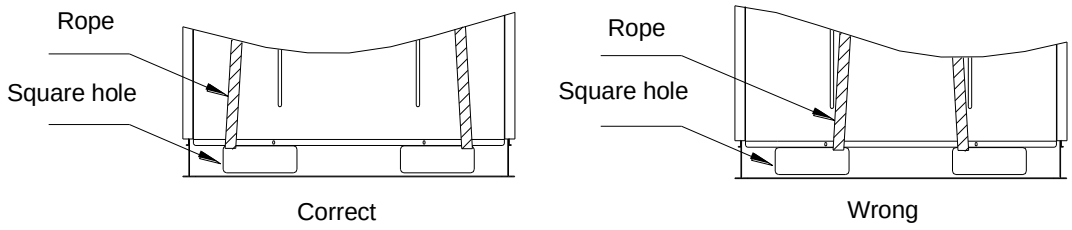
The machine must be balanced when it is lifted. Check and ensure that the machine can be lifted up safely and stably.

⚠ CAUTIONS!

Do not attach the ropes to the lower wood frame of the packaging box.
Never remove any packaging materials.
As shown, insert two ropes through the square holes on the machine and protect the machine with batten and corrugated paper.



◆During lifting, the position of ropes is as shown below.
◆Move the lower wood frame of the packaging box away and lift the unit to correct position.



3.1.1 Cautions for installation of outdoor unit

To ensure good operation of the air conditioner, the selection of installing position must be in accordance with the following principles:

- The air discharged from the unit will not flow back, and there shall be adequate service space around the machine.
- The installing position shall be in good ventilation, so that the machine can breathe and exhaust enough air. Ensure that there is no obstruction at the inlet and outlet of the machine. If any, please remove the obstructions blocking the air inlet and outlet.
- The installing position shall be strong enough to withstand the weight of outdoor unit and be able to isolate the sound and absorb the vibration. Also ensure that the outlet air and noise from the air

conditioner will not affect the neighbors.

- The outdoor unit must be lifted by using the designated lift hole. During lifting, take care to protect the air conditioner and avoid knocking the metal parts, thus to prevent rusting in the future.
- Avoid direct sunshine as it might be.
- The installing position must be able to drain the rainwater and the water generated from defrosting.
- The installing position must ensure that the machine will not be buried in the snow or affected by the wastes or oil mist.
- To meet the noise and vibration requirements, the outdoor unit shall be installed by using rubber damping pad or spring damper.
- The installing dimension shall comply with the installation requirements in these instructions. The outdoor unit must be fixed at the installing position.
- The installation shall be done by specialist technicians.

3.2 Selection of Installation Site

- The place with no residual air
- The place where the accessories can be securely fixed
- The place where the air will not obstruct the water inlet pipe or water outlet pipe
- The place that goes beyond the heating range of other heat sources
- The place where the wastewater can be safely drained
- The place where the noise and hot air will not affect the neighbors
- The place where the snow will not be piled
- The place where the water outlet pipe will not be blown by strong wind

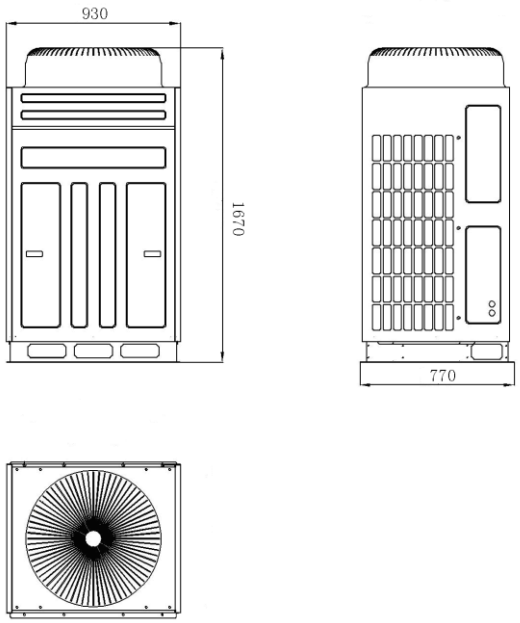
Note:

- Do not use guardrail on four sides. Leave 1m at least above the machine.
- In case of short-circuit risk, please install an adaptor changeable in air direction.
- To avoid short circuiting, please provide adequate suction space when multiple machines are to be installed.
- In the region with snow, the machine shall be installed in a frame or beneath the snow guard, thus to prevent snow piling on the machine.
- Do not install the equipment in a region where any inflammable gas might leak.

* The snow guard and other devices shall be designed and installed by the user.

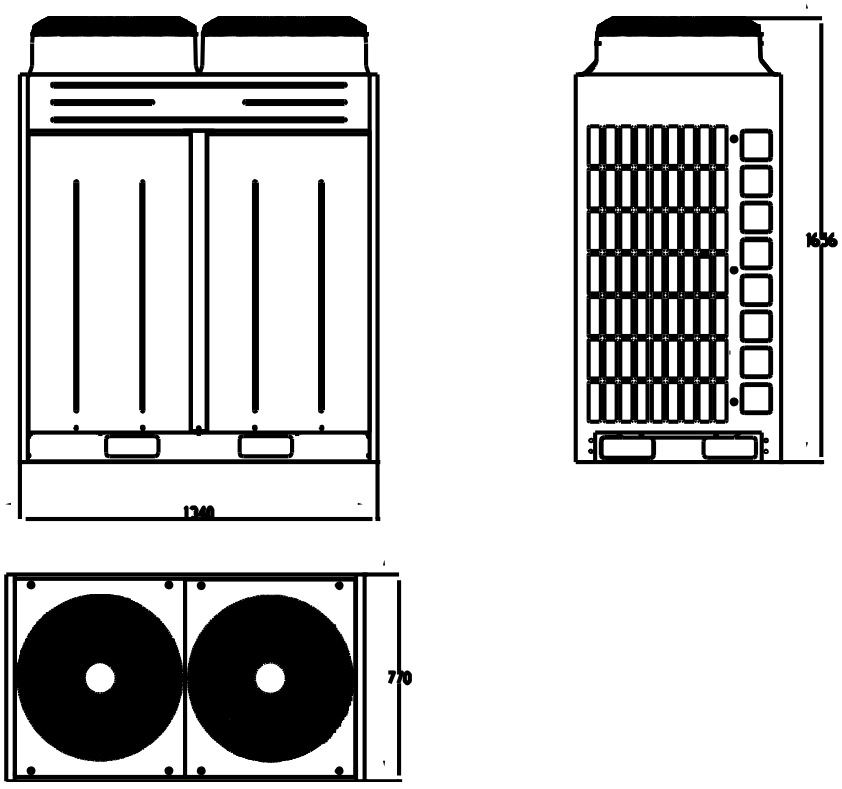
3.3 Dimensions Data

◆INV-Pdm224W/NaB-M, INV-Pdm280W/NaB-M Outline dimensions. (Unit: mm)



(The picture of the units is only for reference, everything goes by with the real object)

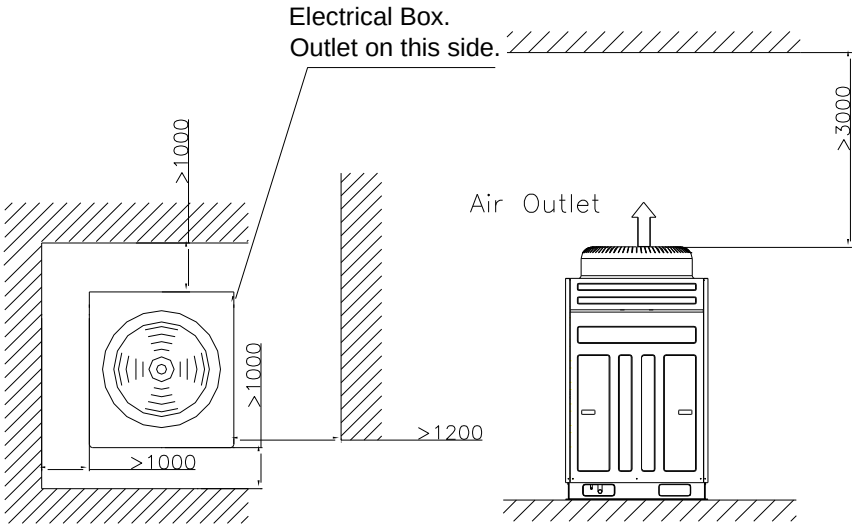
◆INV-Pdm335W/NaB-M, INV-Pdm400W/NaB-M, INV-Pdm450W/NaB-M Outline dimensions. (Unit: mm)



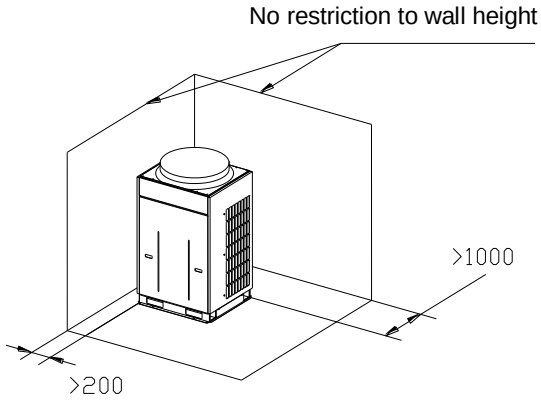
(The picture of the units is only for reference, everything goes by with the real object)

3.4 Clearance Data

①Clearance data of single unit



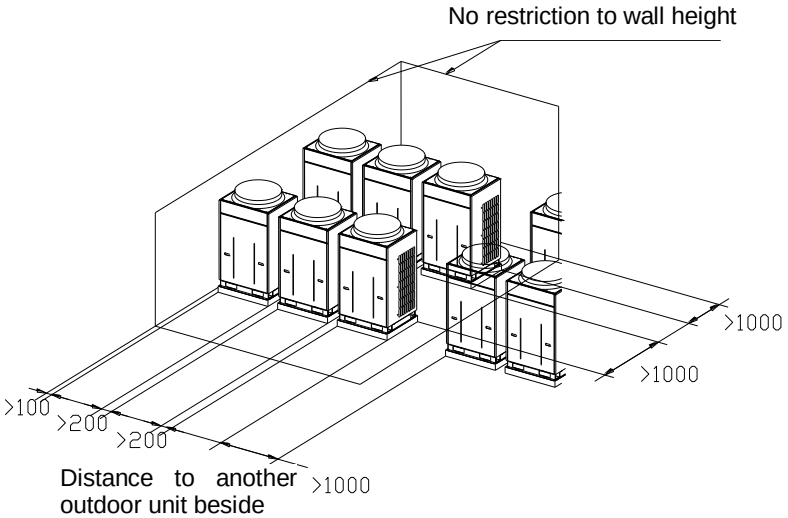
The wall on the four side of the outdoor unit should be in accordance with the above basic space requirement;
In case that the front side and left side (or right side) of the outdoor unit is open space:

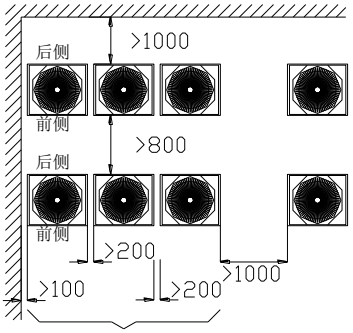


For the top wall (e.g. air guard interference), it is required over 3000mm distance between the unit top and the top wall in principle. In case that the front, back, left and right sides are open to the around space, it is required over 1500mm distance between the unit top and the top wall. In case the distance is less than 1500mm, or the unit is not open to the around space, a air inlet is necessary for keeping ventilation.

②Clearance data of multiple unit

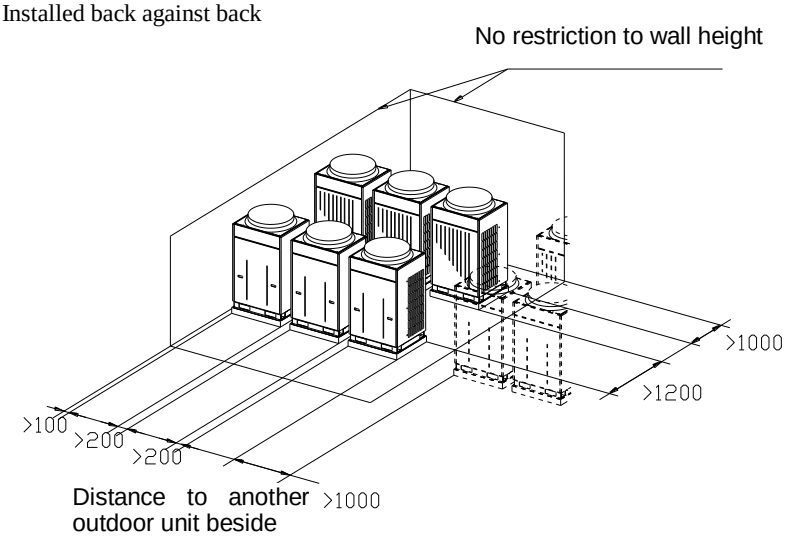
To ensure good ventilation, the top of unit shall be kept open and free of any obstructions. In case that the front side and left side (or right side) of the outdoor unit is open space, the unit shall be installed in the same direction.

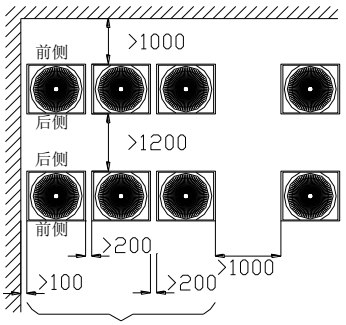




Max. three machines in line

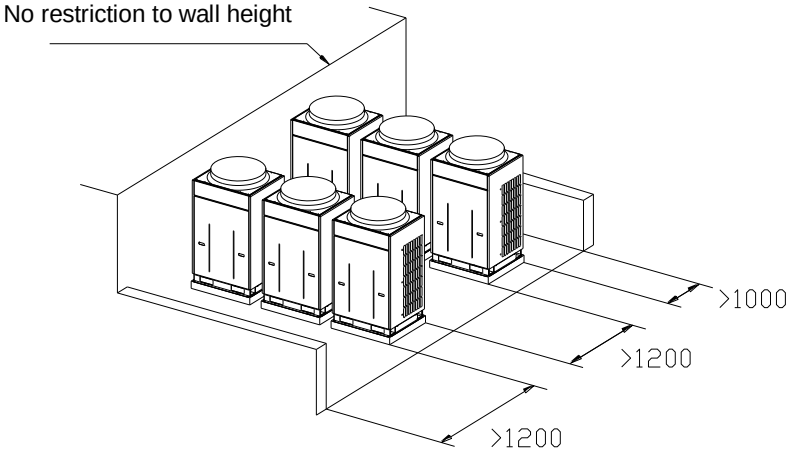
Installed back against back

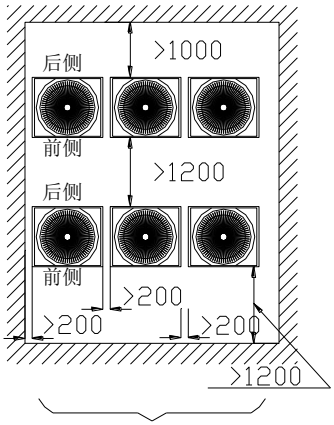




Max. three machines in line

In case there are walls on four sides of the outdoor unit: It is suggested to install the unit in the same direction.

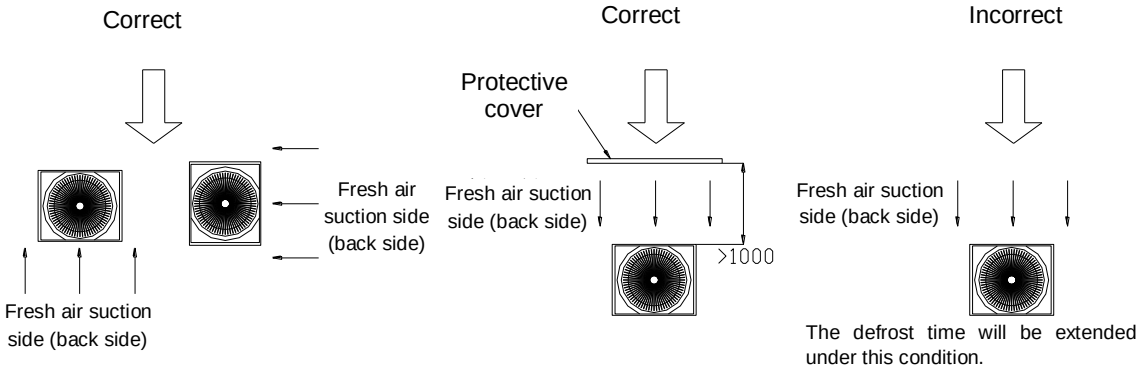




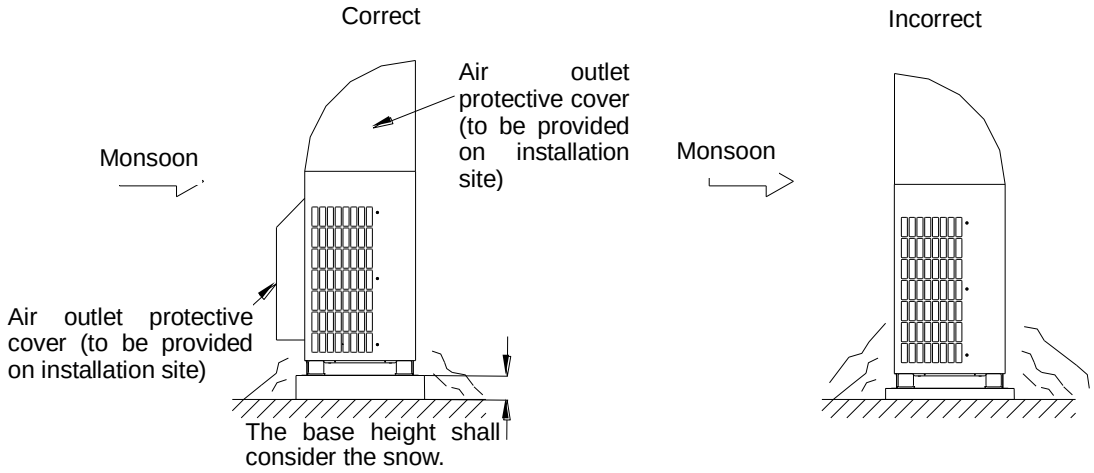
Max. three machines in line

3.5 Take Monsoons and Snow into Consideration

The monsoon shall be taken into consideration when installing the outdoor unit.



The snow shall be taken into consideration when installing the outdoor unit.
To prevent the snow from covering the air outlet and air inlet, it is required to use an protective cover on air outlet and air inlet, and use a higher foundation base.



4 INSTALLATION OF INDOOR UNIT

4.1 Duct Type

4.1.1 Selection of installation site

● The selection of the installation place of the air conditioner unit

The installation must accord with the national and local safe criterion.

Since the quality of installation would affect the operation directly, user should contact the seller and have the conditioner installed and tested by the professional install personnel according to the install instruction instead of install by himself/herself.

Only connect the power after all the installation works are finished.

● The selection of the installation place of the indoor unit

☆Prevent direct sun burn.

☆Make sure that the top steeve, ceiling, and the structure of the construction etc. is strong enough to bear the weight of the unit.

☆The drainage pipe is easy to drain.

☆The air flow is not blocked at the outlet and intake vents.

☆The connecting pipe indoor and outdoor can by lead to outside conveniently.

☆The unit cannot be installed in the place where stored the flammability, easy exploded thing or the place where would have leakage of flammability and exploded gas.

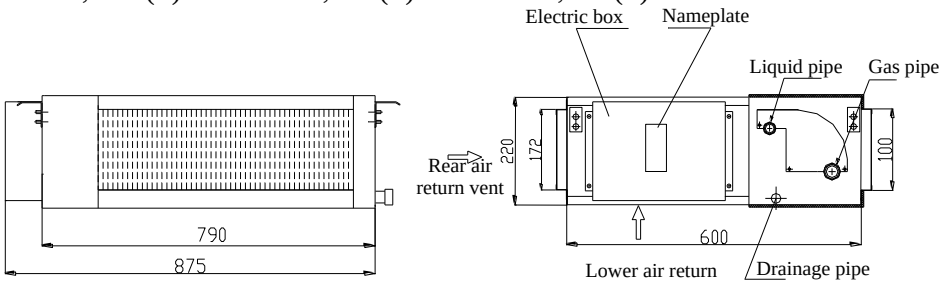
☆ The unit cannot be installed in the place where has the corrupt gas and serious dust, saline fog, lampblack and huge humidity.

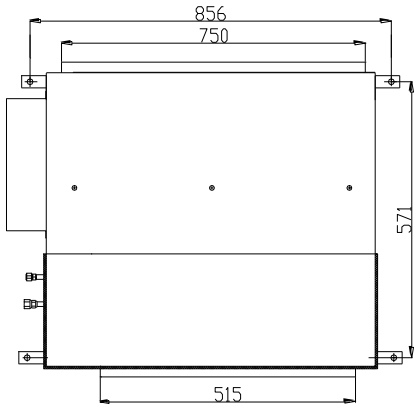
Note!

The air conditioner unit installed in the following place may have malfunction, if the malfunction cannot prevent, please contact the Nominated Repair Center Of INVENTOR.

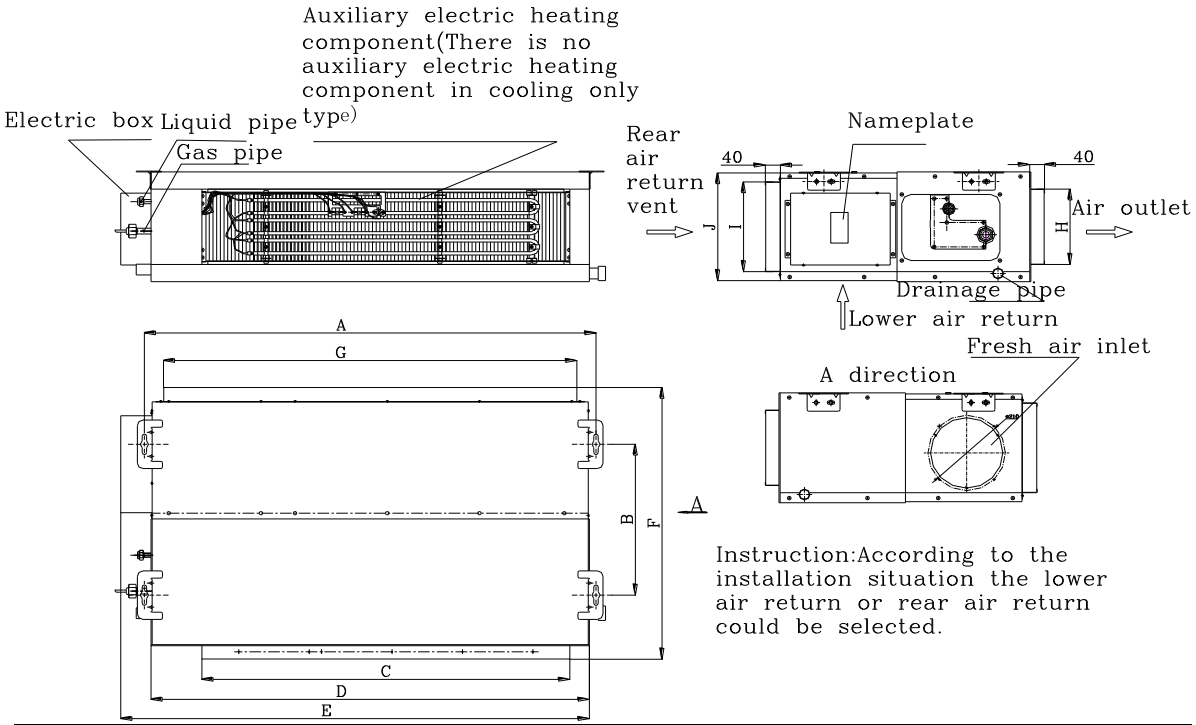
①the place with greasy all around; ②the seashore place with salinity and alkali; ③the place with vulcanized gas(such as vulcanized hot spring); ④the place with high frequency equipment (such as wireless equipment, electric welding machine and medical treatment equipment); ⑤the place with special environment.

The following figure is applicable to the indoor units of
INV(L)-R22P/Na-K, INV(L)-R25P/Na-K,INV(L)-R28P/Na-K,INV(L)-R36P/Na-K





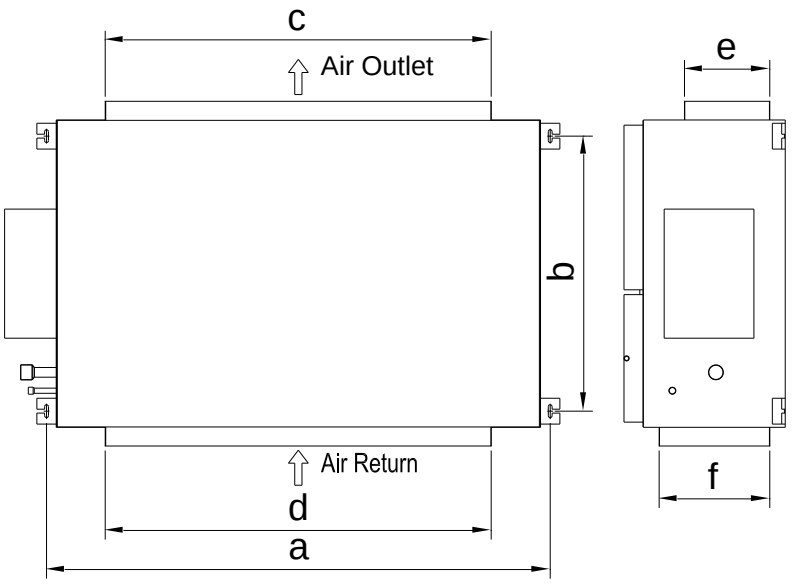
The following figure is applicable to the indoor units of
INV(L)-R45P/Na-K,INV(L)-R50P/Na-K,INV(L)-R56P/Na-K,INV(L)-R63P/Na-K,INV(L)-R71P/Na-K,IN
V(L)-R80P/Na-K,INV(L)-R90P/Na-K,INV(L)-R112P/Na-K,INV(L)-R125P/Na-K,INV(L)-R140P/Na-K



Model	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	F(mm)	G(mm)
INV（L）-R45P/ Na-K	932	430	738	904	980	736	738
INV（L）-R50P/ Na-K	932	430	738	904	980	736	738
INV（L）-R56P/ Na-K	1112	420	918	1070	1155	756	1008
INV（L）-R63P/ Na-K	1112	420	918	1070	1155	756	1008
INV（L）-R71P/ Na-K	1112	420	918	1070	1155	756	1008
INV（L）-R80P/ Na-K	1112	420	918	1070	1155	756	1008

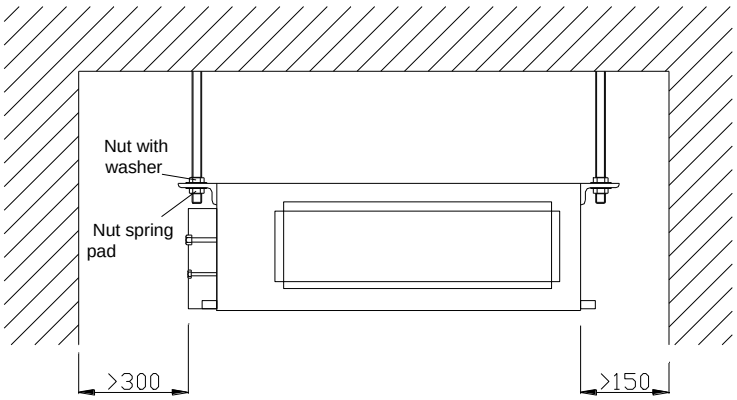
INV（L）-R90P/ Na-K	1382	420	1155	1340	1425	756	1278
INV（L）-R112P/ Na-K	1382	420	1155	1340	1425	756	1278
INV（L）-R125P/ Na-K	1382	420	1155	1340	1425	756	1278
INV（L）-R140P/ Na-K	1382	420	1155	1340	1425	756	1278

Model	H(mm)	I(mm)	J(mm)	Liquid pipe(inch)	Gas pipe(inch)	Drainage pipe（Outer ×Inner）
INV（L）-R45P/ Na-K	125	207	266	φ1/4 "	φ1/2 "	φ30×φ27
INV（L）-R50P/ Na-K	125	207	266	φ1/4 "	φ1/2 "	φ30×φ27
INV（L）-R56P/ Na-K	207	250	300	φ3/8 "	φ5/8 "	φ30×φ27
INV（L）-R63P/ Na-K	207	250	300	φ3/8 "	φ5/8 "	φ30×φ27
INV（L）-R71P/ Na-K	207	250	300	φ3/8 "	φ5/8 "	φ30×φ27
INV（L）-R80P/ Na-K	207	250	300	φ3/8 "	φ5/8 "	φ30×φ27
INV（L）-R90P/ Na-K	207	250	300	φ3/8 "	φ5/8 "	φ30×φ27
INV（L）-R112P/ Na-K	207	250	300	φ3/8 "	φ5/8 "	φ30×φ27
INV（L）-R125P/ Na-K	207	250	300	φ3/8 "	φ5/8 "	φ30×φ27
INV（L）-R140P/ Na-K	207	250	300	φ3/8 "	φ5/8 "	φ30×φ27



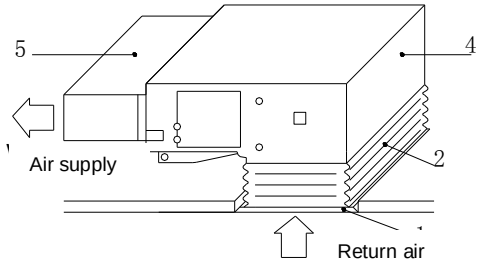
Model	a	b	c	d	e	f
INV-R224P/ Na-M INV-R280P/ Na-M	1560	910	1194	1194	292	342

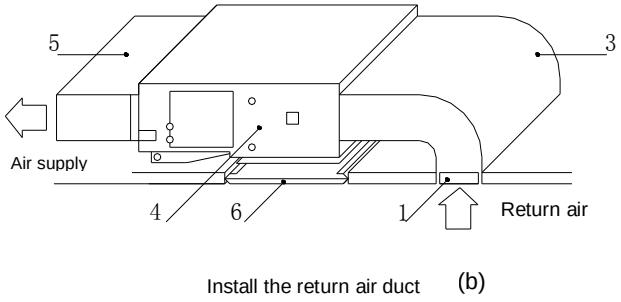
4.1.3 Clearance data



4.1.4 Installation demonstration

① Selection of style of return air

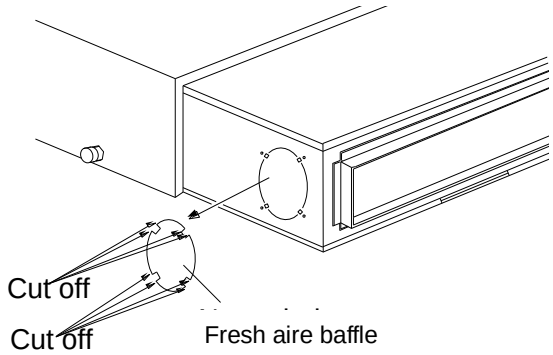


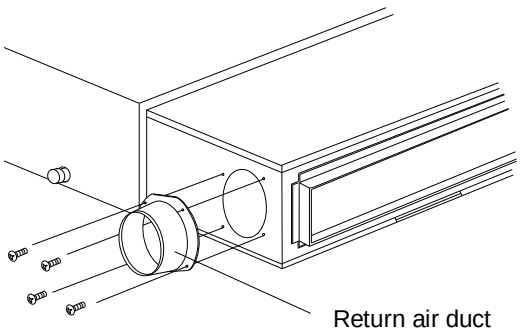


No.	Name	No.	Name
1	Return air inlet (with filter)	4	Indoor unit
2	Canvas air duct	5	Supply air duct

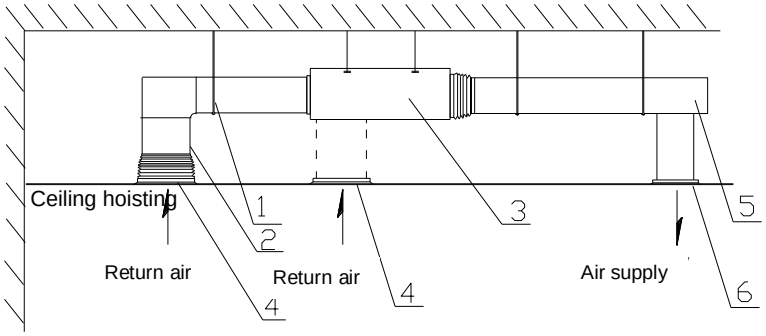
② Location of fresh air duct

1. When fresh air duct is need to be connected, cut the fresh air baffle as shown in fig.8. Plug up the gap of fresh air baffle by sponge if fresh air duct is not used.
2. Install the circle flange so that the fresh air duct can be connected as fig.9.
3. Well sealed and heat preservation should be done for both air duct and circle flange pipe.
4. Fresh air should be the air after filtrate treatment.





③ Installation of supply air duct

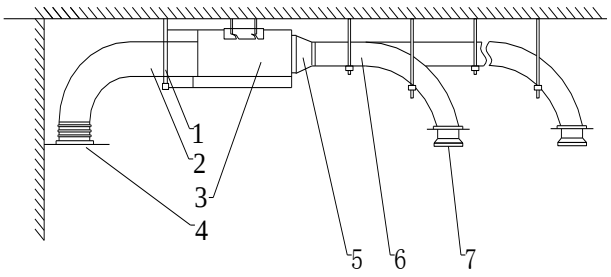


No.	1	2	3	4	5	6
Name	Hoisting	Return air duct	Ducted type indoor unit	Return air inlet	Supply air bent	Air outlet

Note: Fig.6 only shows the install of rear return air inlet, button return air inlet can also been installed according to the actual install need. The method of install is similar to the rear return air inlet's. The supply air duct, which is rectangle or circle and connect with the wind vent of the indoor unit, should at least keep one open. The circle air duct type should adopt circle preservation pipe to transmit cool (heat) wind to room. The circle air duct should add a transitionary pipe, which size should match the size of supply air duct of the unit. After connecting the transitionary pipe, install the circle wind outlet vent connection pipe, whose longest length to every individual wind outlet vent should not over 10m. Ducted type indoor unit model 70 can share 3 trainsitional pipe, while model 100,120 can share 4. The transitional pipe, whose straight length is 200, and circle wind outlet connection pipe, whose diameter is 200, produced by our company, can be ordered separately as standard fittings. Model 50 and the model below it do not share round air duct. The following is the diagram for install circle air duct.

⚠**Note: 1 The longest length of air duct means the general length of the wing supply pipe to the farthest supply air duct plus the general length of return air duct to the relative farthest return air inlet.**

2 To the unit with auxiliary heater, if the circle air duct is need to connected, the straight length of trainsitional air duct should not shorter than 200mm.



Number	1	2	3	4	5	6	7
Name	Screw	Return air duct	Ducted type indoor unit	Return air inlet	Trainsitional air duct	Air supply pipe	Air outlet pipe

④ Setting hole for maintenance

After installation of hidden duct-type unit, manhole must be provided in ceiling on the electric box side of the indoor unit. In respect to the manhole, the following points must be taken into consideration:

- For access, the manhole size shall be larger than 500mm×500mm.
- The manhole must be at a possible easily accessible for repair of electric elements and pipe.
- The air inlet may also be used as manhole for repair of motor.

4.2 Cassette Type

4.2.1 Selection of installation site

1. Obstruct should put away from the intake or outlet vent of the indoor unit so that the airflow can be blown though all the room.
2. Make sure that the installation had accord with the requirement of the schematic diagram of installation spaces.
3. Select the place where can stand 4 times of the weight of the indoor unit and would not increase the operating noise and oscillate.
4. The horizontally of the installation place should be guaranteed.
5. Select the place where easy drain condensated coagulated water, and easy connect with outdoor unit.
6. Make sure that there are enough space for care and maintenance. Make sure that the weight between the indoor unit and ground is above 1800mm.
7. When installing the steeve bolt, check if the install place can stand the weight 4 times of the unit's. If not, reinforce before installation. (Refer to the install cardboard and find where should be reinforced)

There will be lots of lampblack and dust stick on the acentric, heat exchanger and water pump in dining room and kitchen, which would reduce the capacity of heat exchanger, lead water leakage and abnormal operation of the water pump. **The following treatment should be taken under this circumstance:**

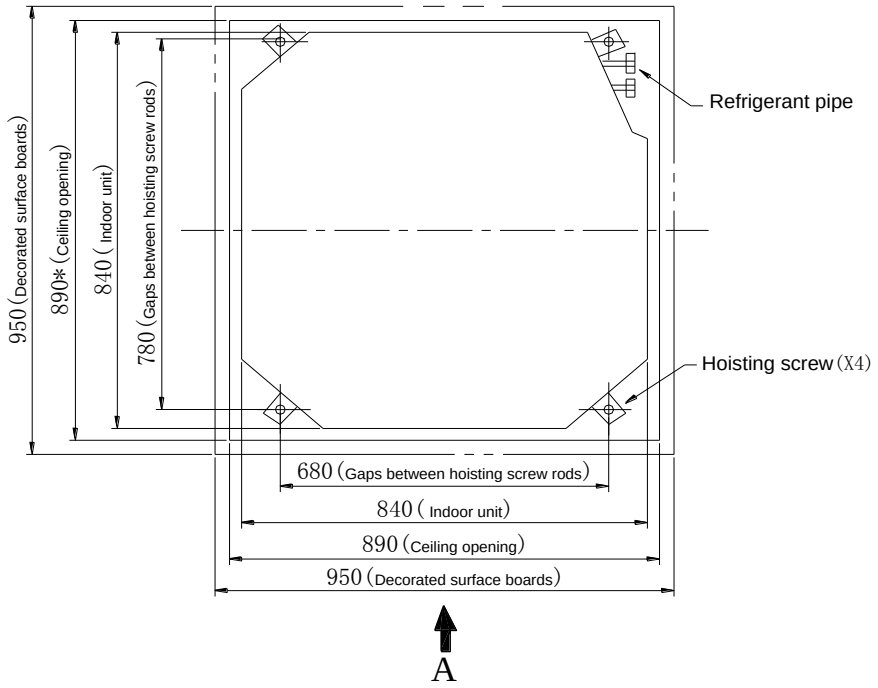
1. Ensure that the smoke trap above cooker has enough capacity to obviate lampblack to prevent the indraft of the lampblack by the air conditioner.
2. Keep the air conditioner far from the kitchen so that the lampblack would not be indraft by the air conditioner.

● **Important notice:**

- To guarantee the good performance, the unit must be installed by professional personnel according with this instruction.
- Please contact the local INVENTOR special nominated repair department before installation. Any malfunction caused by the unit that is installed by the department that is not special nominated by INVENTOR would not deal with on time by the inconvenience of the business contact.

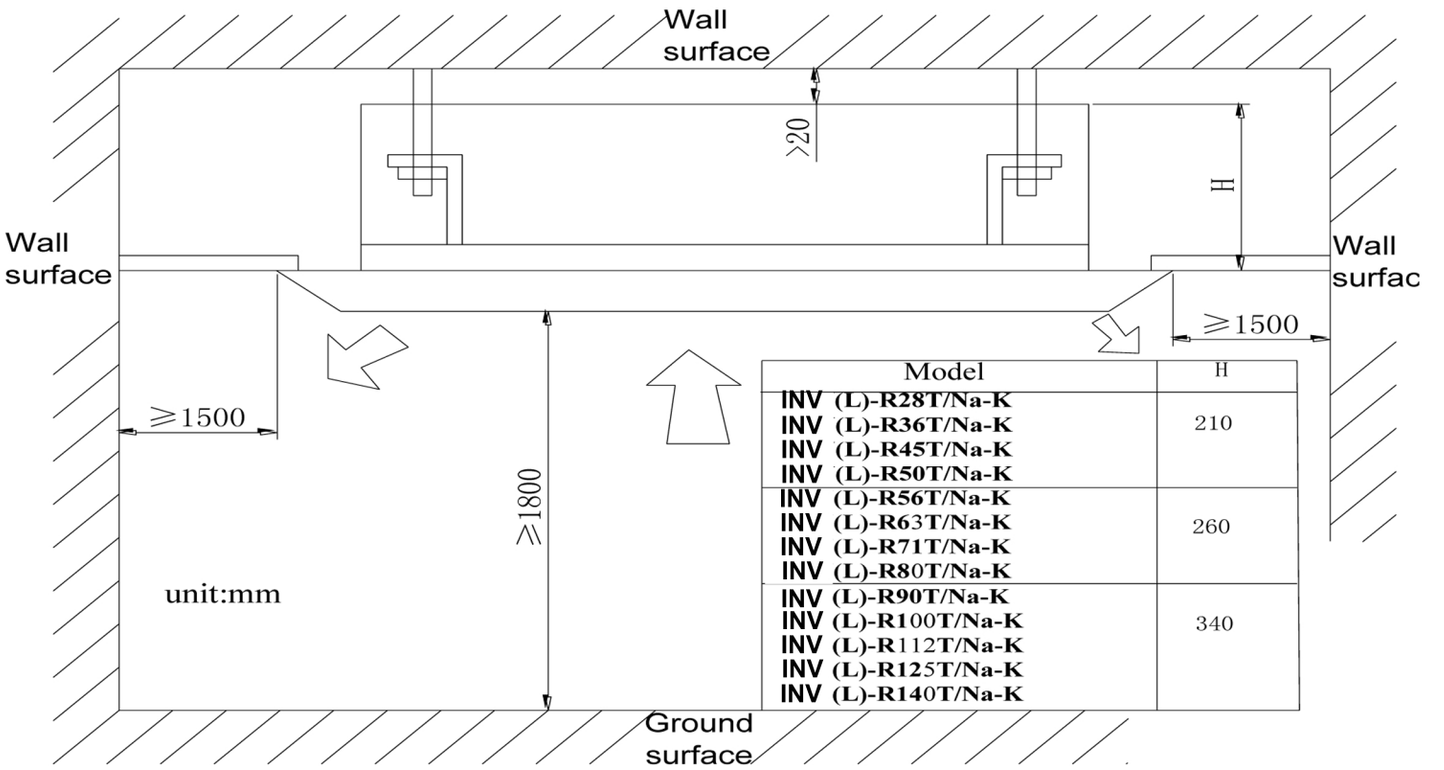
4.2.2 Dimensions Data

INV(L)-R140T/Na-K, INV(L)-R125T/Na-K, INV(L)-R112T/Na-K, INV(L)-R100T/Na-K, INV(L)-R90T/Na-K, INV(L)-R80T/Na-K, INV(L)-R71T/Na-K, INV(L)-R63T/Na-K, INV(L)-R56T/ Na-K , INV(L)-R50T/Na-K, INV(L)-R45T/Na-K , INV(L)-R36T/Na-K, INV(L)-R28T/ Na-K



Package Dimension / Model	Width (mm)	Depth (mm)	Height (mm)
INV(L)-R28T/Na-K	950	950	210
INV(L)-R36T/Na-K	950	950	210
INV(L)-R45T/Na-K	950	950	210
INV(L)-R50T/Na-K	950	950	210
INV(L)-R56T/Na-K	950	950	310
INV(L)-R63T/Na-K	950	950	310
INV(L)-R71T/Na-K	950	950	310
INV(L)-R80T/Na-K	950	950	310
INV(L)-R90T/Na-K	950	950	340
INV(L)-R100T/Na-K	950	950	340
INV(L)-R112T/Na-K	950	950	340
INV(L)-R125T/Na-K	950	950	340
INV(L)-R140T/Na-K	950	950	340

4.2.3 Clearance data



Model	H
INV (L)-R28T/Na-K INV (L)-R36T/Na-K INV (L)-R45T/Na-K INV (L)-R50T/Na-K	210
INV (L)-R56T/Na-K INV (L)-R63T/Na-K INV (L)-R71T/Na-K INV (L)-R80T/Na-K	260
INV (L)-R90T/Na-K INV (L)-R100T/Na-K INV (L)-R112T/Na-K INV (L)-R125T/Na-K INV (L)-R140T/Na-K	340

4.2.4 Installation demonstration

1 The primary step for install the indoor unit.

☆ When attach the hoisting stand on hoisting screw, do use nut and gasket individually at the upper and lower of the hoisting stand to fix it. The use of gasket anchor board can prevent gasket break off.

2 Use install cardboard

☆Please refer to the install cardboard about the dimension of ceiling opening.

☆The central mark of the ceiling opening is marked on the install cardboard.

☆ Install the install cardboard on the unit by bolt (3 piece), and fix the angle of the drainage pipe at the outlet vent by bolt.

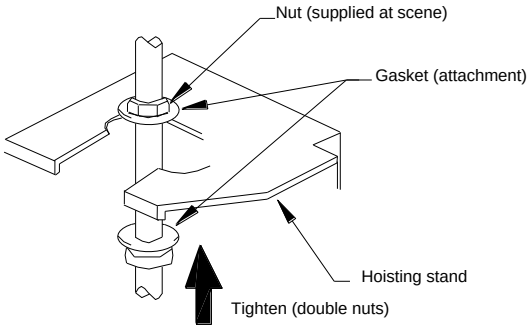
3 Adjust the unit to the suitable install place. (Refer to the fig.2)

4 Check if the unit is horizontal.

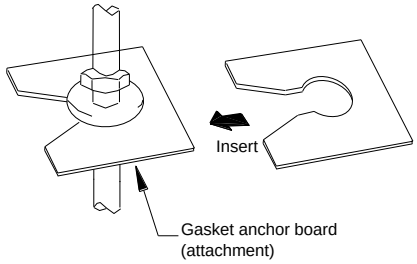
☆Inner drainage pump and bobber switch are included in the indoor unit, check if 4 angle of every unit are horizontal by water lever. (If the unit is slant toward the opposite of the coagulate water flow, there may be malfunction of the bobber switch and lead water drop.)

5 Backout the gasket anchor board used to prevent gasket break off and tighten the nut on it.

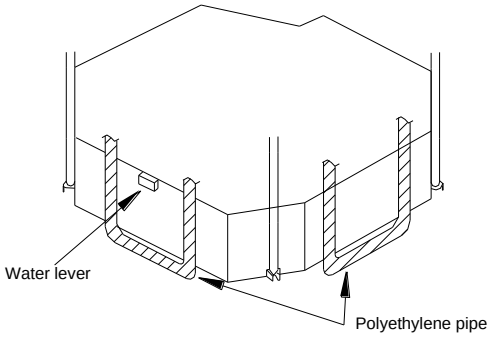
6 Backout the install cardboard.

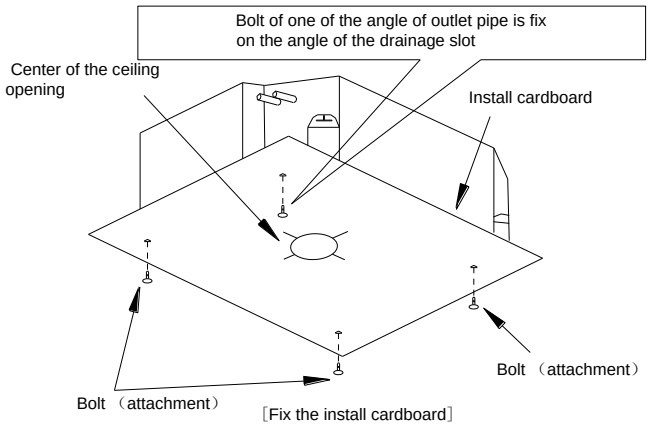


［Fix the hoisting stand firmly］



［Fix the gasket firmly］





［Fix the install cardboard］

Note !

- **Please do tighten the nuts and bolts to prevent air conditioner break off**.

● Connect the refrigerant pipe

☆When connect the pipe to the unit or backout it from the unit, please do use both spanner and torque wrench. as shown in fig.3.

☆When connect, smear both inside and outside of the flare nut with freeze motor oil, screw it by hand and then tighten it with spanner.

☆Refer to form 1 to check if the wrench had been tightened (too tight would mangle the nut and lead leakage).

☆Examine the connection pipe to see if it had gas leakage, then take the treatment of heat insulation, as shown in the fig.3.

☆Only use median sponge to entwine the wiring interface of the gas pipe and heat preservation sheath of the gas collection tube.

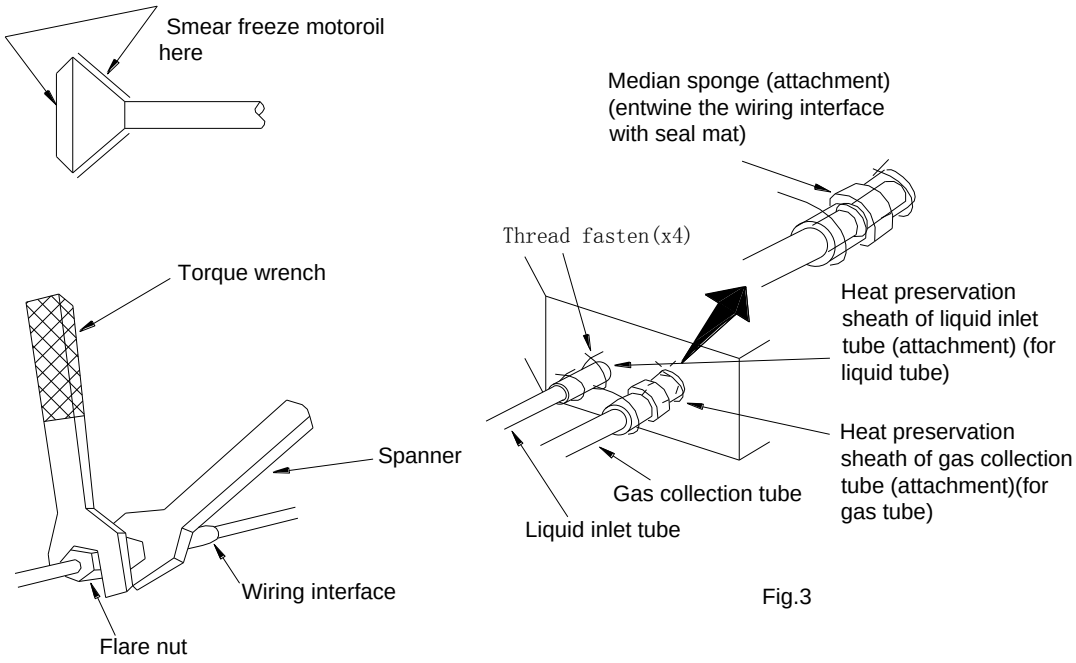


Fig.3

Form 1: The tightening torque needed for tightening nut

Diameter（Inch）	Surface thickness（mm）	Tightening torque (N.m)
φ1/4”	≥0.5	15-30 (N·m)
φ3/8”	≥0.71	30-40 (N·m)
φ1/2”	≥1	45-50 (N·m)
φ5/8”	≥1	60-65 (N·m)
φ3/4”	≥1	70-75 (N·m)

● Drainage hose

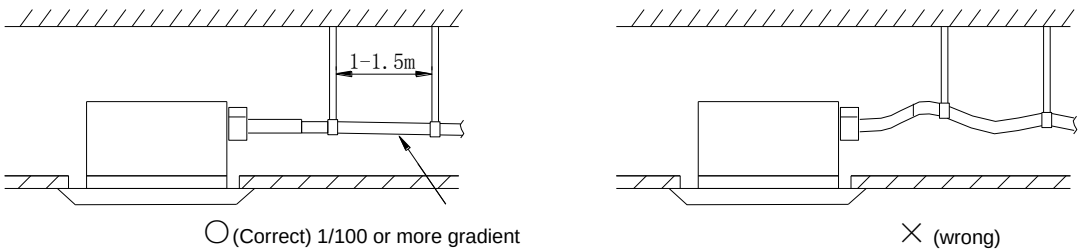
1. Install the drain hose

☆The diameter of the drain hose should be equal or bigger than the connection pipe’s. (The diameter of polythene pipe: Outer diameter 25mm Surface thickness ≥1.5mm)

☆Drain hose should be short and drooping gradient should at less 1/100 to prevent the formation of air bubble.

☆If drain hose cannot has enough drooping gradient, drain raising pipe should be added.

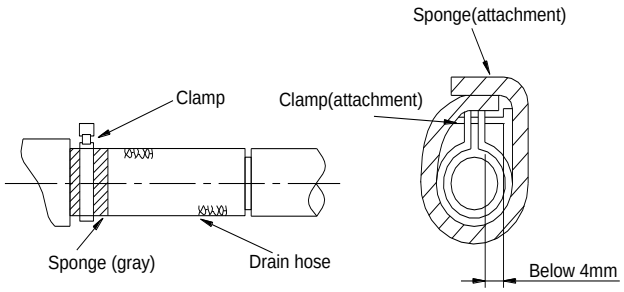
☆To prevent bent of the drain hose, the distance between hoisting stand should is 1 to 1.5m.



☆Use the drain hose and clamp attached. Insert the drain hose to the drain vent, and then tighten the clamp.

☆Entwine the big sponge on the clamp of drain hose to insulate heat.

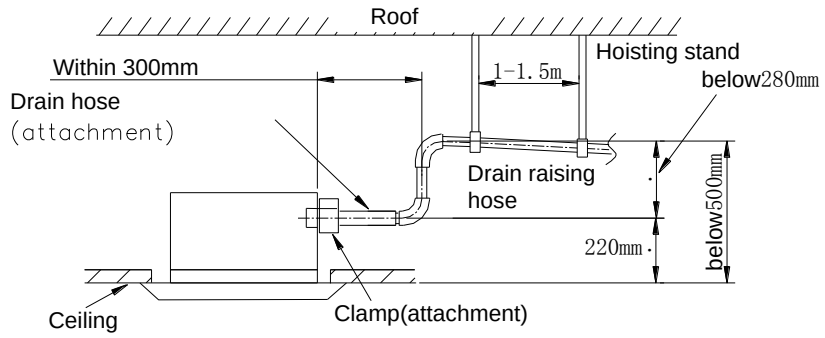
☆ Heat insulation should be done to indoor drain hose.



Drain stepup pipe note

☆ The install height of the drain raising pipe should less than 280mm.

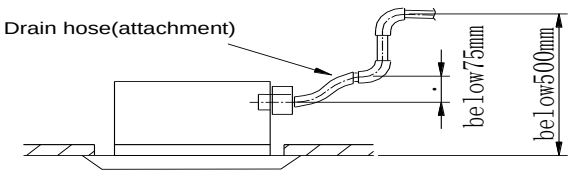
☆ The drain raising pipe should form a right angle with the unit, and distance to unit should not beyond 300mm.

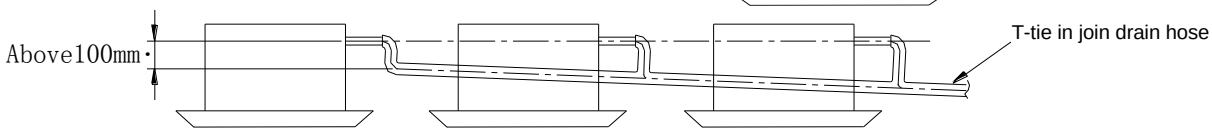


Instruction

☆ The slant gradient of the attached drain hose should be within 75mm so that the drain hole doesn't has to endure the unnecessary outside force.

☆ Please install the drain hose according to the following process if several drain hoses join together.





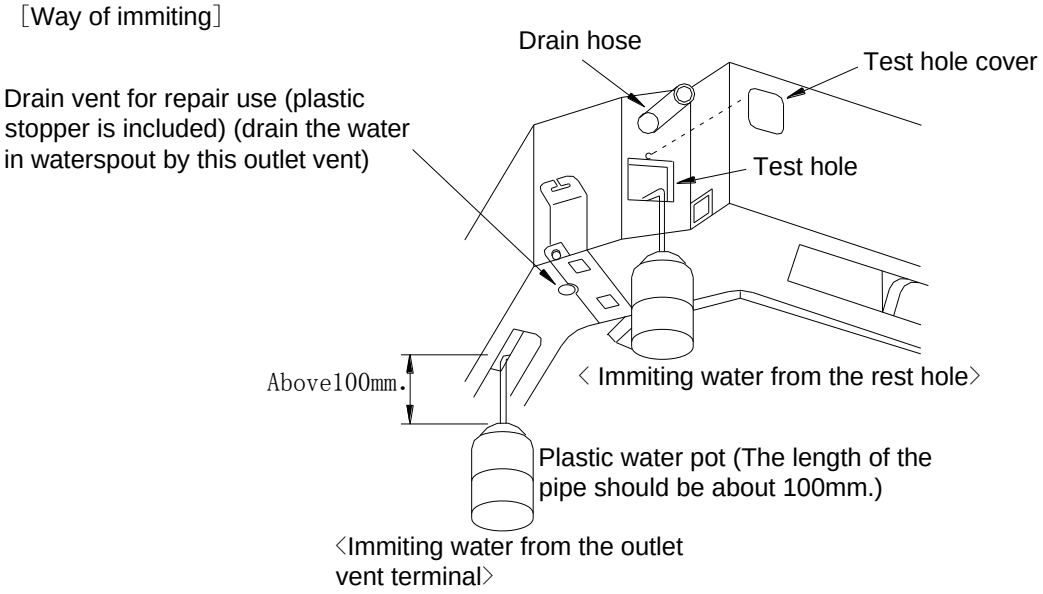
The specs of the selected join drain hose should fits the running capacity of the unit.

2 Check the smoothness of drain after installation.

☆Check the drain state by immitting 600cc water slowly from the outlet vent or test hole.

☆Check the drain in the state of refrigerating after installation of the electric circuit.

［Way of immiting］



4.3 Floor Ceiling Type

4.3.1 Selection of installation site

Selection of Installation Location for Air Conditioner Unit

The installation of air conditioner unit must be in accordance with national and local safety codes. Installation quality will directly affect the normal use of air conditioner unit. The user is prohibited from installation by himself. Please contact your dealer after buying this machine. Professional installation workers will provide installation and test services according to installation manual.
Do not connect to power until all installation work is completed.

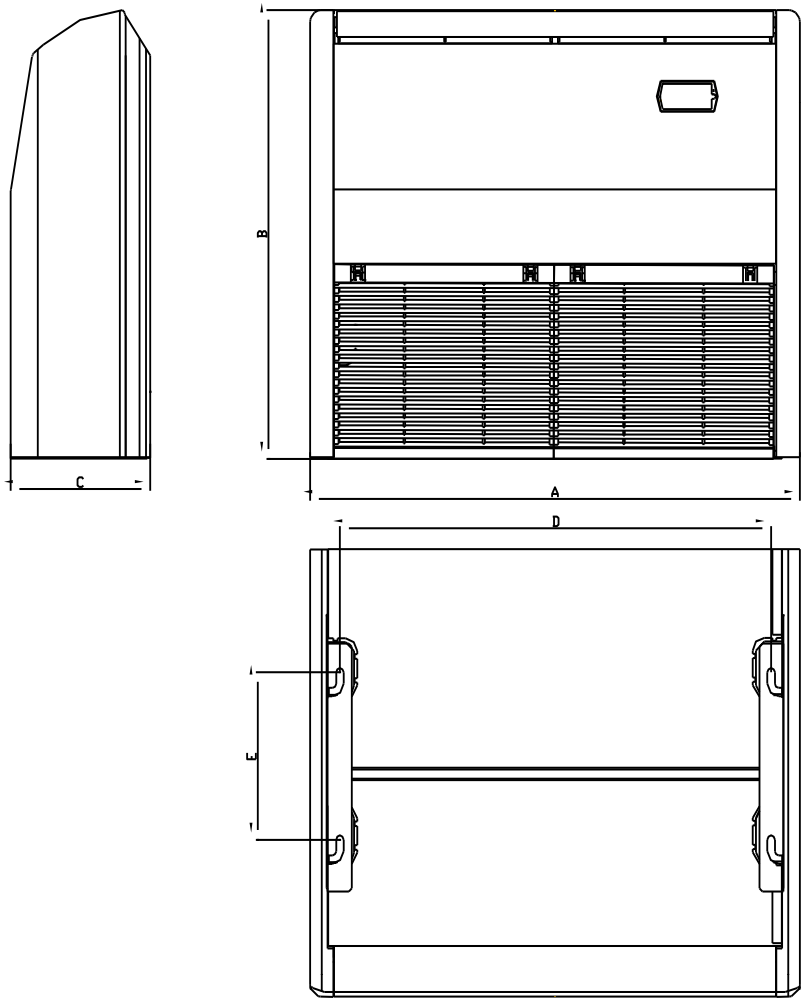
● Selection of Installation Location

☆ Such a place where cool air can be distributed throughout the room.
☆ Such a place where is condensation water is easily drained out.
☆ Such a place that can handle the weight of indoor unit.
☆ Such a place, which has easy access for maintenance.
☆ Such a place where is permitting easy connection with the outdoor unit.
☆ Such a place where is 1m or more away from other electric appliances such as television, audio device, etc.
☆ Avoid a location where there is heat source, high humidity or inflammable gas.
☆ Do not use the unit in the immediate surroundings of a laundry, a bath, a shower or a swimming pool.
☆ Be sure that the installation conforms to the installation dimension diagram.

● Caution for installation where air conditioner trouble is likely to occur

☆ Where there is too much of oil.
☆ Where it is acid base area.
☆ Where there is irregular electrical supply.

4.3.2 Dimensions Data



Model	Installation dimensions		Outline dimensions		
	E	D	A	B	C
INVL-R28Zd/Na-K INV-R28Zd/Na-K	260	745	840	695	238
INVL-R36Zd/Na-K INV-R36Zd/Na-K	260	745	840	695	238
INV(L-R50Zd/Na-K INV-R50Zd/Na-K	260	745	840	695	238
INVL-R71Zd/Na-K INV-R71Zd/Na-K	260	1220	1300	600	188
INVL-R90Zd/Na-K INV-R90Zd/Na-K	260	1500	1590	695	238
INVL-R112Zd/Na-K INV-R112Zd/Na-K	260	1500	1590	695	238
INVL-R125Zd/Na-K INV-R125Zd/Na-K	260	1500	1590	695	238

4.3.3 Clearance data

☆ The space around the unit is adequate for ventilation (Refer to Fig.1)

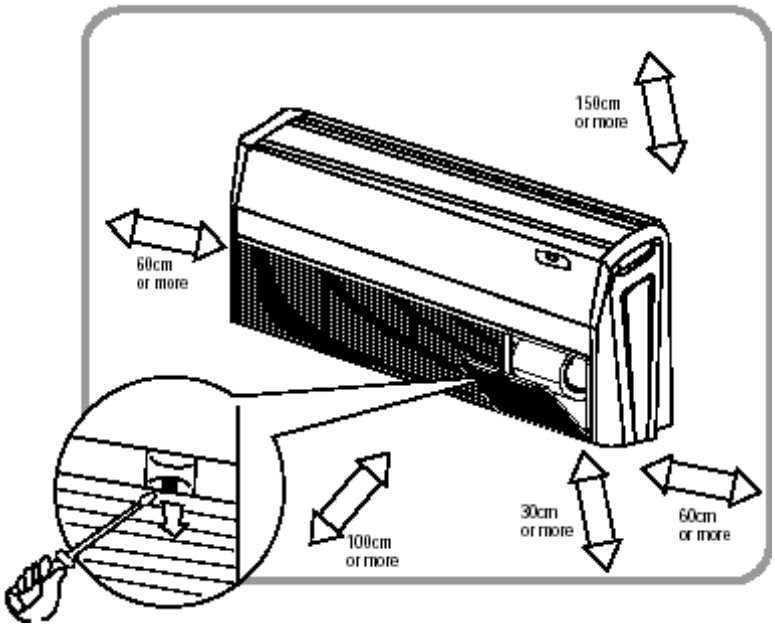


Fig.1

4.3.4 Installation demonstration

● **There are 2 styles of installation**

☆ **Ceiling type**

☆ **Floor type**

Each type is similar to the other as follows:

1. Determine the mounting position on ceiling or wall by using paper pattern to indicate indoor frame. Mark the pattern and pull out the paper pattern. (Refer to Fig.2)
2. Remove the return grill, the side panel and the hanger bracket from the indoor unit as per procedure bellow.

☆ Press the fixing knob of the air inlet grills, the grilles will be opened wider and then pull them out from the indoor.

☆ Remove the side panel fixing screw and pull to the front direction (arrow direction) to remove. Side panel fixing screw (Refer to Fig.3).

☆ Loosen two hanger bracket setting bolts (M8) on eath side for less than 10mm. Remove two hanger bracket fixing bolts (M6) on the rear side. Detach the hanger bracker by pulling it backward (Refer to Fig.5).

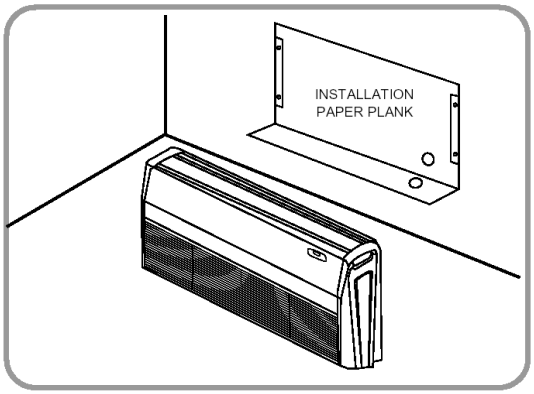


Fig.2

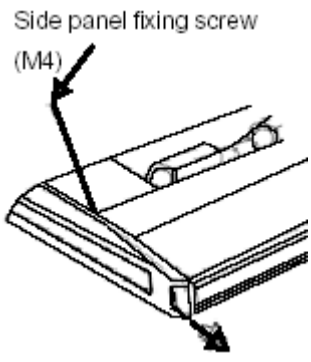


Fig.3

3. Set the suspension bolt. (Use W3/8 or M10 size suspension bolts)

☆ Adjust the distance from the unit to the ceiling slab beforehand (Refer to Fig.4)

4. Fix the hanger bracket to the suspension bolt.

Warning!

☆ Make sure that extended suspension bolt from the ceiling stays inside the arrowed position. Readjust the hanger bracket when it is outside the arrowed position. (Refer to Fig.6)

☆ Suspension bolt stays inside the cap of indoor unit. Never remove the cap.

5. Lift the unit and slide forward unit the dent. (Refer to Fig.7)

6. Screw tightly both hanger bracket-setting bolts (M8). (Refer to Fig.5)

7. Screw tightly both hanger bracket-fixing bolts (M6) to prevent the movement of the indoor unit. (Refer to Fig.5)

8. Adjust the height so that rear side of the drainpipe slightly inclines to improve drainage.

Caution!

☆ Adjust the height by turning the nut with a spanner.
Insert the spanner from the hanger bracket opening. (Refer to Fig.8)

In case of hanging

It is possible to install using inward facing hanger brackets by not removing the brackets from the indoor unit. (Refer to Fig.9)

Be sure to use only the specified accessories and parts for installation work.

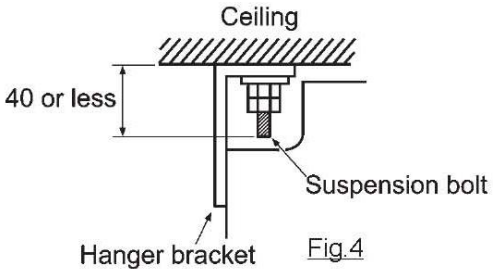


Fig.4

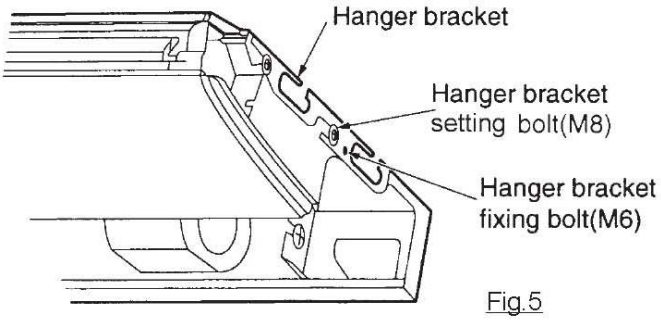


Fig.5

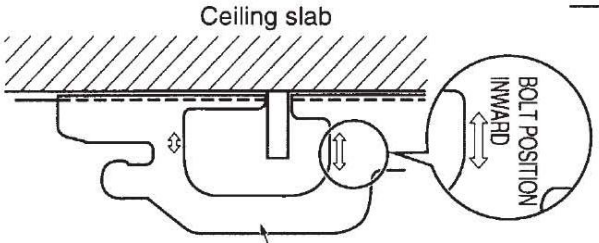


Fig.6

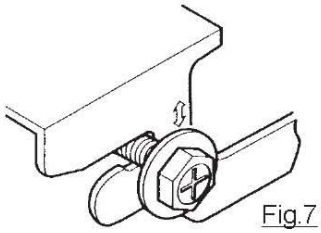


Fig.7

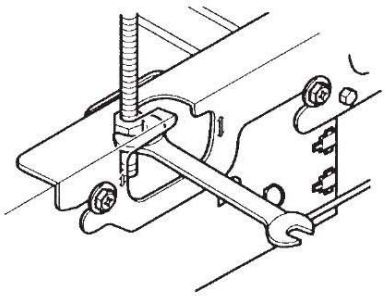


Fig.8

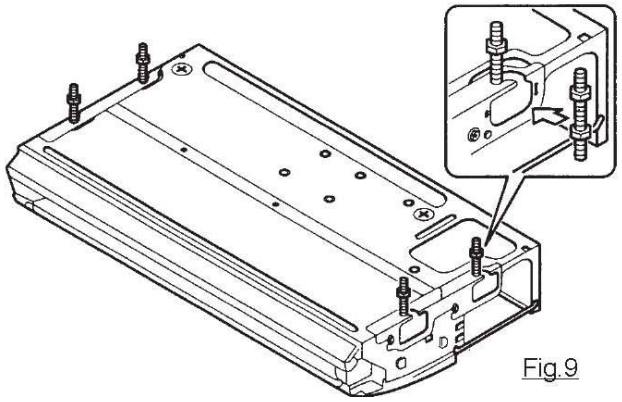
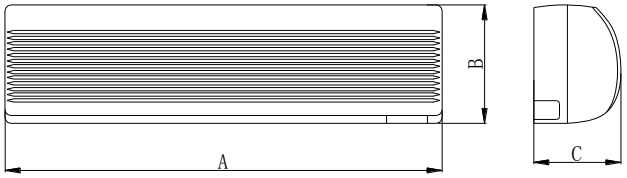


Fig.9

4.4 Wall mounted type

4.4.1 Dimensions Data



REMARK :THE APPEARANCE WILL BE DIFFERENT ACCORDING TO THE MODELS.

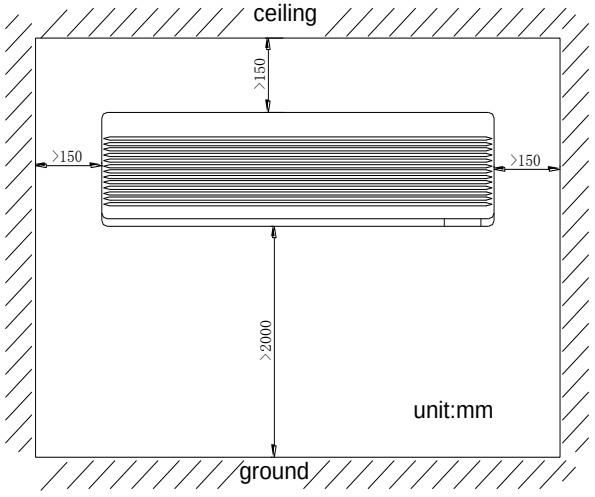
Model	INV(L)-R22G/NaB-K INV(L)-R22G/NaC-K	INV(L)-R28G/NaB-K INV(L)-R28G/NaC-K	INV(L)-R36G/NaB-K INV(L)-R36G/NaC-K	INV(L)-R45G/NaB-K INV(L)-R45G/NaC-K
A(mm)	770	770	830	830
B(mm)	250	250	285	285
C(mm)	190	190	189	189

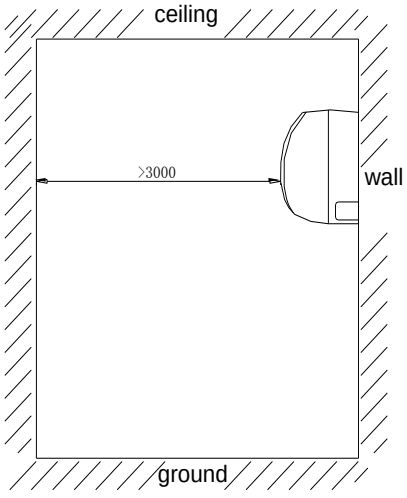
Model	INV(L)-R50G/NaB-K	INV(L)-R56G/NaB-K
A(mm)	1020	1020
B(mm)	310	310
C(mm)	228	228

Model	INV(L)-R50G/Na-K	INV(L)-R56G/Na-K	INV(L)-R71G/Na-K	INV(L)-R80G/Na-K
A(mm)	907	907	1178	1178
B(mm)	290	290	326	326
C(mm)	195	195	227	227

4.4.2 Clearance data

Schematic diagram of installation spaces





Important Notice:

- The unit must be installed by the professional personnel according to this install instruction to ensure the well use.
- Please contact the local INVENTOR special nominated repair department before installation. Any malfunction caused by the unit that is installed by the department that is not special nominated by INVENTOR would not deal with on time by the inconvenience of the business contact.
- It should be guide under the professional personnel when the air conditioner unit is moved to other place.

4.4.3 Installation demonstration

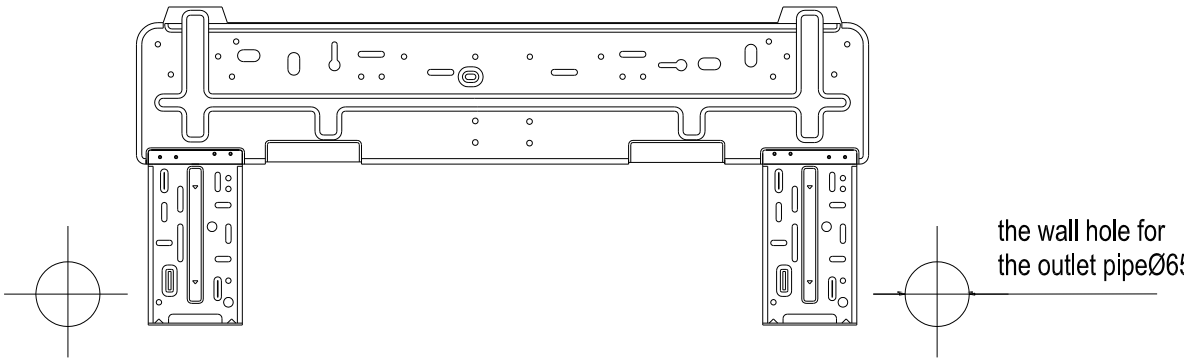


Fig.1

1. Find the horizontal position by seton method; since the drainage pipe is on the left side, adjust the rear panel to make its left side a little bit lower.
2. Fix the rear panel on the wall by bolt.
3. After installing the rear panel, pull it by hand to check if it is firm enough. The hang panel should support the weight of an adult (60KG), and the weight shared by every bolt for steady should be fairly even.
4. The diameter showed on the fig.1 is 65mm.

Installation the Wall Mounted Type indoor unit

☆Make the piping hole (Φ65mm) in the wall at a slight downward slant to the outdoor side. The center of the hole should be determined refer to Fig.1

☆ Insert the piping-hole sleeve into the hole to prevent the connected piping and wiring from being damaged when passing through the hole.

● Install the drainage pipe

☆ For well draining, the drain hose should be placed at a downward slant.

☆ Do not wrench or bend the drain hose or flood its end by water. (Fig.2)

☆ Wrap heat resistant material when connect the longer drainage tube though indoor.

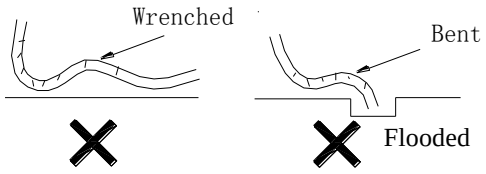


Fig .2

● Install the connection pipes

Connect the connect pipe with the two relative leading pipe, tie the nut on tie –in of the connect pipe tightly.

Note!

☆Be careful in bending the connection pipes, or you will damage the pipes.

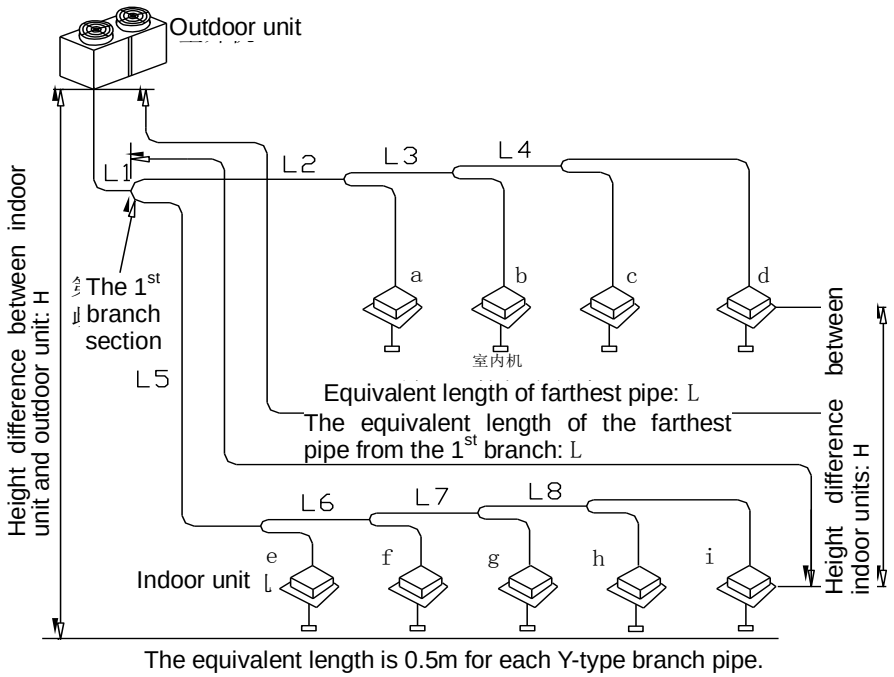
☆If the tightening torque is too great in tightening the flare nut, leakage will happen.

5 INSTALLATION REQUIREMENTS OF REFRIGERANT PIPING

5.1 Specification

R410a refrigerant system			
External Diameter(mm/inch)	Thickness(mm)	External Diameter(mm/inch)	Thickness(mm)
φ6.35	≥0.8	φ25.4	≥1.5
φ9.52	≥0.8	φ28.6	≥1.5
φ12.7	≥1	φ34.9	≥1.5
φ15.9	≥1	φ41.3	≥2.0
φ19.05	≥1	φ44.5	≥2.0
φ22.2	≥1.5	φ54.1	≥2.0

5.2 Allowable Length and Height Differences of the Refrigerant Piping between the Indoor and Outdoor Units



The equivalent length is 0.5m for each Y-type branch pipe.

5.2.1 For outdoor unit with total rated capacity more than or equal to 60.0kW (See the above picture for the piping methods)

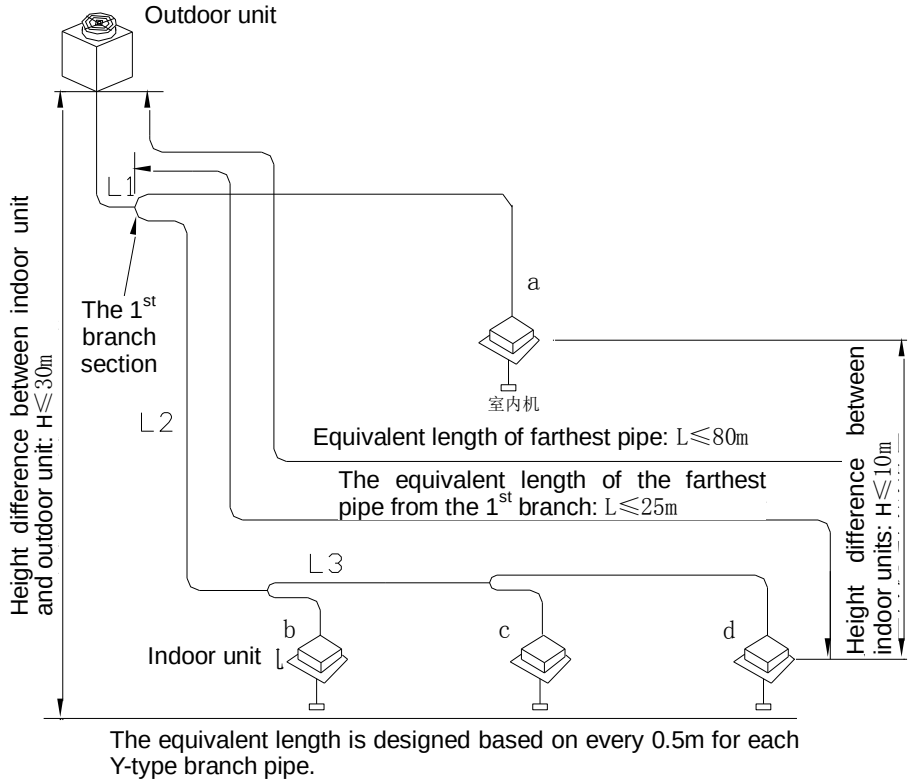
		Allowable (m/ft) value	Fitting pipe
Total length (actual length) of fitting pipe		500/1640	$L_1+L_2+L_3+L_4+\ldots+L_8+a+b+\ldots+i$
Length of the furthest fitting pipe	Actual length	500/1640	$L_1+L_5+L_6+L_7+L_7+L_{8+}i$
	Equivalent length	175/574	
Equivalent length of fitting pipe from the 1st branch joint to farthest indoor unit L（m）		40/131	$L_5+L_6+L_7+L_7+L_{8+}i$
Height differences between indoor unit and outdoor unit	Outdoor unit at upper	50/164	——
	Outdoor unit at lower	40/131	——
Height differences between indoor units		15/49	——

5.2.2 For outdoor unit with total rated capacity more than or equal to 20.0kW and less than 60.0kW(See the above picture for the piping methods)

		Allowable (m/ft) value	Fitting pipe
Total length (actual length) of fitting pipe		300/984	$L_1+L_2+L_3+L_4+\ldots+L_8+a+b+\ldots+i$
Length of the furthest fitting pipe	Actual length	100/328	$L_1+L_5+L_6+L_7+L_7+L_{8+}i$
	Equivalent length	125/410	
Equivalent length of fitting pipe from the 1st branch joint to farthest indoor unit L（m）		40/132	$L_5+L_6+L_7+L_7+L_{8+}i$
Height differences between indoor unit and outdoor unit	Outdoor unit at upper	50/164	——
	Outdoor unit at lower	40/132	——
Height differences between indoor units		15/49	——

5.2.3 For outdoor unit with total rated capacity less than 20.0kW (See the below picture for the piping methods)

		Allowable (m/ft) value	Fitting pipe
Total length (actual length) of fitting pipe		150/492	$L_1+L_2+L_3+a+b++c+d$
Length of the furthest fitting pipe	Actual length	70/230	$L_1+L_2+L_3+d$
	Equivalent length	80/263	
Equivalent length of fitting pipe from the 1st branch joint to farthest indoor unit L（m）		25/82	L_2+L_3+d
Height differences between indoor unit and outdoor unit	Outdoor unit at upper	30/99	——
	Outdoor unit at lower	25/82	——
Height differences between indoor units		10/33	——



5.3 Selection of Y-Type Branch Pipe

R410a refrigerant system	Total Capacity of the Downstream Indoor Unit (X)	Model
Y-Type Branch Pipe	X≤200	FQ01A
	200<X≦300	FQ01B
	300<X≦700	FQ02
	700<X≦1350	FQ03
	1350<X	FQ04

5.4 Selection of Diameter

① The diameter of the piping (the main pipe) from the Outdoor Unit to the first branch joint

R410a refrigerant system		
Outdoor capacity code C	Gas pipe (mm/inch)	Liquid pipe(mm/inch)
C≤280	Φ22.2	Φ9.52
280<C≤450	Φ28.6	Φ12.7
450<C≤670	Φ28.6	Φ15.9
670<C≤950	Φ34.9	Φ19.1
950<C≤1350	Φ41.3	Φ19.1
1350<C≤1570	Φ44.5	Φ22.2
1570<C	Φ54.1	Φ25.4

Note: When the actual pipe length exceeds 90m, the pipe diameter shall be increased accordingly.

② The diameter of the piping between branch joints (the branch pipe)

R410a refrigerant system		
Outdoor capacity code C	Gas pipe (mm/inch)	Liquid pipe(mm/inch)
C≤50	Φ12.7	Φ6.35
50<C≤70	Φ15.9	Φ9.52
70<C≤180	Φ19.05	Φ9.52
180<C≤300	Φ22.2	Φ9.52
300<C≤450	Φ28.6	Φ12.7
450<C≤670	Φ28.6	Φ15.9
670<C≤950	Φ34.9	Φ19.05
950<C≤1350	Φ41.3	Φ19.05
1350<C≤1570	Φ44.5	Φ22.2
1570<C≤2100	Φ54.1	Φ25.4

Note: When the actual pipe length exceeds 90m, the pipe diameter shall be increased accordingly.

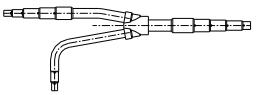
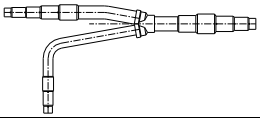
③ The diameter of the piping from the branch joint (branch pipe) to the indoor unit

R410a refrigerant system		
Outdoor capacity code C	Gas pipe (mm/inch)	Liquid pipe(mm/inch)
22,25,28 model	φ9.52	φ6.35
36,40,45,50 model	φ12.7	φ6.35
56,63,71,80,90,100,112,125,140 model	φ15.9	φ9.52

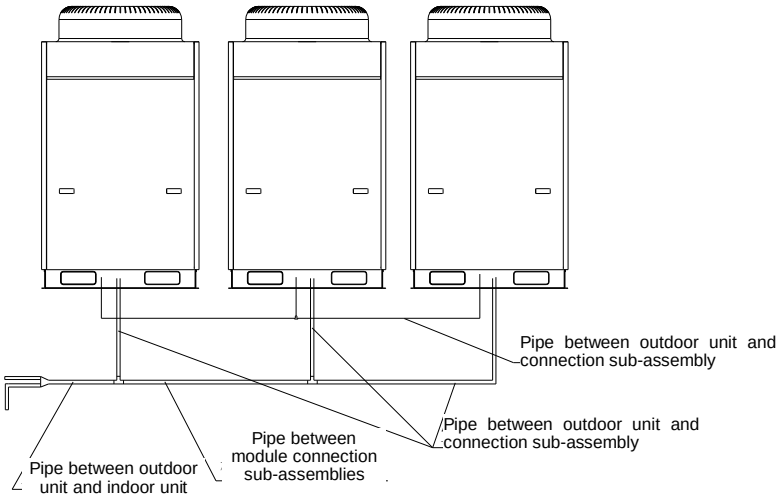
Note: When the actual pipe length exceeds 90m, the pipe diameter shall be increased accordingly.

5.5 Selection of Refrigerant Piping between Outdoor Unit and Outdoor Unit (for module unit)

1）Selection of components between module and module

Notes	Model	Name	Illustration
Sub-assembly corresponding to outdoor module	ML01	ML01- Liquid pipe	
		ML01- Air pipe	

2）Selection of pipe diameter between module and module



a Pipe diameter between outdoor unit and connection component

R410a refrigerant system		
Single module capacity code C	Gas pipe (mm/inch)	Liquid pipe(mm/inch)
C≤280	Φ22.2	Φ9.52
280<C≤45	Φ28.6	Φ12.7

b Pipe diameter between connection component of module and connection component of module

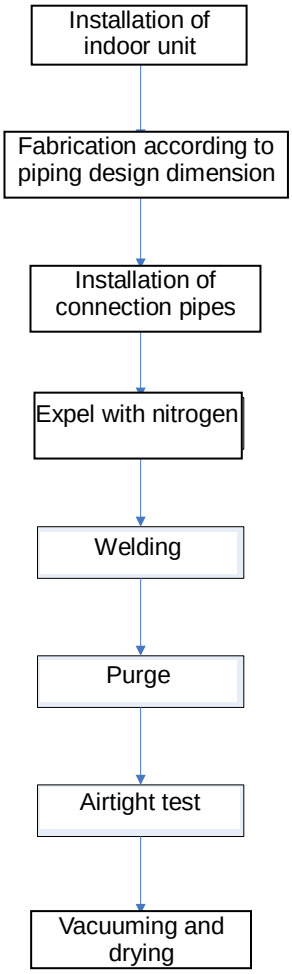
R410a refrigerant system		
Sum of capacity code of upstream module C_	Gas pipe (mm/inch)	Liquid pipe(mm/inch)
C≤280	Φ22.2	Φ9.52
280<C≤450	Φ28.6	Φ12.7
450<C≤670	Φ28.6	Φ15.9
670<C≤950	Φ34.9	Φ19.05
950<C≤1350	Φ41.3	Φ19.05
C>1350	Φ41.3	Φ22.2

c Piping used for balancing lubricant

The oil balance pipe is connected by using Φ9.52 copper pipe. For three outdoor units arranged in parallel, one 3-way joint having an inner diameter of Φ9.7 shall be used in the oil balance pipe.

6 INSTALLATION OF REFRIGERANT PIPING

6.1 Flow Chart of Installation



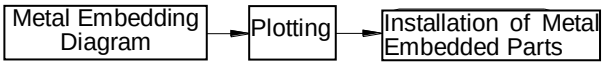
6.2 Three Principles of Refrigerant Piping Installation

Keep to the three principles of refrigerant piping:

	Key Factors	Measures to Avoid Failure
Dry	● Invasion of outside water Example: Rainwater, engineering water ● Invasion of indoor condensate	Fabrication of fitting pipe → Purge → Vacuuming and drying
Clean	● Formation of oxides inside the pipe during welding ● Invasion of dust and foreign articles from outside	Expel with nitrogen 0.05～0.3Mpa → Purge Fabrication of fitting pipe
Airtight	● Incomplete welding ● Leakage from flared port ● Leakage from edge	Use suitable materials (copper tube, soldering bar) Observe the basic welding procedures Observe the basic operations for flaring of fitting pipe Observe the basic interfacing procedures → Airtight test

6.3 Installation of Metal Embedded Pipe

◆ Work Order



Plot the line on ground if possible and use laser to project it onto the roof. This is quick and correct.

◆ Advance Installation of Metal Embedded Parts

Please select according to local codes.

◆ Subsequent Installation of Expansion Bolts

In case that the metal embedded parts cannot be used due to design change, the expansion bolts may be used.

◆ Subsequent Installation of Expansion Bolts

● The foot pedal shall be supported on three points if exceeding 2m.

The foot pedal must be fixed securely to the ladder.

● Please do not work on the top of ladder.

6.4 Installation of Carriage of Refrigerant piping

1）Fixing of horizontal pipe

The refrigerant pipe will extend and shrink with each start or stop of the air conditioner unit (5~10 times / hour). Under a temperature difference of 80℃, this extension may reach 13.84mm for every 10m. To prevent failure, the pipes must be reinforced as follows.

Spacing between supports

Outer diameter of pipe (mm)	6.35-8.52	Over 12.7
Spacing between supports (m)	Below 1.2	Below 1.5

Note: If the gas pipe and liquid pipe are suspended together, the size of liquid pipe shall prevail.

⚠ CAUTION

Never let the pipe in direct contact with the fixing metal parts. Thermal insulation shall be provided around the fixing metal parts; otherwise, condensing will occur.

2） Fixing of vertical pipe

The vertical pipe may be fixed by using the commodity tools in market or self-made tools. As above, the fixing point shall also be thermally insulated.

3）Fixing of other points

Measures shall be taken to prevent the extension or shrinkage of pipes from causing excessive loads to some positions, machine joint and waterproof points. Generally, such positions refer to the branch pipe joint, pipe ends, four sides of indoor unit and wall-cross hole.

6.5 Management and Machining of Refrigerant Piping

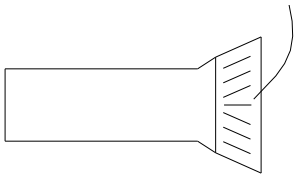
1）Storage

- After receiving the refrigerant pipe and other components, do not move them to the storage until confirming that they have no deformation, bend, crack or damage.
- The pipe end must be sealed to prevent the invasion of moisture or wastes.
- The copper pipe with coating may become deformed under the compression of the coating material, so that the coils shall be placed upright.
- To avoid the invasion of moisture or wastes, a support higher than the ground must be built by using woods.
- Care of pipe end during construction

The pipe ends must be well cared during construction. According to the working position, work progress and surrounding environment, the most effective way is to seal the end and wrap with adhesive tape.

i. Sealing method

Clamp the pipe end and weld on it.



Clamp the pipe end to flat and weld on the clearance. Then, charge nitrogen 2～5kgf/cm^2. This will be more effective.

ii. Method for wrapping with adhesive tape

Seal the pipe end with ethylene tape.

2）Unwinding the coil

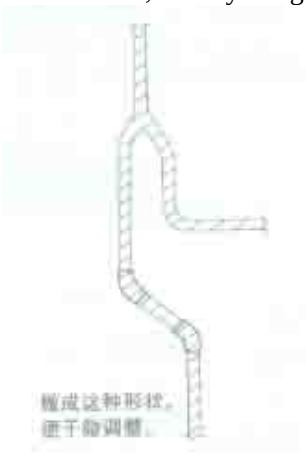
⚠ CAUTION

- When unwinding the coil, take care not to drag it on the ground. The coil shall be slowly unwound on ground without any twisting. In case of excessive compression by any hard object during unwinding, the thermal insulation materials may be damaged and cannot be recovered, which will deteriorate the performance of thermal insulation. Do not unwind carelessly. Otherwise, the fitting pipe might be flattened.
- The copper pipe shall be rounded if the pipe end is deformed.

(The higher the size, the higher the possible deformation)

3）Measuring

- (To reduce the resistance and length of copper pipe), the dimension of main refrigerant pipe shall be so taken that the bends shall be minimized, the radius of bend section shall be increased and the upstream and downstream section shall be reduced. Use the method that can reduce the actual length and equivalent length of the copper pipe.
- Sometimes the connection pipe of indoor unit must be adjusted due to the relation with accessories, drainage pipe and connection surface. Therefore, a fairly marginal dimension shall be taken.



4）Cut·Chamfer

- Cut

a) Cut vertically to axis direction by using special pipe cutter that is suitable to the dimension of copper pipe (big, medium, small).
b) During operation, press and rotate the pipe cutter slowly and cut off the copper pipe without causing any deformation.

Never use saw or grinding wheel, because the copper scraps may be left inside the pipe. Even use of such tools once will make all works scrapped. It is useless no matter how good the quality of other works. It is best that all operators shall have one pipe cutter and at least one pipe cutter of big dimension shall be provided on site.

⚠ CAUTION

To prevent the invasion of water or waste, avoid placing the copper pipe directly on ground.

◆ **Chamfer**

Burrs may occur on the cutting face of copper pipe and must be removed. Meanwhile, purge the foreign articles out of the pipe and refinish the pipe end.

● Use scraper or other tools to remove the burrs on inner side.

(To prevent copper scraps from falling into the pipe, please keep the pipe end downward during operation).

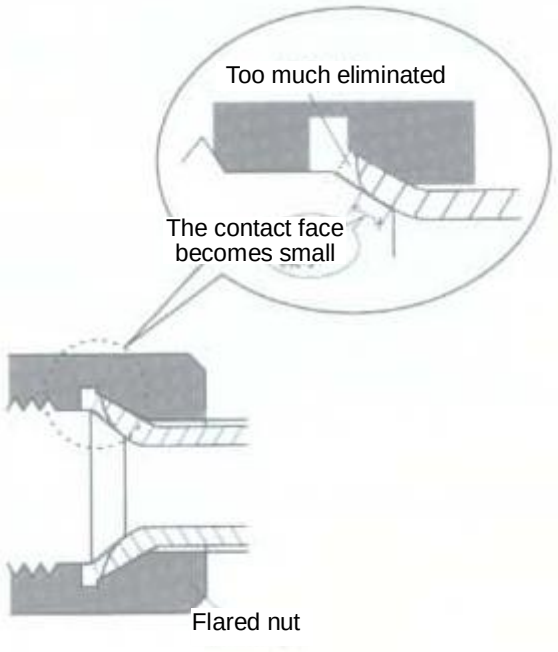
● If the pipe end is obviously deformed, please cut and throw it off, and then refinish the pipe end.

● Eliminate the copper scraps thoroughly, and use cotton yarn to wipe the pipe clean.

※The flared joint must be kept smooth.

※When removing the burrs with scraper, do not remove too much, especially for the fitting pipe of small diameter; otherwise the contact surface of the flared joint will be reduced. Do not cause any scores, and avoid cracking after the flared joint is formed.

※Adverse impact if the burrs are removed too much with scraper.



5）Pipe bending

◆Work Methods

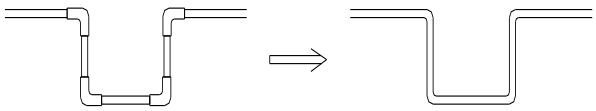
a) Bend by hand ……..Suitable to fine copper pipe (φ6.35mm-φ12.7mm).
b) Machining with spring pipe bender …….. Bend by inserting the spring into copper pipe or sheathing onto the copper pipe (φ6.35mm-φ22.2mm).
c) Machining with hand-operated pipe bender……Use the pipe bender of suitable dimension (φ6.35mm-φ22.2mm).

d) Machining with electric pipe bender (hydraulic)……Suitable for mass machining of fine and coarse fitting pipes (φ6.35mm-φ69.9mm).

Advantage

※Decrease the weld joint, thus reduce the possibility of leakage and oxidization.

For example:



It can decrease the weld by 8 spots. Please act now to improve the quality.

※No joint is required, which will save the material costs. Reduced waste of fitting pipe materials.

※Reduced resistance in the fitting pipe. The bending radius higher than the pipe joint.

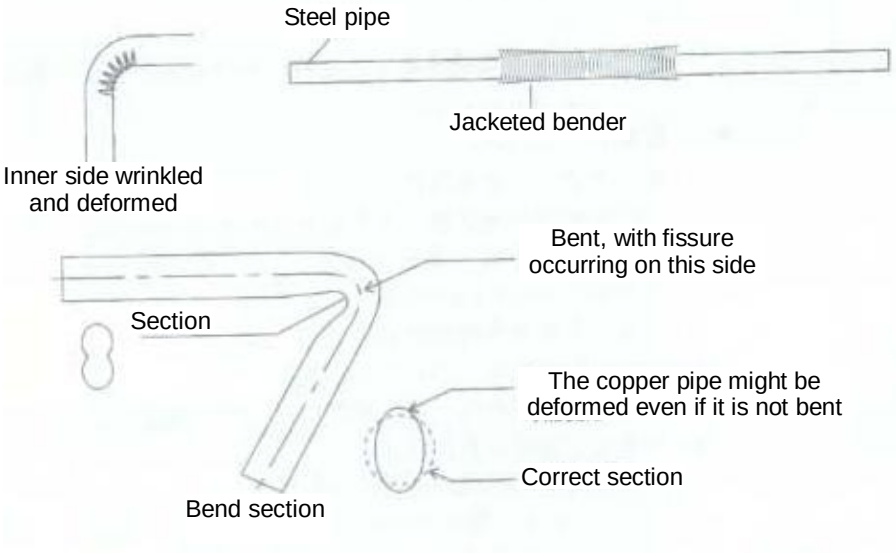
◆Cautions:

※During bending, there shall be no wrinkling or deformation on the inner side of the copper pipe.

※Spring pipe bend

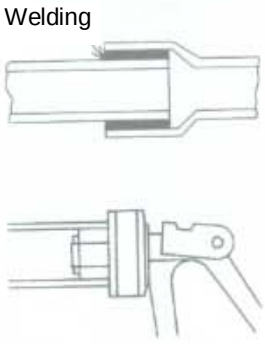
※The bender inserted into the copper pipe must be cleaned.

※Do not bend over 90º. (Otherwise, wrinkling may be formed on the inner side of copper pipe and in the future, the copper pipe will be broken from this position.)



6）Flaring

The flaring refers to expansion of pipe opening. The copper pipe is inserted here to replace the casing pipe. In this way, it is only needed to weld on one position where the pipe is expanded.



6.6 Installation of Refrigerant Piping

1）Precautions on piping works

- ◆ At the site of transport, storage and construction, the two ends of copper pipes shall be sealed with plastic sealing caps. Before welding, copper pipes must be cleaned (washing the inner

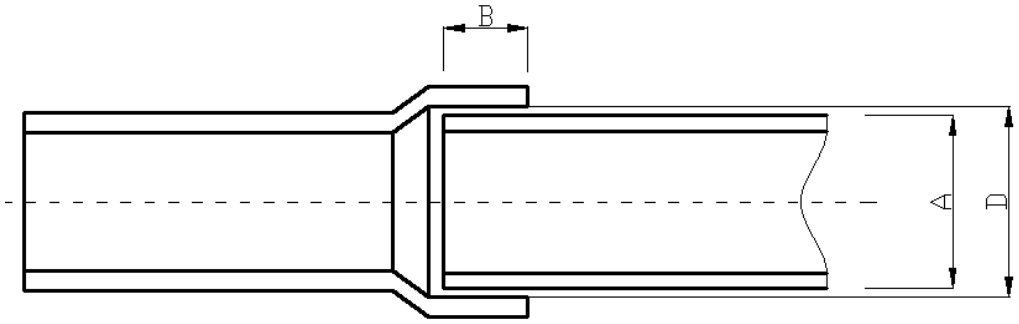
side of pipe with alcohol) to ensure no dust and no water in pipeline

- Nitrogen-filled welding shall be used for the welding of copper pipes. Nitrogen pressure shall be 0.5±0.1kgf/cm^2. Nitrogen flow can be sensed by hand.
- When multiple multi-connected units are installed, refrigerant piping must be marked to avoid confusion between pipes of different units.
- A two-way drier shall be mounted at the liquid pipe side at the place where an outdoor unit is connected.

2）Assemble copper pipes

The copper pipe shall be vertically inserted to the specified length. The centerline of two assemblies shall overlap. The position shall be determined for welding. To ensure correct mounting size, do not determine the position with your hands, thus to prevent the copper pipe from moving when heated.

See below for the welding size of copper pipe:



Unit：mm

A: Outer diameter of pipe	B: Minimum depth of penetration	D-A: Clearance between pipes
ϕ6.35	6	0.05～0.21
ϕ9.52,ϕ12.7	7	
ϕ15.8	8	0.05～0.27
ϕ19.05,ϕ22.2,ϕ25.4	10	
≥ϕ28.6	12	0.05～0.35

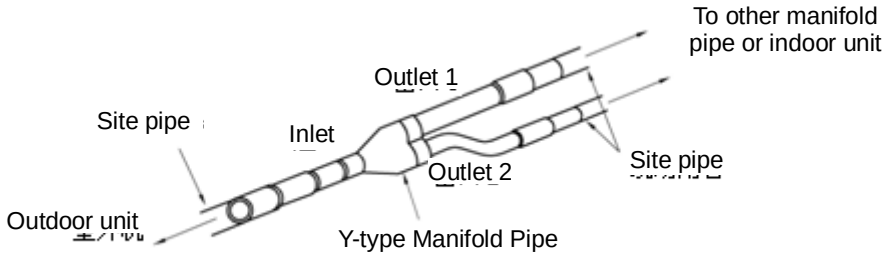
If the mounting clearance is too large, the diameter of coarse pipe may be reduced to an appropriate value to according to applicable specifications, if any.

3）Installation of branch pipe

The branch pipe plays the function to divert the refrigerant flow. Therefore, the selection and installation of branch pipe is very important to the operation of multi-unit. Based on correct selection of branch pipe, the branch pipe must be installed according to installation specifications.

- Connection schematics for Y-type branch pipe

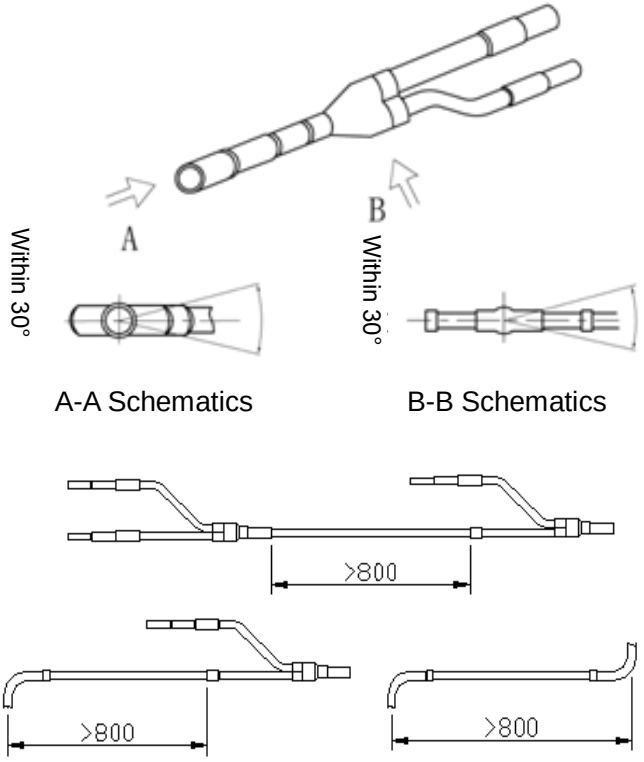
The connection of Y-type branch pipe is as shown below. The inlet is connected to outdoor unit or previous branch; the outlet is connected to indoor unit or next branch.



◆ Installation specifications for branch pipe

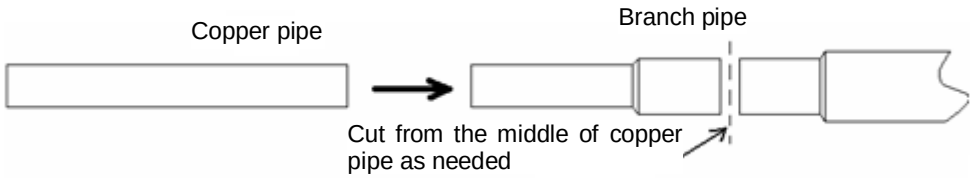
Placement of branch pipe

The branch pipe can only placed horizontally. Meanwhile, two branch pipes must be on the same plane. The spacing between two branch pipes must be over 800mm, the spacing between two bends must be over 800mm, and the spacing between branch pipe and bend point must also be over 800mm.

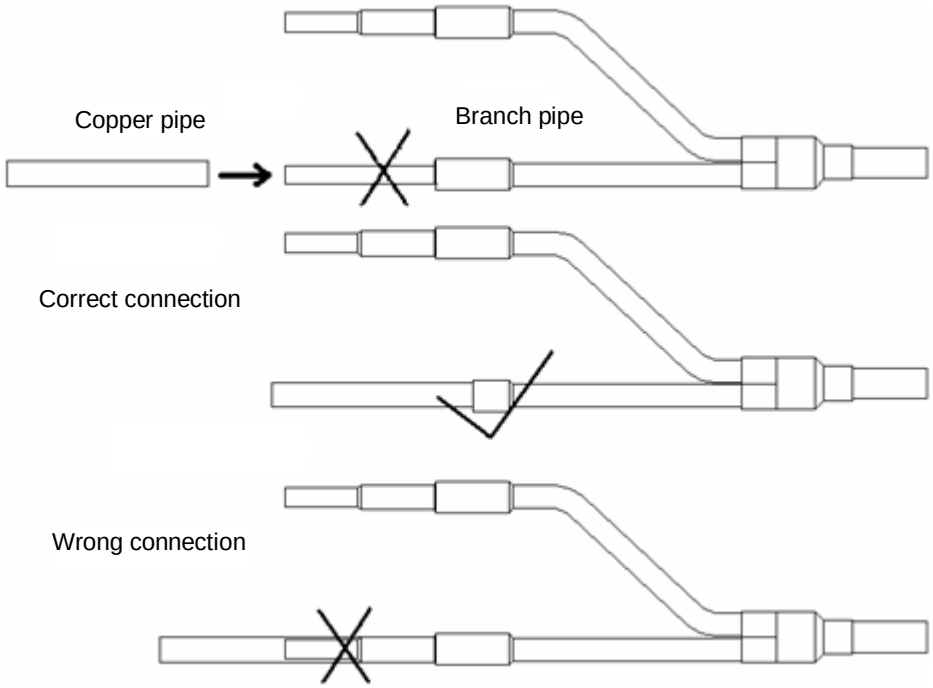


Connection of branch pipe

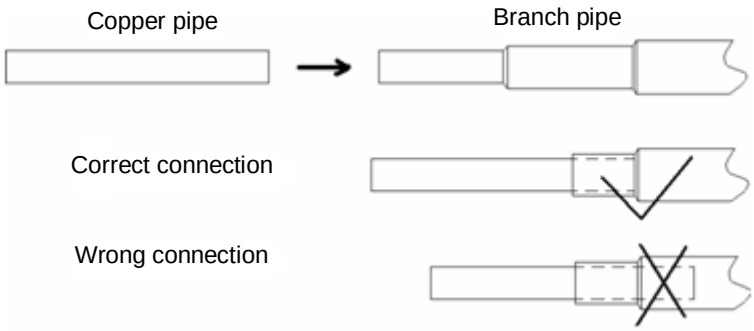
The Y-type branch pipe is installed with additional tube. The purpose is to adjust the different pipe diameters. If the pipe size selected on site is different from the size of branch connector, please use the pipe cutter to cut from the middle of different connection pipes and remove the burrs. Then, insert the copper pipe to appropriate depth. The branch pipes from INVENTOR are all provided with positioning mark.



Do not use the connection method that the copper pipe is cased on branch pipe of smaller diameter.



The copper pipe shall not be inserted into the branch pipe too deep.



6.7 Welding of Copper Pipe

1）Braze welding

Materials for braze welding

There are two kinds of braze welding, soft braze welding and hard braze welding. Hard braze welding is required in this case.

Selection of braze welding

Red copper + red copper：brazing filler metal is Bcu93P（GB 6418），and welding flux is not needed.

Flame flux: capable of preventing the surface of copper pipes from oxidation, recommended for use.

Temperature for braze welding：820-860℃(copper pipe becomes light red)

2）Safety acknowledgement before operation

a. Roll calling of construction personnel and confirmation on their health status.

b. Acknowledgement on work suits（helmets, clothes, safety bags and safety shoes）

c. Description of work location and environment.

d. Job division shall be made. Job content, method and order shall be indicated. Risk prediction activities shall be performed.

e. “Construction Schedule” shall be worked out.

f. Head of each group shall be assigned

g. Risks of occurrence of an accident such as electric shock or fire shall be indicated.

h. Instructions on how to use electric machinery properly shall be available.

i. Locations marked with “Staff Only” shall be indicated.

j. An application is necessary for use of open flame and shall be reviewed by on-site safety officer for approval.

k. Instructions given by fire authorities shall be accepted in accordance with local laws and regulations.

l. Tools shall be sorted and counted. Upon knocking off for the day, tools shall be sorted and counted. If necessary, the piping system shall be charged with coolant to avoid exhaustion.

3）Attention

a. Construction personnel must have relevant operation qualification.

Flame operation must be undertaken by qualified persons in accordance with local laws and regulations.

b. Wear coveralls (cotton for the best), safety shoes, safety helmet, leather gloves, protective goggles and anti-dust mask.

Welding torch with back fire arrestor shall be used to ensure safety.

c. Take care not to be burned by flame and heating parts.

d. Gas cylinder shall be handled carefully to prevent leakage.

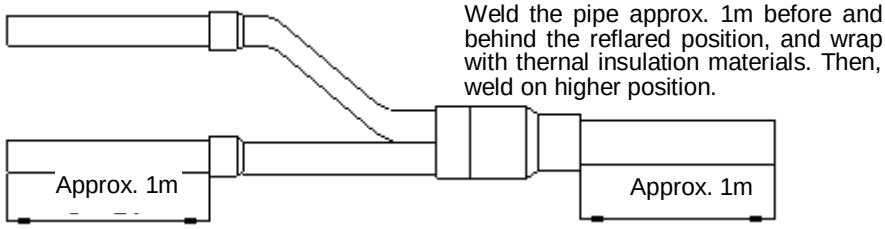
e. Combustible substances in the surrounding areas shall be moved away. If movement is impossible, fire proofing treatment shall be taken properly, such as being covered by flame-proof enclosure.

f. Good ventilation is necessary to avoid breathe in of harmful gas.

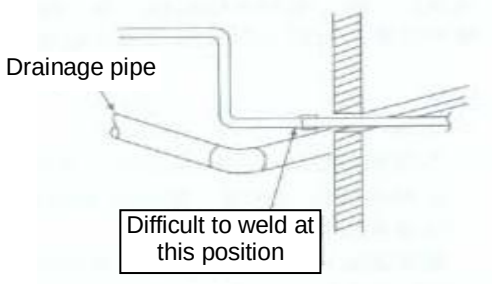
g. Appropriate measures shall be taken if there is a safety problem.

h. Operation on connectors of branch pipes as well as on the surrounding of pipe ends shall be performed on the ground as possible, because heating is difficult to control at a high place and welded part of a branch pipe is prone to be melted to cause leakage.

For example:

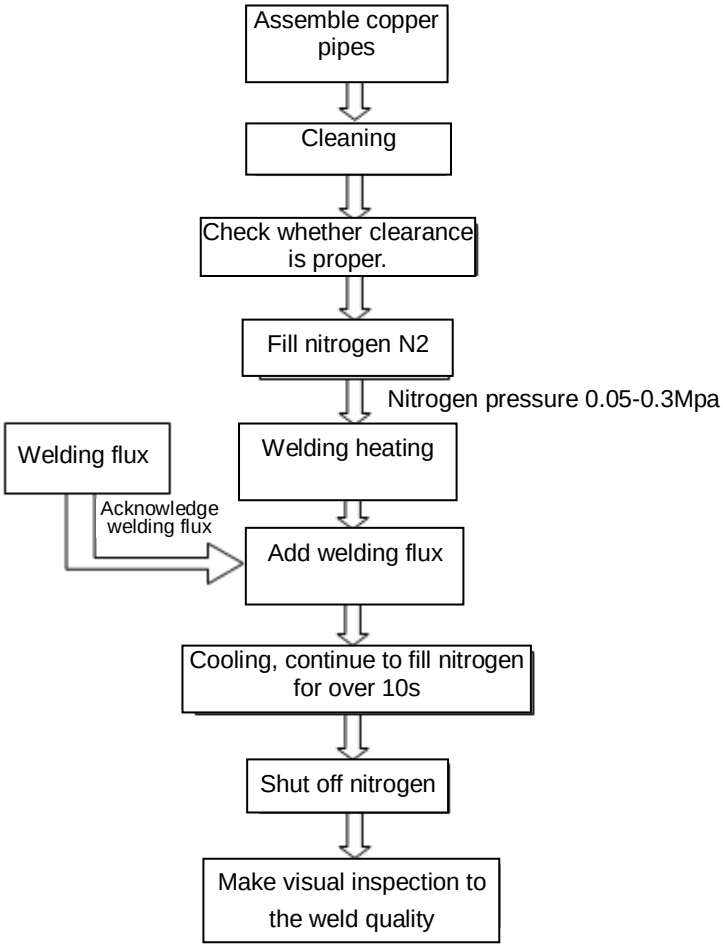


i. To avoid the position difficult to weld, you may add a prefabricated assembly below.



4) Operation order

Basic procedures for welding:



a. Cleaning of portions for braze welding

Polishing……Removing metal materials at connection portion. (Removing oxidation film using non-woven fabric, abrasive cloth or abrasive paper)

Ungrease……If any oil stain is existent, acetone or spirit solvent shall be used for ungrease treatment.

At the same time, compressed air at 0.8MPa (gauge pressure) shall be used for cleaning The cleaning shall be repeated not less than 3 times, until there is no dirt discharged.

b. Check whether clearance between pipe and connector is proper.

Put the connector into the pipe and face downward. If the connector does not fall down depending on friction force, the clearance is considered proper.

c. Nitrogen-filled protection

● Since vigorous oxidation would occur on the surface of copper pipe at braze welding temperature, to effectively restrain the generation of oxide coating in copper pipe, nitrogen-filled protection for copper pipe is necessary.

● After copper pipes are assembled, nitrogen shall be filled in copper pipe connectors

● Method for charging nitrogen into copper pipe.

Nitrogen charging method：

Pressure is 0.5±0.1kgf/cm^2. Nitrogen flow of 4~6L/min (gas flow can be sensed by hand) shall be guaranteed to charge in work pieces.

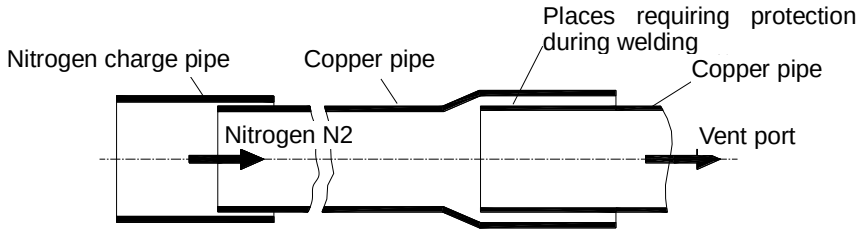
After assembling, nitrogen begins to charge until welding is finished and will continue over 10s during cooling after welding.

※Main points of nitrogen charge（See the drawing below）

◆When nitrogen is charged, the press switch on the quick connector and inflator shall be closed to let nitrogen totally filled in the pipe.

◆Make sure nitrogen reaches all welding connectors in order to effectively discharge air

◆A vent port must be available when nitrogen charge is continuously performed, or otherwise gas would escape from gap around connector, making welding stuffing difficult and prone to pores.



d. Welding heating

Notes:

● Braze welding is flame hard braze welding. Relevant safety operating regulations must be abided by.

● Confirm that nitrogen is flowing through before copper pipe is heated.

● Neutral flame or slightly reducing flame shall be used for red copper braze welding. Outer flame is normally used. Copper pipe connectors shall be heated uniformly. Take care to distribute heat in terms of dimension of pipe material. Generally, insert pipe shall be preheated at first for close matching and then swayed along length of connector to make it heated uniformly until braze welding temperature is approached; then copper pipe is heated circularly to reach braze welding temperature (copper pipe becomes light red) and at the same time brazing filler metal is added circularly to fill in the clearance around the connector uniformly; and afterwards, the welding torch is slowly moved away from the pipe and a small amount of brazing filler metal continues to be filled in until smooth fillet is formed.

● During heating, welding rod shall not be burned directly by flame. Heating time shall not be very long.

● During welding, flame shall be controlled well on its direction and kept away from rubber casing, sponge and cables.

e. Post-welding treatment（cooling）

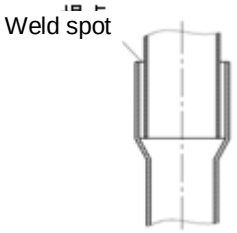
●After welding, in the condition of nitrogen protection available, the connector shall be heated until the copper pipe changes color (200-300℃), i.e. annealing treatment.

● Before welding seam becomes completely solidified, welded pieces shall not be moved or shocked.

● For welded piece cooled by water, take care not to let water enter into copper pipe and try to prevent residue water flowing into the pipe when welded piece is laid aside.

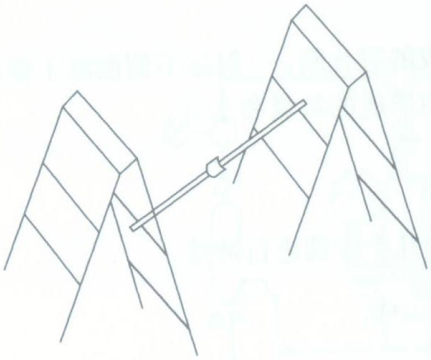
f. Quality and inspection of braze welding

Welding seam should have smooth surface. Fillet should be even and full with natural arc transition. Braze welding connector should be free from defects such as over-burning, welding blockage, crack, rough surface of welding seam and burning through. Welding seam should be free from defects such as pore, slag inclusion, underfill, rosin joint and overlap.

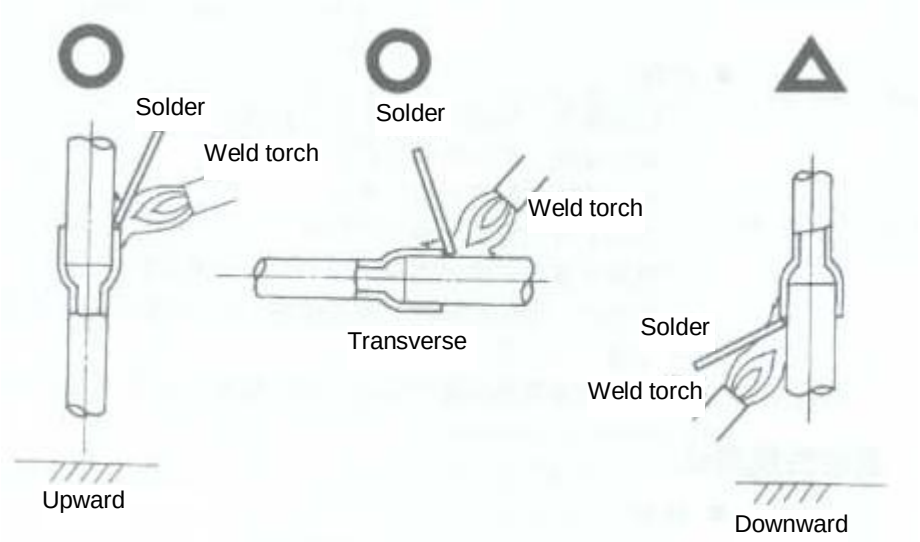


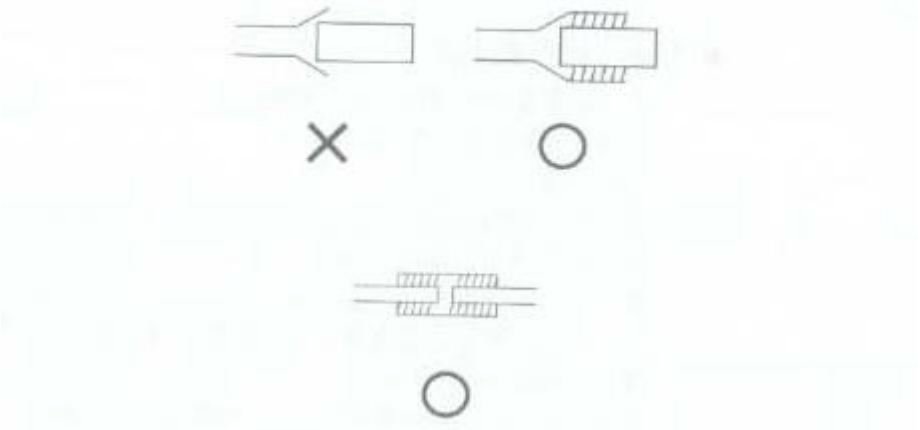
5）Others

◆When braze welding is to be performed underneath, a simple support shall be built, such as two ladders.



◆ Braze welding shall be easy to operate downward or in transverse direction. In upward operation, brazing filler metal is prone to fall so that high skills are required.





◆Cooling

o avoid getting a burn in following processes, common wet cloth (humidity content is low, meaning that there shall not be water drips when welded part is cooled; and because shrinkage factor of copper is different from that of welding material, too quick cooling that would cause cracking of braze welding shall be avoided) can be used for cooling welded parts.

◆The following items shall be checked after welding is completed

- Is there any pore or hole on welded part?
- Is there evident "sagging of brazing filler metal"?

6.8 Cleaning of Refrigerant Piping

After a section of pipeline is welded, cleaning of piping is necessary

Nitrogen pressure is utilized to remove foreign matters (such as dust, water and beryllium oxide caused by

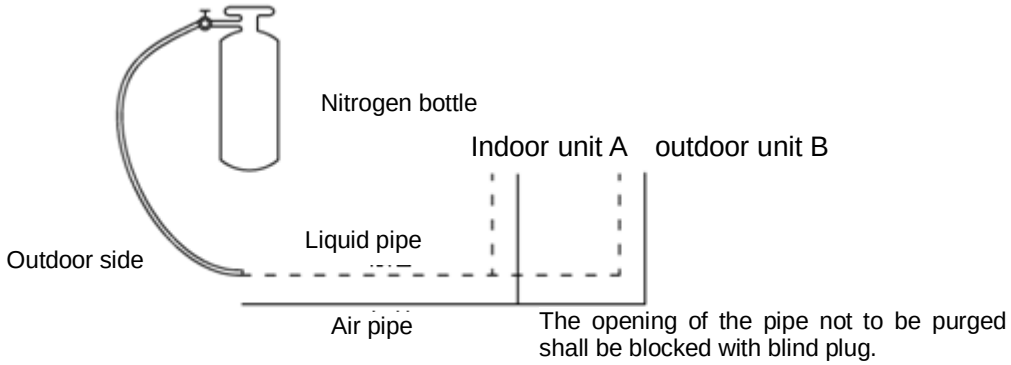
welding) in the piping.

1）Main purposes of cleaning are as follows：

- To eliminate oxide caused by insufficiency of nitrogen-filled protection during pipe welding.
- To remove foreign substances and water that may enter the piping due to improper storage and transport.
- To check whether big leakage is existent at connections of the piping between indoor unit and outdoor unit

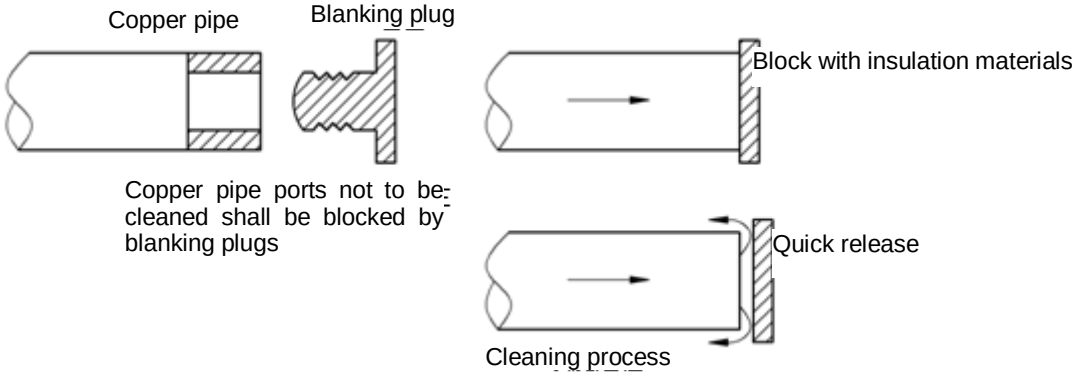
2）Cleaning steps ：

a. Mount a pressure gauge on nitrogen cylinder;



b. High pressure end of the pressure gauge is connected to the refrigerant filling nozzle of the small pipe (liquid pipe).

c. All copper pipe ports outside the A side of indoor unit shall be blocked by blanking plugs



d. The valve on nitrogen cylinder shall be opened to maintain pressure at 28Kgf/ cm^2

e. Check whether nitrogen flows through the liquid pipe of indoor unit A

f. Cleaning

The mouth of the pipe shall be blocked with insulation material held by hand until pressure rises to a level difficult to be withstood, and at the moment the insulation material shall be released quickly. And then the mouth shall be blocked again. Repeat such procedures several times. Afterwards, use a wood board posted with white paper to check it. If there is not evident dirt on the white paper, the pipe will be considered clean.

g. Shut off the main valve of nitrogen

h. Repeat the above procedures on indoor unit B

i. After cleaning of liquid pipe, gas pipe shall be cleaned in the same way.

6.9 Pressure Maintaining and Leak Hunting

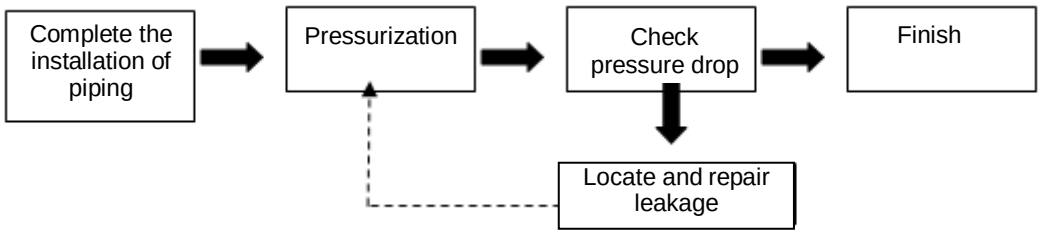
1）Pressure maintaining of refrigerant piping

After refrigerant piping of a system is welded,

- A refrigerant filling nozzle shall be welded respectively on the big pipe and on the small pipe on the outdoor unit side.
- Pipes connected to the end of indoor unit and outdoor unit shall be clamped to be flat and welded to be sealed.

Enter into the step of connection pipe pressure keeping and leak hunting.

Operating Steps:



◆Pressurization

Use nitrogen to add pressure from Freon nozzle of the gas and liquid pipe on outdoor unit side:

Step 1: Increase the pressure to 0.3MPa and wait for 3 minutes or longer

Step 2: Increase the pressure to 1.5MPa and wait for 3 minutes or longer

The step 1 and 2 are focused on checking the significant leakage point. If any, reweld immediately or repair the leakage point.

Step 3: Increase the pressure to 2.5MPa and keep it for approx. 24 hours to check the small leakage.

Though the pressure is increased to 2.5MPa, it cannot be guaranteed to find out the small leakage if the waiting time is too short. Therefore, the pressure in Step 3 must be kept for 24 hours.

Note: During pressure maintaining after nitrogen is filled, the pressure gauge shall not be dismantled, because activities of dismantling or mounting pressure gauge would affect pressure change.

◆Check pressure drop

Criteria for Inspection eligibility:

※Except for temperature influences (pressure changes about 0.01MPa for temperature change of 1℃), if pressure drop is not more than 0.02MPa within 24h, the system will be eligible.

For example, nitrogen is filled to reach 2.5MPa at 30℃; after 24 hours, when temperature becomes 25℃, the system will be eligible if pressure is over 2.43 MPa and ineligible below 2.43 MPa.

※If ineligible, leak sources must be located. After leak sources are found, re-welding or repair welding is necessary. Then, the above procedures shall be repeated. Nitrogen is filled, pressurized and maintained until pressure drop remains within required range.

◆Leak check

[Check 1] When pressure drop is found, leak hunting shall be performed in the ways as follows:

a. By ears…….to listen voices related to leakage

b. By hands……to sense whether leakage is existent at connecting parts

[Check 2] If no leakage is found using the above methods, nitrogen shall be discharged and refrigerant shall be filled in to reach 0.5MPa

a. By soap and water……soap bubbles will show leakage positions if any.

b. Detector (such as halide detector) can be used for leak hunting.

Using the above methods, check all possible leak sources.

If leakage still fails to be located, sectional check shall be taken for refrigerant piping that would be divided into multiple check portions for locating leak source in a certain section.

2）Pressure maintaining and leak hunting of the system（with refrigerant piping in connection with

indoor unit and outdoor unit）

When refrigerant piping is to be installed, pressure maintaining and leak hunting is required for the piping. After refrigerant piping is in connection with indoor unit and outdoor unit, pressure maintaining and leak hunting is also required. The purpose of the test is to check whether any leak is existent at threaded connection of indoor unit and outdoor unit and at new welded points.

Steps:

◆Nitrogen is charged to reach 2.5MPa and remains at the pressure for 24h (nitrogen shall be filled from refrigerant filling nozzles at the big valve as well as the small valve using a pressure gauge; during pressure maintaining after nitrogen is charged, the pressure gauge shall not be dismantled.)

◆Observe whether pressure changes in 24 hours. (for eligibility criteria, see pressure maintaining and leak hunting of refrigerant piping in 5.5.2)

◆If any leakage, please check threaded connections and new welded spots of indoor unit and outdoor unit. Repair welding shall be performed immediately. Afterwards, pressure maintaining is repeated until eligibility is reached.

6.10 Heat Preservation of Refrigerant Piping

1） Connection of thermal insulation pipe

Carry out thermal insulation to the refrigerant pipe after confirming that it has no leakage.

Please perform thermal insulation to the refrigerant pipe according to the steps below:

◆Check if the thermal insulation pipe has met the thickness requirements. If not, the condensing water is easy to attach on thermal insulation pipe and finally drips. The thickness requirements are shown below:

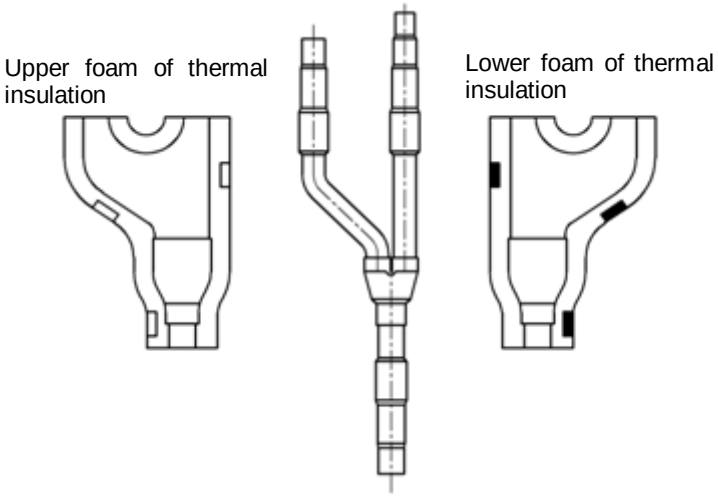
Refrigerant Pipe (mm) (Outer Dia. x Thickness)	Thickness of Thermal Insulation Materials (mm
Φ6.35×0.5	≥10
Φ9.52×0.71	≥10
Φ12.7×1	≥15
Φ15.9×1	≥15
Φ19.05×1	≥15
Φ22.2×1.5	≥20
Φ25.4×1.5	≥20
Φ28.6×1.5	≥20
Φ34.9×1.5	≥20

◆Wrap the refrigerant pipe according to required thickness. The clearance between thermal insulation pipes shall be sealed with self-adhesive sticker.

◆Wrap the thermal insulation pipes with tapes, thus to extend their ageing time.

2) Thermal Insulation of Branch Pipe

Each branch pipe is provided with foam. Wrap the branch with the included foam. The upper and lower foam shall be sealed with self-adhesive sticker. All the sections with or without foam shall be wrapped by using thermal insulation pipe. The butt connection between foam and thermal insulation pipe shall be sealed with self-adhesive sticker.

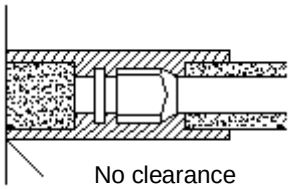


3）Cautions:

The thermal insulation materials shall be able to withstand the pipe temperature. For heat pump unit, it is required to withstand a temperature not lower than 70℃ on liquid pipe side and not lower than 120℃ on gas pipe side. For cooling-only unit, it is required to withstand a temperature not lower than 70℃ on both liquid pipe side and gas pipe side.

Example: Heat resistant PVC foam (over 120℃); Foam PVC (over 100℃)

- The connector between indoor unit and outdoor unit shall be wrapped with thermal insulation materials, and shall have no clearance to the wall on which the outdoor unit is mounted, as shown below.



- When wrapping the thermal insulation tape, each circle shall suppress half of the previous circle. To avoid reducing the thermal isolation effect, do not wrap the tapes too tight.
- After completing the protection work and wrapping the pipes, use the sealing materials to block the holes in the wall.

6.11 Vacuum Pumping

1） Purposes of vacuum pumping

- Discharge air and nitrogen in the piping to obtain vacuum state.
- Vacuum is dry, capable to remove moisture in the system.

Under atmospheric pressure, the boiling point of water is 100℃. But with increased vacuum degree created by vacuum pump, the boiling point rapidly reduces. If boiling point reduces below ambient temperature, moisture in piping will be evaporated. If vacuum is 0Kgf/cm^{2}of absolute pressure (gauge pressure is -1Kgf/cm^2), moisture in the system can be evaporated totally

2）Selection of vacuum pump

Proper vacuum pumps must be selected before vacuum pumping. Insufficient capacity of selected vacuum pump would lead to overtime of vacuum pumping and fall short of the requirement for vacuum degree. A proper vacuum pump can obtain vacuum degree of 0Kgf/cm^2 (gauge pressure -1 Kgf/cm^2) after vacuum pumping.

Features of a vacuum pump shall be determined by two factors as follows:

- Selection of a pump that can meet expected requirement (i.e. gauge pressure of -0.1MPa shall be

obtained)

- Exhaust flow is high (over 40L/min).

The following vacuum pumps are recommended：

Model	Maximum vacuum air displacement	Use	
		Air discharge	Vacuum drying
Lubricant shaft pump	100L/min	Suitable	Suitable
Non-lubricant shaft pump	50L/min	Suitable	Suitable

Comparison table of different pressure units is as follows:

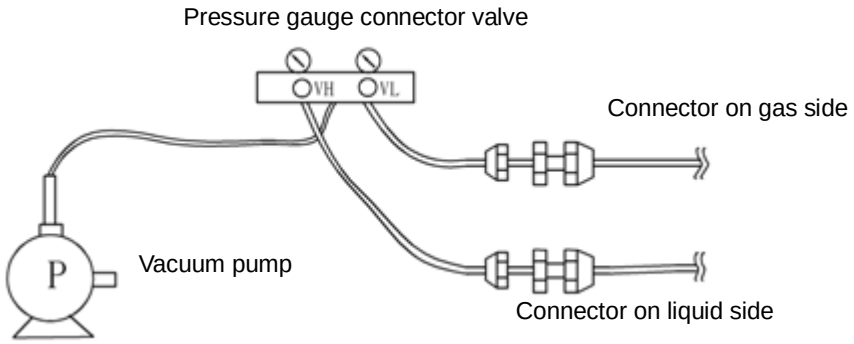
	Unit	Standard air pressure	Vacuum degree
Relative pressure	kg/cm^2	0	-1.033
Absolute pressure	kg/cm^2	1.033	0
mmHg	mmHg	0	-755

3）Vacuum pumping

The steps are as follows:

a. Expel the nitrogen after leakage detection;

Connect the pressure gauge to Freon nozzle on outdoor liquid valve and gas valve, and connect a vacuum pump. Then, establish vacuum simultaneously from high pressure side and low pressure side.



Start the vacuum pump and turn on "L_O" and "H_I" knobs;

b. Continue for 0.5~1.0 hour after the vacuum level reaches -0.1MPa (gauge pressure -1kgf/cm^2). Then, close the "VH" knob on high pressure end and "VL" knob on low pressure end to stop the vacuum pump.

c. Remove the hose connected to vacuum pump and reconnect it to the refrigerant tank. Expel the air in the hose. Open the "VL" knob on low pressure end to charge refrigerant to the system piping. When the pressure reaches 0.0kgf/ cm^2, close the "VL" knob on low pressure end.

d. Remove the hose connected to refrigerant tank and reconnect it to vacuum pump. Start the vacuum pump and open the "VH" knob on high pressure end. Pump for 30 minutes from high pressure end and then open the "VL" knob to pump from low pressure end, until the vacuum level reaches -0.1MPa (gauge pressure -1kgf/cm^2).

If the vacuum level reaches -0.1MPa (gauge pressure) or lower, the vacuuming process is then ended. Stop the vacuum pump and place still for 1 hour. Then, check the vacuum level for any change. In case of any change, it indicates that there is leakage. In this case, proceed to leakage detection and repair.

e. When the procedures for vacuum pumping are finished, refrigerant shall be charged.

6.12 Refrigerant Charge

1）Calculation method for refrigerant charging

Refrigerant shall be charged according to calculated amount specified in engineering drawings.

Method for calculation of added refrigerant volume (based on liquid pipe)

Mass of refrigerant to be charged =∑ length of liquid pipe × refrigerant charge amount of every meter of liquid pipe

Amount of refrigerant charge for every meter of liquid pipe（kg/m）					
Φ22.2	Φ19.05	Φ15.9	Φ12.7	Φ9.52	Φ6.35
0.35	0.25	0.17	0.11	0.054	0.022

Note: a. Standard pipe length is 15m. If refrigerant piping (L) is shorter than or equal to 15m, no additional refrigerant is needed If piping is longer than 15m (based on liquid pipe), more refrigerant shall be added. The above table shows how much refrigerant shall be charged for every one additional meter of piping.

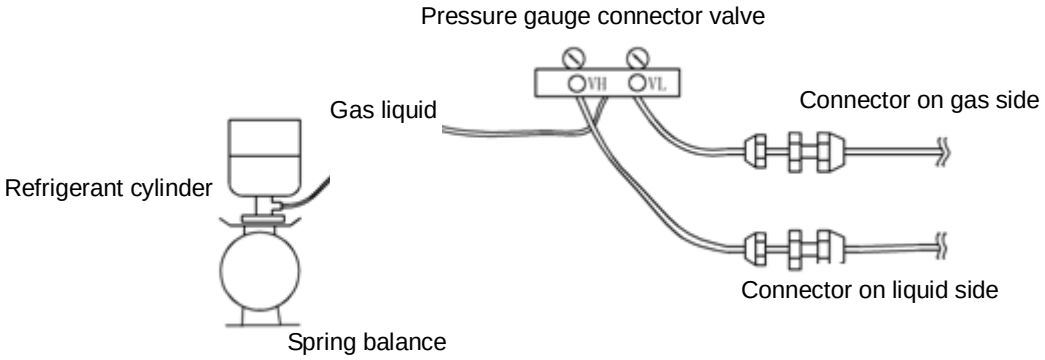
b. Electronic balance shall be used for refrigerant charge.

c. Thickness of pipe wall shall be 0.5～1.0mm and pressure-bearing capability shall be 3.0MPa.

d. The longer the piping, the more refrigerating capacity and heating capacity shall be weakened.

2)Steps of refrigerant charge are as follows:

a. The connecting hose of refrigerant cylinder shall be connected to the connector of the pressure gauge. The valve V_H shall be opened to discharge air in the hose. Then, the high pressure end of the pressure gauge shall be connected to the refrigerant filling nozzle on the small valve of outdoor unit.



b. Open pressure gauge valve V_H, then fill liquid state refrigerant into the liquid pipe side until required amount is reached.

If refrigerant can not be charged in system unless the unit is turned on, let the system run at full-load cooling mode. Open V_H and discharge air in the hose. The high pressure end of pressure gauge is connected to the refrigerant filling nozzle on the small valve of outdoor unit. Open V_L and charge gas state refrigerant into the gas pipe until required charging amount is reached.

c. Observe electronic balance or spring balance. When required amount is reached, the valve shall be closed very quickly and then source valve on the refrigerant valve shall be shut off

d. The amount of charging refrigerant shall be recorded.

Refrigerant charge shall be recorded as per the following table.

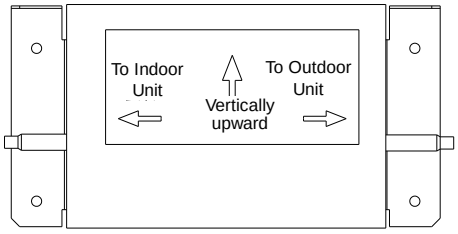
Unit Mark	Amount of charging refrigerant（kg）
Unit 1	
Unit2	
……	
Unitn	

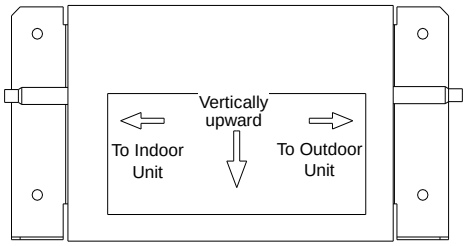
7 INSTALLATION OF ELECTRONIC EXPANSION VALVE PARTS

7.1 Direction Requirements

To ensure normal operation of the unit, please connect the electronic expansion valve sub-assembly as shown below.

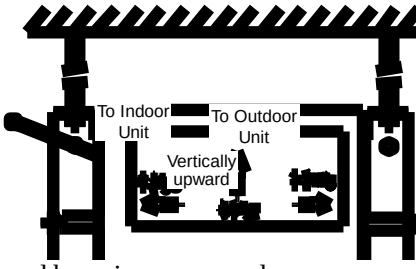
Ensure that the vertical arrow labeled on electronic expansion valve sub-assembly is pointed upward.



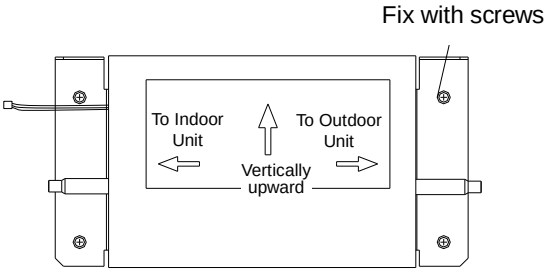


√ Arrow Upward **X Arrow Downward**

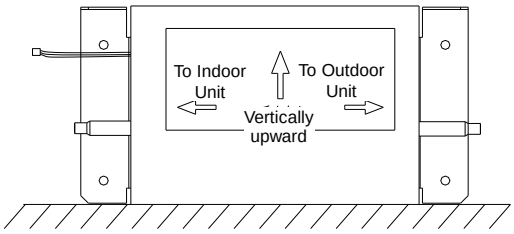
（1） Firstly, fix the electronic expansion valve sub-assembly properly. Several operating methods are available:



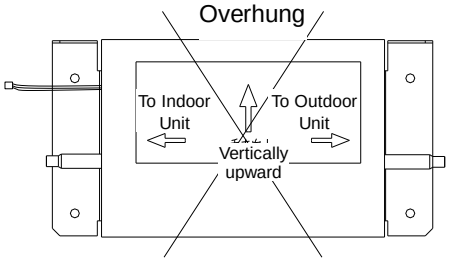
① Suspend by using screw rod



②Use screws to fix onto wall

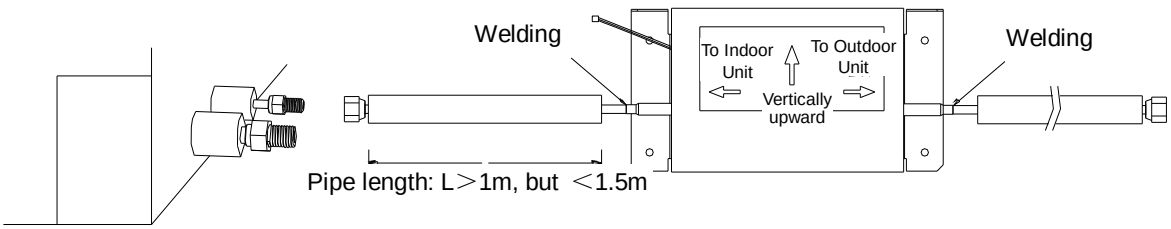


③Directly place on ceiling plane



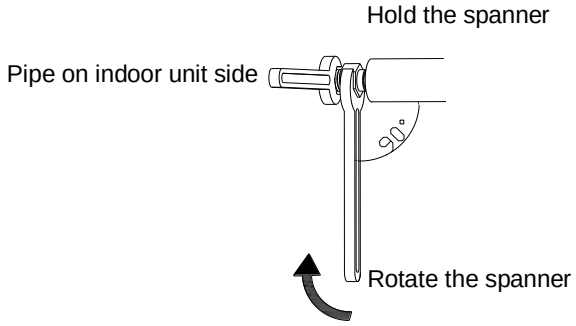
⚠ Caution: Never place overhung in air.

（2） The indoor unit shall be firstly connected to a section of pipe (connected by nut). Then, connect the pipe to the electronic expansion valve sub-assembly (by welding).



⚠ **WARNING: The length of connection pipe must be 1m≤L≤1. 5m. The electronic expansion valve sub-assembly must be connected to the indoor and outdoor unit in a direction as marked. If connected in reverse direction, severe error will be caused to the unit.**

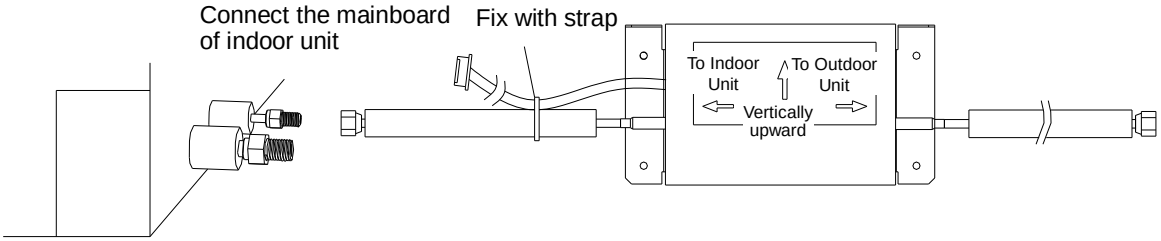
（3） Pipe connection: Tighten the nuts with your hands correctly. Then, use another spanner to hold the pipe joint on machine side and use torque wrench to tighten securely.



（4） Cable connection of electronic expansion valve sub-assembly

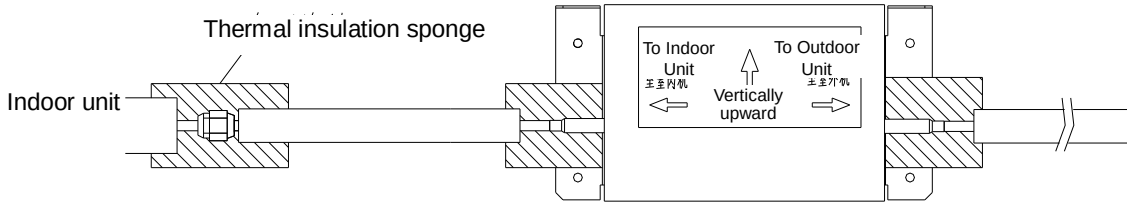
① To avoid loosening and sagging down, please use strap (small) to fix the cable of electronic expansion valve sub-assembly onto the pipe or other objects.

② When connecting the cable of electronic expansion valve sub-assembly, please take care to prevent the cable from contact with the hot or humid objects.



（5） Final treatment: The section where the pipe is connected must be wrapped for thermal insulation.

⚠ **WARNING!**
Please ensure the pipe is fully covered by sponge and not exposed in air Condensing water will be generated on the pipe if the thermal insulation is poor.



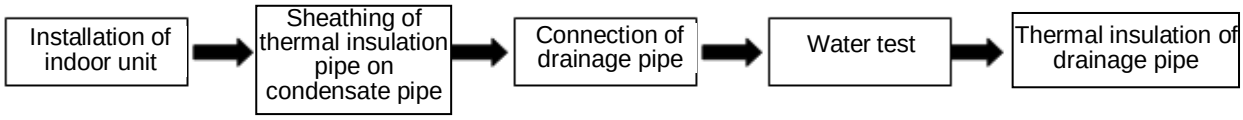
8 INSTALLATION OF CONDENSATE PIPE

8.1 Material Quality Requirements for Condensate Pipe

Generally, the condensate pipe shall be water supply U-PVC pipe, adhered by using special glue. The other materials available include: PP-R pipe, PP-C pipe and hot-dipped galvanized steel pipe. It is not allowed to use aluminum plastic composite pipe.

8.2 Key Points for Condensate Pipe Installation

1）. Work Order



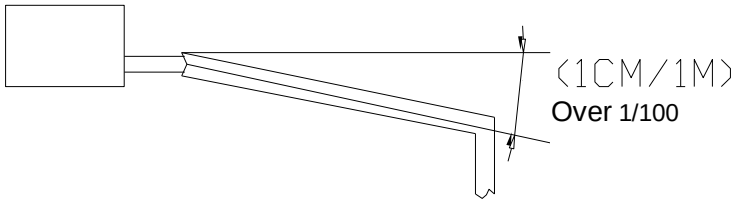
2) Determine the direction and elevation of condensate pipe before installation. To ensure the gradient smooth and straight, avoid intersecting with other pipelines. The height of the clamp fixing the pipe hanger frame shall be adjustable and fixed from the outer of thermal insulation.

3) Distance between hanger frames:

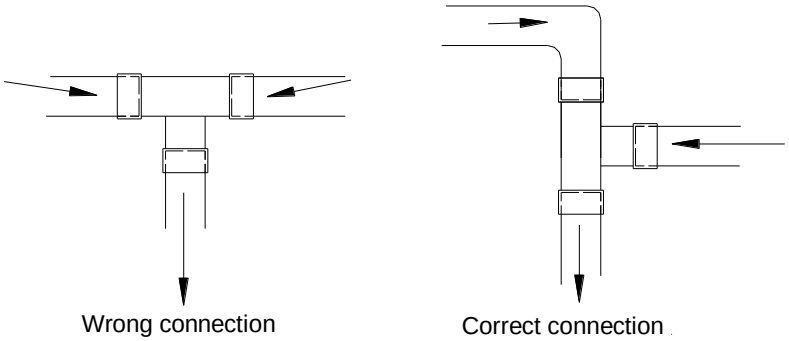
Outer diameter of water pipe (mm)	ϕ≤25	32＞ϕ≥25	ϕ≥32
Spacing between horizontal pipes (mm)	800	1000	1500
Spacing between standpipes (mm)	1500		2000

Each standpipe shall have two hanger frames at least.

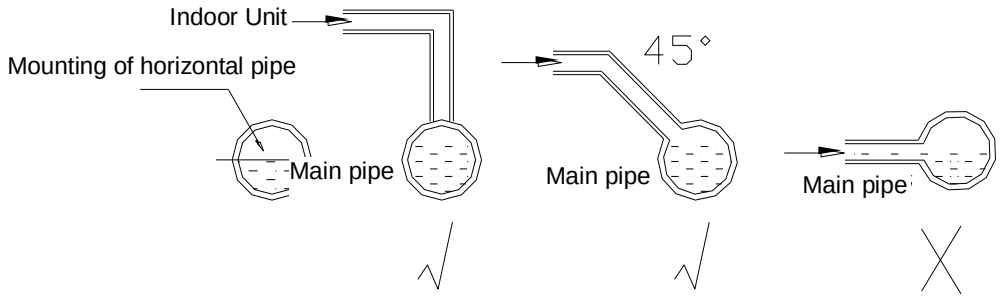
4) The gradient of condensate pipe shall be over 1% and the gradient of main pipe shall not be less than 0.3%, while there shall be no overhanging slope.



5) When connecting the 3-way section of condensate pipe, the 2-way straight section on 3-way pipe shall be on the same gradient. The two ends of 2-way section shall not have different gradient. See the schematics below:



6) Confluence toward the horizontal pipe shall be best from the upper. Back flow is easy to occur if from the lengthwise direction.



7) Do not tie the condensate pipe and refrigerant pipe together.

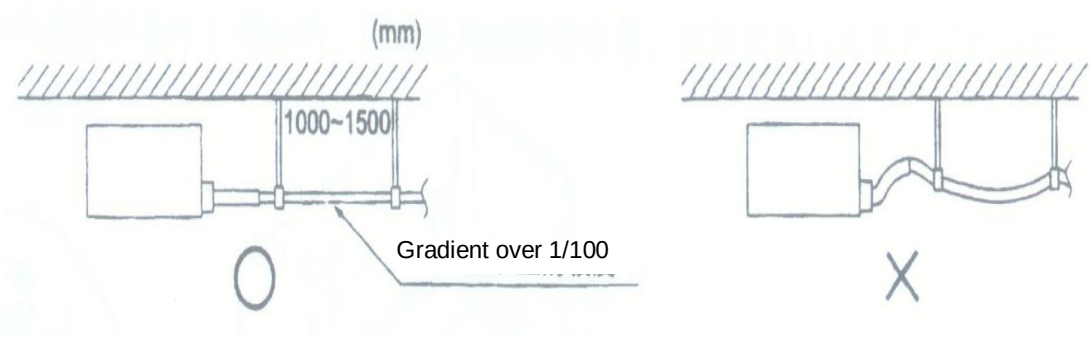
8) To ensure smooth drainage of condensate, a vent hole shall be set at the highest point of drainage pipe.

9) Carry out water flow test and full water test after the pipe connection is completed. On one hand, check if the drainage is smooth; on another hand, check the piping system for any leakage.

110) Steel sheath shall be provided to the pipe crossing the wall or slab. The pipe joint shall not be positioned within the sheath. The steel sheath shall be flush with the wall surface or slab base, but 20mm higher than the slab base. The sheath shall not affect the pipe gradient. The clearance between pipe and sheath shall be blocked by using flexible inflammable materials. The sheath shall not be used as the supporting point of the pipe.

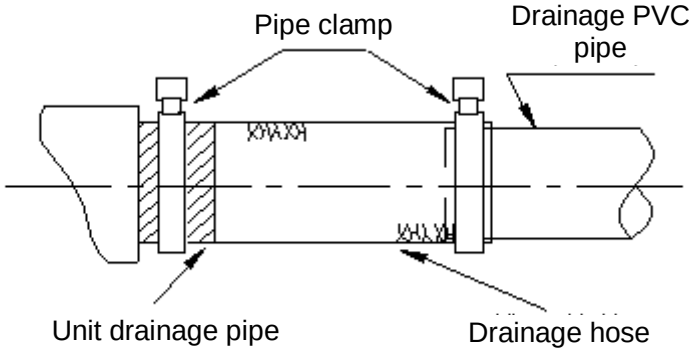
11) The joint of thermal insulation materials must be adhered by using special glue and then wrapped with plastic tape having a width not less than 5cm to avoid condensing.

12) Ensure a gradient over 1% when connecting the drainage pipe to the indoor unit.

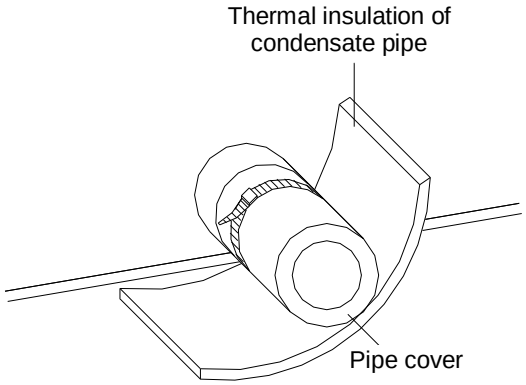


13) When connecting the drainage pipe to the indoor unit, please fix with the included pipe clamp and do not use glue water, thus to ensure easy repair.

14) Installation requirements for auxiliary drainage pipe

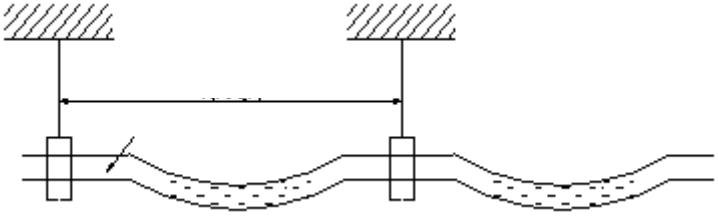


The auxiliary drainage pipe must be thermally insulated:

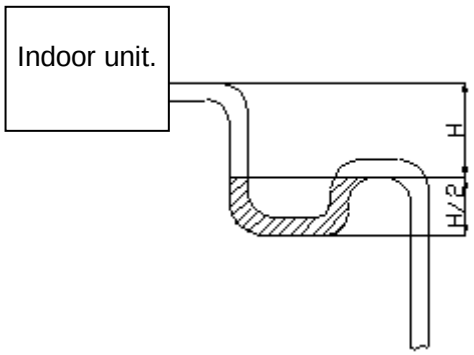


15) The long drainage pipe may be fixed by using hanger bolts, thus to ensure a gradient of 1/100 (PVC cannot be bent).

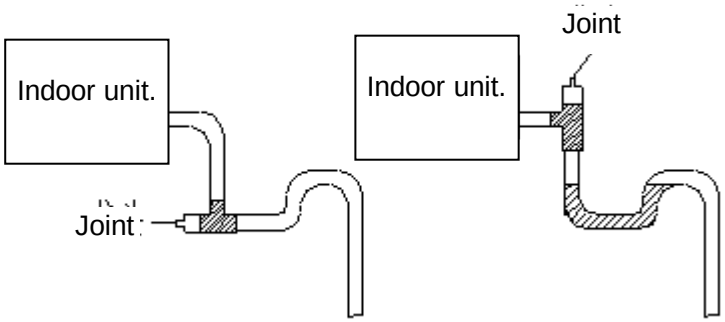
The spacing between the supports of horizontal pipe is 0.8-1.0m. Twisting will be caused and thus air bag will be formed if the spacing is too high. Once the air bag is formed, the pump can only compress the air bag no matter how forcible it pushes, but there is no flowing water, thus resulting in abnormal water level. This will cause flooding of the ceiling.



16) If the air flow of indoor unit is high, this might cause negative pressure and result in return suction of outdoor air. Therefore, U-type water trap shall be designed on the drainage side of each indoor unit.



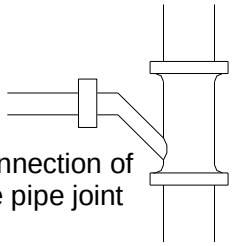
- Install water trap as shown below;
- Install one water trap for each unit.
- Installation of water trap shall consider easy cleaning in the future.



17) Connection of drainage branch pipe to the standpipe or horizontal pipe of drainage main pipe.

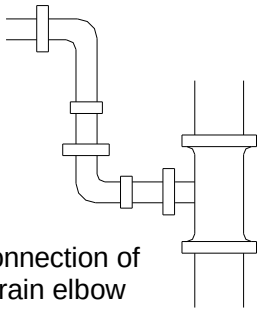
The horizontal pipe cannot be connected to the vertical pipe at a same height. It can be connected in a manner as shown below:

N01: 3-way connection of drainage pipe joint



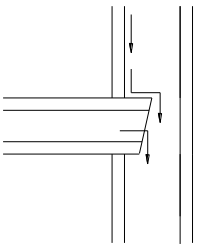
3-way connection of drainage pipe joint

NO2: Connection of drain elbow



Connection of drain elbow

NO3: Connection of horizontal pipe



Connection of horizontal pipe

Drainage pipe is requisite for air conditioner unit. During cooling, the moisture in the air will condense on the surface of evaporator. Such condensing water must be drained out of the unit. Meanwhile, the drainage pipe has an important role to determine if the air conditioner can plays its full functions.

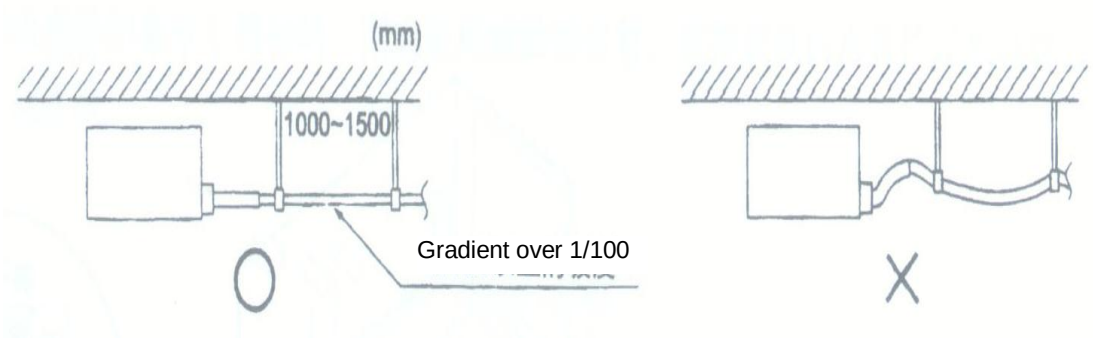
18) All the condensate pipes must be installed at a distance over 500mm from the electric box of the unit.

8.3 Installation of Drainage Pipe for Different Types of Indoor Unit

1) Duct-type Indoor Unit (Including General Static Pressure and Low Static Pressure)

a) Installation of drainage pipe

- The diameter of drainage pipe shall be equal to or higher than the diameter of connection pipe. (PVC pipe: Dimension: Outer diameter 25mm, 32mm)
- The drainage pipe shall be short and has a down gradient of 1/100 at least, thus to avoid air bag.
- To ensure that the drainage hose will not be bent and has enough gradient, a distance of 1 ~ 1.5m shall be kept between the hanger frames.

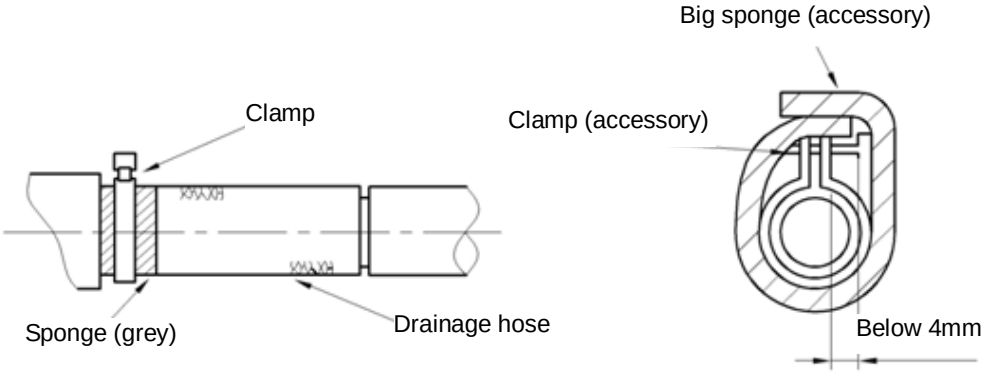


➢ Use drainage pipe and clamp.

Insert the drainage hose to the root. From the middle of white tape, tighten the clamp until the tightening distance to the screw head is shorter than 4mm.

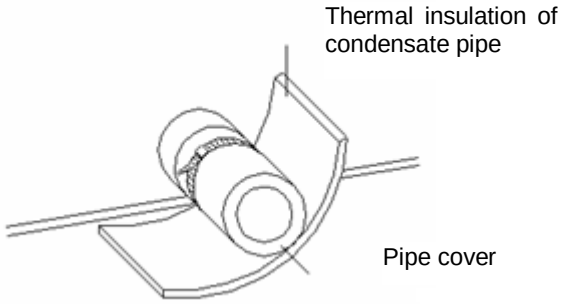
A) For thermal isolation, use sealing tape to wrap the drainage pipe and clamp.

B) The indoor drainage hose shall be thermally insulated.



C) To prevent foreign articles from entering the pipe, please minimize the bend of pipeline, thus to ensure cleanliness of the drainage elbow.

D) The drainage pipe must be wrapped with thermal insulation tube, thus to avoid condensing on the outer surface of drainage pipe. See below for the thickness of thermal insulation tube.



Drainage Pipe (mm) (Outer Dia.)	Thickness of Thermal Insulation Materials (mm)
Φ17	≥15
Φ27	≥20
≥34.9	≥20

※Notes:

E) The inclination of drainage hose①shall be within 75mm, so that the drainage insert will not bear excessive force.

F) To connect the drainage pipes for multiple machines, please use the method of multi-pipe collection, as shown below.

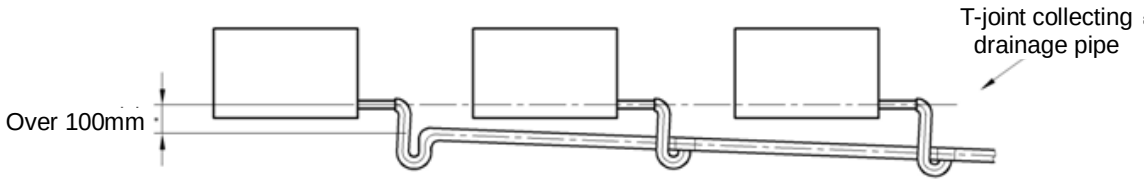


Fig. The specification of collecting drainage pipe shall be suitable to the working capacity of the unit

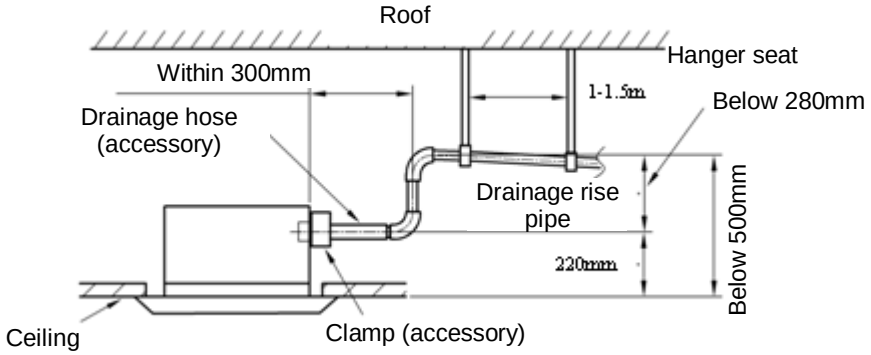
We may collect the drainage pipes of all the indoor units in one system (An outdoor unit and all the indoor units connected to this outdoor unit are called one system), or collect the drainage pipes of all the indoor units in several systems.

Notes: The ceiling height must be considered, and a specific gradient shall be ensured along the water flow direction.

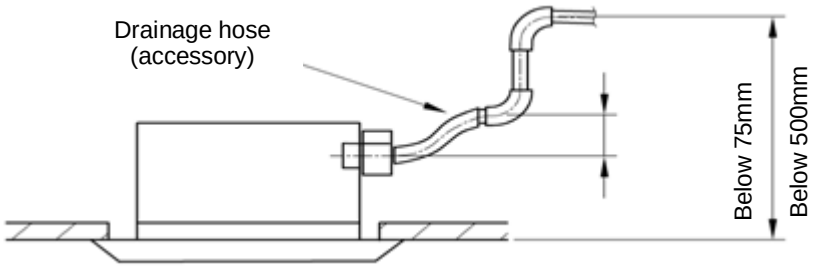
2) Cassette Type (Four-sided Outlet)

a) Installation of drainage pipe

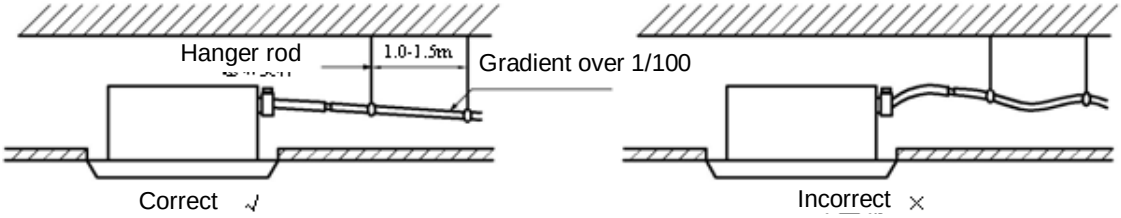
- The drainage pipe shall be installed to ensure smooth flow of water.
- The diameter of drainage pipe shall be equal to or higher than the diameter of connection pipe (PVC pipe) (exclusive of the rise section).
- The drainage pipe shall be short and has a down gradient of 1/100 at least, thus to avoid air bag.
- If the inclination of the drainage hose is insufficient, drainage rise pipe shall be mounted.
- The installing height of drainage rise pipe shall be less than 280mm.
- The drainage rise pipe shall be in right angle to the unit and the distance to the unit shall not exceed 300mm.



- The inclination of included drainage hose shall be within 75mm, so that the drainage insert will not bear excessive force.

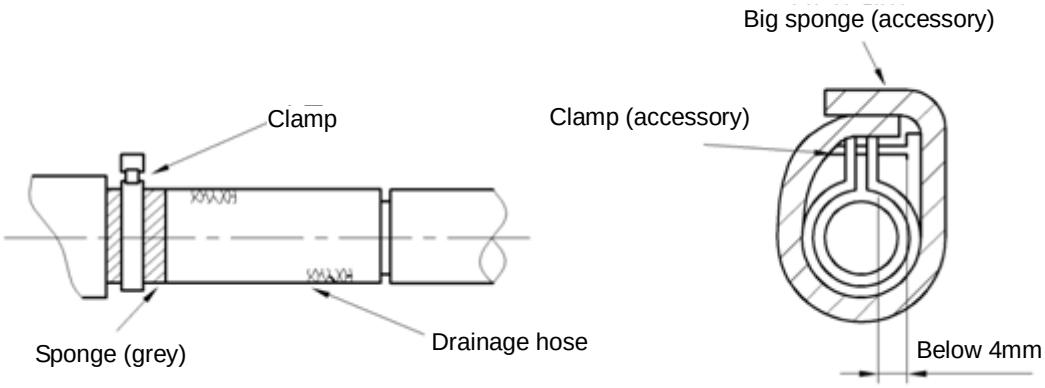


- To prevent the drainage hose from dropping downward, hanger rods shall be erected every 1.0~1.5m.



- Use the included drainage hose and clamp. Insert the drainage hose to the drainage port and tighten the clamp.
- For thermal insulation, wrap the big sponge to the drainage hose clamp.

- The indoor drainage hose shall be thermally insulated.



- To connect the drainage pipes for multiple machines, please use the method of multi-pipe collection, as shown below.

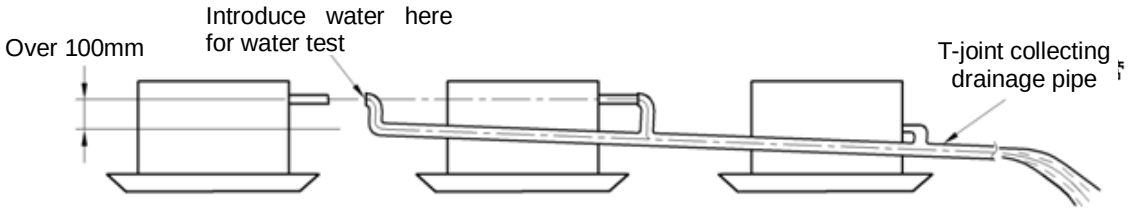


Fig. The specification of collecting drainage pipe shall be suitable to the working capacity of the unit

We may collect the drainage pipes of all the indoor units in one system (An outdoor unit and all the indoor units connected to this outdoor unit are called one system), or collect the drainage pipes of all the indoor units in several systems.

The ceiling height must be considered, and a specific gradient shall be ensured along the water flow direction. The cassette-type indoor unit is provided with water pump, and the maximum lift of its drainage pipe is 280mm.

- During installation, please take care that:

The diameter of drainage pipe connected to the indoor unit must meet the specifications. The pipe diameter shall not be too small; otherwise the water may overflow.

The main drainage pipe depends on the number of indoor units. Generally, it is required to be equal to or higher than ϕ35mm.

The drainage pipe shall be thermally insulated. The thickness of thermal insulation pipe must meet the requirements. The clearance between thermal insulation pipes shall be sealed with adhesive sticker.

Please discharge the water to the ground drain, water closet or any other place easy to drain the water out.

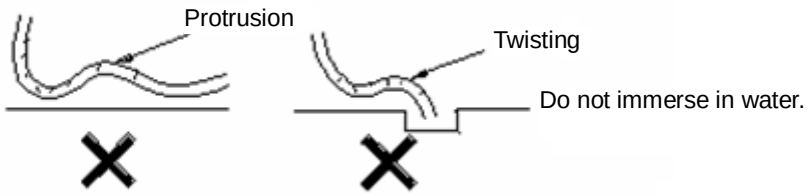
b After installation, check if the drainage is smooth.

3）Wall-mounted Type

Assemble the drainage pipe as shown below and take measures to prevent condensing. Improper assembly of the drainage pipe may cause leakage, or even expose the furniture to moisture.

a) Assembly of drainage pipe

- To avoid air in water elbow, the drainage hose shall be kept as short as possible and inclined downward, as shown below.
- During connection, please use PVC pipe of equal size higher than this size (Nominal Dia,: 20mm; Outer Dia.: 26mm)
- The drainage pipe must be arranged in down inclination along water flow direction, thus to avoid air bubble blocking. Take care not to arrange the pipe in twisting, protrusion or waveform. Do not put the outlet of drainage pipe into water.



- The extended section of drainage hose shall be wrapped with thermal insulation sheath when passing the room.

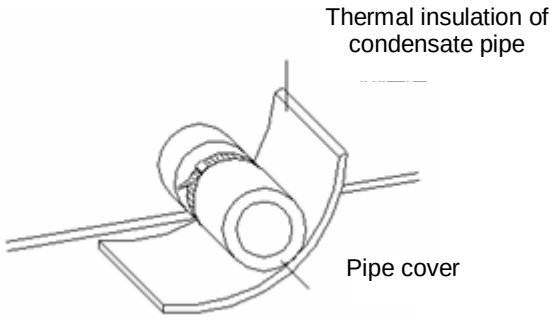
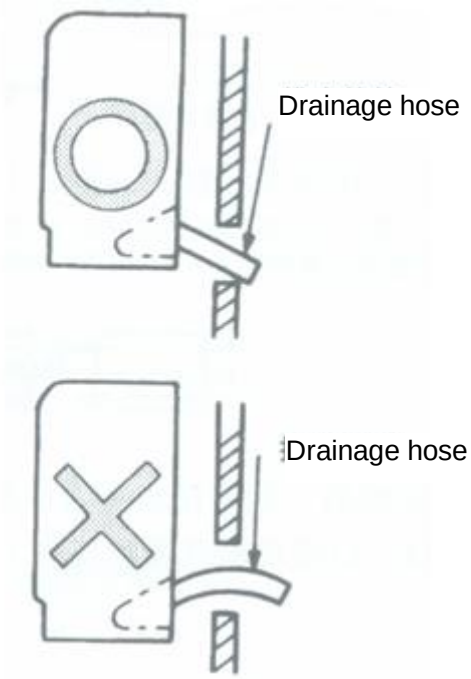


Fig.3.41

- After installation of the drainage pipe, be sure to make water test and check if the water can be drained smoothly.



b) After piping work, check if the draining flow is smooth.

8.4 Test for Condensate Pipe

The water test for condensate pipe includes closed water test and drainage test. The closed water test is focused on checking if the drainage pipe system is well sealed and if there is any leakage. The drainage test is focused on checking if the drainage pipe system can drain water smoothly and thoroughly and ensuring that there is no water deposit (except the specially designed water trap).

After connection of the drainage pipe is completed, firstly carry out closed water test. Seal the outlet of drainage pipe with adhesive tape or plug. Then, fill water into the drainage pipe system form indoor unit side. Stop filling after ensuring that all the drainage pipes are filled with water. After 24 hours, check all the joints of water pipe for any leakage. If any, repair and reinstall. If no leakage, proceed to drainage test.

Remove the adhesive tape or plug from the drainage pipe. Check the water tray and drainage pipe of indoor

unit if the drainage is thorough and if there is any water deposit. If any, readjust it. If not, complete the water test and proceed to the thermal insulation on all pipe joints.

8.5 Requirements of Heat preservation

- Heat Insulation Materials
  The thermal insulation material of obturator foam shall be used. Fireproof level: B1.
  The thermal conductivity shall not be higher than 0.035w/ (m·k) when the average temperature is 0℃.
- Thickness of thermal insulation layer
  The thickness of thermal insulation layer on condensate pipe shall be over 10mm.
- The joint of thermal insulation materials must be adhered by using special glue and then wrapped with plastic tape having a width not less than 5cm to avoid condensing.
- Thermal insulation is not required for the outdoor section of condensate pipe.

9 ELECTRICAL INSTALLATION

9.1 Precautions for Electrical Installation

Itemized Description of Cautions.

The electrical installation must be done by professional electricians.

The electrical installation must be done in accordance with applicable technical codes and other rules.

WARNING! Please make sure to install earth leakage circuit breaker. Earth leakage circuit breaker must be installed to prevent electric shock or fire.

CAUTIONS!
The air conditioner must be securely earthed. Incorrect earthing may cause electric shock or fire.

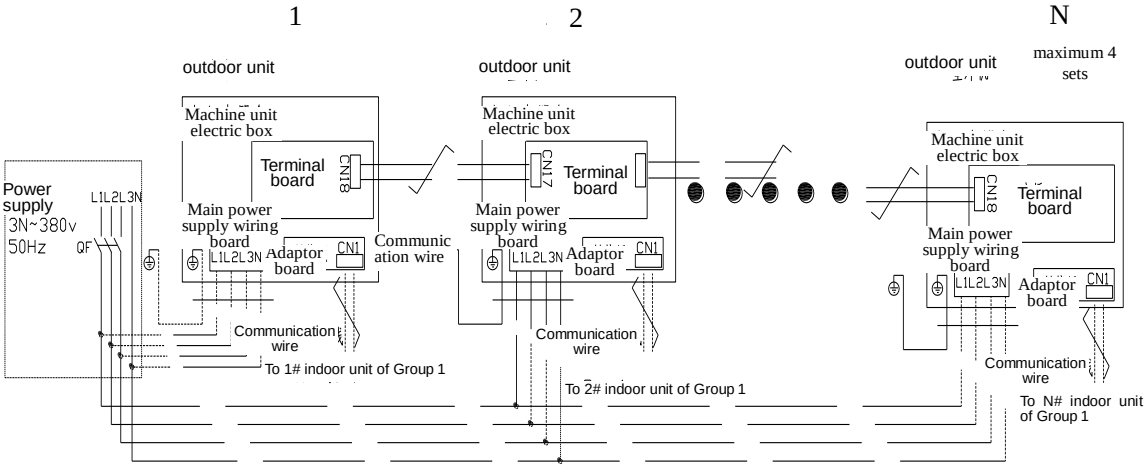
- All the electric installations must be carried out by specialist technicians in accordance with the local laws, rules and these instructions.
- The indoor unit and outdoor unit shall use different power supplies. The indoor units under the same system must be powered by a unified power source. All the indoor units can only be controlled by one master power switch. Rated supply voltage and special circuit for air conditioner must be used.
- The earthing shall be secure. The earthing wire shall be connected to the special earthing device on the construction. The installation must be done by specialist technicians. Never connect the earth lead to the gas pipe, water pipe, lightening rod or telephone earth wire.
- To avoid electric shock or any accident due to mal-operation, the air switch and shock-resistant earth leakage circuit breaker that can cut off the power supply of the complete system must be installed. The air switch shall have both the magnetic tripping and thermal tripping functions to ensure protection against the short circuit and overload. Electric shock or fire might be caused if no installation of earth leakage circuit breaker. Do not switch on the power before completion of the electrical work. Make sure to cut off the power supply before repair.
- Under no condition could use the capacitor to improve the power factor.
- Please use cable conduit for power cords.
- Do not lay the electronic control cables (remote control and signal line) outside the machine with other cables; otherwise the machine might become malfunctioned or failed due to electrical noise.
- The power cord must be always connected to the power cord terminal board, and fixed by using the lock connector included with the machine. Meanwhile, prevent them from contacting the fitting pipe. The diameter of power cords shall be large enough. See below for the detailed specifications. The damaged power cords and connection lines must be replaced with the designated cables. When connecting the cable, please confirm that all the electrical components inside the electric box shall have no coupling or terminal loosened. (Improper installation of electric box cover may lead to potential water leakage, which will cause the unit abnormal or short circuit).
- Earth lead must be connected before connecting the power cord. An earth lead longer than the power cord shall be provided.
- For site wiring, please refer to the circuit diagram attached on the machine body.

9.2 Specifications of Power Cord & Circuit Breaker

Type HP Numbe	Model	Power	Total vacuum switch capacity	Vacuum switch for each combination unit	Total power wire diameter	Wire diameter for each combination unit
8	INV-Pdm224W/NaB-M	380V 3N～ 50Hz	32	32	6.0	6.0
10	INV-Pdm280W/NaB-M	380V 3N～ 50Hz	32	32	6.0	6.0
12	INV-Pdm335W/NaB-M	380V 3N～ 50Hz	40	40	10.0	10.0
14	INV-Pdm400W/NaB-M	380V 3N～ 50Hz	40	40	10.0	10.0
16	INV-Pdm450W/NaB-M	380V 3N～ 50Hz	40	40	10.0	10.0
18	INV-Pdm504W/NaB-M	380V 3N～ 50Hz	63	32+32	16.0	6.0+6.0
20	INV-Pdm560W/NaB-M	380V 3N～ 50Hz	63	32+32	16.0	6.0+6.0
22	INV-Pdm615W/NaB-M	380V 3N～ 50Hz	63	32+40	25.0	6.0+10.0
24	INV-Pdm670W/NaB-M	380V 3N～ 50Hz	80	32+40	25.0	6.0+10.0
26	INV-Pdm730W/NaB-M	380V 3N～ 50Hz	80	32+40	25.0	6.0+10.0
28	INV-Pdm785W2/NaB-M	380V 3N～ 50Hz	80	40+40	25.0	10.0+10.0
30	INV-Pdm850W2/NaB-M	380V 3N～ 50Hz	80	40+40	25.0	10.0+10.0
32	INV-Pdm900W2/NaB-M	380V 3N～ 50Hz	80	40+40	25.0	10.0+10.0
34	INV-Pdm950W3/NaB-M	380V 3N～ 50Hz	125	32+32+40	35.0	6.0+6.0+10.0
36	INV-Pdm1008W3/NaB-M	380V 3N～ 50Hz	125	32+32+40	35.0	6.0+6.0+10.0
38	INV-Pdm1065W3/NaB-M	380V 3N～ 50Hz	125	32+40+40	35.0	6.0+10.0+10.0
40	INV-Pdm1130W3/NaB-M	380V 3N～ 50Hz	125	32+40+40	35.0	6.0+10.0+10.0
42	INV-Pdm1180W3/NaB-M	380V 3N～ 50Hz	125	32+40+40	35.0	6.0+10.0+10.0
44	INV-Pdm1235W3/NaB-M	380V 3N～ 50Hz	125	40+40+40	35.0	10.0+10.0+10.0
46	INV-Pdm1300W3/NaB-M	380V 3N～ 50Hz	125	40+40+40	35.0	10.0+10.0+10.0
48	INV-Pdm1350W3/NaB-M	380V 3N～ 50Hz	125	40+40+40	35.0	10.0+10.0+10.0
50	INV-Pdm1405W4/NaB-M	380V 3N～ 50Hz	160	32+32+40+40	35.0	6.0+6.0+10.0+10.0
52	INV-Pdm1456W4/NaB-M	380V 3N～ 50Hz	160	32+32+40+40	50.0	6.0+6.0+10.0+10.0
54	INV-Pdm1512W4/NaB-M	380V 3N～ 50Hz	160	32+40+40+40	50.0	6.0+10.0+10.0+10.0
56	INV-Pdm1570W4/NaB-M	380V 3N～ 50Hz	160	32+40+40+40	50.0	6.0+10.0+10.0+10.0
58	INV-Pdm1650W4/NaB-M	380V 3N～ 50Hz	160	32+40+40+40	50.0	6.0+10.0+10.0+10.0
60	INV-Pdm1700W4/NaB-M	380V 3N～ 50Hz	160	40+40+40+40	50.0	10.0+10.0+10.0+10.0
62	INV-Pdm1750W4/NaB-M	380V 3N～ 50Hz	160	40+40+40+40	50.0	10.0+10.0+10.0+10.0
64	INV-Pdm1800W4/NaB-M	380V 3N～ 50Hz	160	40+40+40+40	50.0	10.0+10.0+10.0+10.0

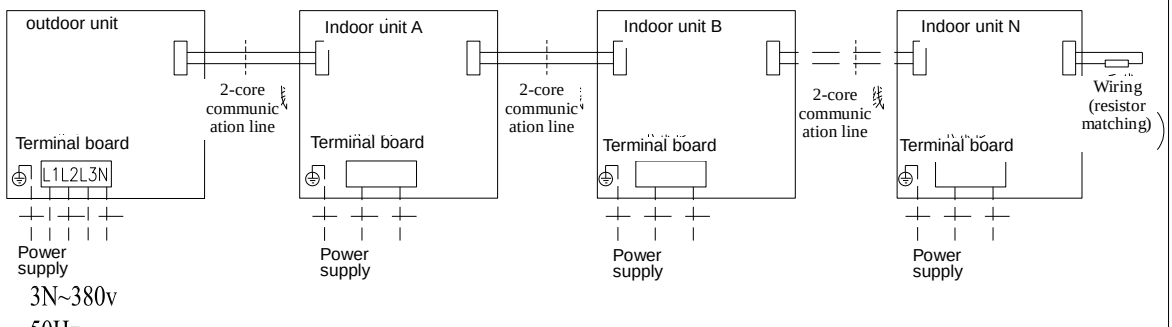
9.3 Wiring Sketch Map

Wiring Sketch Map between Outdoor Unit



The part with dotted line is for the on-site wiring of the customer. The power wire diameter and the other specific parameter please see the installation manual. The mainboard of outdoor units include the module address and transfer address need to confirm at the work site and dial-up. Each outdoor unit module can connect maximum 16 indoor units, yet need to confirm on the work site. Each outdoor unit module can connect maximum 16 indoor units as one communication unit.

Wiring Sketch Map between Indoor Unit



Note: the diagram is our single-phase indoor unit, the power supply wiring is subject to the actual condition if there is 3-phase indoor unit.

Note:

1. The last indoor unit requires to install another communication line as wiring (resistor matching);
2. Both the communication lines of outdoor units and indoor units are cascade connection.

Connect the communication lines of indoor units and out units according to the above diagram.

9.4 Dial-up of Unit

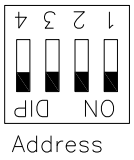
9.4.1 The mainboard of the indoor unit and wire controller dial-up

1） Address code

Address dial-up must be set for the multi indoor units; otherwise the abnormal communication will be caused to the unit. The address code has 4-bit dial-up in total. The highest address is 16 and the lowest address is 1.

⚠ **NOTES! To use multiple indoor units in parallel, make sure to change the setting of address code before installation and guarantee that the address code of each indoor unit must be different (The address code is located on the mainboard of indoor unit). If wired controller is used, make sure to dial the address code of wired controller to the position same as the address code on corresponding indoor unit. (The address code of wired controller is located on the back of wired controller)**

☆Below is factory default setting:



Address

The default setting of address dial-up code is 0000 and the address is 1 (See above for the position of dial lever).

☆Dial-up Value

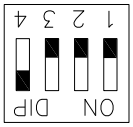
The dial-up value of address code is set in binary system. The dial-up value is “0” when the lever is dialed to “ON” end; the dial-up is “1” when the lever is dialed to numerical end on opposite side. For number 4~1 on the address code, the dial-up #4 refers to high bit and the dial-up 1# refers to low bit.

Dial-up Table (4-bit Dial-up Switch)				
4-bit	3-bit	2-bit	1-bit	Address
0	0	0	0	1
0	0	0	1	2
0	0	1	0	3
0	0	1	1	4
0	1	0	0	5
0	1	0	1	6
0	1	1	0	7
0	1	1	1	8
1	0	0	0	9
1	0	0	1	10
1	0	1	0	11
1	0	1	1	12
1	1	0	0	13
1	1	0	1	14
1	1	1	0	15
1	1	1	1	16

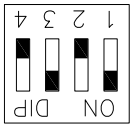
Example 1: If the dial value is “0111”, this represents that the serial number is “8”, the pins 1, 2 & 3 of the dial switch are dialed to the opposite end of “ON”, and the pin 4 is dialed to “ON”.

Example 2: If the dial value is “1010”, this represents that the address is “11”, the pins 2 & 4 of the dial switch are dialed to the numerical end, and the pin 1 & 3 are dialed to “ON”.

See below.



Address



Address

Address 8, dial-up value 0111 Address 8, dial-up value 1010

2）Capacity Code

On the mainboard of indoor unit, two 4-bit DIP switches are used to distribute the address and capacity of indoor units. The 4-bit DIP switch (marked with “capacity” below) used for setting the capacity of indoor units is factory set before shipment of indoor unit, while it is covered by sealant, so that it cannot be changed by the user.

☆Below is factory default setting:

Capacity

The default Capacity dial-up is the maximum capacity of indoor unit. As shown above, the capacity is (See above for the lever position)

☆Dial-up Value

The dial-up value of capacity code is set in binary system. The dial-up value is “0” when the lever is dialed to “ON” end; the dial-up is “1” when the lever is dialed to numerical end on opposite side. For number 4~1 on the capacity code, the dial-up #4 refers to high bit and the dial-up 1# refers to low bit.

Dial-up Table (4-bit Dial-up Switch)				
4-bit	3-bit	2-bit	1-bit	Capacity
0	0	0	0	20
0	0	0	1	25
0	0	1	0	30
0	0	1	1	35
0	1	0	0	40
0	1	0	1	45
0	1	1	0	50
0	1	1	1	60
1	0	0	0	224
1	0	0	1	70
1	0	1	0	80
1	0	1	1	90
1	1	0	0	100
1	1	0	1	112
1	1	1	0	140
1	1	1	1	280

9.4.2 Multi-Connected outdoor units dial-up of the modularization DC frequency conversion

1）Capacity dial-up

☆ The dial-up of the module capacity is the SW1 four-digit switch on the mainboard, Factory set according to model and no need to change. See the right table for the dial-up method.

Dial-up switch				Capacity of the outdoor units module
4	3	2	1	
0	0	0	0	22.4Kw
0	0	1	1	28Kw
0	1	0	1	33.5 Kw
0	1	1	1	40 Kw
1	0	0	0	45 Kw
1	0	0	1	50.4 Kw
0 (ON Position)				

2）Address dial code

☆ The dial-up position of the module outdoor units address is the SW2 2-bit switch, with highest 4 module units installation, please refer to the “dial-up description for the module outdoor units address”; it is required that the module transfer address dial-up code is in conformity. In addition, make sure that only one module dial-up address is “00”, thus to

meet the normal operating of the units.

Dial-up switch SW3		Module address
2	1	
0	0	1
0	1	2
1	0	3
1	1	4
"0" (ON position). Note to keep the module address in conformity.		

3）Quantity dial-up

☆ The module quantity dial-up connected by the units is 2-bit dial-up switch, and the mainboard position is SW2. Maximum 4 sets could be connected by the quantity dial-up according to the module, see the table "description of quantity of units connecting modules" for the dial-up methods

Dial-up switch SW2		Outdoor module quantity
2	1	
0	0	1 set
0	1	2 sets
1	0	3 sets
1	1	4 sets
0 (ON Position)		

4）Transfer board dial-up

☆ The transfer address dial-up position of the module is the S2 3-bit dial-up switch on the mainboard, and the Maximum 4 sets could be connected by the transfer board dial-up. Please see the "description of module transfer address dial-up"; it is required that the outdoor units address of the module should be in conformity.

Dial-up switch S2			Transfer address
3	2	1	
0	0	0	1
0	0	1	2
00	1	0	3
	1	1	4
"0" (ON position). Note to keep the module address in conformity.			

MAINTENANCE

MAINTENANCE
1 TROUBLE TABLES

1.1 Trouble Display of Indoor Unit
1.1.1 Trouble display of wire remote controller

Error	Error Code
High-pressure protection	E1
Prevention against low temperature	E2
Low-pressure protection	E3
Exhaust overtemperature	E4
Overcurrent Protector	E5
Communication error	E6
Water-full protection	E9
Indoor ambient temperature sensor error	F0
Indoor tube-inlet sensor error	F1
Indoor tube-middle sensor error	F2
Indoor tube-exit sensor error	F3
Outdoor ambient temperature sensor error	F4
Outdoor tube-inlet sensor error	F5
Outdoor tube-middle sensor error	F6
Outdoor tube-exit sensor error	F7
Error with exhaust temperature sensor 1 (fixed-frequency)	F8
Error with exhaust temperature sensor 2 (digital)	F9
Error with oil temperature sensor 1 (fixed-frequency)	FA
Error with oil temperature sensor 2 (digital)	Fb
High-pressure valve error	Fc
Low-pressure valve error	Fd
Thermal relay error	EH

Warning mark code:

Main wire controller mark	HO
Slave wire controller mark	SL
Mark of confilcting with the effective main wire controller	CH
Mark of eliminating main wire	CL
No main indoor unit	No
Romote shield	CC
Key locked	EE

1.1.2 Trouble display of mainboard LED of duct type indoor unit

Error	Error Code	Error	Error Code
Prevention against low temperature	E2	Error with oil temperature sensor 2 (digital)	Fb
Outdoor ambient temperature sensor error	F4	Indoor ambient temperature sensor error	F0
Outdoor tube-inlet sensor error	F5	Exhaust overtemperature	E4
Outdoor tube-middle sensor error	F6	Low-pressure protection	E3
Outdoor tube-exit sensor error	F7	Overcurrent Protector	E5
Error with exhaust temperature sensor 1 (fixed-frequency)	F8	High-pressure protection	E1
Indoor tube-inlet sensor error	F1	Communication error	E6
Indoor tube-middle sensor error	F2	High-pressure valve error	Fc
Indoor tube-exit sensor error	F3	Low-pressure valve error	Fd
Error with exhaust temperature sensor 2 (digital)	F9	Water-full protection (Cassette)	Eb
Error with oil temperature sensor 1 (fixed-frequency)	FA		

1.1.3 Trouble display of mainboard LED of cassette type indoor unit

	Trouble LED		
Trouble name	Electrical source LED	Operation LED	Timing LED
Tube-inlet sensor error	○	●	◒
Tube-middle sensor error	○	◒	◒
Tube-exit sensor error	○	◒	○
Room sensor error	○	○	◒
Defrost	○	◒	●
Antifreeze	●	●	◒
Water-full protection	●	◒	◒
Mode conflict	●	◒	○
Communication error	◒	◒	◒
Outdoor unit failure	◒	●	●
Auxiliary heater error	◒	○	○

Legend: bright ○; dark ●; blink ◒

1.1.4 Trouble display of mainboard LED of LengJingwang

Trouble name	Tube-inlet sensor error	Tube-middle sensor error	Tube-exit sensor error	Room sensor error	Defrost	Antifreeze	Mode conflict	Communication error	Outdoor unit failure
Electrical source LED	○	○	○	○	○	●	●	◒	◒
Operation LED	●	◒	◒	○	◒	●	◒	◒	●
Timing LED	◒	◒	○	◒	●	◒	○	◒	●

Legend: bright ○; dark ●; blink ◒

1.1.5 Trouble display of mainboard LED of FengYun and FengXia

Error	Tube-inlet sensor error	Tube-middle sensor error	Tube-exit sensor error	Room sensor error	Defrost	Antifreeze	Mode conflict	Communication error	Outdoor unit failure
Test lamp	Blink (1)				Bright	Dark	Blink	Blink (2)	Blink

Timer Lamp	Blink	Blink	Blink	Bright	blink	Dark

Notes: [1] Bright and dark intermittently; [2] Bright and dark simultaneously

1.1.6 Trouble display of mainboard LED of Ling Ge Feng

Error	Error Code	Error	Error Code
Prevention against low temperature	E2	Error with oil temperature sensor 2 (digital)	Fb
Outdoor ambient temperature sensor error	F4	Indoor ambient temperature sensor error	F0
Outdoor tube-inlet sensor error	F5	Exhaust overtemperature	E4
Outdoor tube-middle sensor error	F6	Low-pressure protection	E3
Outdoor tube-exit sensor error	F7	Overcurrent Protector	E5
Error with exhaust temperature sensor 1 (fixed-frequency)	F8	High-pressure protection	E1
Indoor tube-inlet sensor error	F1	Communication error	E6
Indoor tube-middle sensor error	F2	High-pressure valve error	Fc
Indoor tube-exit sensor error	F3	Low-pressure valve error	Fd
Error with exhaust temperature sensor 2 (digital)	F9	Mode conflict	E7
Error with oil temperature sensor 1 (fixed-frequency)	FA		

1.1.7 Trouble display of mainboard LED of floor ceiling type

	Trouble LED		
Error	Electrical source LED	Error	Electrical source LED
Tube-inlet sensor error	○	●	◒
Tube-middle sensor error	○	◒	◒
Tube-exit sensor error	○	◒	○
Room sensor error	○	○	◒
Defrost	○	◒	●
Antifreeze	●	●	◒
Mode conflict	●	◒	○
Communication error	◒	◒	◒
Outdoor unit failure	◒	●	●
Auxiliary heater error	◒	○	○

Legend: bright ○; dark ●; blink ◒

1.2 Trouble and State Display of Mainboard LED of Outdoor Unit

Description of indicator LED.

Difinition:

- LED6:
- LED5:
- LED4, LED3, LED2, LED1:

Error Description	Main control display of the outdoor units						Transfer board Display	Drive board of compressor			Drive board of fan motor		
	LED1	LED2	LED3	LED4	LED5	LED6	Nixietube	LED1 (Red)	LED2 (Yellow)	LED3 (Green)	LED1 (red) Continous fast blinking counts		
											Red	Yellow	Green
Normal	○	●	●	●	○	○	ON	◎	●	●	1		
											◎	●	●
Capacity dial-up error	○	●	◎	●	◎	○	-	-	-	-	-		
Compressor high-pressure protection	◎	●	●	●	◎	○	E1	-	-	-	-		
Compressor low-pressure protection	●	◎	●	●	◎	○	E3	-	-	-	-		
Compressor air-out protection	◎	◎	●	●	◎	○	E4	-	-	-	-		
Overcurrent Protector	●	●	◎	●	◎	○	E5	-	-	-	-		
No-refrigerant protection	●	○	◎	◎	◎	○	E3	-	-	-	-		
Error with sub-module and main control communication (display in sub-module)	◎	●	◎	●	◎	○	-	-	-	-	-		
Communicationerror with frequency conversion drive	◎	●	●	●	○	○	E5	●	◎	◎	-		
The temperature of radiating fin is too high	◎	○	○	○	◎	○	E5	○	◎	○	-		
Radiating fin sensor abnormal	○	○	◎	○	◎	○	E5	●	◎	○	-		
Clogged	◎	○	○	●	◎	○	E5	-	-	-	-		
Over-current protection of frequency conversion compressor	◎	○	◎	○	◎	○	E5	◎	◎	◎	-		
DC input voltage is too high	○	○	○	○	◎	○	E5	◎	◎	●	-		
DC input voltage is too low	○	◎	◎	○	◎	○	E5	◎	◎	●	-		
IPM ABNORMAL	○	○	○	◎	◎	○	E5	◎	●	◎	-		
Motor out of synchronization	●	●	○	●	◎	○	E5	◎	○	○	-		
Overspeed	●	○	○	◎	◎	○	E5	◎	○	◎	-		
Open phase, tripping	◎	●	○	●	◎	○	E5	○	●	○	-		

Temperature drift protection	○	●	○	◎	◎	○	E5	○	◎	◎	-
Error with the temperature sensor on drive board	○	●	◎	○	◎	○	E5	◎	●	○	-
Startup failure	○	○	○	●	◎	○	E5	○	◎	●	-
AC current protection (input side)	●	○	◎	○	◎	○	E5	-	-	-	-
PFC ABNORMAL	●	○	○	●	◎	○	E5	-	-	-	-
Drive module reset	○	●	○	●	◎	○	E5	-	-	-	-
Fixed-frequency compressor abnormal	○	◎	○	●	◎	○	-	-	-	-	-
Fan motor module protection	○	○	●	○	◎	○	-	-	-	-	2 ◎ ● ◎
Voltage proection of fan motor drive	●	○	●	○	◎	○	-	-	-	-	4 ◎ ◎ ●
Current protection of fan motor drive	◎	○	●	○	◎	○	-	-	-	-	3 ◎ ◎ ◎
Overheat protection of fan motor module	○	●	●	○	◎	○	-	-	-	-	6 ○ ◎ ○
Communicationerror with fan motor drive board and main control	○	◎	◎	●	◎	○	-	-	-	-	5 ● ◎ ◎
Overheat protection of fan motor and motor	●	●	●	○	◎	○	-	-	-	-	- ◎ ○ ●
Communication error with indoor units and outdoor units	●	◎	◎	●	◎	○	E6	-	-	-	-
Defrosting(normal operating, not error)	◎	◎	◎	●	◎	○	-	-	-	-	-
Oil return operating (normal operating, not error)	◎	○	◎	◎	◎	○	-	-	-	-	-
Balancing oil(normal operating, not error)	○	◎	◎	◎	◎	○	-	-	-	-	-
Online testing	●	○	●	●	○	○	-	-	-	-	-
Outdoor ambient temperature sensor error	●	●	●	◎	◎	○	F4	-	-	-	-
Error with outdoor coil inlet temperature sensor	◎	●	●	◎	◎	○	F5	-	-	-	-
Indoor coil middle temperature sensor error	●	◎	●	◎	◎	○	F6	-	-	-	-
Outdoor coil middle temperature sensor error	◎	◎	●	◎	◎	○	F7	-	-	-	-
Variable-frequency exhaust temperature sensor error	◎	●	◎	◎	◎	○	F9	-	-	-	-
Fixed frequency 1 error with air-out sensor	●	●	◎	◎	◎	○	F8	-	-	-	-
Fixed frequency 2 error with air-out sensor	○	●	◎	◎	◎	○	F8	-	-	-	-

Variable-frequency top casing temperature sensor error	◎	●	●	○	◎	○	F9	-	-	-	-
Fixed frequency 1 error with sensor of housing head cover	○	◎	●	○	◎	○	-	-	-	-	-
Fixed frequency 2 error with sensor of housing head cover	●	◎	●	○	◎	○	-	-	-	-	-
High-voltage sensor error	◎	◎	◎	○	◎	○	Fc	-	-	-	-
Low-voltage sensor error	◎	◎	○	○	◎	○	Fd	-	-	-	-
The quantity of modules and dial-up is inconformity	○	○	◎	●	◎	○	-	-	-	-	-
Other modules stop due to error	●	○	◎	●	◎	○	-	-	-	-	-

Note: 1.◎blink;●dark;○bright

2. The error of DC fan motor board is displayed by the continuous blinking counts of single LED red, the error of AC fan motor board is displayed by the state of LED red, yellow and green.

1.3 Number of indoor units display

Number of indoor units	Lamp display					
	LED6	LED5	LED4	LED3	LED2	LED1
1	●	●	●	●	●	○
2	●	●	●	●	○	●
3	●	●	●	●	○	○
4	●	●	●	○	●	●
5	●	●	●	○	●	○
6	●	●	●	○	○	●
:	:	:	:	:	:	:
:	:	:	:	:	:	:
62	○	○	○	○	○	●
63	○	○	○	○	○	○

Legend: bright ○; dark ●; blink ◒

2 FLOW CHART OF TROUBLESHOOTING

The repair personnel shall collect the error information as more as possible for careful study and list those electric or system parts that might cause the error. Then, the repair personnel shall be able to identify the specific cause of error and find out the problem parts.

Keep an eye on the complete equipment. Do not restrict to a part, but taking care to check the state of complete equipment.

Study from the simple point. o analyze, judge and identify the cause of trouble, please start from the simple operation and finally proceed to such complicated operations as discharge of refrigerant, disassembly of equipment, replacement of parts and filling of refrigerant. Be prudent to find out the cause. The unit might be incurred to multiple errors, and such errors might be caused by multiple reasons. It is also possible that one error is developed into multiple errors. Therefore, a comprehensive analysis system shall be set up to ensure that the result of judgment is more correct and reliable

1） High-pressure Protection

Error display on hand controller: E1

Outdoor units mainboard indicator: led4: dark; led3: dark; led2: dark; led1: blink

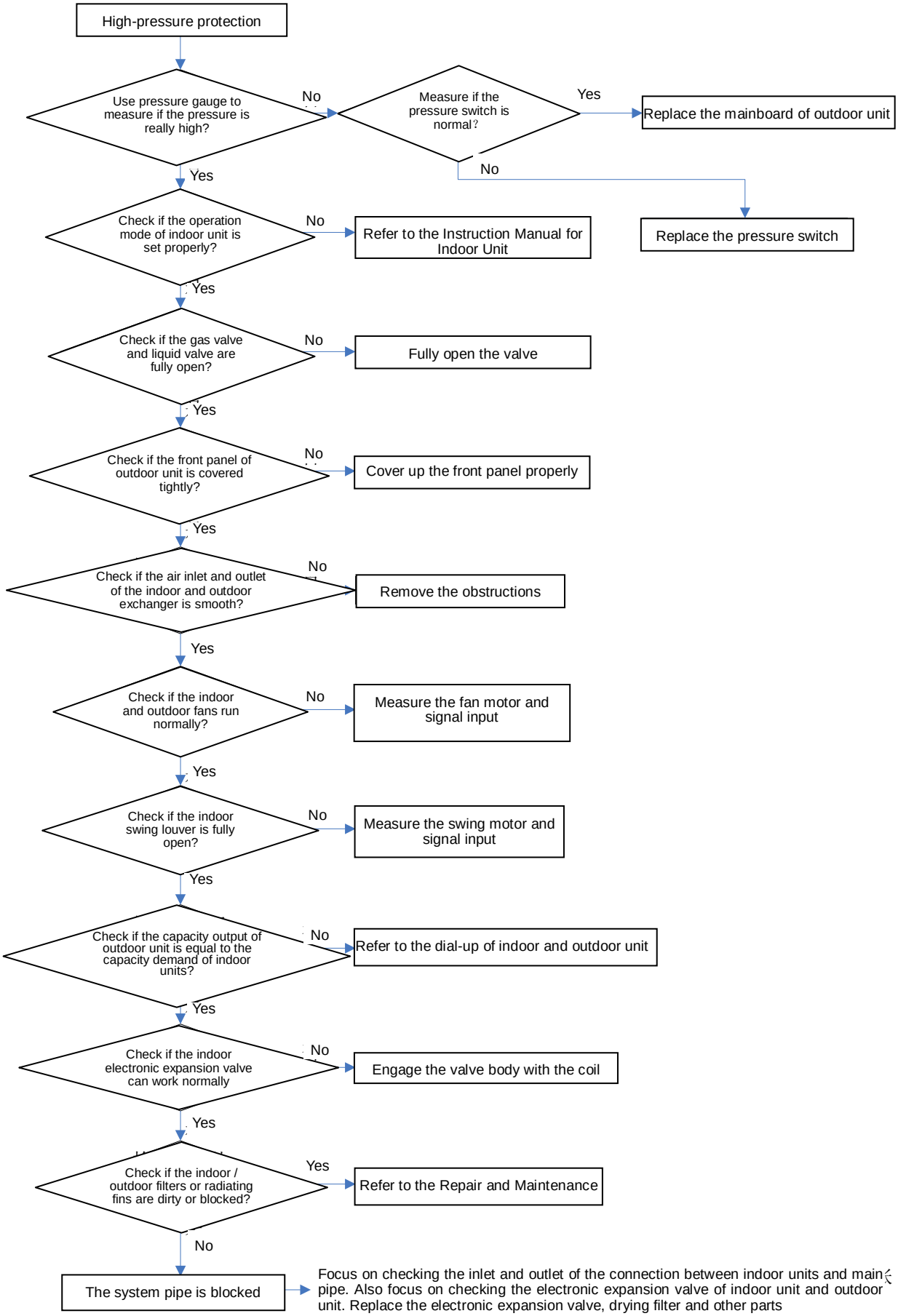
Indoor units mainboard indicators:

Patio indoor units: red led: blink; green led: dark; yellow led: dark

FY wall-mounting motor: red led: blink; yellow led: dark

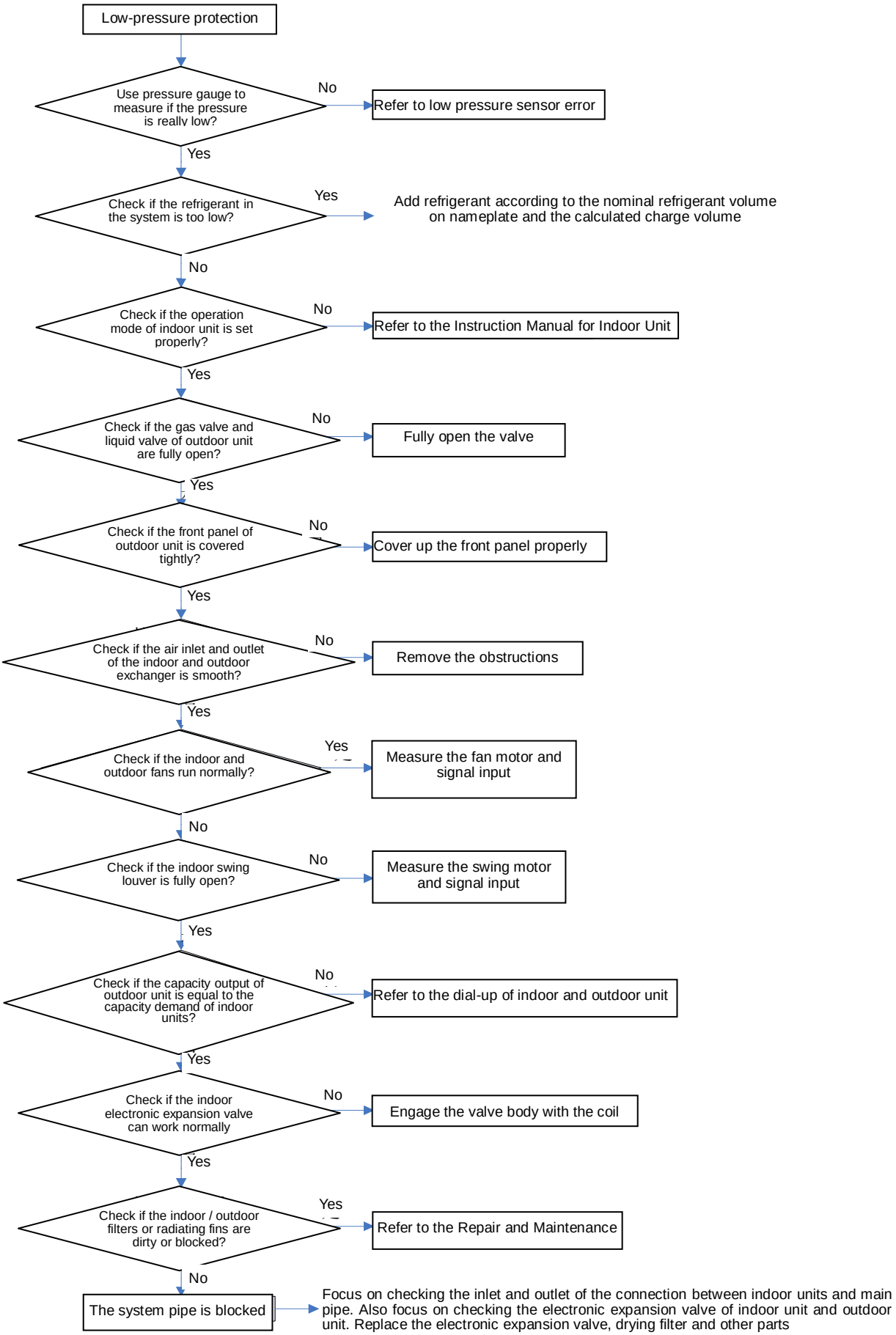
New FY wall-mounting motor: red led: blink; green led: dark; yellow led: dark

Hanging indoor units: red led: blink; green led: dark; yellow led: dark

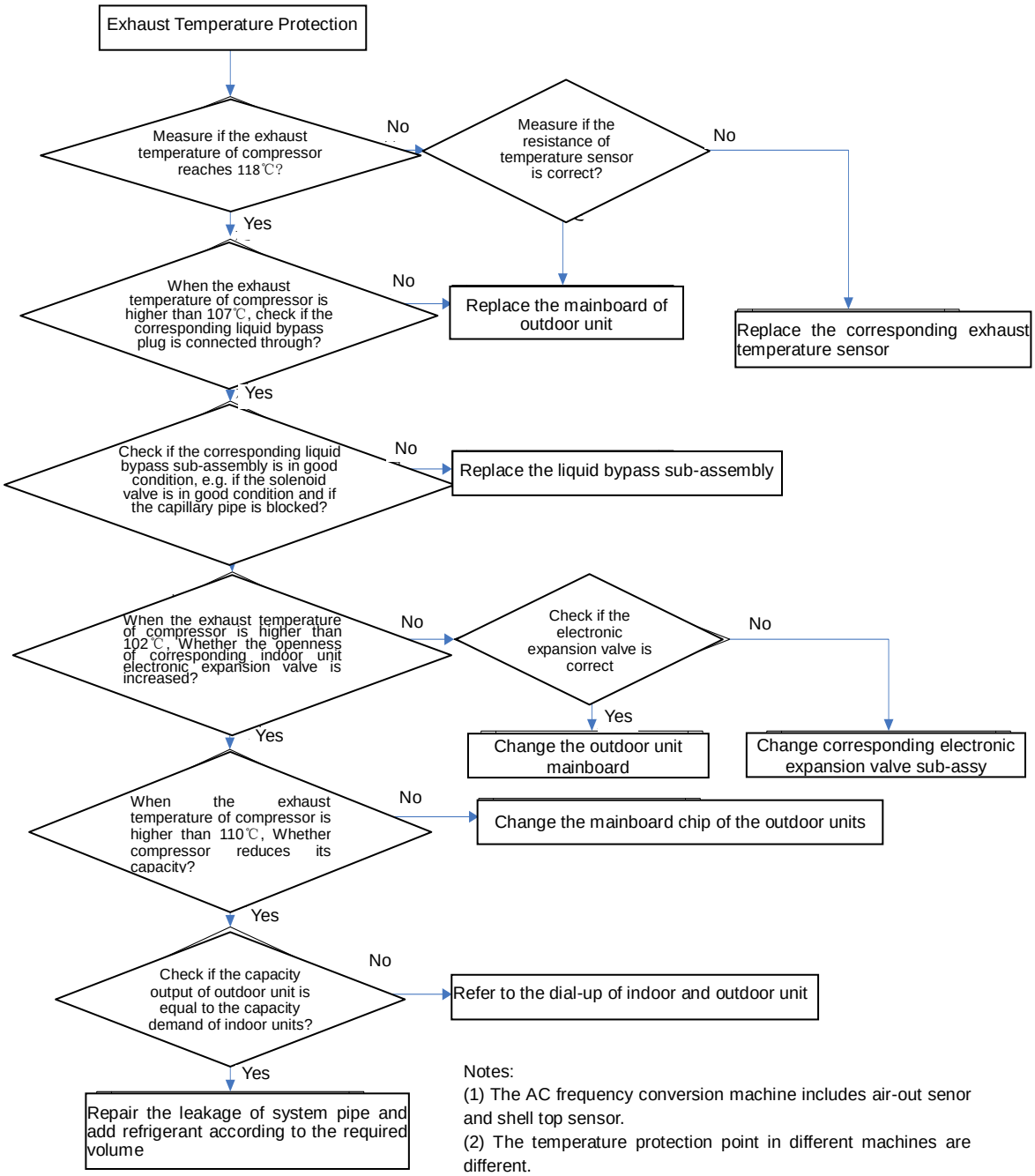

High-pressure protection
Use pressure gauge to measure if the pressure is really high?
No
Measure if the pressure switch is normal?
Yes
Replace the mainboard of outdoor unit
No
Yes
Check if the operation mode of indoor unit is set properly?
No
Refer to the Instruction Manual for Indoor Unit
Replace the pressure switch
Yes
Check if the gas valve and liquid valve are fully open?
No
Fully open the valve
Yes
Check if the front panel of outdoor unit is covered tightly?
No
Cover up the front panel properly
Yes
Check if the air inlet and outlet of the indoor and outdoor exchanger is smooth?
No
Remove the obstructions
Yes
Check if the indoor and outdoor fans run normally?
No
Measure the fan motor and signal input
Yes
Check if the indoor swing louver is fully open?
No
Measure the swing motor and signal input
Yes
Check if the capacity output of outdoor unit is equal to the capacity demand of indoor units?
No
Refer to the dial-up of indoor and outdoor unit
Yes
Check if the indoor electronic expansion valve can work normally
No
Engage the valve body with the coil
Yes
Check if the indoor / outdoor filters or radiating fins are dirty or blocked?
Yes
Refer to the Repair and Maintenance
No
The system pipe is blocked
Focus on checking the inlet and outlet of the connection between indoor units and main pipe. Also focus on checking the electronic expansion valve of indoor unit and outdoor unit. Replace the electronic expansion valve, drying filter and other parts

2） Low-pressure Protection

Error display on hand controller: E3
Outdoor units mainboard indicator: led4: dark; led3: dark; led2: blink; led1: dark (low voltage)
led4: blink; led3: blink; led2: bright; led1: dark (lack of refrigerant)
Indoor units mainboard indicators:
Patio indoor units: red led: blink:red led:blink; green led:dark; yellow led:dark
FY wall-mounting motor: red led:blink; yellow led:dark
New FY wall-mounting motor: red led:blink; green led:dark; yellow led:dark
Hanging indoor units: red led:blink; green led:dark; yellow led:dark


Low-pressure protection
Use pressure gauge to measure if the pressure is really low?
No
Refer to low pressure sensor error
Yes
Check if the refrigerant in the system is too low?
Yes
Add refrigerant according to the nominal refrigerant volume on nameplate and the calculated charge volume
No
Check if the operation mode of indoor unit is set properly?
No
Refer to the Instruction Manual for Indoor Unit
Yes
Check if the gas valve and liquid valve of outdoor unit are fully open?
No
Fully open the valve
Yes
Check if the front panel of outdoor unit is covered tightly?
No
Cover up the front panel properly
Yes
Check if the air inlet and outlet of the indoor and outdoor exchanger is smooth?
No
Remove the obstructions
Yes
Check if the indoor and outdoor fans run normally?
Yes
Measure the fan motor and signal input
No
Check if the indoor swing louver is fully open?
No
Measure the swing motor and signal input
Yes
Check if the capacity output of outdoor unit is equal to the capacity demand of indoor units?
No
Refer to the dial-up of indoor and outdoor unit
Yes
Check if the indoor electronic expansion valve can work normally
No
Engage the valve body with the coil
Yes
Check if the indoor / outdoor filters or radiating fins are dirty or blocked?
Yes
Refer to the Repair and Maintenance
No
The system pipe is blocked
Focus on checking the inlet and outlet of the connection between indoor units and main pipe. Also focus on checking the electronic expansion valve of indoor unit and outdoor unit. Replace the electronic expansion valve, drying filter and other parts

Exhaust Temperature Protection
Error display on hand controller: E4
Outdoor units mainboard indicator: led4: dark; led3: dark; led2: blink; led1: blink
Indoor units mainboard indicators:
Patio indoor units: red led: blink:red led:blink; green led:dark; yellow led:dark
FY wall-mounting motor: red led:blink; yellow led:dark
New FY wall-mounting motor: red led:blink; green led:dark; yellow led:dark
Hanging indoor units: red led:blink; green led:dark; yellow led:dark



Notes:
(1) The AC frequency conversion machine includes air-out senor and shell top sensor.
(2) The temperature protection point in different machines are different.
(3) There is no liquid refrigerant by-pass in frequency conversion machine.

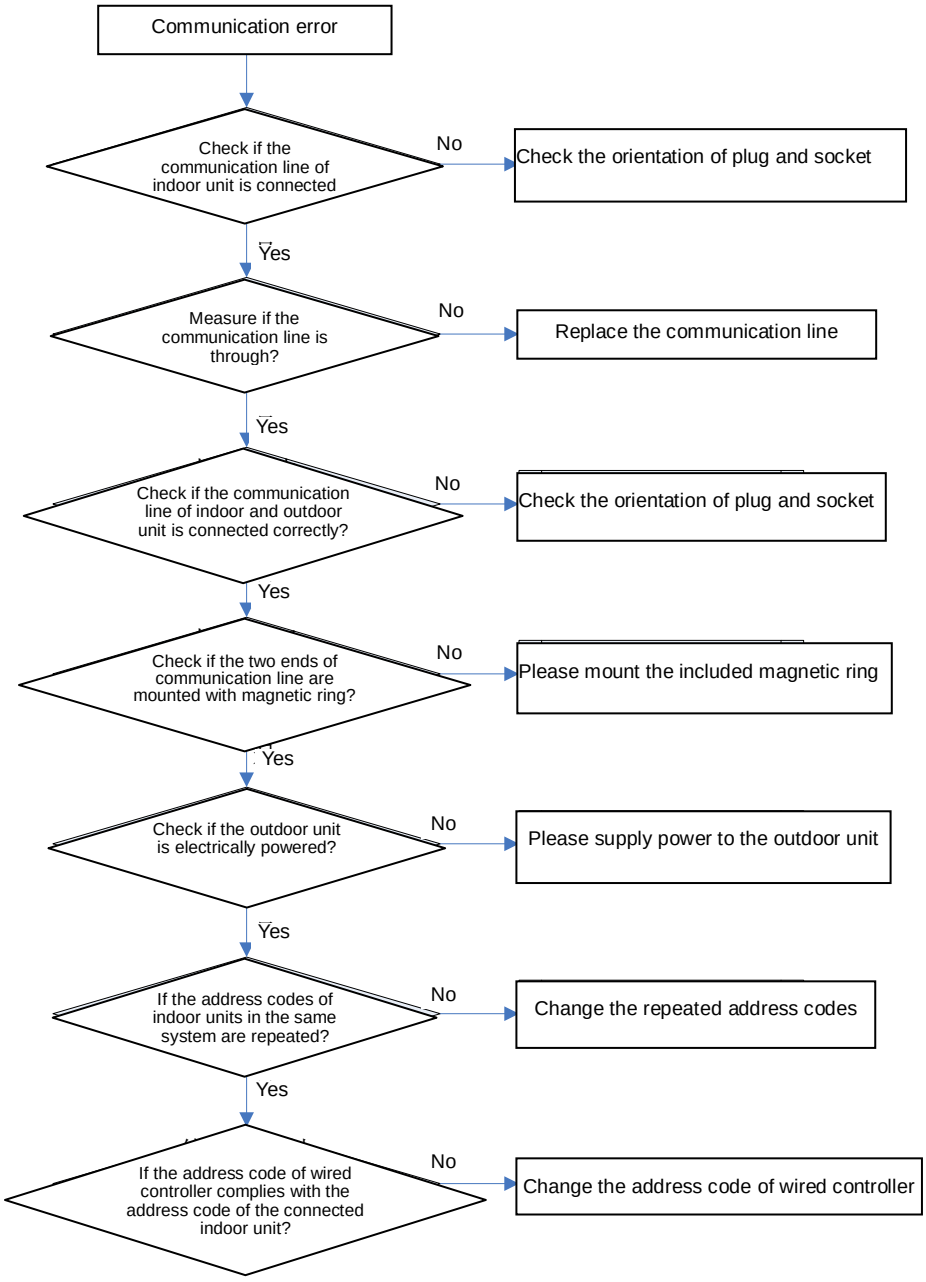
3） E5 Protection

Error display on hand controller: E5
Outdoor units mainboard indicator: /
Indoor units mainboard indicators:
Patio indoor units: red led: blink:red led:blink; green led:dark; yellow led:dark
FY wall-mounting motor: red led:blink; yellow led:dark
New FY wall-mounting motor: red led:blink; green led:dark; yellow led:dark
Hanging indoor units: red led:blink; green led:dark; yellow led:dark

Note: All the drive errors are shown as E5, thus check the error indicators of the outdoor units first, and find the specific error according to the code and refer to the following 2.10" Typical Troubleshooting(E5) for DC frequency conversion drive board".

4） Communication Failure

Error display on hand controller: E6
Outdoor units mainboard indicator: led4: dark; led3: blink; led2: blink; led1:dark
Indoor units mainboard indicators:
Patio indoor units: red led: blink:red led:blink; green led:blink; yellow led:blink
FY wall-mounting motor: red led:blink(dark at the same time); yellow led:blink
New FY wall-mounting motor: red led:blink; green led:blink; yellow led:blink
Hanging indoor units: red led:blink; green led:blink; yellow led:blink



5） Temperature sensor Trouble

1. Outdoor ambient temperature sensor error
Error display on hand controller: F4
Outdoor units mainboard indicator: led4: dark; led3: dark; led2: dark; led1: dark
Indoor units mainboard indicators:
Patio indoor units: red led: blink:red led:blink; green led:dark; yellow led:dark
FY wall-mounting motor: red led:blink; yellow led:dark
New FY wall-mounting motor: red led:blink; green led:dark; yellow led:dark
Hanging indoor units: red led:blink; green led:dark; yellow led:dark

2. Outdoor coil pipe inlet sensor trouble
Error display on hand controller: F5
Outdoor units mainboard indicator: led4: blink; led3: dark; led2: dark; led1: blink

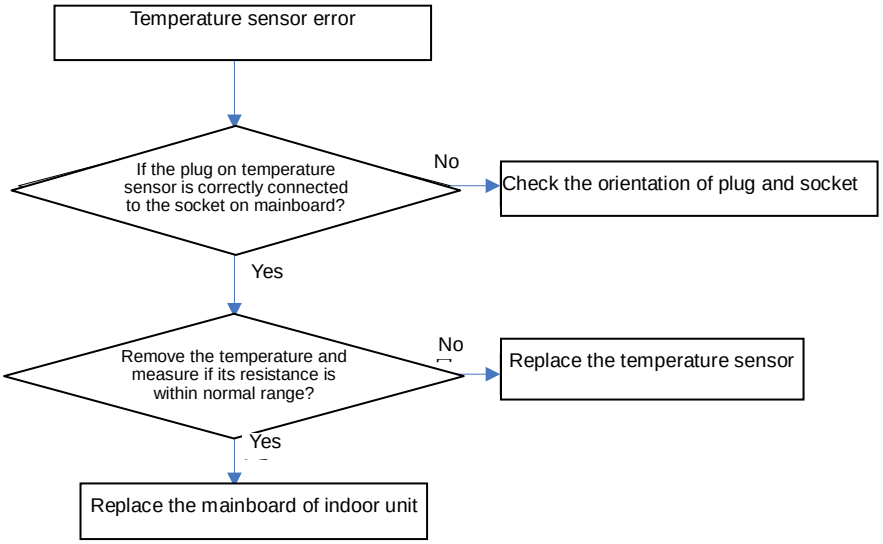
3. Outdoor coil pipe middle sensor trouble
Error display on hand controller: F6
Outdoor units mainboard indicator: led4: blink; led3: dark; led2: blink; led1: dark

4. Outdoor coil pipe outlet sensor trouble
Error display on hand controller: F7
Outdoor units mainboard indicator: led4: blink; led3: dark; led2: blink; led1: blink
Indoor units mainboard indicators:
Patio indoor units: red led: blink: red led:blink; green led:dark; yellow led:dark
FY wall-mounting motor: red led:blink; yellow led:dark
New FY wall-mounting motor: red led:blink; green led:dark; yellow led:dark
Hanging indoor units: red led:blink; green led:dark; yellow led:dark

5. Fixed-frequency exhaust temperature sensor error
Error display on hand controller: F8
Outdoor units mainboard indicator: led4: blink; led3: blink; led2: dark; led1: dark (fixed frequency 1)
led4: blink; led3: blink; led2: dark; led1: bright (fixed frequency2)

6. Variable-frequency exhaust temperature sensor error
Error display on hand controller: F9
Outdoor units mainboard indicator: led4:blink; led3: blink; led2: dark; led1: blink (air-out sensor)
led4:bright; led3: dark; led2: dark; led1:blink (sensor of housing head cover)

7.Indoor units mainboard indicators:
Patio indoor units: red led: blink:red led:blink; green led:dark; yellow led:dark
FY wall-mounting motor: red led:blink; yellow led:dark
New FY wall-mounting motor: red led:blink; green led:dark; yellow led:dark
Hanging indoor units: red led:blink; green led:dark; yellow led:dark

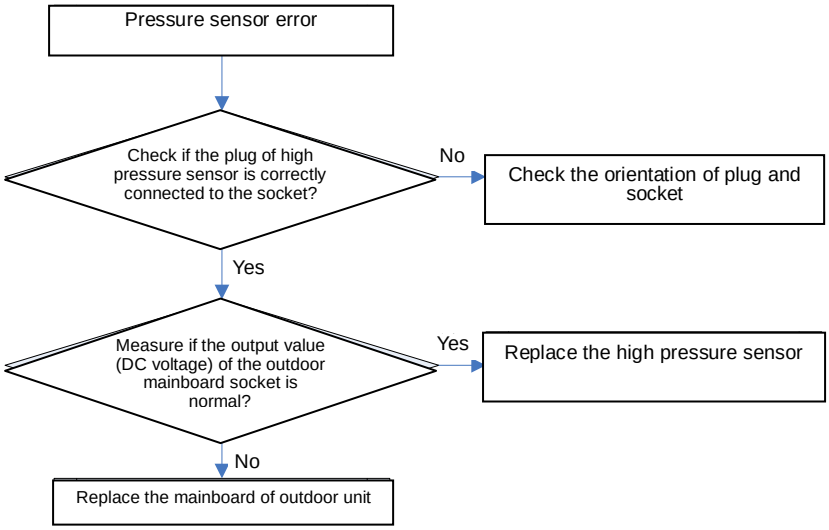


6） Sensor Trouble

1. High-voltage sensor error

Error display on hand controller: Fc
Outdoor units mainboard indicator: led4: bright; led3: blink; led2: blink; led1: blink

Indoor units mainboard indicators:
Patio indoor units: red led: blink:red led:blink; green led:dark; yellow led:dark
FY wall-mounting motor: red led:blink; yellow led:dark
New FY wall-mounting motor: red led:blink; green led:dark; yellow led:dark
Hanging indoor units: red led:blink; green led:dark; yellow led:dark



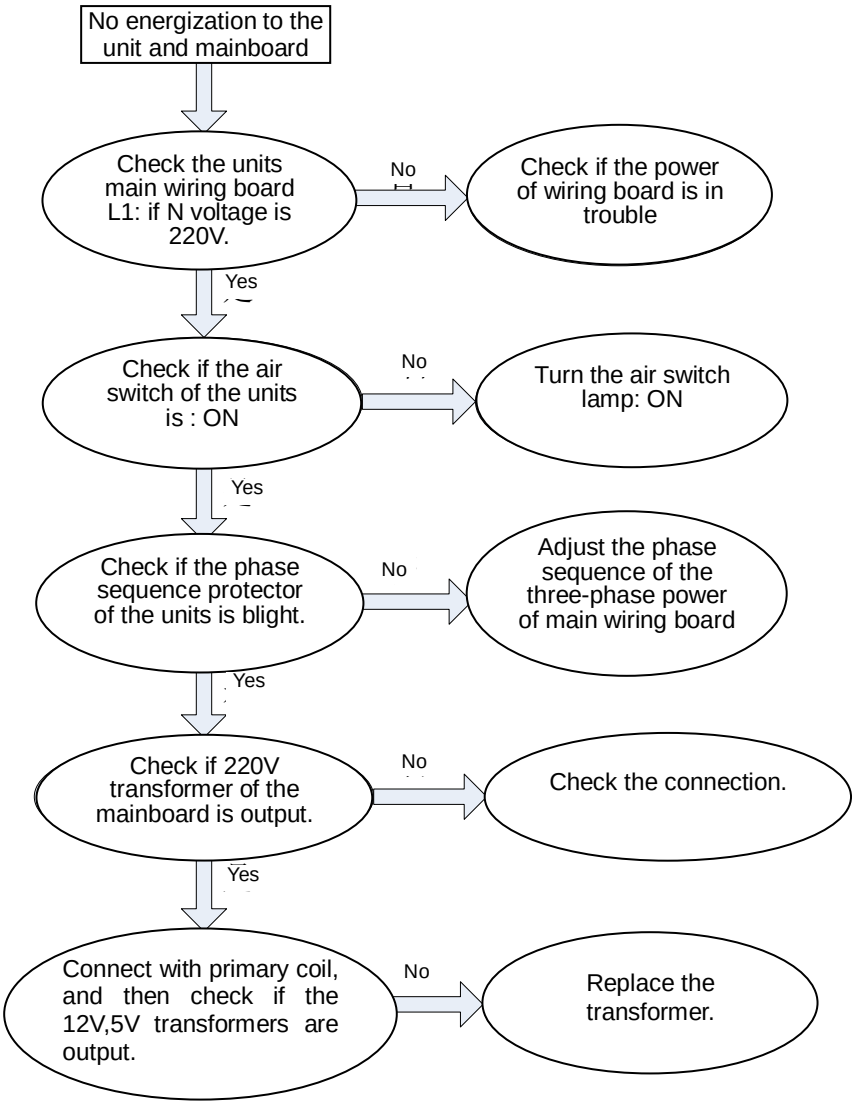
Troubleshooting steps for low-voltage sensor and high-voltage sensor

2. Low-voltage sensor error

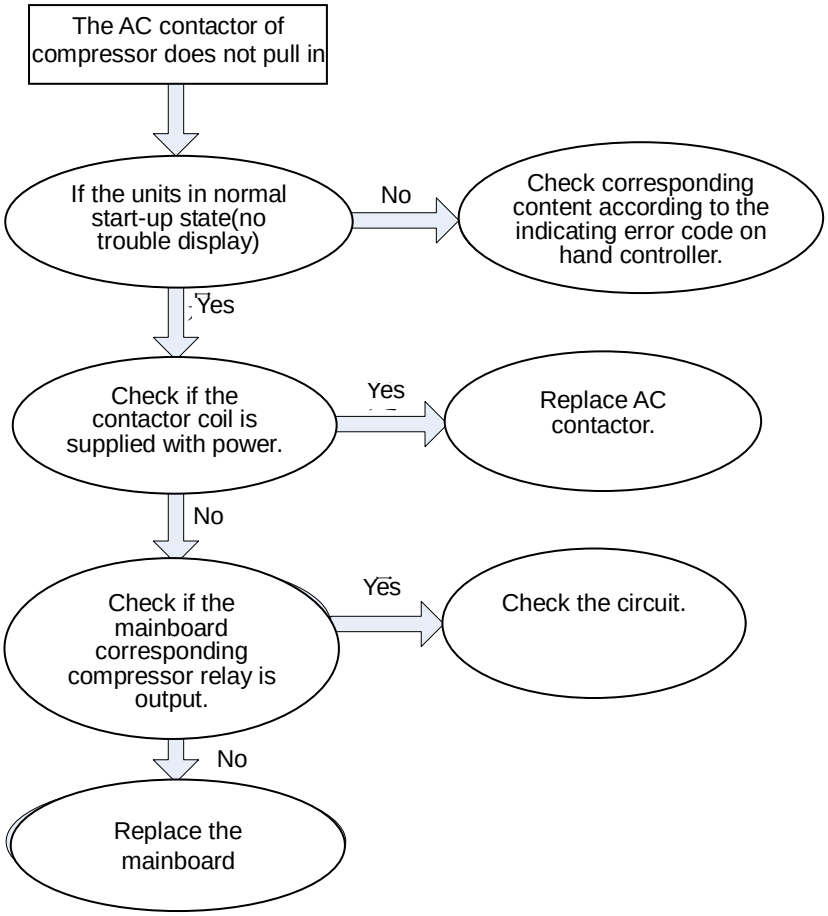
Error display on hand controller: Fd
Outdoor units mainboard indicator: led4: bright; led3: bright; led2: blink; led1: blink

Indoor units mainboard indicators:
Patio indoor units: red led: blink:red led:blink; green led:dark; yellow led:dark
FY wall-mounting motor: red led:blink; yellow led:dark
New FY wall-mounting motor: red led:blinkl; green led:dark; yellow led:dark
Hanging indoor units: red led:blink; green led:dark; yellow led:dark

7） No energization to the unit and mainboard

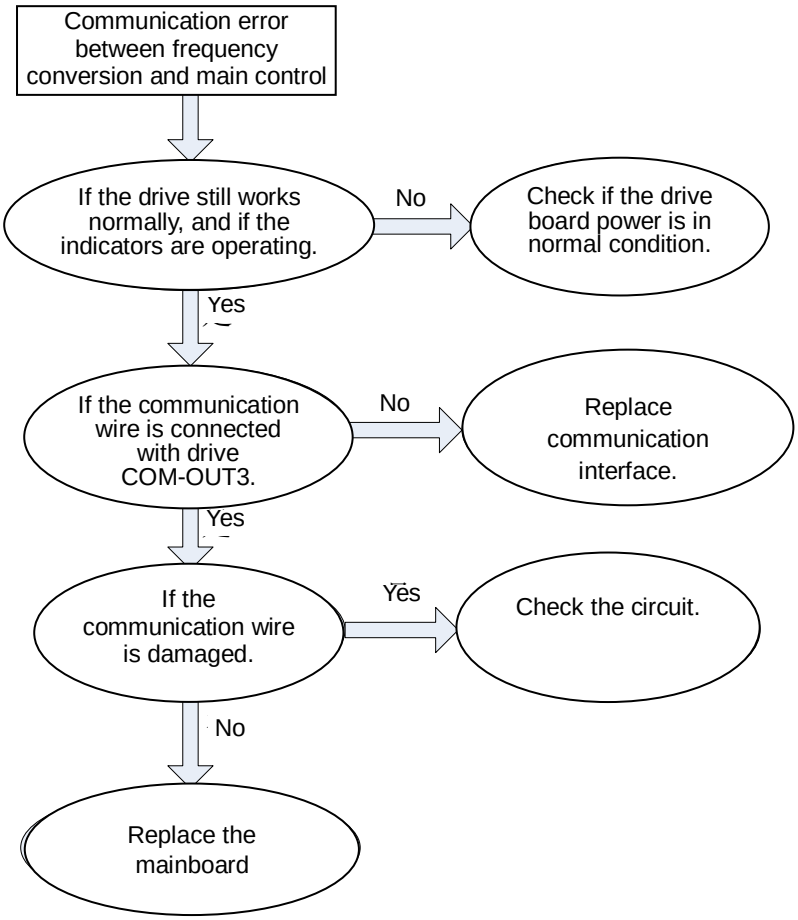


8） The AC contactor does not pull in

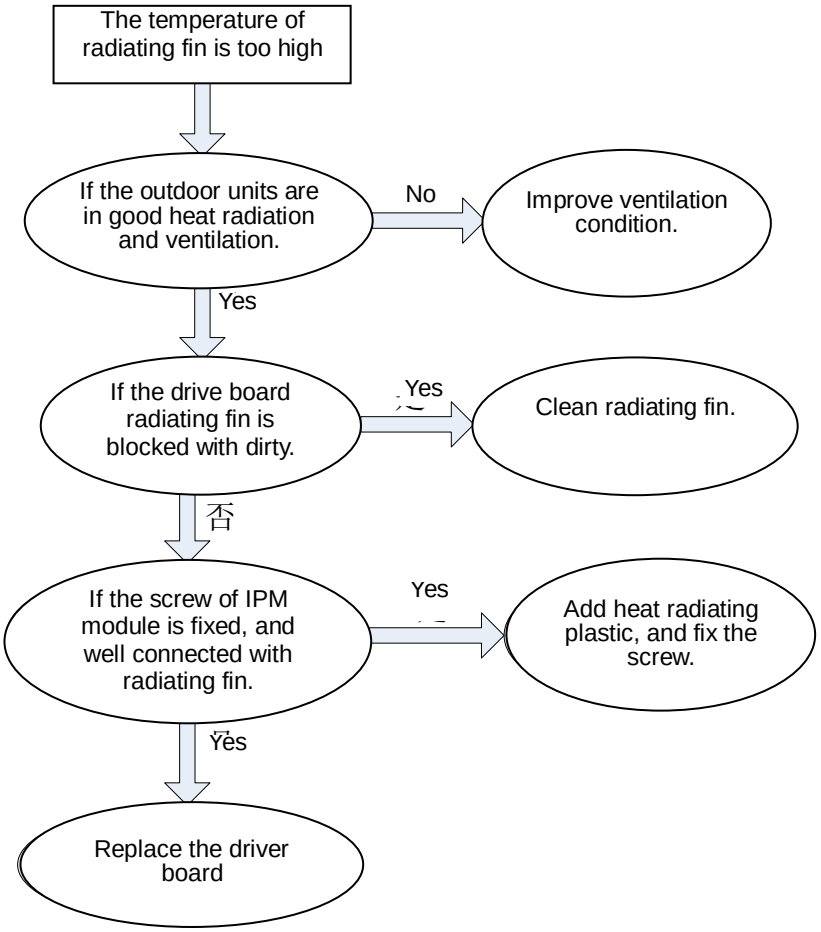


9） Typical Troubleshooting (E5) for DC frequency conversion drive board

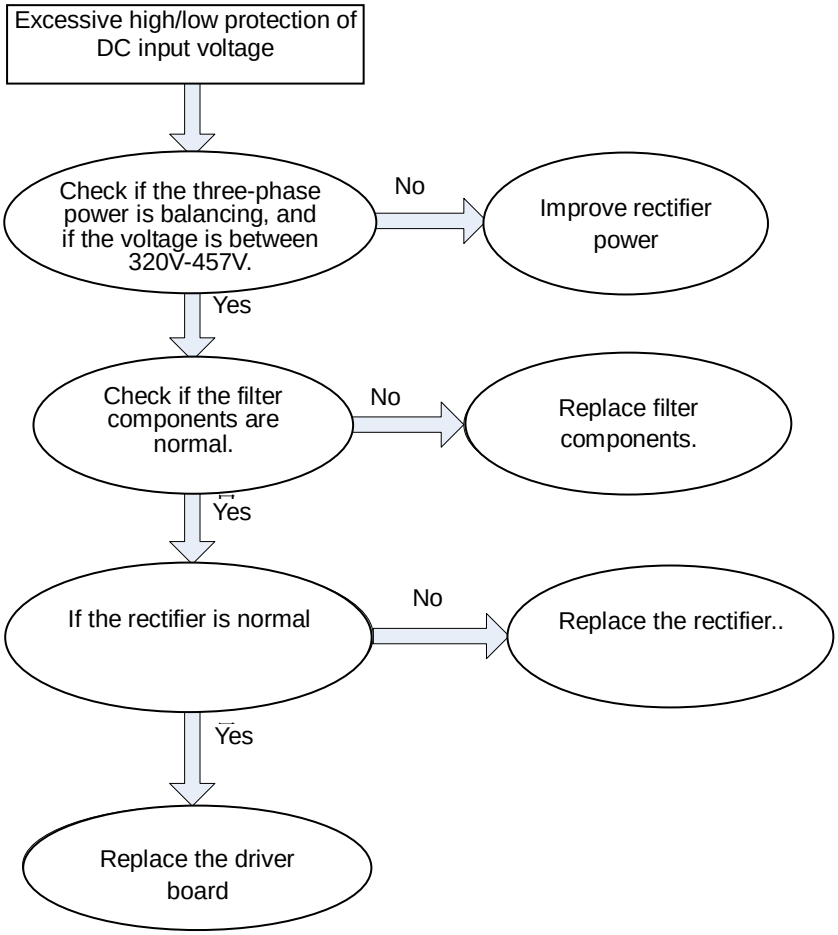
1. Communication error between frequency conversion and main control



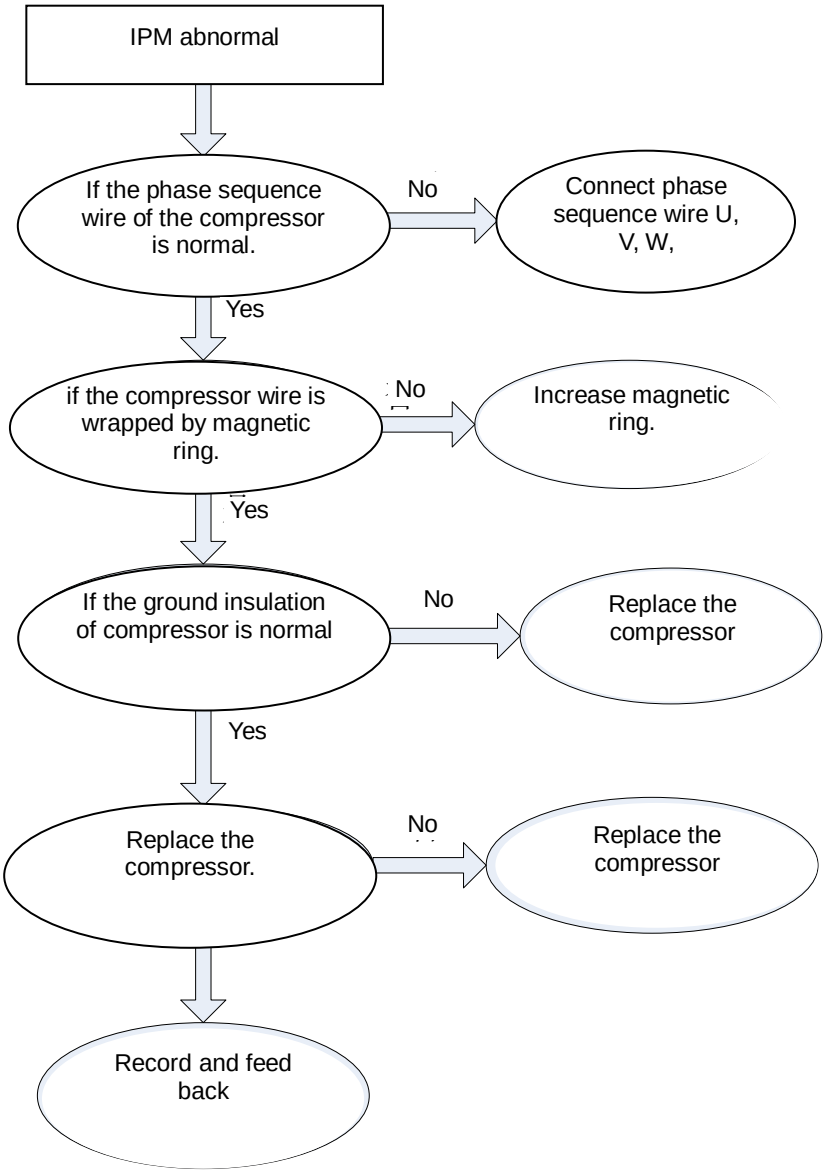
2. The temperature of radiating fin is too high



3. Excessive high/low protection of DC input voltage

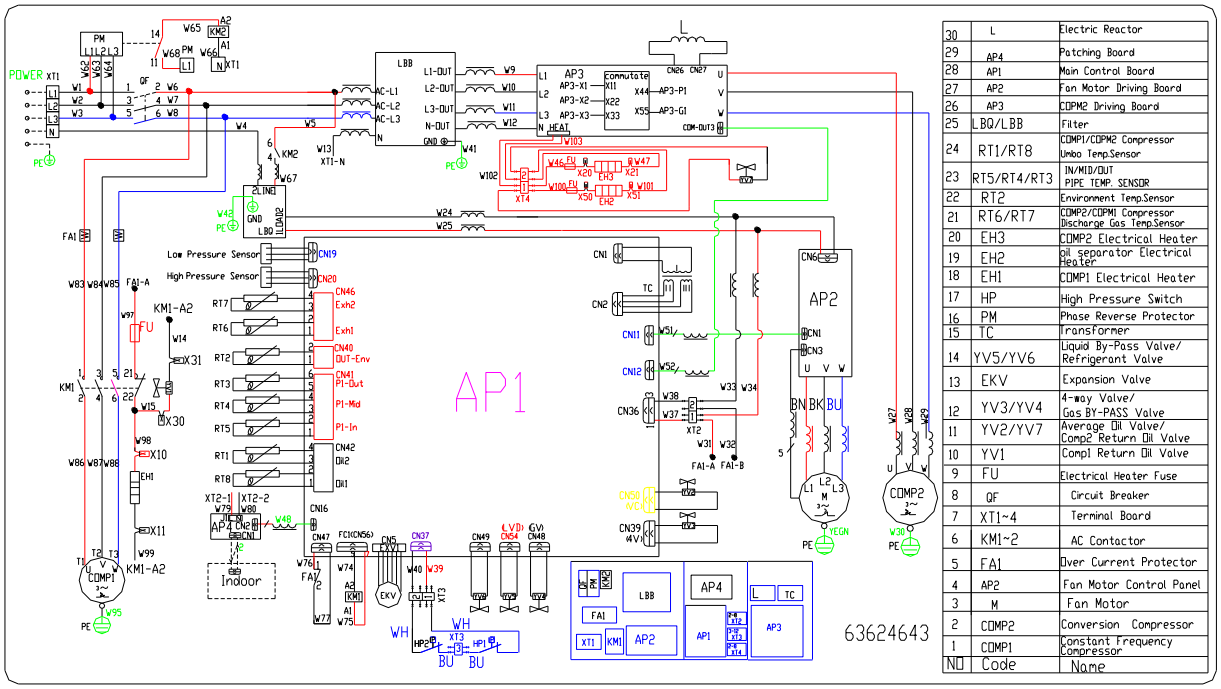


4. IPM ABNORMAL



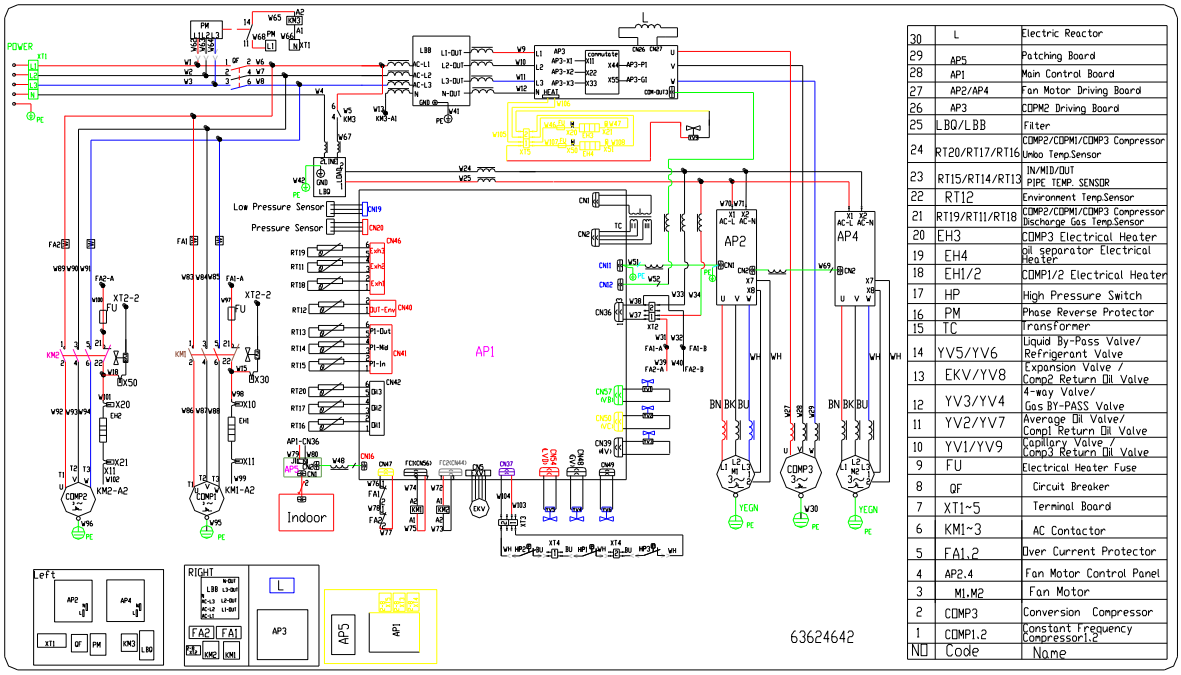
3 WIRING DIADRAM

1) Model:INV-Pdm224W/NaB-M, INV-Pdm280W/NaB-M



NO	Code	Name
30	L	Electric Reactor
29	AP4	Patching Board
28	AP1	Main Control Board
27	AP2	Fan Motor Driving Board
26	AP3	COMP2 Driving Board
25	LBQ/LBB	Filter
24	RT1/RT8	COMP1/COMP2 Compressor Umbo Temp.Sensor
23	RT5/RT4/RT3	IN/MID/OUT PIPE TEMP. SENSOR
22	RT2	Environment Temp.Sensor
21	RT6/RT7	COMP2/COMP1 Compressor Discharge Gas Temp.Sensor
20	EH3	COMP2 Electrical Heater
19	EH2	Oil separator Electrical Heater
18	EH1	COMP1 Electrical Heater
17	HP	High Pressure Switch
16	PM	Phase Reverse Protector
15	TC	Transformer
14	YV5/YV6	Liquid By-Pass Valve/ Refrigerant Valve
13	EKV	Expansion Valve
12	YV3/YV4	4-way Valve/ Gas BY-PASS Valve
11	YV2/YV7	Average Oil Valve/ Comp2 Return Oil Valve
10	YV1	Comp1 Return Oil Valve
9	FU	Electrical Heater Fuse
8	QF	Circuit Breaker
7	XT1~4	Terminal Board
6	KM1~2	AC Contactor
5	FA1	Over Current Protector
4	AP2	Fan Motor Control Panel
3	M	Fan Motor
2	COMP2	Conversion Compressor
1	COMP1	Constant Frequency Compressor

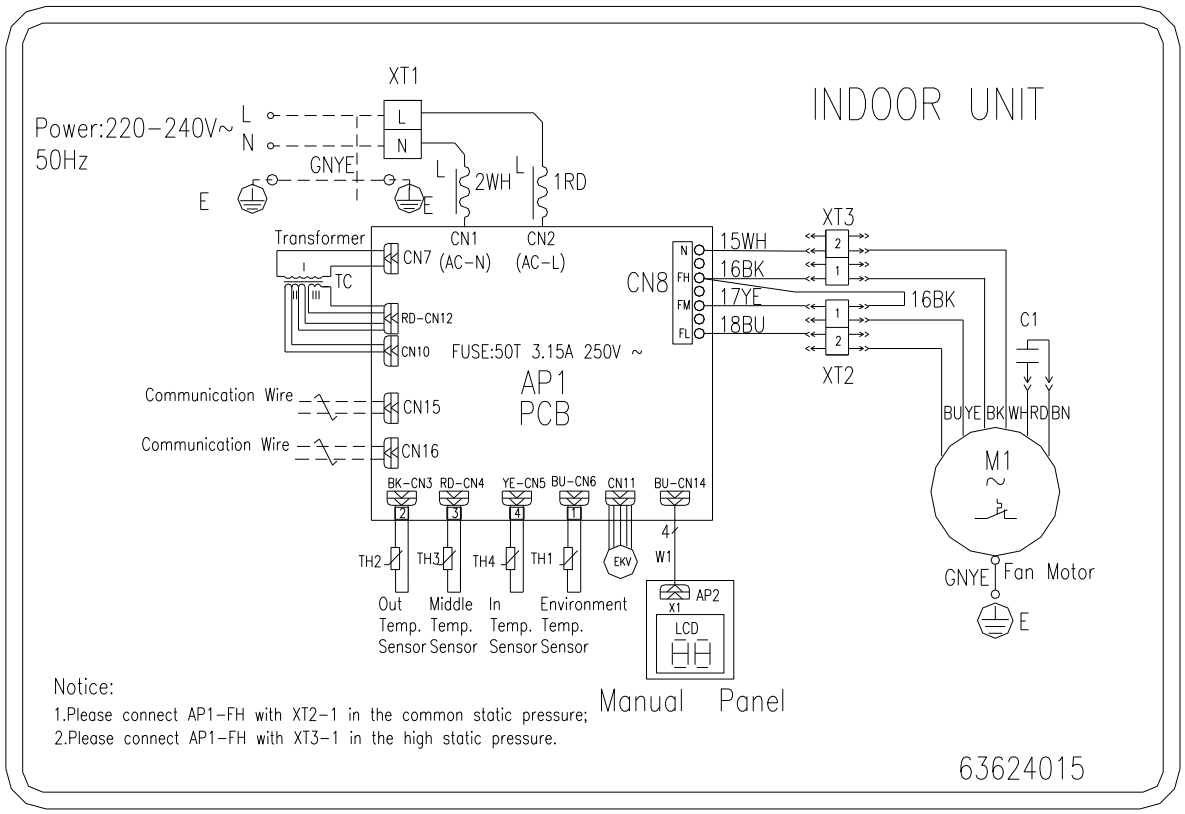
Model:INV-Pdm335W/NaB-M, INV-Pdm400W/NaB-M, INV-Pdm450W/NaB-M



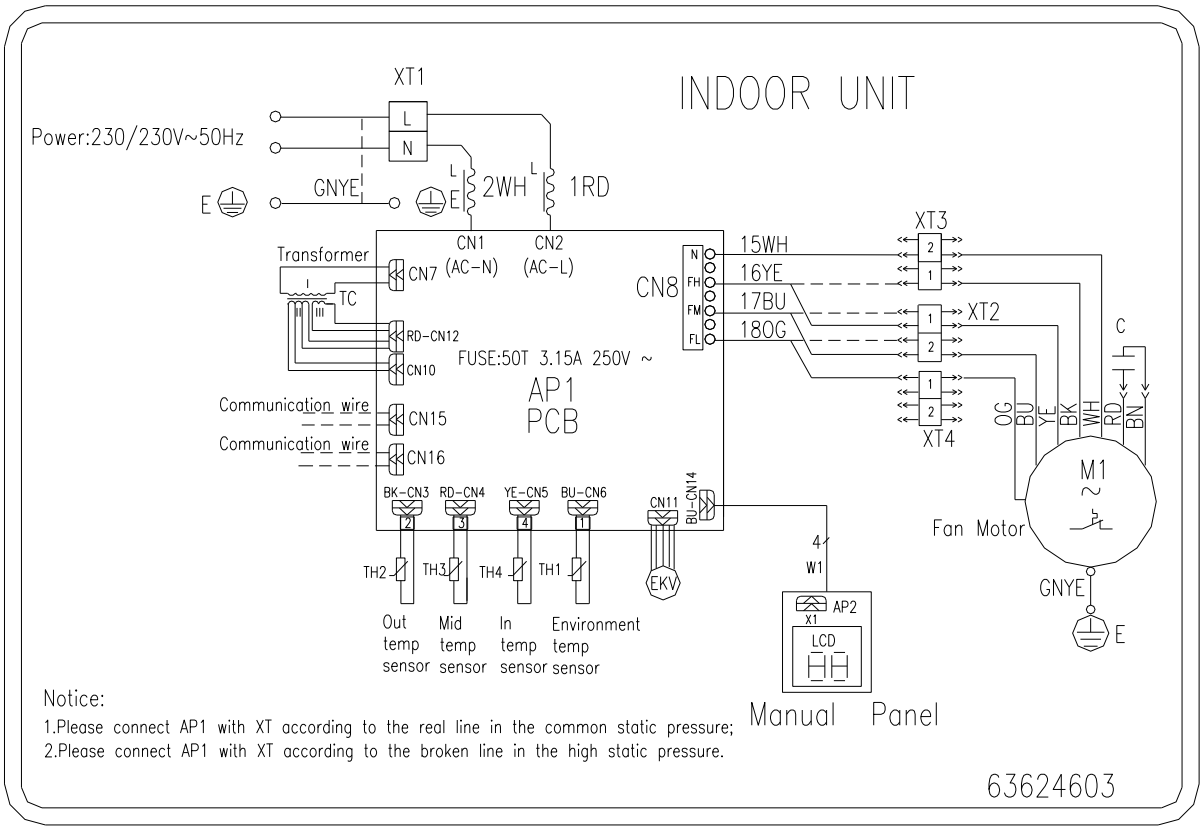
NO	Code	Name
30	L	Electric Reactor
29	AP5	Patching Board
28	AP1	Main Control Board
27	AP2/AP4	Fan Motor Driving Board
26	AP3	COMP2 Driving Board
25	LBQ/LBB	Filter
24	RT20/RT17/RT16	COMP2/COMP1/COMP3 Compressor Umbo Temp.Sensor
23	RT15/RT14/RT13	IN/MID/OUT PIPE TEMP. SENSOR
22	RT12	Environment Temp.Sensor
21	RT19/RT11/RT18	COMP2/COMP1/COMP3 Compressor Discharge Gas Temp.Sensor
20	EH3	COMP3 Electrical Heater
19	EH4	Oil separator Electrical Heater
18	EH1/2	COMP1/2 Electrical Heater
17	HP	High Pressure Switch
16	PM	Phase Reverse Protector
15	TC	Transformer
14	YV5/YV6	Liquid By-Pass Valve/ Refrigerant Valve
13	EKV/YV8	Expansion Valve / Comp2 Return Oil Valve
12	YV3/YV4	4-way Valve/ Gas BY-PASS Valve
11	YV2/YV7	Average Oil Valve/ Comp1 Return Oil Valve
10	YV1/YV9	Capillary Valve / Comp3 Return Oil Valve
9	FU	Electrical Heater Fuse
8	QF	Circuit Breaker
7	XT1~5	Terminal Board
6	KM1~3	AC Contactor
5	FA1,2	Over Current Protector
4	AP2,4	Fan Motor Control Panel
3	M1,M2	Fan Motor
2	COMP3	Conversion Compressor
1	COMP1,2	Constant Frequency Compressor1,2

Indoor unit

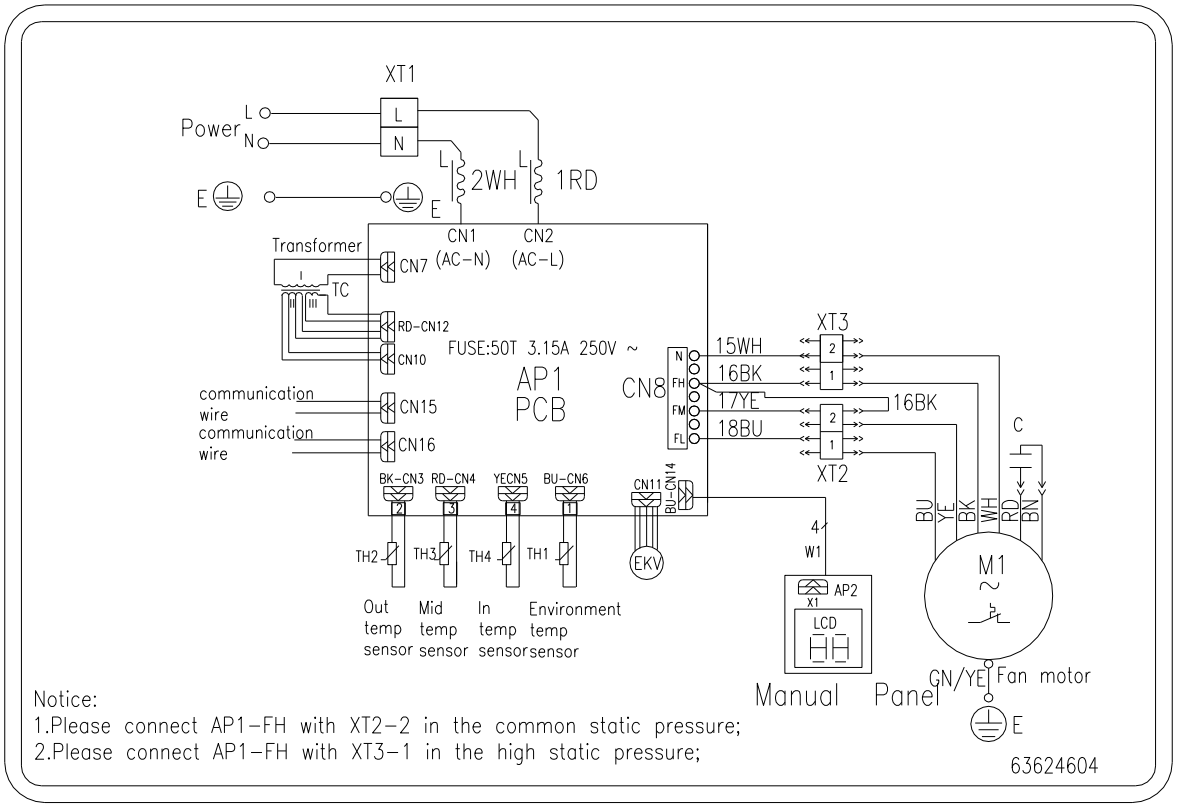
INV-R22P/Na-K, INV-R25P/Na-K, INV-R28P/Na-K, INV-R36P/Na-K, INVL-R22P/Na-K, INVL-R25P/Na-K, INVL-R28P/Na-K, INVL-R36P/Na-K



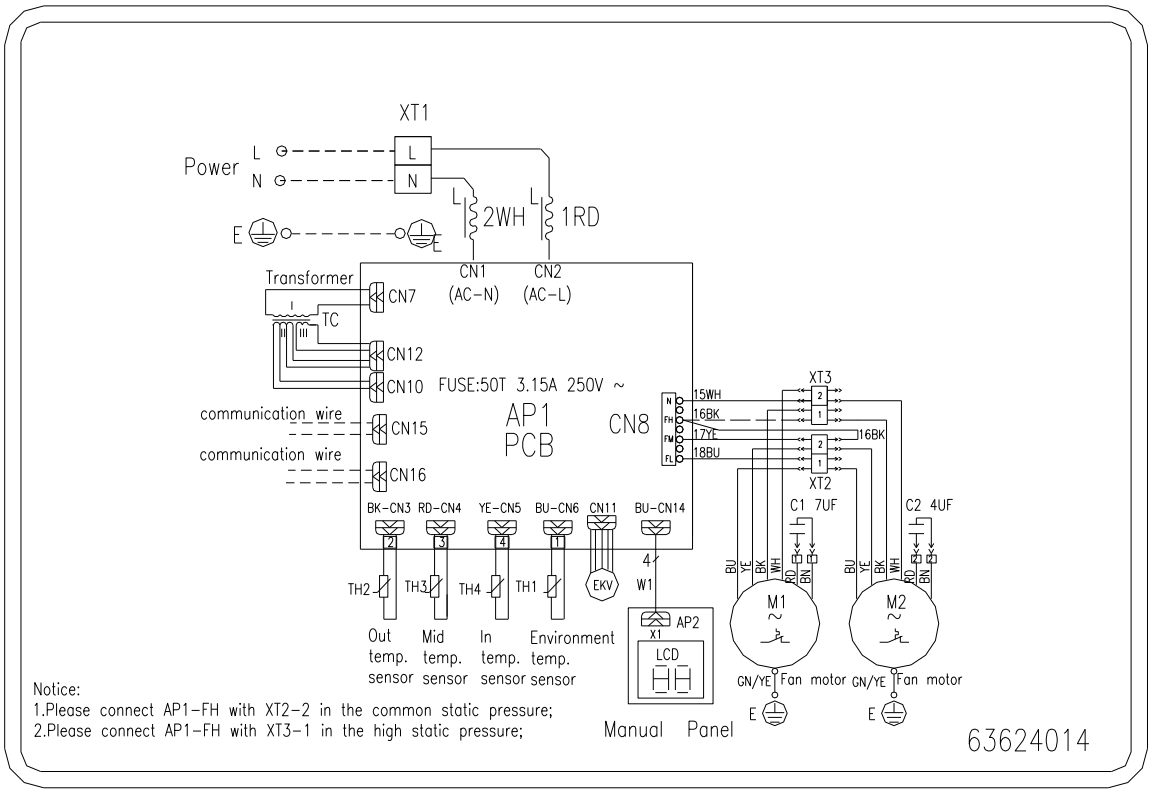
INV-R45P/Na-K , INV-R50P/Na-K, INVL-R45P/Na-K INVL-R50P/Na-K:



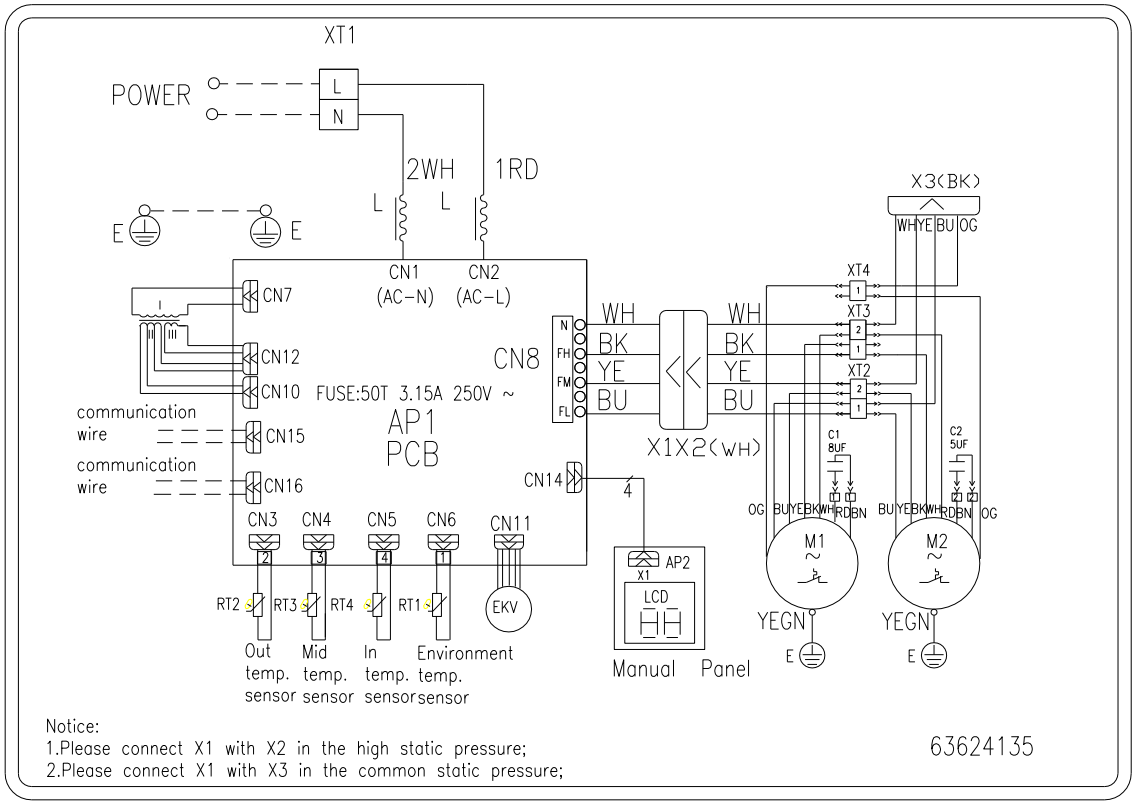
INV-R56P/Na-K, INV-R71P/Na-K, INV-R80P/Na-K, INVL-R56P/Na-K, INVL-R71P/Na-K, INVL-R80P/Na-K



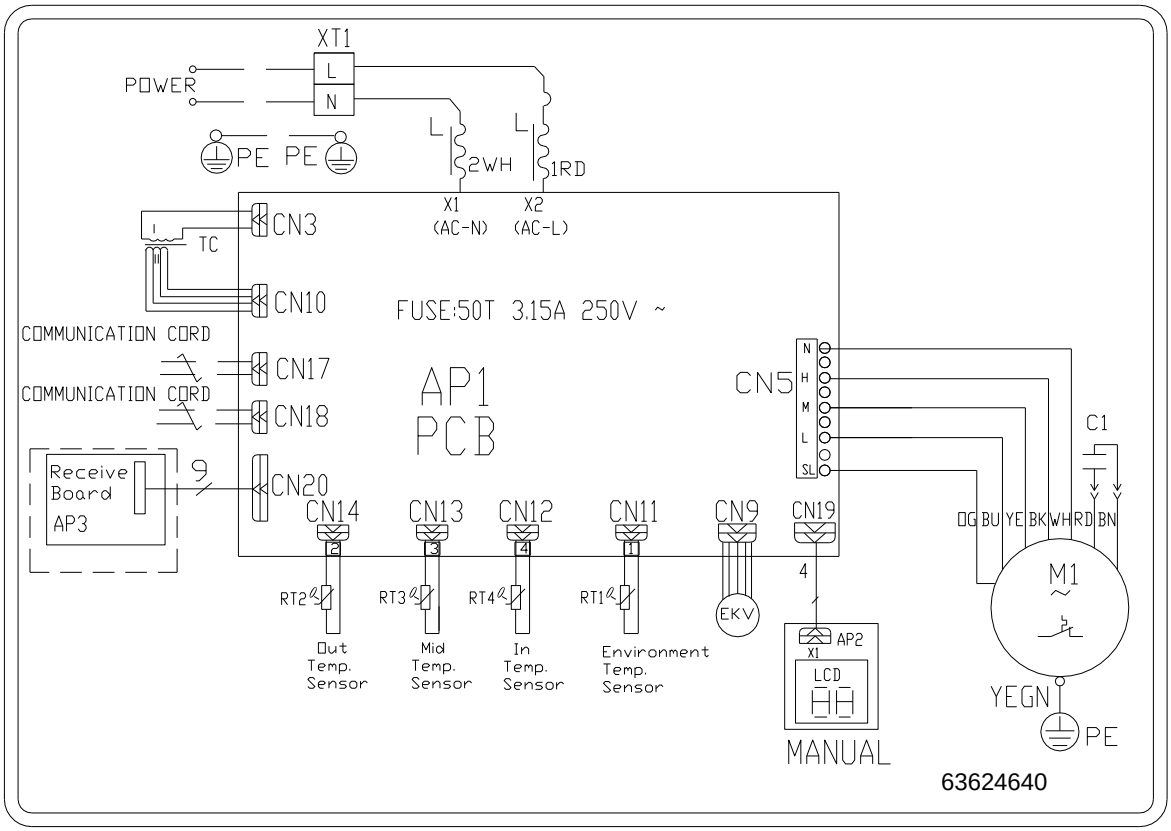
INV-R90P/Na-K, INV-R112P/Na-K, INV-R140P/Na-K, INVL-R90P/Na-K, INVL-R112P/Na-K, INVL-R140P/Na-K



INV-R125P/Na-K, INVL-R125P/Na-K

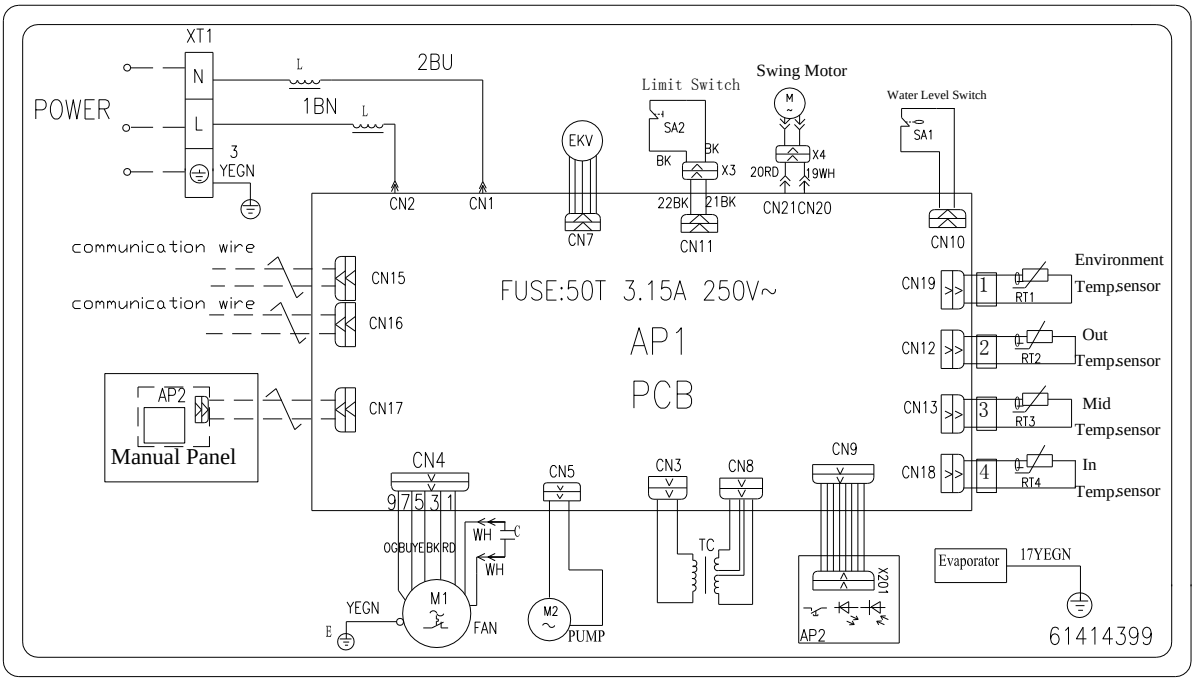


INV-R22P/NaB-K, INV-R25P/NaB-K, INV-R28P/NaB-K, INV-R32P/NaB-K, INV-R36P/NaB-K

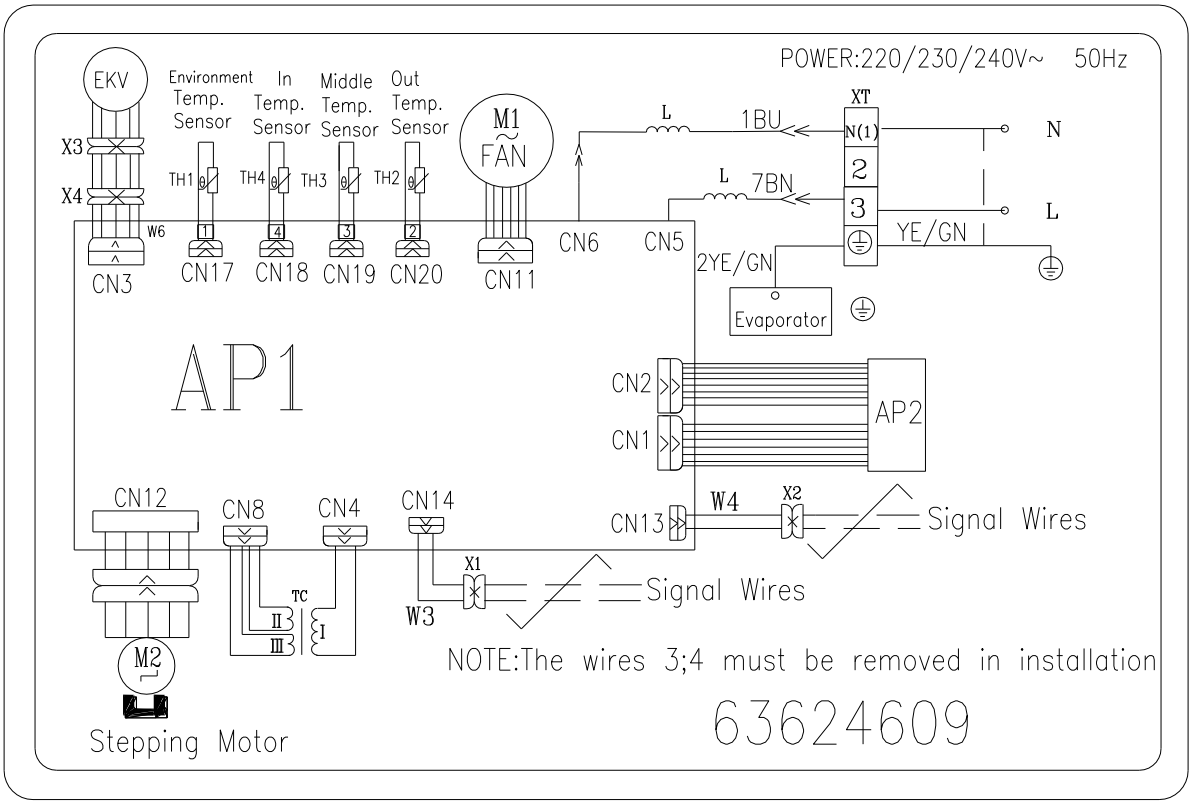


INV-R28T/Na-K, INV-R36T/Na-K, INV-R45T/Na-K, INV-R50T/Na-K, INV-R56T/Na-K, INV-R71T/Na-K,

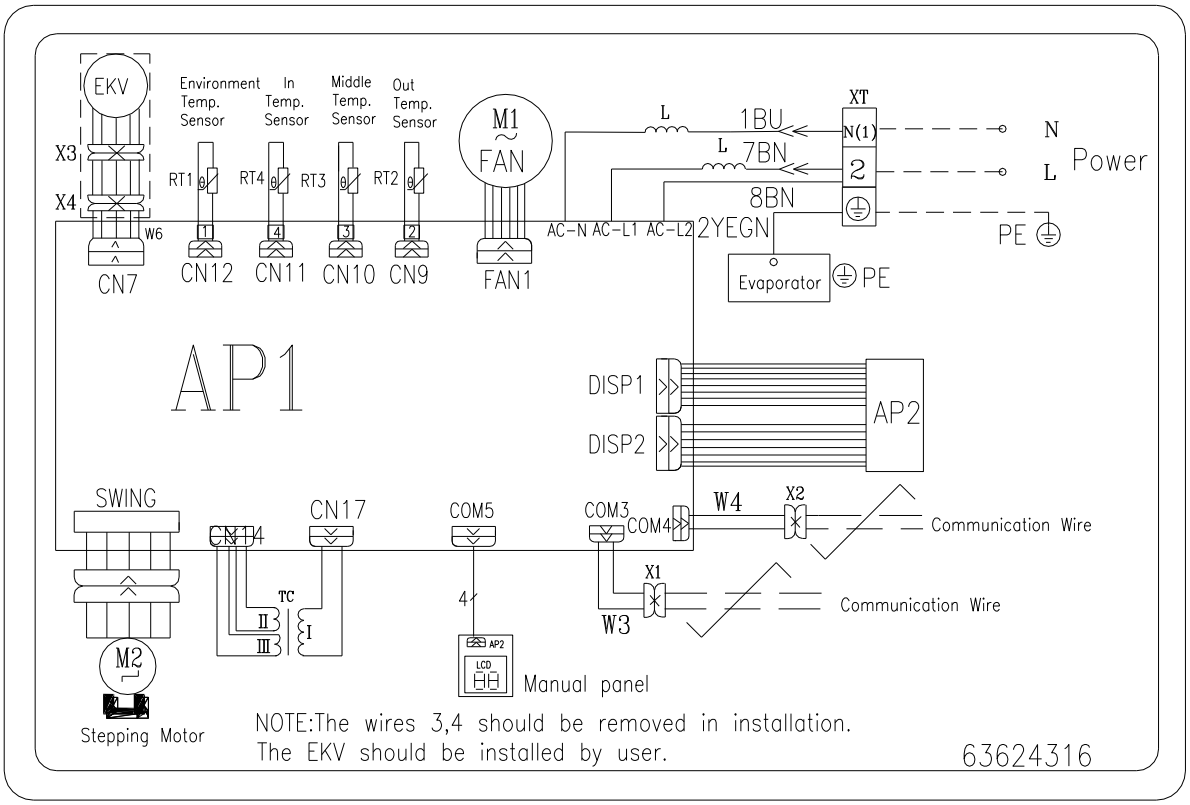
INV-R80T/Na-K, INV-R90T/Na-K, INV-R112T/Na-K, INV-R125T/Na-K, INVL-R28T/Na-K, INVL-R36T/Na-K, INVL-R45T/Na-K, INVL-R50T/Na-K, INVL-R56T/Na-K, INVL-R71T/Na-K, INVL-R80T/Na-K, INVL-R90T/Na-K, INVL-R112T/Na-K, INVL-R125T/Na-K



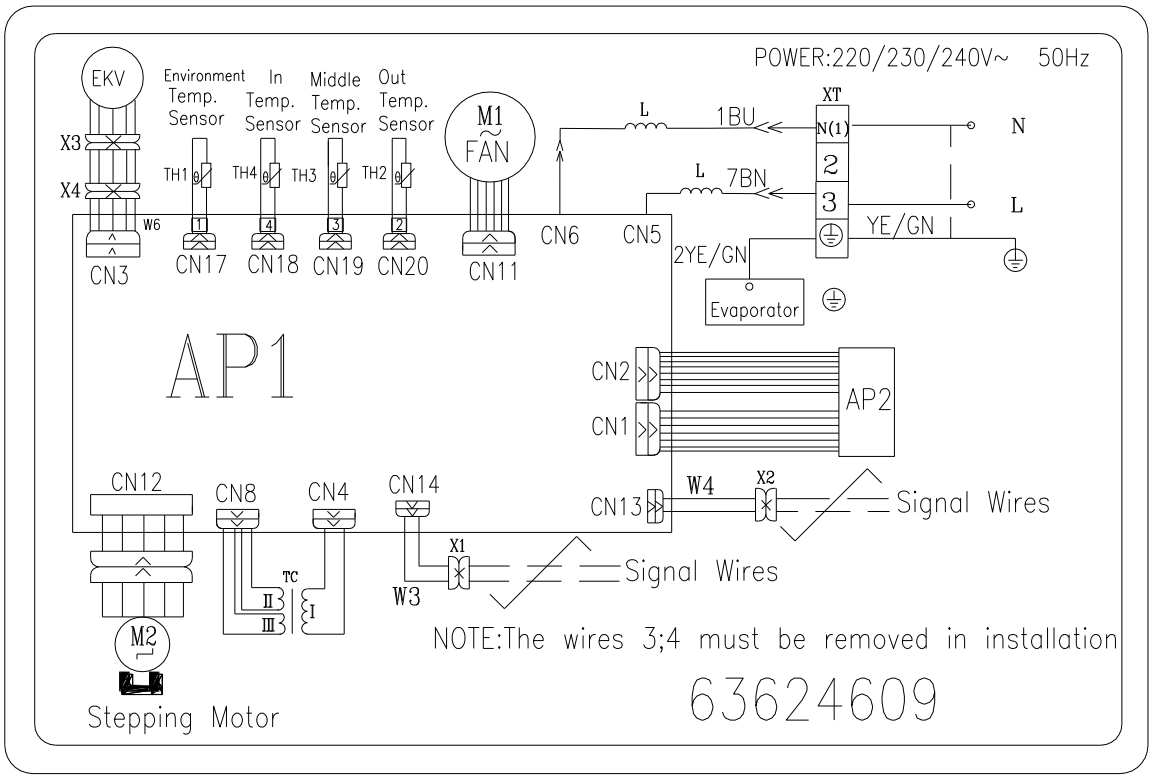
INV-R22G/NaB-K, INVL-R22G/NaB-K, INV-R28G/NaB-K, INVL-R28G/NaB-K, INV-R36G/NaB-K, INVL-R36G/NaB-K, INV-R45G/NaB-K, INVL-R45G/NaB-K



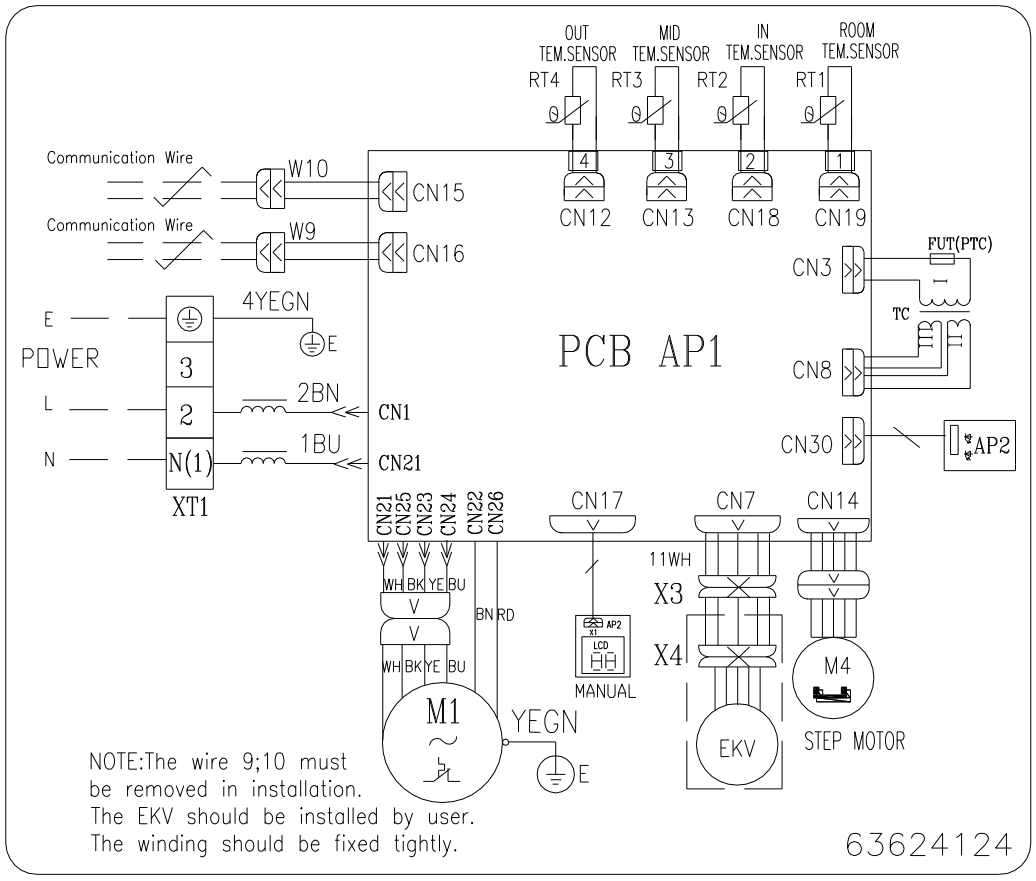
INV-R50G/NaB-K, INV-R56G/NaB-K, INVL-R50G/NaB-K, INVL-R56G/NaB-K



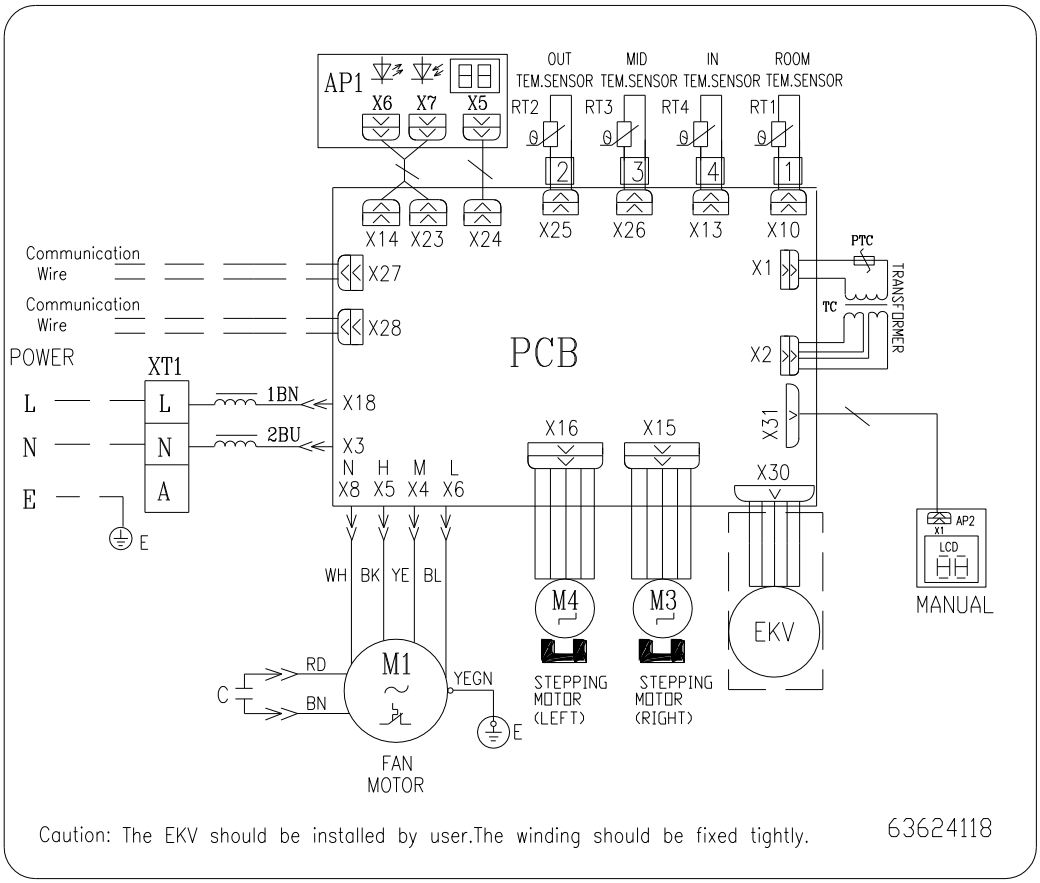
INV-R22G/NaC-K,INV-R28G/NaC-K , INV-R36G/NaC-K, INV-R45G/NaC-K, INVL-R22G/NaC-K, INVL-R28G/NaC-K , INVL-R36G/NaC-K, INVL-R45G/NaC-K



INV-R71G/Na-K, INV-R80G/Na-K, INVL-R71G/Na-K, INVL-R80G/Na-K

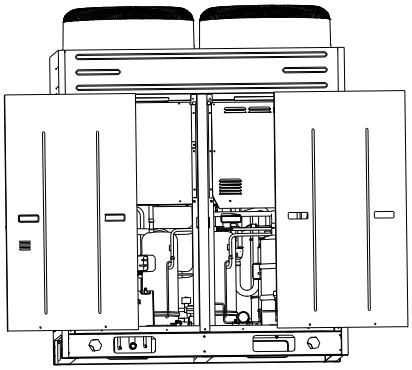
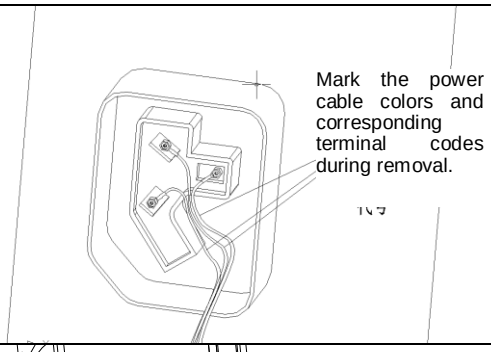
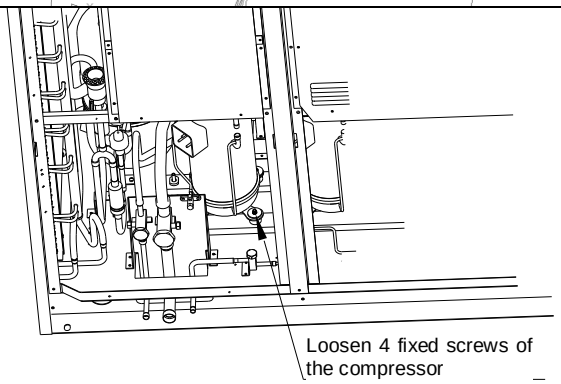
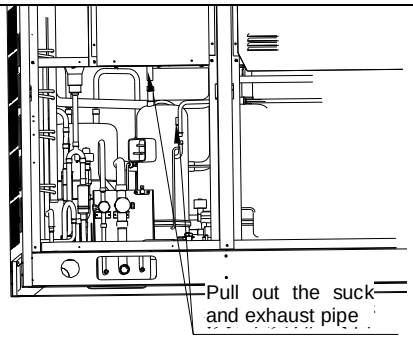


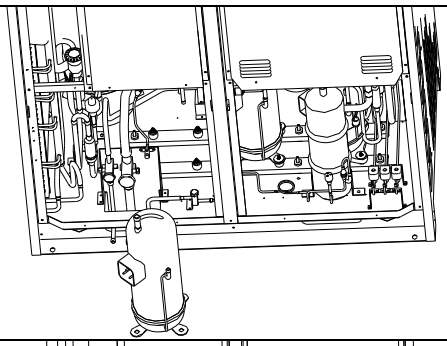
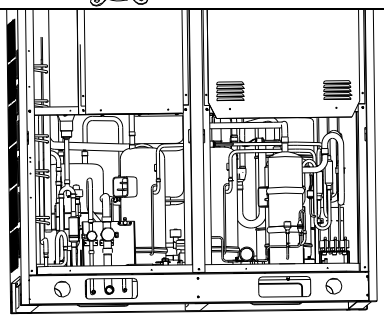
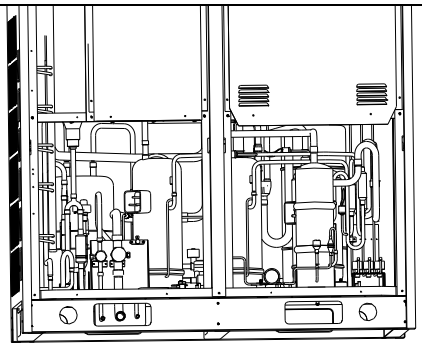
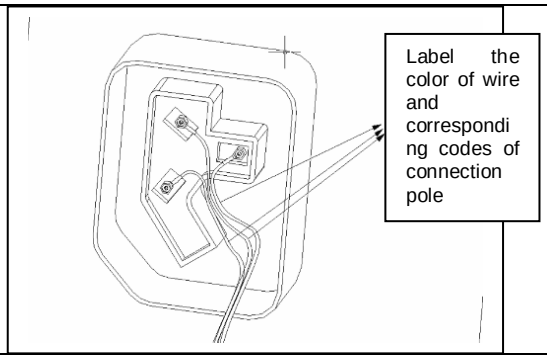
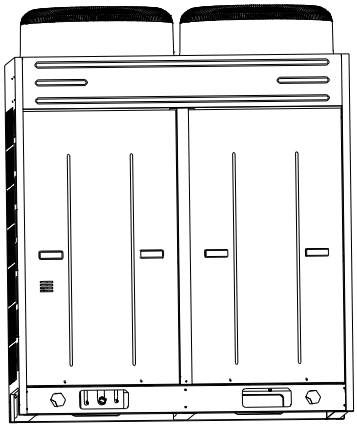
INV-R28Zd/Na-K, INV-R36Zd/Na-K, INV-R50Zd/Na-K, INV-R71Zd/Na-K, INV-R90Zd/Na-K, INV-R112Zd/Na-K, INV-R125Zd/Na-K, INVL-R28Zd/Na-K, INVL-R36Zd/Na-K, INVL-R50Zd/Na-K, INVL-R71Zd/Na-K, INVL-R90Zd/Na-K, INVL-R112Zd/Na-K, INVL-R125Zd/Na-K

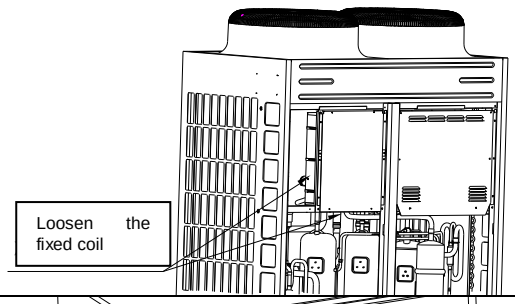
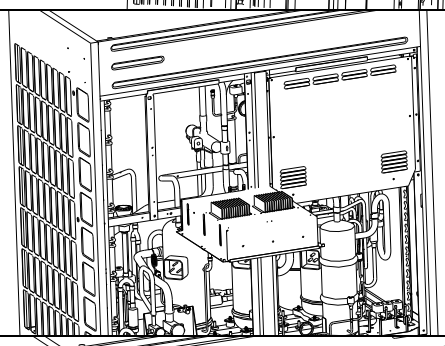
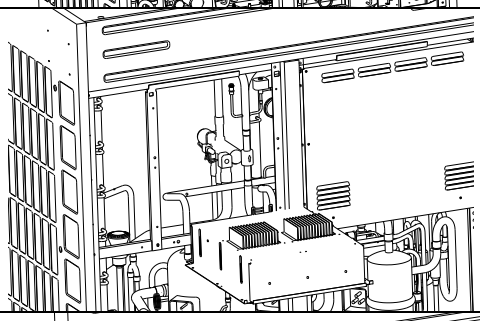
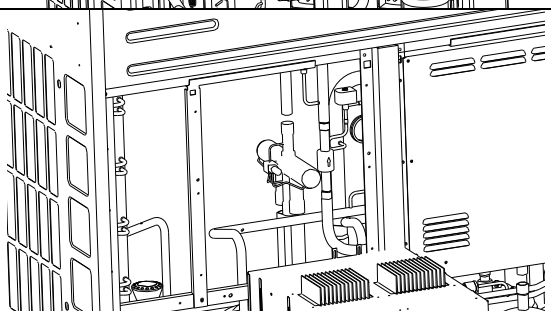
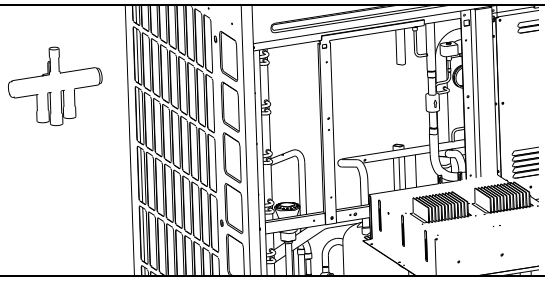


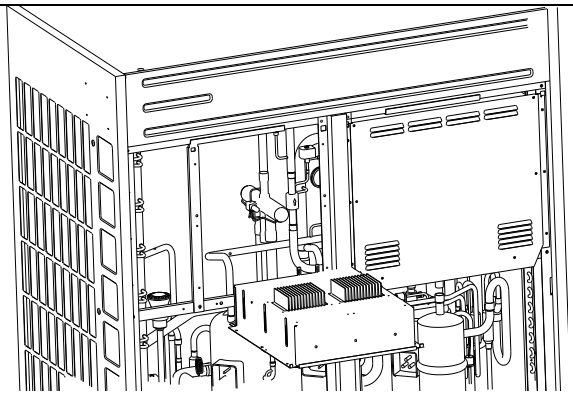
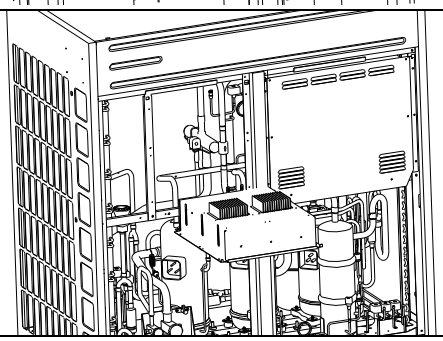
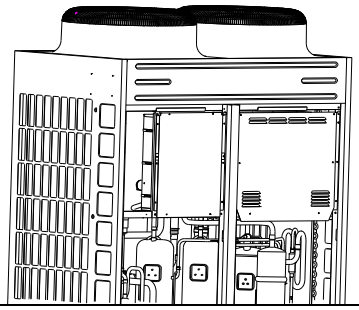
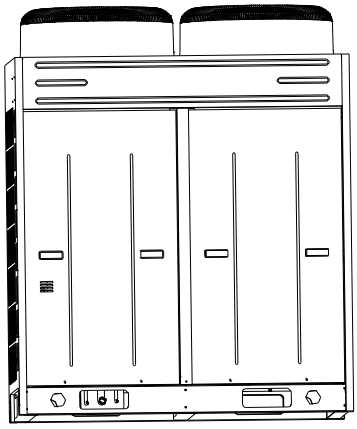
4 DISASSEMBLY AND ASSEMBLY PROCEDURE OF MAIN PARTS

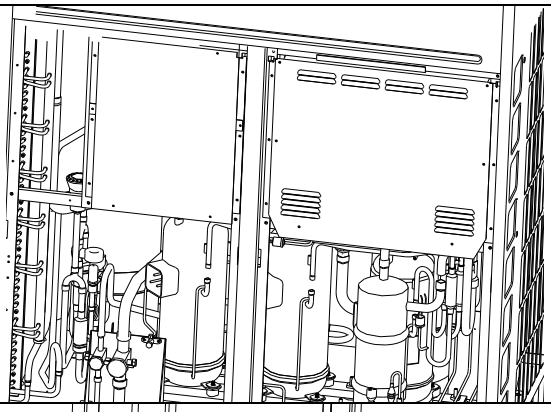
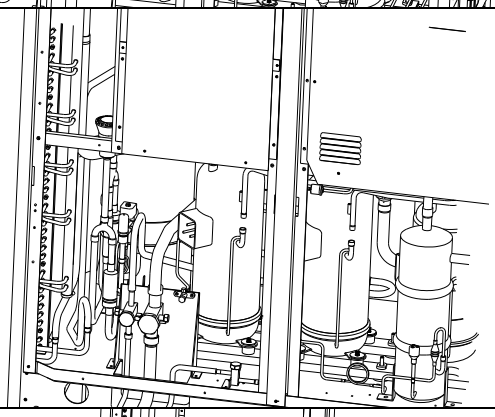
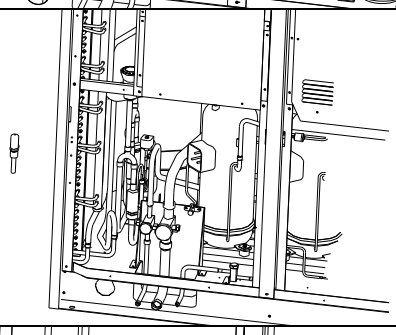
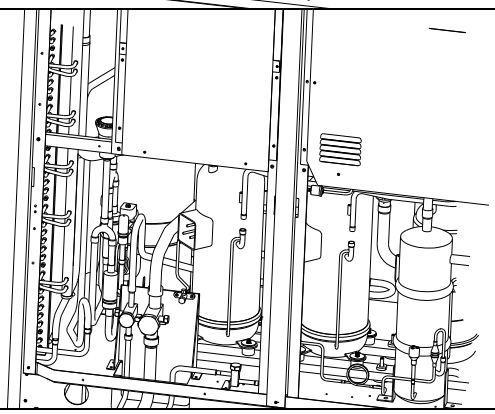
4.1Outdoor Unit

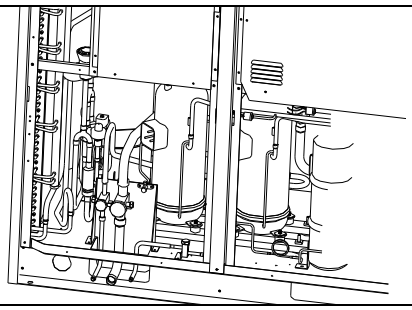
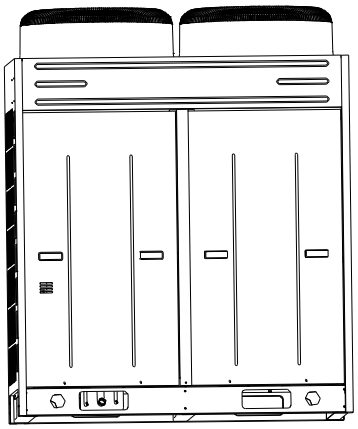
Removal and Installation of Compressor		
Remark: Before removing the compressor, make sure that there is no refrigerant inside the pipe system and that the power has been cut off.		
Step	Illustration	Handling Instruction
1. Remove the front panel		● Screw off the 4 fixed screws at both sides of the front plate with screwdriver. ● Lift the front plate, and get down to put away. Note: there are 2 buckling positions at both sides of the front plate to connect with the left and right side plate. When removing the front plate, please don't pull directly(after loosening the bolts), lift first and then pull.
2. Removal of compressor power wire, electric heating belt and air-out sensor		● Loosen the fixed screw of power wire with screwdriver; ● Pull out the power wire; ● Pull out the electric heating belt and air-out sensor. Note: When removing the power cable, please mark the power cable color and corresponding terminal, thus to avoid error during reinstallation.
3. Remove the nuts fixing the compressor		● Screw off the 4 fixed screws with spanner.
4. Remove the suction and exhaust pipe		● Use gas welding to heat the suction and exhaust pipes. Then, pull them out from the compressor. ● Weld by charging nitrogen for protection, with the nitrogen pressure kept at 0.5±0.1kgf/c ㎡ (relative pressure). ● During heating, take care to prevent the substances around from burn due to high temperature.

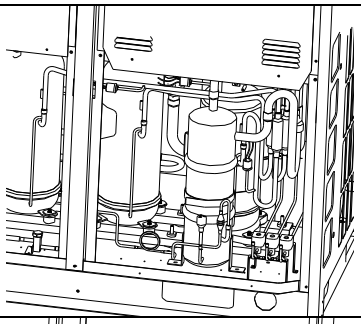
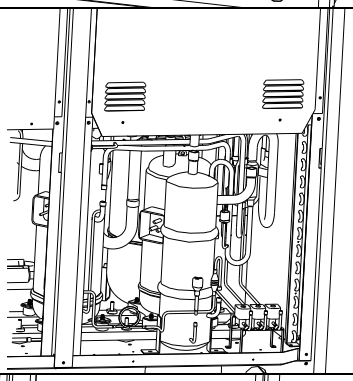
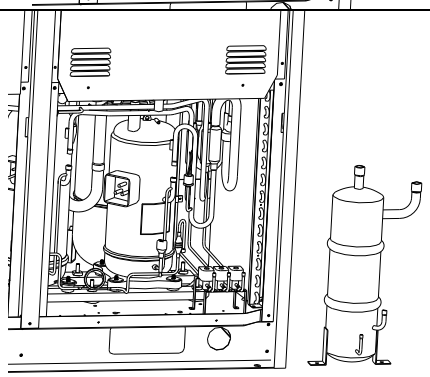
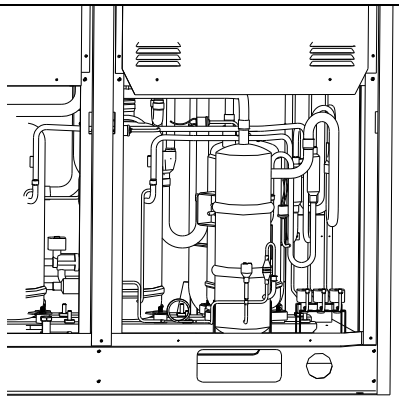
5. Remove the compressor		● Remove the compressor from chassis
6. Fix the new compressor to chassis		● Put the new compressor to correct position. ● Firstly, use spanner to tighten the bolts fixing the compressor. ●No inversion while install compressor.
7. Connect the suction and exhaust pipe of compressor to system pipeline		● Use gas welding to heat the suction and exhaust pipes. Then, pull them out from the compressor. ● Weld by charging nitrogen for protection, with the nitrogen pressure kept at 0.5±0.1kgf/c ㎡ (relative pressure). ● During heating, take care to prevent the substances around from burn due to high temperature.
8. Connect and wrap the compressor power wire, electric heating belt and air-out senor.		● Install the power cable to the fixing screw according to the disassembly procedures. ● Use screwdriver to tighten the screws fixing the power cable. ●Connect and wrap the electric heating belt and air-out sensor.
9 Check and fix the front plate		● Check if the elements and wires are connected correctly. ●After that, cover both sides of the front plate, and fix nuts. 。.

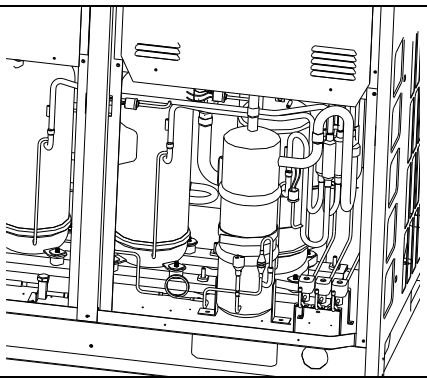
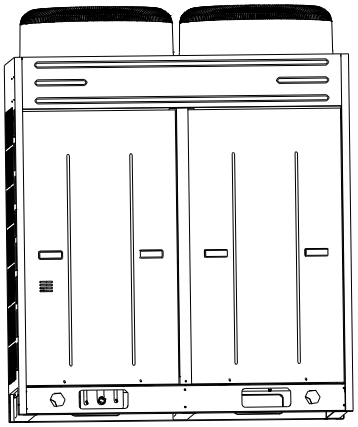
Disassembly and Assembly of 4-way valve		
Remarks: Before removing the 4-way valve, make sure that there is no refrigerant inside the pipe system and that the power has been cut off.		
Step	Illustration	Handling Instruction
1. Loosen the left fixing coil of the left electric box and the fixed nuts of electric box.		●Remove the left and right front plate and put away; ●Loosen the left fixing coil of the left electric box and the fixing coil below that. ●Loosen the fixed nuts of the left electric box with screwdriver.
2. Push down the left electric box		●Put a chair or other support with a certain height at the front of the left electric box. ●Push down the left electric box again, and put the chair or support under the front part of the electric box.
3. Removal of 4-way valve fittings		●Use the screwdriver to loosen the 4-way valve fittings; ●Move out the 4-way valve fittings from the 4way valve fittings.
4. Remove the 4-way valve		● Use gas welding to heat the pipes connected on the four openings of 4-way valve. Then, pull them out from 4-way valve. ● Before welding 4-way valve, please record the orientation of 4-way valve and installing position of each opening. Note: During welding, take care not to let the flame burn other elements.
5. Remove 4-way valve		● Remove the old 4-way valve from the unit.

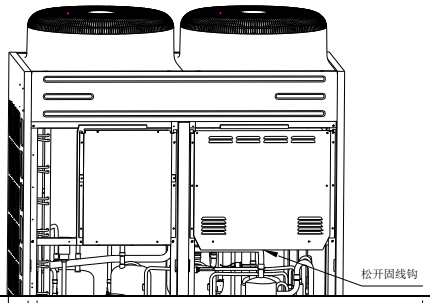
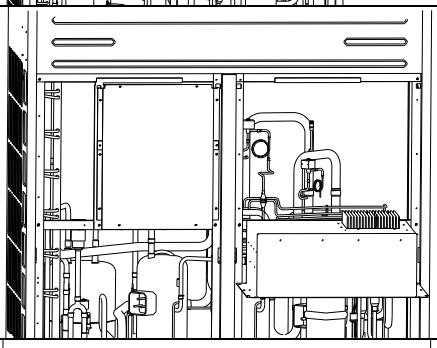
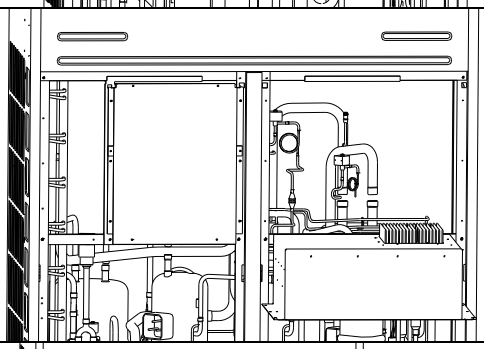
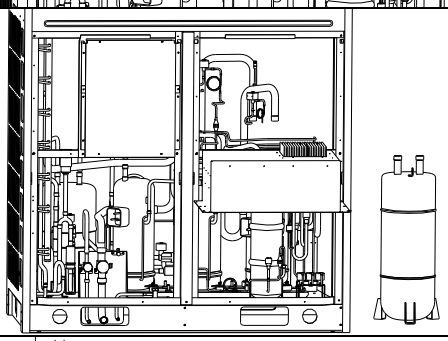
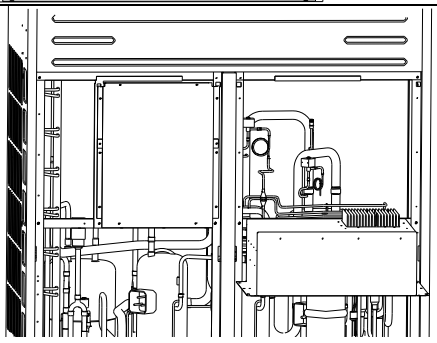
6 Install new 4-way valve		● Install the new 4-way valve to correct position. ● Connect the new 4-way valve to the pipe. ● When welding the 4-way valve, please wrap the valve body with wet cloth, thus to prevent the guide inside the valve body from burn. Also take care to prevent any water from flowing into the pipe. ● Weld by charging nitrogen, with the nitrogen pressure kept at 0.5±0.1kgf/c ㎡(relative pressure).
7 Assembly 4-way valve fittings		●Install the fittings to the new 4-way valve according to the uninstallation order.
8 Fix the electric box and tighten fixing coil.		●Lift the electric box and fixed with fixed nuts; ●Tighten the left fixing coil of electric box and the fixing coil below that.
9 Check and fix the front plate.		● Check if the elements and wires are connected correctly. ●After that, cover both sides of the front plate, and fix nuts. .

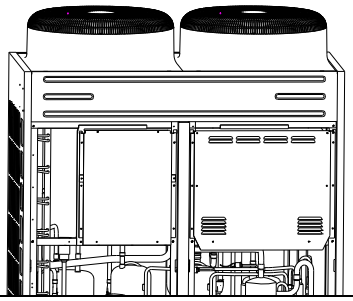
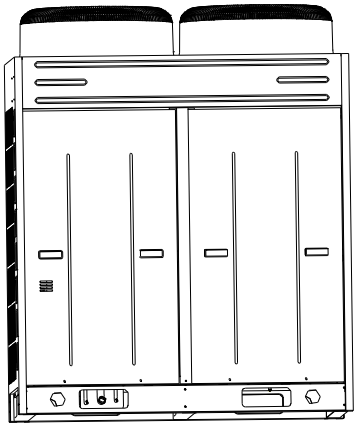
Removal and Installation of Electronic Expansion Valve		
Remarks: Before removing Electronic Expansion Valve, make sure that there is no refrigerant inside the pipe system and that the power has been cut off.		
Step	Illustration	Handling Instruction
1. Remove the coil of electronic expansion valve		●Dismantle the left and right front plate and put away; ● Remove the coil of electronic expansion valve;.
2. Remove the electronic expansion valve		● Loosen the connection pipe of electronic expansion valve by welding; then pull out the connection pipe. Note: During welding, take care not to let the flame burn other elements.
3 Move out the electric expansion valve		●Move out the electric expansion valve
4 Mount new electric expansion valve		● Weld the connection pipe of electronic expansion valve. ●When welding the electric expansion valve, please wrap the valve body with wet cloth. ● Weld by charging nitrogen, with the nitrogen pressure kept at 0.5±0.1kgf/c ㎡ (relative pressure). Note: During welding, take care not to let the flame burn other elements.

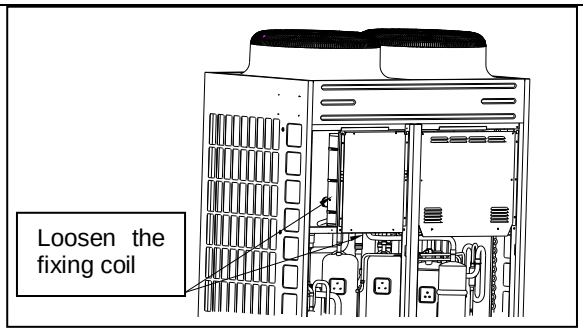
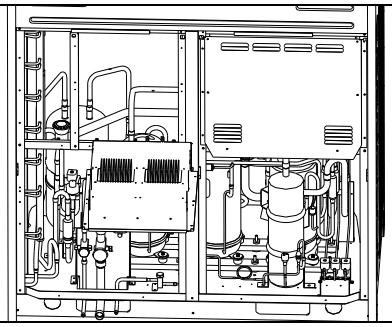
5. Assemble the coil of electronic expansion valve		● Assemble the coil of electronic expansion valve.
6. Check and fix the front plate.		● Check if the elements and wires are connected correctly. ●After that, cover both sides of the front plate, and fix nuts. .

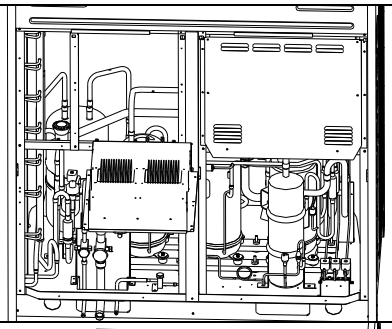
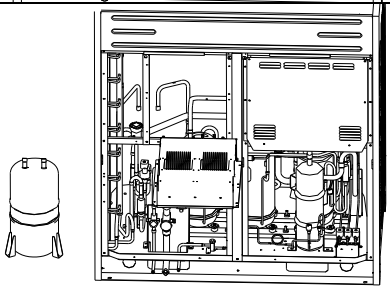
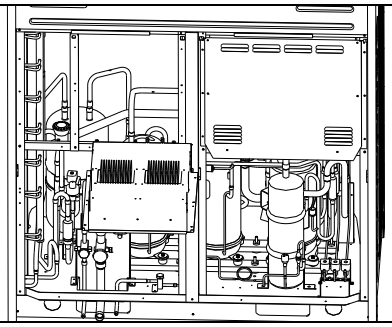
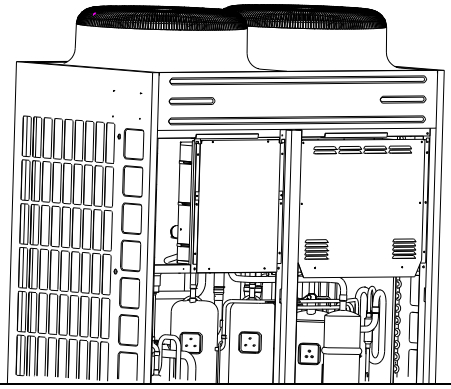
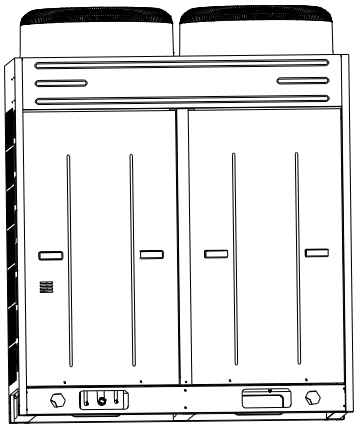
Removal and Installation of Oil Separator		
Remarks: Before removing Oil Separator, make sure that there is no refrigerant inside the pipe system and that the power has been cut off.		
Step	Illustration	Handling Instruction
1 Loosen the fixed nuts of the oil separator and electric heating belts		●Dismantle the left and right front plate and put away; ● Use screwdriver to loosen the screws fixing the oil separator. ●Loosen the electric heating belt from the oil separator
2 Disassembly of oil separator		● Loosen the four joints on oil separator sub-assembly by welding; then, pull out the connection pipe. Note: During welding, take care not to let the flame burn other elements.
3 Move out the oil separator		●Move out the oil separator from the chassis.
4 Assembly new oil separator		● Weld the four joints on oil separator sub-assembly. ● Weld by charging nitrogen, with the nitrogen pressure kept at 0.5±0.1kgf/c ㎡ (relative pressure). Note: During welding, take care not to let the flame burn other elements.

5 Fix the fixed nuts of oil separator and assembly electric heating belt.		●Fix the fixed nuts ●Assembly electric heating belt.
6 Check and fix the front plate.		● Check if the elements and wires are connected correctly. ●After that, cover both sides of the front plate, and fix nuts. .

Removal and Installation of Gas-Liquid Separator		
Remarks: Before removing Gas-Liquid Separator, make sure that there is no refrigerant inside the pipe system and that the power has been cut off.		
Step	Illustration	Handling Instruction
1 Loosen the lower fixing coil of the right electric box and the fixed nuts of electric box.		●Dismantle the left and right front plate and put away; ●Loosen the lower fixing coil of the right electric box and the fixing coil below that.; ●Loosen the fixed nuts of the right electric box with screwdriver.
2 Push down the right electric box		●Put a chair or other support with a certain height at the front of the left electric box. ●Push down the left electric box again, and put the chair or support under the front part of the electric box.
3 Removal of gas-liquid separator		●Pull out the gas-liquid separator after gas welding the 2 pipe connections; Note: during heating, take care to prevent the other components from burn.
4 Move out gas-liquid separator		●Adjust and lean the connection pipe on the gas-liquid separator, thus to pull the gas-liquid separator; ●Move out the gas-liquid separator from the right electric box position
5 Assembly new gas-liquid separator		●Assembly the gas-liquid separator according to its in and out pipe position, and weld 2 connection points of the gas-liquid separator. ●Weld by charging nitrogen for protection, with the nitrogen pressure kept at 0.5±0.1kgf/c ㎡ (relative pressure); Note: during heating, take care to prevent the other components from burn.

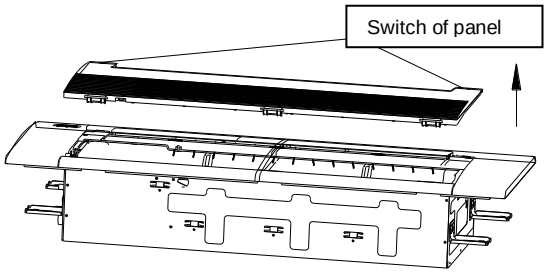
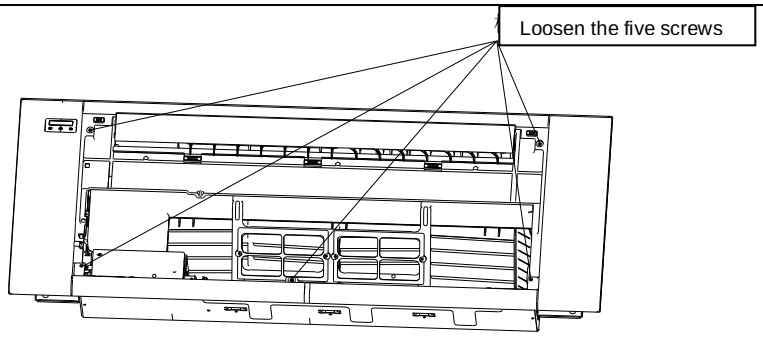
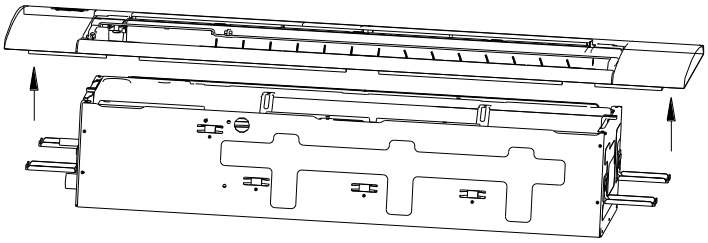
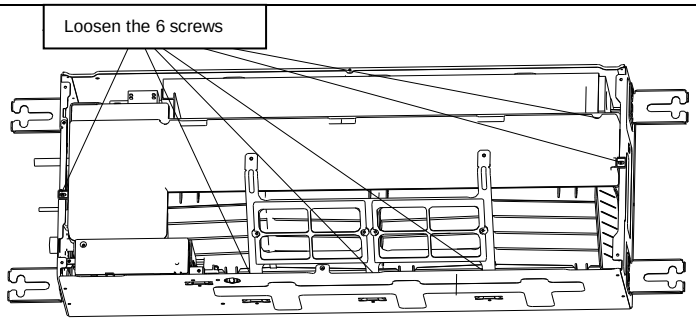
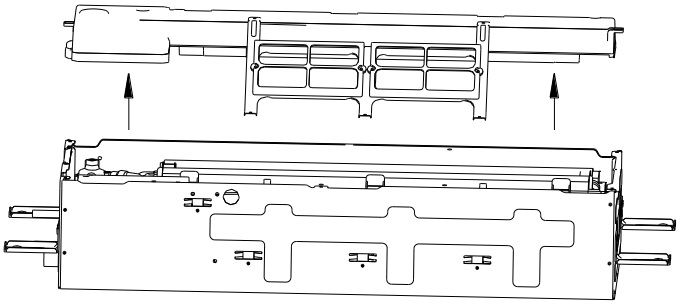
6 Fix the fixed screws of oil separator and assembly electric heating belt		●Move up the right electric box, and fix with fixed screws; ●Tighten the fixing coil of the right electric box.
7 Check and fix the front plate.		●Check if the elements and wires are connected correctly. ●After that, cover both sides of the front plate, and fix screws.

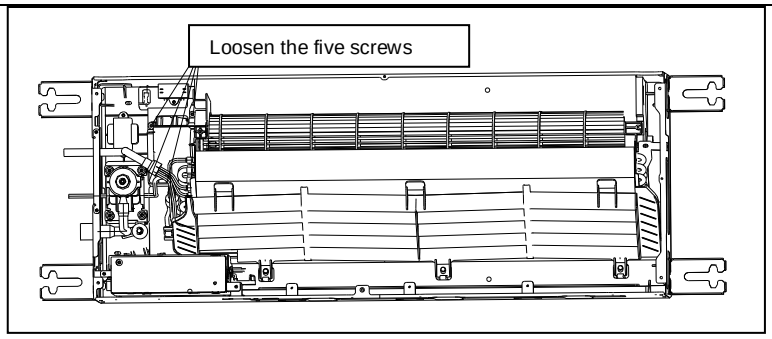
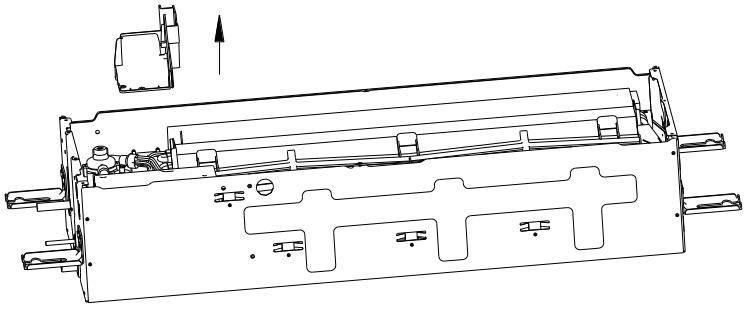
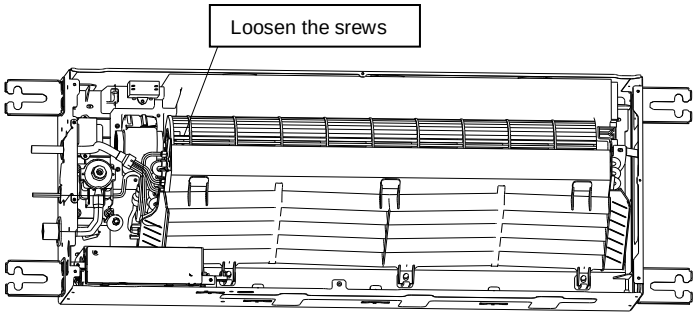
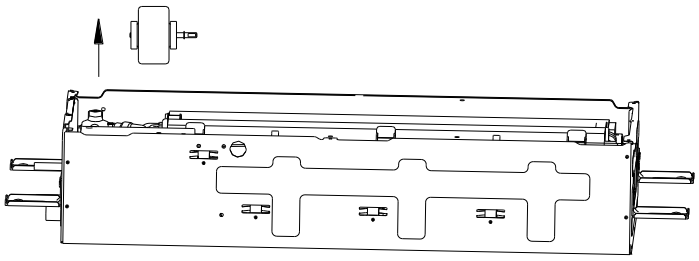
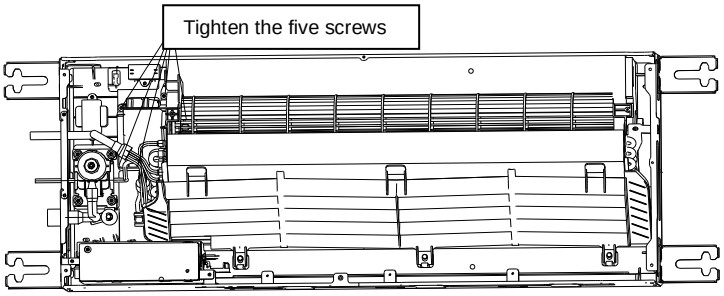
Removal and Installation of Liquid Tank		
Remarks: Before removing Liquid Tank, make sure that there is no refrigerant inside the pipe system and that the power has been cut off.		
Step	Illustration	Handling Instruction
1 Loosen the left fixing coil of the left electric box and the fixed screws of electric box.		●Remove the left and right front plate and put away; ●Loosen the left fixing coil of the left electric box and the fixing coil below that. ●Loosen the fixed screws of the left electric box with screwdriver.
2 Push down the left electric box		●Put a chair or other support with a certain height at the front of the left electric box. ●Push down the left electric box again, and put the chair or support under the front part of the electric box.

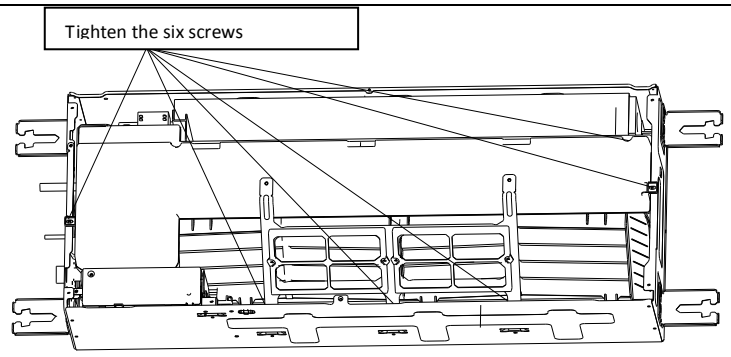
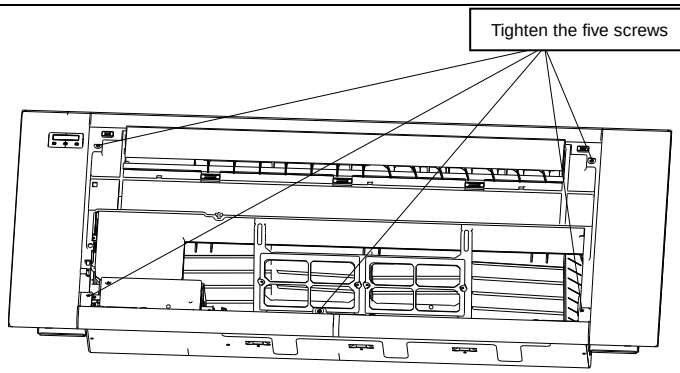
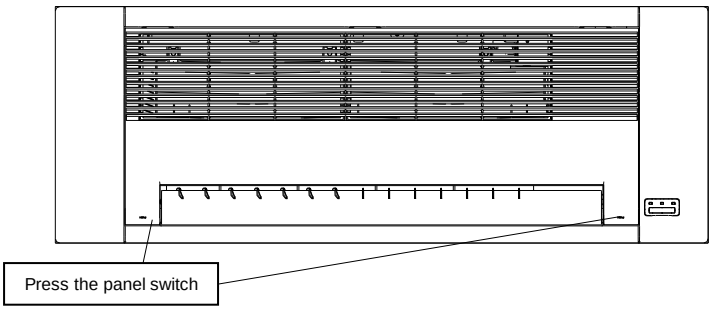
3 Assembly the liquid storage tank		●Use gas welding to heat the 2 pipe connections, and then pull them out. Note: During welding, take care not to let the flame burn other elements.
4 Move away the liquid storage tank		●Adjust and lean the connection pipe on the liquid storage tank, thus to pull the liquid storage tank; ●Move out the liquid storage tank from the left electric box.
5 Assembly new liquid storage tank		● Weld the two joints on liquid tank. ● Weld by charging nitrogen, with the nitrogen pressure kept at 0.5±0.1kgf/c ㎡(relative pressure). Note: During welding, take care not to let the flame burn other elements.
6 Fix the electric box, and tighten the fixing coil		●Lift the electric box and fixed with fixed screws; ●Tighten the left fixing coil of electric box and the fixing coil below that..
7 Check and fix the front plate.		● Check if the elements and wires are connected correctly. ●After that, cover both sides of the front plate, and fix screws. .

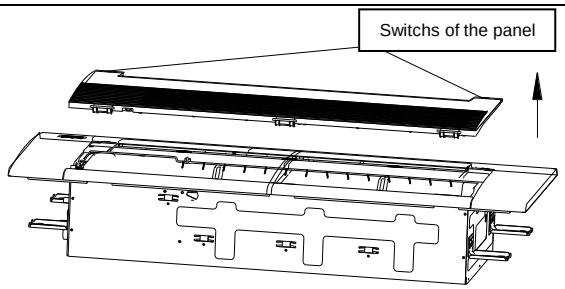
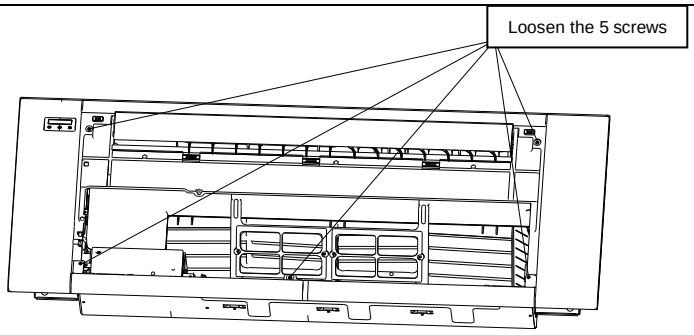
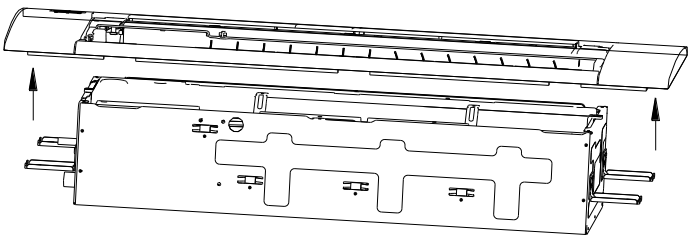
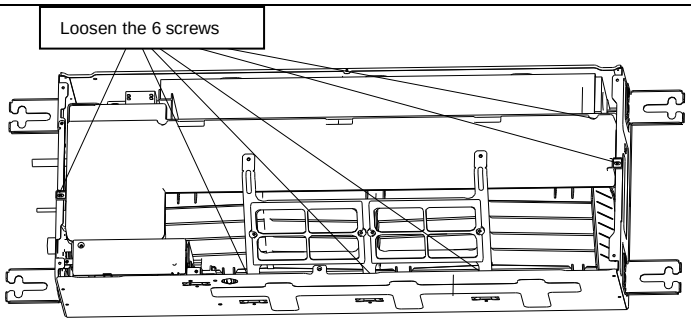
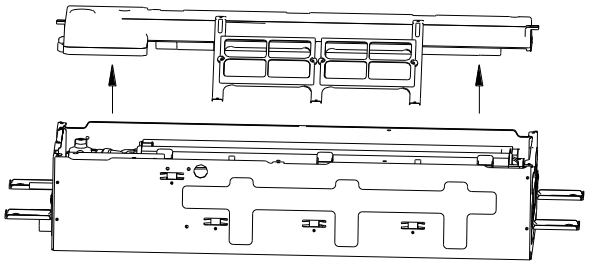
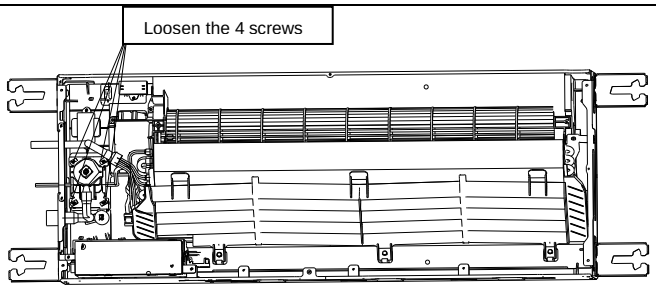
4.2 Removal and Assembly of Indoor Unit

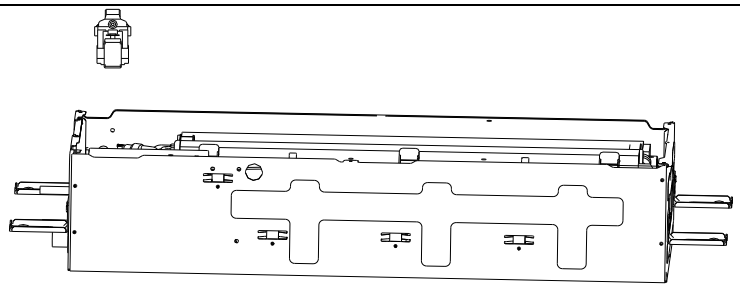
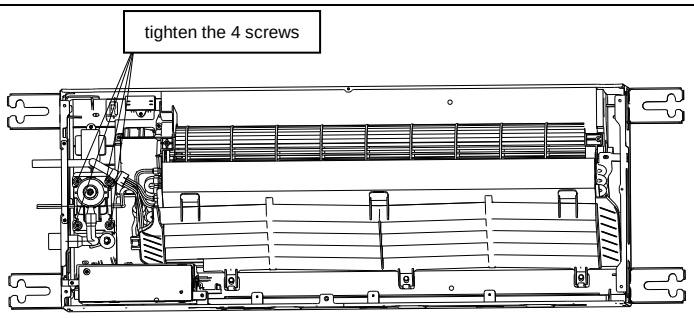
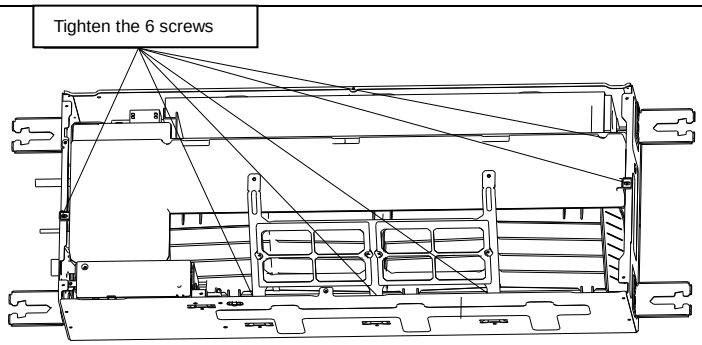
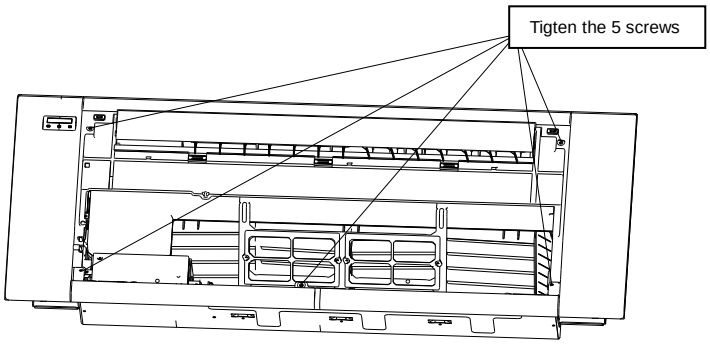
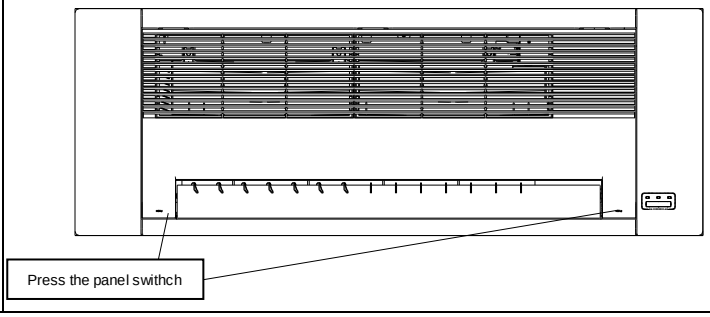
- Single side air-out patio unit

Removal and Assembly of Fan Motor		
Step	Illustration	Handling Instruction
1 Move out the front panel assy		●Lightly press the switch of front panel, thus to loosen one side of the panel, and three snaps on the opposite would drop off, and then the front panel could be removed.
2 Loosen fixed screws between the assy of the front panel and the body		●Use screwdriver to loosen the fixed screws between the assy of the front panel and the body.
3Move out the assy of the front pane		●Move out the assy of the front pane
4. Loosen the screws fixing the water tray		● Use screwdriver to loosen the screws fixing the water tray
5 Move out the water tray and filter support		●Move out the water tray and filter support.

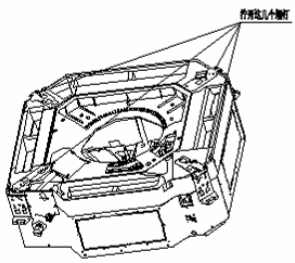
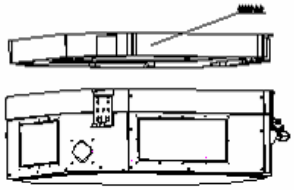
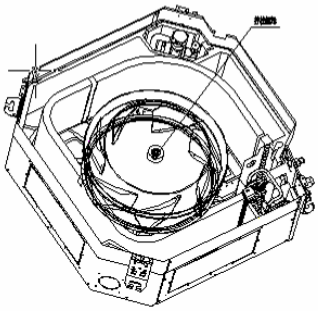
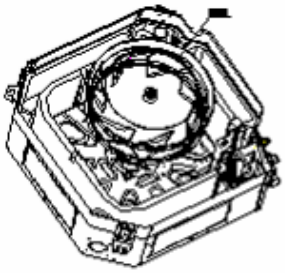
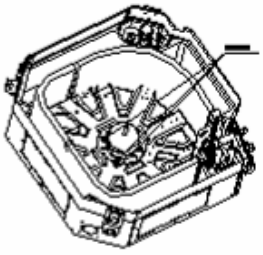
6 Loosen the fixed screws on the motor top assy		●Use screwdriver to the fixed screws on the motor top assy.
7. Move out the motor top assy.		●Move out the motor top assy.
8. Loosen the fixed screws between the motor and motor shaft		Rotate the cross flow fans, thus to make the screws upwards, and then use screwdriver to loosen screws.
9. Remove the motor and replace it		● Remove the motor and replace it
10. Assembly the motor top assy and tighten the screws		●Assembly the motor top assy and use screwdriver to tighten the fixed screws on the motor top and cross flow fans.

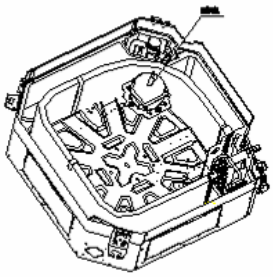
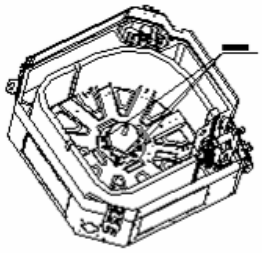
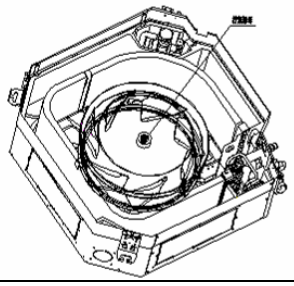
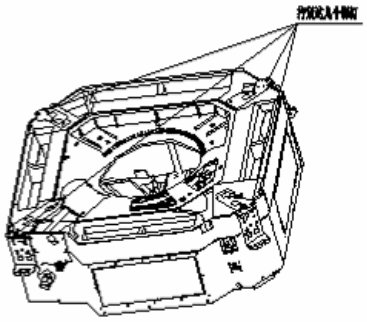
11 Assembly water tray and filter support, and tighten the screws		●Assembly water tray and filter support, and use screwdriver to tighten the fixed screws on water tray and filter support.
12 Assembly the front panel assy and tighten the screws		●Assembly the front panel assy and use screwdriver to tighten the screws.
13. Assembly the front panel assy		●Assembly the front panel assy, and lightly press the panel switch at both ends to lock the switch. Finish the installation.

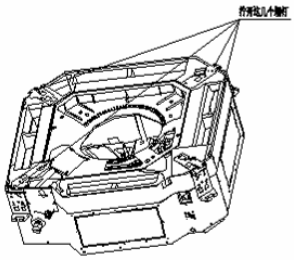
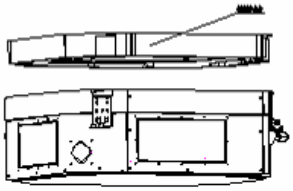
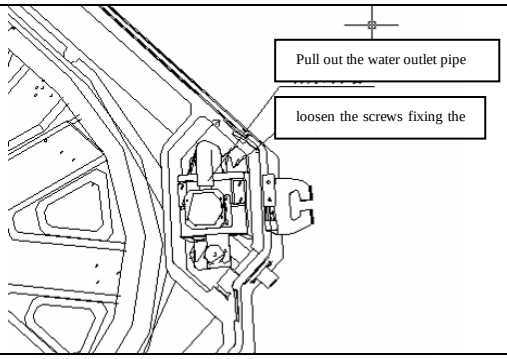
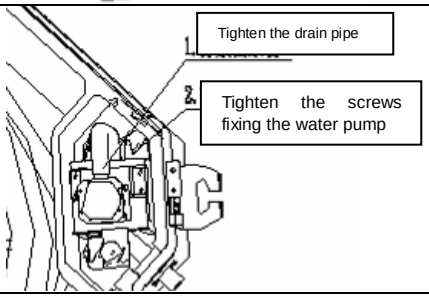
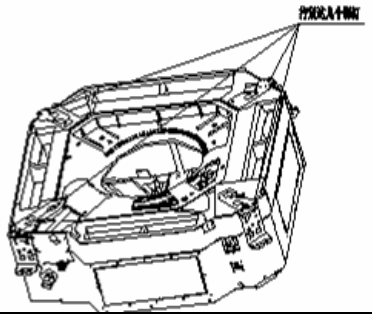
Removal and Installation of Drainage Pump		
Step	Illustration	Handling Instruction
1 Move out the front panel assy		●Lightly press the switch of front panel, thus to loosen one side of the panel, and three snaps on the opposite would drop off, and then the front panel could be removed.
2 Loosen fixed screws between the assy of the front panel and the body		●Use screwdriver to loosen the fixed screws between the assy of the front panel and the body.
3 Move out the assy of the front panel		●Move out the assy of the front panel
4. Loosen the screws fixing the water tray		● Use screwdriver to loosen the screws fixing the water tray.
5 Move out the water tray and filter support		●Move out the water tray and filter support
6 Loosen the fixed screws on water pump		●Use screwdriver to loosen the fixed screws on water pump, and pull out the pump drainpipe from the water pump.

7. Remove the water pump and replace it.		● Remove the water pump and replace it.
8. Connect the drainage pipe and use screwdriver to tighten the screws fixing the water pump.		●Connect the drainage pipe and use screwdriver to tighten the screws fixing the water pump.
11. Assembly water tray and filter support and tighten the fixed screws		●Assembly water tray and filter support, and use screwdriver to tighten the fixed screws on water tray and filter support.
12. Assembly the front panel assy and tighten the screw		●Assembly the front panel and use screwdriver to tighten the screw
13. Assembly the front panel		●Assembly the front panel assy, and lightly press the panel switch at both ends to lock the switch. Finish the installation.

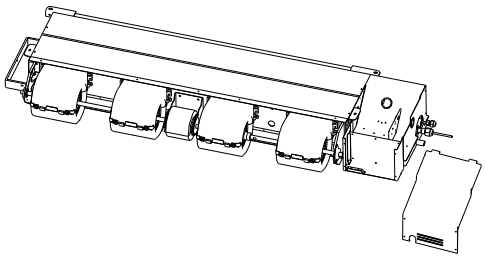
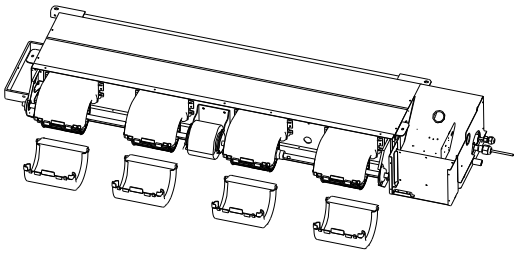
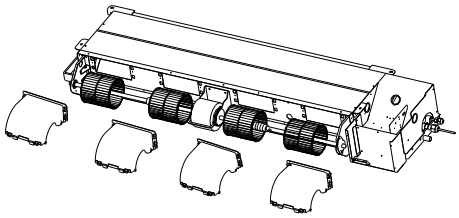
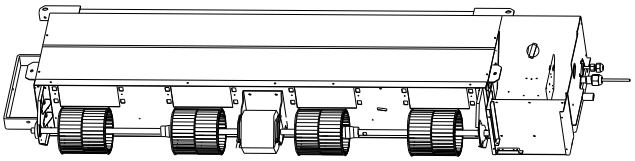
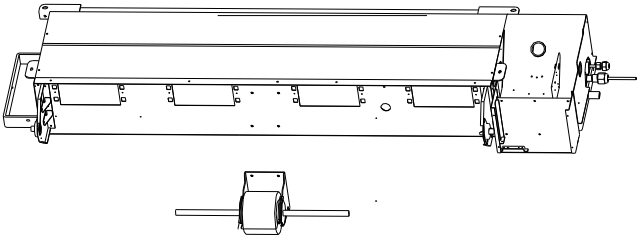
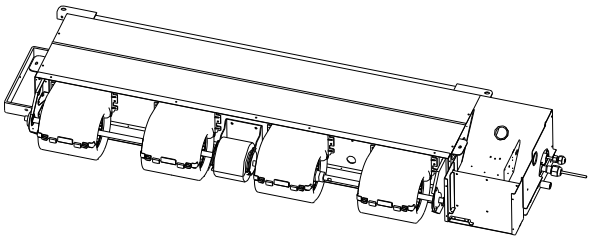
- Cassette-type Unit

Removal and Assembly of Fan Motor		
Step	Illustration	Handling Instruction
1. Loosen the screws fixing the water tray		● Use screwdriver to loosen the screws fixing the water tray.
2. Remove the water tray		● Remove the water tray
3. Loosen the bolts fixing the fan		● Use spanner to loosen the bolts fixing the fan.
4. Remove the fan		● Remove the fan
5. Loosen the screws fixing the motor		● Use screwdriver to loosen the screws fixing the motor

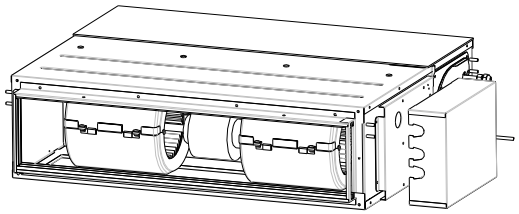
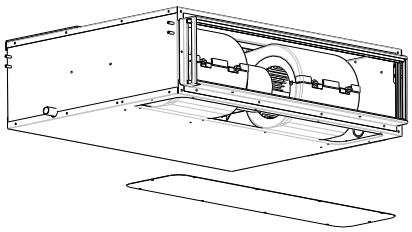
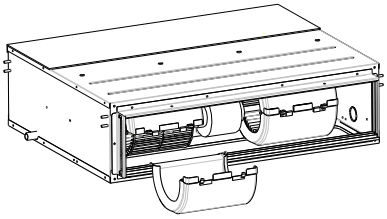
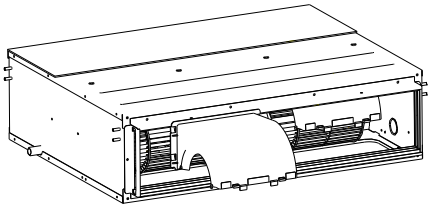
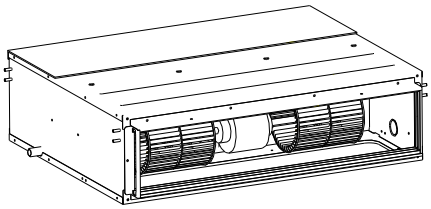
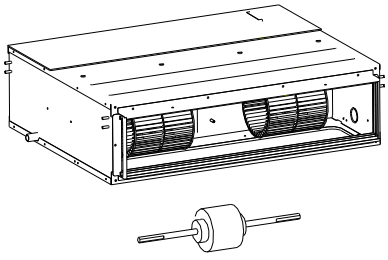
6. Remove the motor and replace it		● Remove the motor and replace it
7. Tighten the screws fixing the motor		● Use screwdriver to tighten the screws fixing the motor.
8. Mount the fan and tighten the fixing bolts		● Mount the fan and use spanner to tighten the bolts fixing the fan.
9. Mount the water tray and tighten the screws		● Use screwdriver to loosen the screws fixing the water tray.

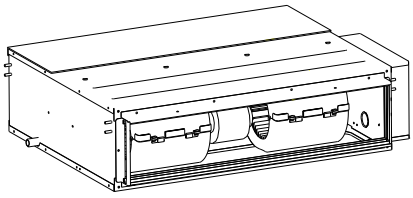
Removal and Installation of Drainage Pump		
Step	Illustration	Handling Instruction
1. Loosen the screws fixing the water tray		● Use screwdriver to loosen the screws fixing the water tray
2. Remove the water tray		● Remove the water pump and replace it.
3. Pull out the water outlet pipe and loosen the screws fixing the water pump.		● Pull out the water outlet pipe and use screwdriver to loosen the screws fixing the water pump.
4 Remove the water pump and replace it.		● Remove the water pump and replace it.
5. Connect the drainage pipe and tighten the screws fixing the water pump.		● Connect the drainage pipe and use screwdriver to tighten the screws fixing the water pump.
6. Mount the water tray and tighten the screws		● Use screwdriver to loosen the screws fixing the water tray.

- Duct type

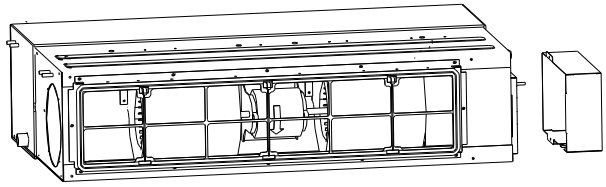
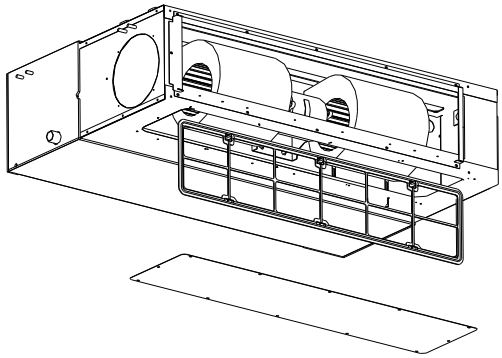
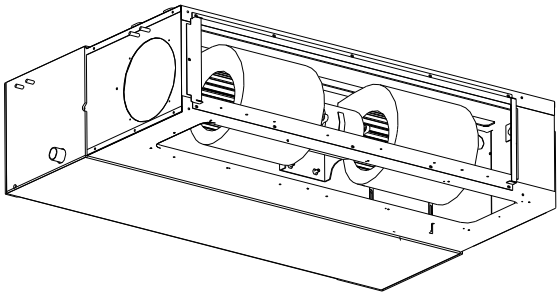
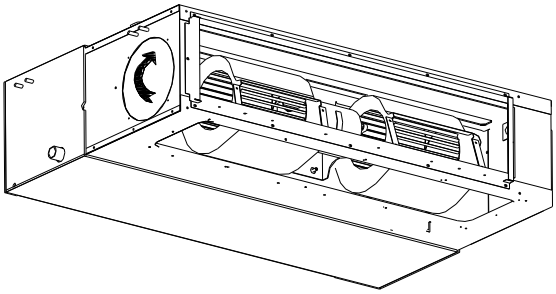
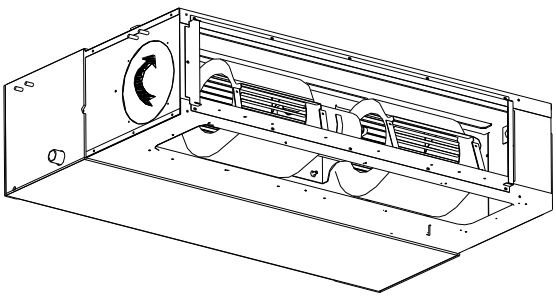
Removal and Assembly of Fan Motor		
Remarks: Before removing the fan, make sure to cut off the power firstly.		
Step	Illustration	Handling Instruction
1. Unplug the motor cables		● Cut off the power supply of indoor unit. Use screwdriver to remove the electric box cover and unplug the motor cables in electric box.
2. Remove the back propeller housing		● Loosen the clamp between back propeller housing and front propeller housing. Remove the back propeller housing.
3. Remove the front propeller housing		● Use screwdriver to loosen the screws fixing the front propeller housing. Remove the front propeller housing.
4. Loosen the fan and motor.		● Use inner hexagonal spanner to loosen the screws on fan and remove the clamp fixing the motor.
5. Remove the motor		● Firstly, disengage the motor from motor support and then disengage the fan from the motor. Then, remove the motor from the lower air inlet frame. In which, for the motor with automatic motor support, the motor support shall be removed in advance and then changed to the unit.
6. Replace with a new motor		● Assemble the unit in reverse to the disassembly procedures and energize it for testing.

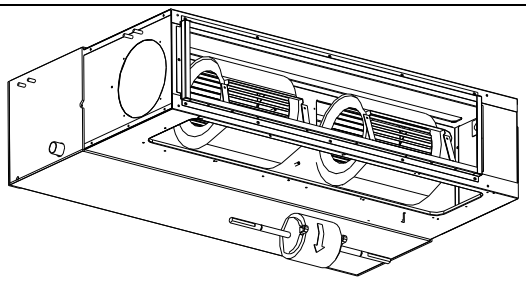
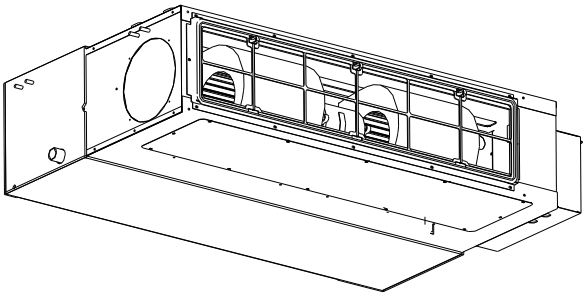
- Ultrathin duct type

Removal and Assembly of Fan Motor		
Remarks: Before removing the fan, make sure to cut off the power firstly.		
Step	Illustration	Handling Instruction
1. Unplug the motor cables		● Cut off the power supply of indoor unit. Use screwdriver to remove the electric box cover and unplug the motor cables in electric box.
2. Remove the filter sub-assembly and air inlet cover board		● Remove the filter sub-assembly from the air inlet frame and use screwdriver to remove the air inlet cover board.
3. Remove the screws on fan sub-assembly.		Remove the screws on fan sub-assembly.
4. Overturn the propeller housing		● Rotate the propeller housing to the air inlet according to arrow direction.
5. Loosen the fan and motor.		● Use inner hexagonal spanner to loosen the screws on fan and remove the clamp fixing the motor.
6. Replace the motor		● Firstly, disengage the motor from motor support. Then, sequentially disengage the fan sub-assembly form the motor shaft. Remove the motor from the air inlet and replace with new motor. In which, for the motor with automatic motor support, the motor support shall be removed in advance and then changed to the unit.

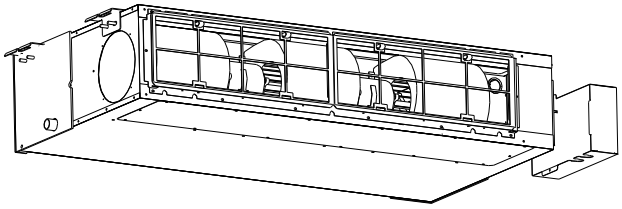
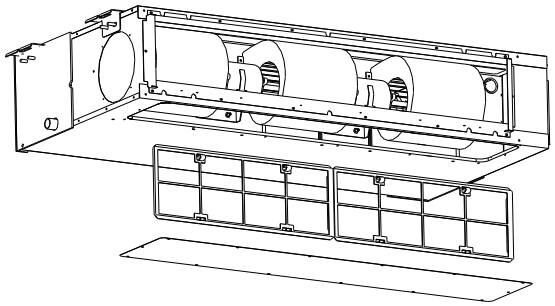
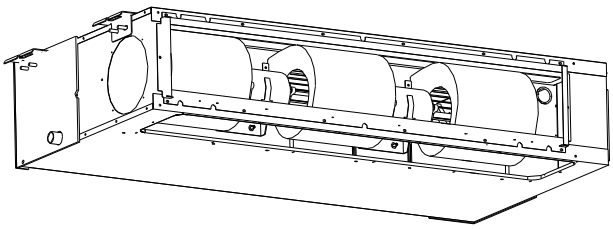
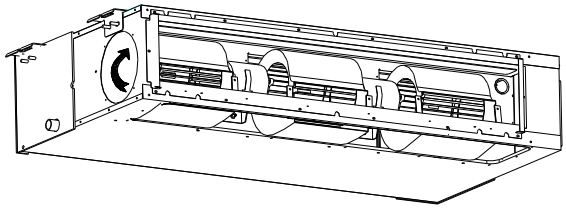
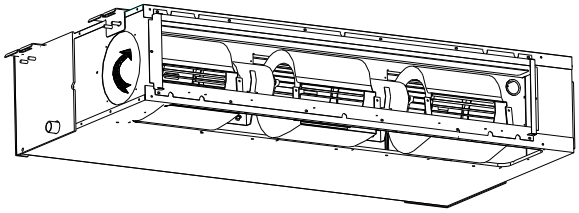
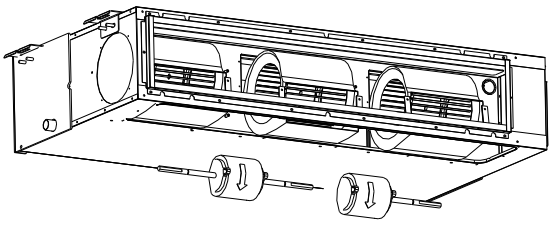
7. Assemble the unit in reverse to the disassembly procedures		● Assemble the unit in reverse to the disassembly procedures and energize it for testing.

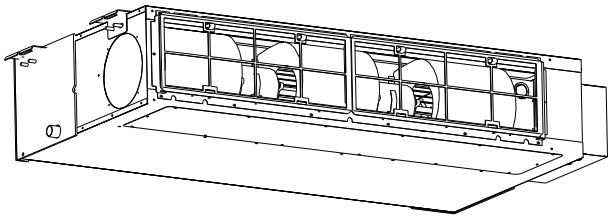
- Duct-Type Unit （5.6 kW～8.0 kW）

Removal and Assembly of Fan Motor		
Remarks: Before removing the fan, make sure to cut off the power firstly.		
Step	Illustration	Handling Instruction
1. Unplug the motor cables		● Cut off the power supply of indoor unit. Use screwdriver to remove the electric box cover and unplug the motor cables in electric box.
2. Remove the filter sub-assembly and air inlet cover board		● Remove the filter sub-assembly from the air inlet frame and use screwdriver to remove the air inlet cover board.
3. Remove the screws on fan sub-assembly.		Remove the screws on fan sub-assembly.
4. Overturn the propeller housing		● Rotate the propeller housing to the air inlet according to arrow direction.
5. Loosen the fan and motor.		● Use inner hexagonal spanner to loosen the screws on fan and remove the clamp fixing the motor.

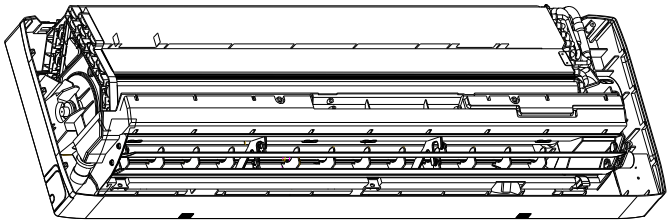
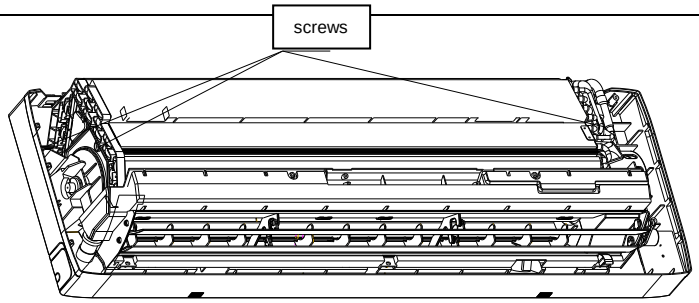
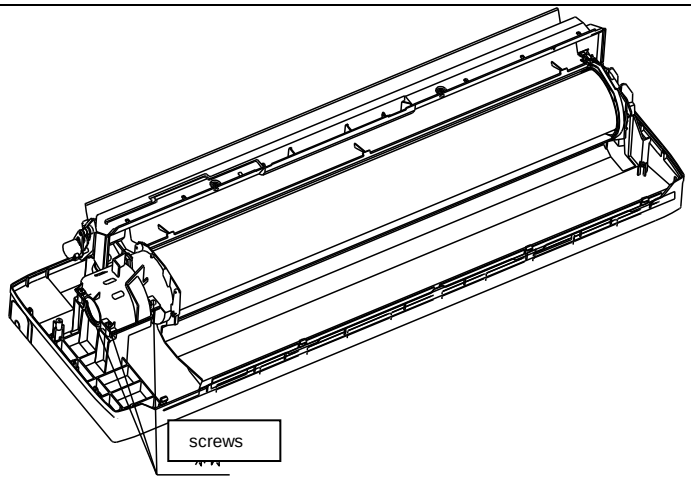
6. Replace the motor		● Firstly, disengage the motor from motor support. Then, sequentially disengage the fan sub-assembly form the motor shaft. Remove the motor from the air inlet and replace with new motor. In which, for the motor with automatic motor support, the motor support shall be removed in advance and then changed to the unit.
7. Assemble the unit in reverse to the disassembly procedures		● Assemble the unit in reverse to the disassembly procedures and energize it for testing.

- Duct-Type Unit（9.0 kW～14 kW）

Removal and Assembly of Fan Motor		
Remarks: Before removing the fan, make sure to cut off the power firstly.		
Step	Illustration	Handling Instruction
1. Unplug the motor cables		● Cut off the power supply of indoor unit. Use screwdriver to remove the electric box cover and unplug the motor cables in electric box.
2. Remove the filter sub-assembly and air inlet cover board		● Remove the filter sub-assembly from the air inlet frame and use screwdriver to remove the air inlet cover board.
3. Remove the screws on fan sub-assembly .		Remove the screws on fan sub-assembly.
4. Overturn the propeller housing		● Rotate the propeller housing to the air inlet opening according to arrow direction.
5. Loosen the fan and motor.		● Use inner hexagonal spanner to loosen the screws on fan and remove the clamp fixing the motor.
6. Replace the motor		● Firstly, disengage the motor from motor support. Then, sequentially disengage the fan sub-assembly form the motor shaft. Remove the motor from the air inlet and replace with new motor. In which, for the motor with automatic motor support, the motor support shall be removed in advance and then changed to the unit.

7. Assemble the unit in reverse to the disassembly procedures		● Assemble the unit in reverse to the disassembly procedures and energize it for testing.

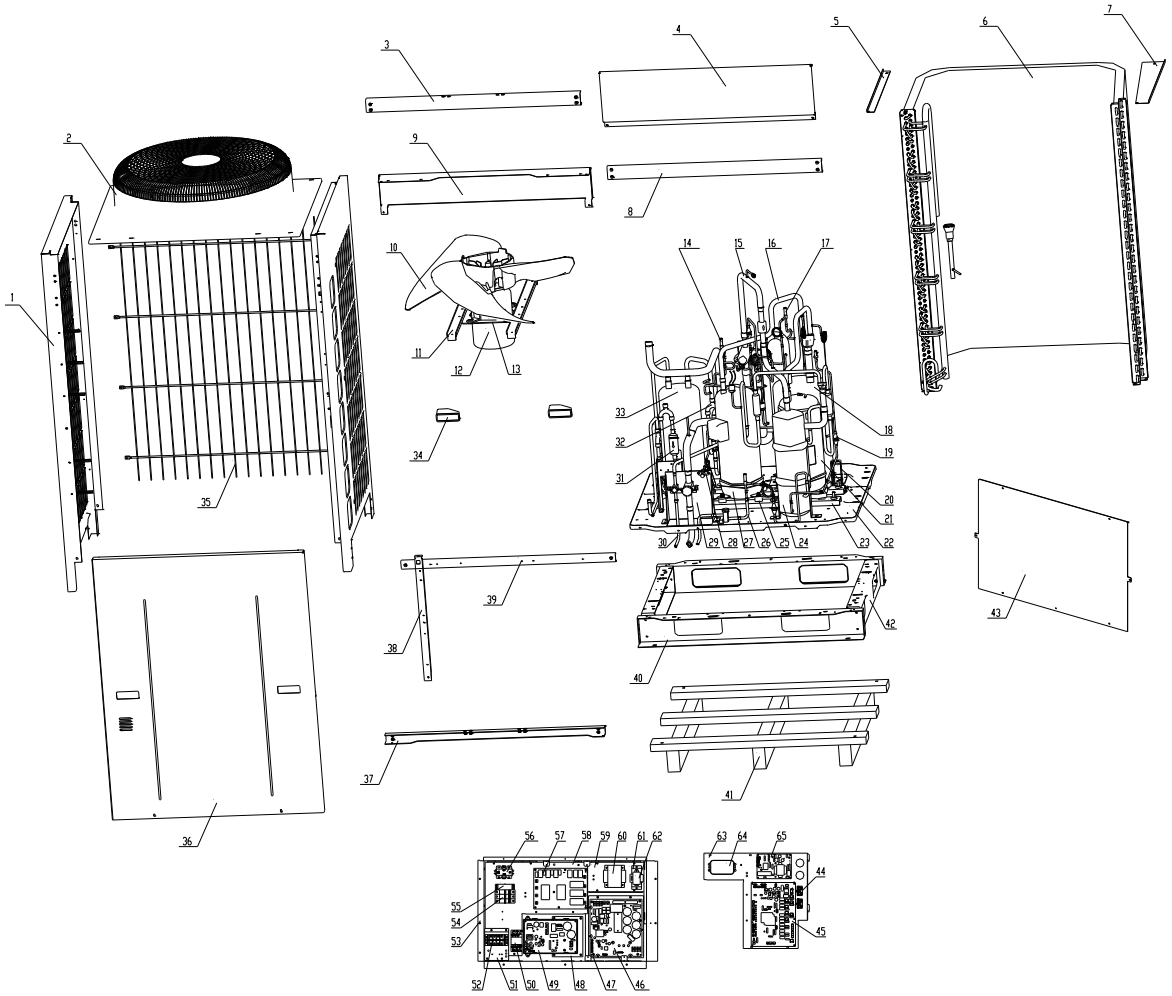
- Wall-mounted Unit

Removal and Assembly of Fan Motor		
Remarks: Before removing compressor, make sure that there is no refrigerant inside the pipe system and that the power has been cut off.		
Step	Illustration	Handling Instruction
1. Firstly, remove the front panel, front case and electric box		● Firstly, use screwdriver to loosen the screws. ● Unplug the motor terminals in the electric box. Loosen the earth screws and lift up.
2. Remove the evaporator		● Firstly, use screwdriver to remove the fixing screws on the left and right side. Then, remove the evaporator.
3. Remove the motor and cross flow fan		● Use screwdriver to remove the screws fixing the motor clamp and remove the screws connecting the motor and cross flow fan. Then, the motor can be separated from the cross flow fan.

5 EXPLODED VIEWS AND PART LIST

5.1 Outdoor Unit

1) Model: INV-Pdm224W/NaB-M Exploded View

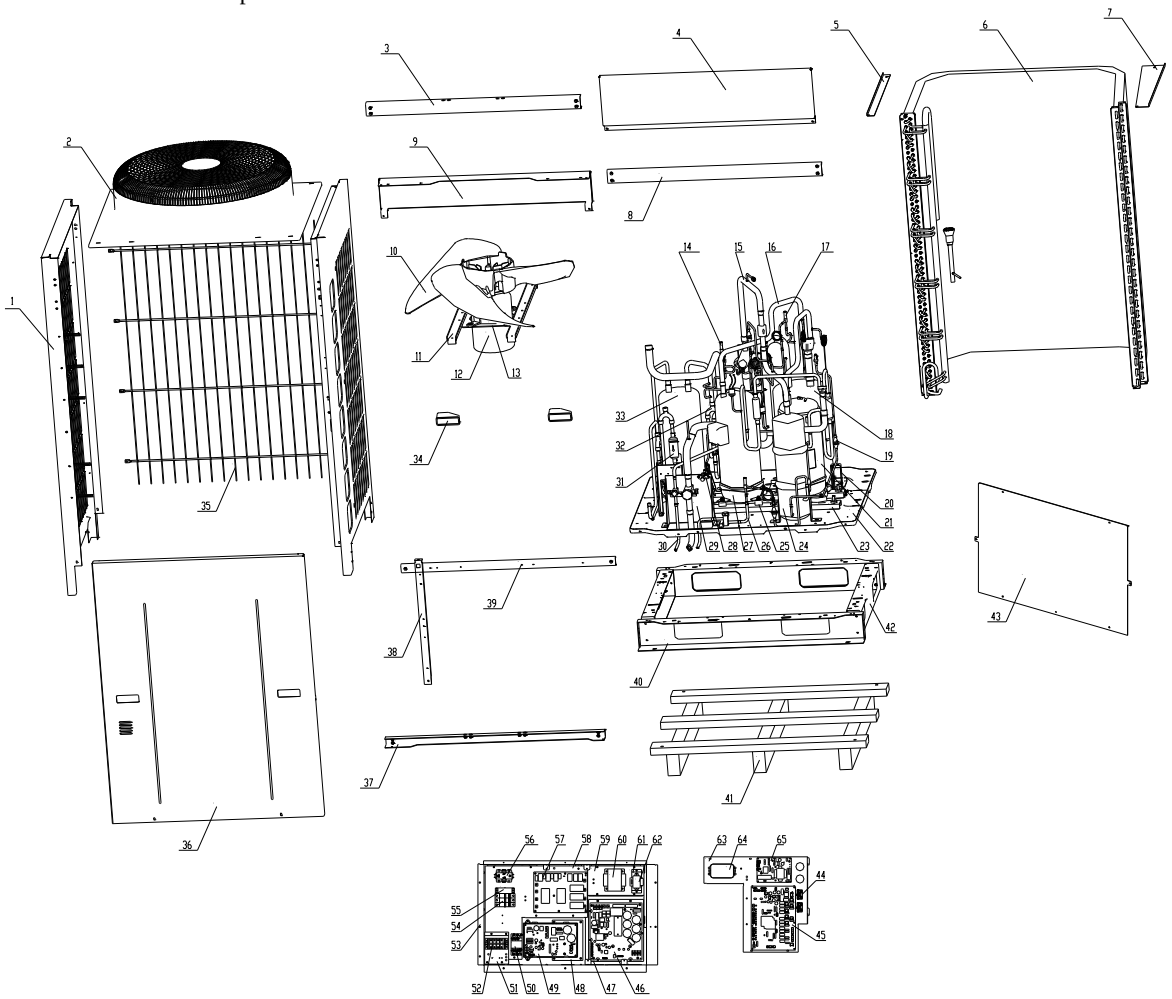


INV-Pdm224W/NaB-M parts list

No.	Name of part	Part code	Quantity
1	Left side panel sub-assy	01313256P	1
2	Leading cover(VPd280)(apricot ash)	26904101	1
3	Back cover plate	01313261P	1
4	Front cover plate	01264142P	1
5	Windshield(left)	01354102	1
6	Condenser assy	01124160	1
7	Windshield（right）	01354103	1
8	Fixing support sub-assy NO.2	01324120P	1
9	Fixing support sub-assy NO.1	01324221P	1
10	Axes flow wind leaf sub-assy (VPd280)(black)	10338702	1
11	Motor support	0132431501P	2
12	Motor SWZ750A	15704106	1
13	Motor support sub-assy	01324180P	1
14	Liquid branch circuit valve sub-assy 2	04634234	1
15	4-way valve sub-assy	04144160	1
16	Suction pipe sub-assy 1	04674172	1
17	Liquid branch circuit valve sub-assy 1	04634233	1
18	Liquid-gas separator	07424132	1
19	Oil return pipe sub-assy	04324739	1
20	Oil return pipe sub-assy Support	01804321P	1
21	Compressor and it’s fittings E405DHD-38D2Y	00204116	1
22	Lower panel sub-assy	01194134	1
23	Compressor fixing support sub-assy	01324223P	2
24	Oil separator	07424129	1
25	Localizer	02244101	8
26	Oil equalizing pipe sub-assy	06114145	1
27	Compressor and it’s fittings E505DH-49D2Y	99071264	2
28	Low pressure measure valve	06114146	1
29	Support	01804325P	2
30	Cut-off valve sub-assy 1	07334330	1
31	Electrical expansion vavle sub-assy	07334228	1
32	Electromagnetism vavle sub-assy	43044120	1
33	Liquid receiver	07424114	1
34	Handle(apricot ash)	26235253	2
35	Back grill	01238740	1
36	Panel Front	01543243P	1
37	Fixing support sub-assy 3	01313259P	1
38	Sustain lengthways girder	01894156P	1
39	Sustain transverse girder sub-assy	01874132P	1

40	Lower seat transverse girder	01874115P	2
41	Package wooden base	51094102	1
42	Lower seat lengthways girder sub-assy	01874137P	2
43	Cover of electrical box	01424136P	1
44	Terminal board 2-8	42011103	2
45	Main Board WZCB31	30220025	1
46	Main Board ZQ86	30228606	1
47	Radiator SRX11D250	49010605	1
48	Radiator	49018761	1
49	Main Board WZS901	30229004	1
50	AC Contactor LC1D25M7C	44010213	1
51	Electric element install Board sub-assy 2	01324319	1
52	Terminal Board (4 bit)	42011051	1
53	Electrical box sub-assy	01394839P	1
54	Over Current Protector (3/40A) OSMC32N3C40	45020214	1
55	Anti-phase Protector EWS	46020054	1
56	AC Contactor CJX9B-25S/D	44010245	1
57	filter board WZ814A	30228111	1
58	Electric element install Board sub-assy 1	01324318	1
59	Electric element install Board sub-assy 4	01324324	1
60	Reactor L1.92mH/34A/10/300+400	43130174	1
61	Power Transformer Support	01804316	1
62	Power Transformer 48X26G	43110233	1
63	Electric element install Board sub-assy 3	01324320	1
64	filter FS23722-10-06	43130017	1
65	Main Board ZC831AZ	30278301	1

INV-Pdm280W/NaB-M exploded views

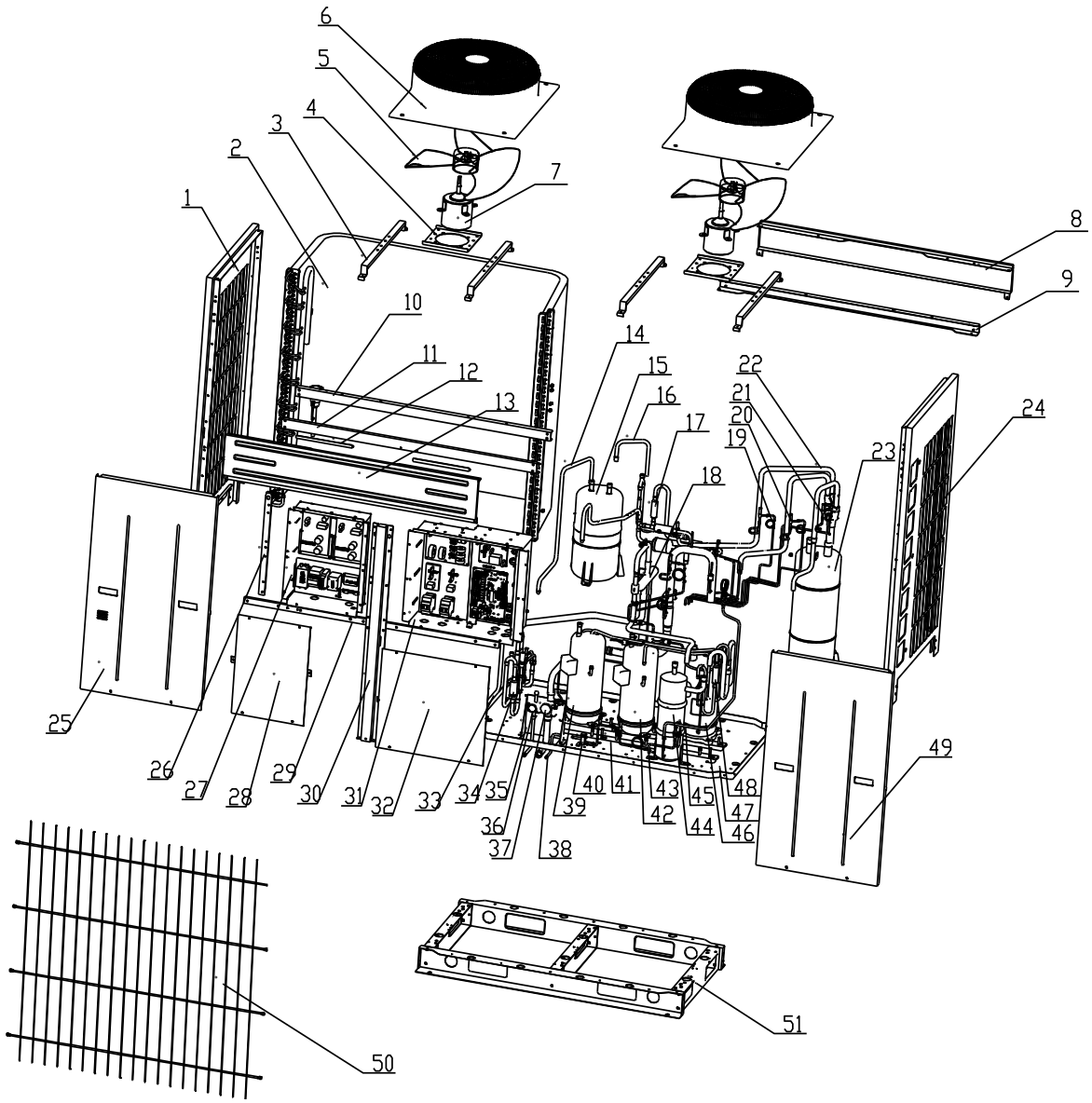


INV-Pdm280W/NaB-M parts list

No.	Name of part	Part code	Quantity
1	Left side panel sub-assy	01313256P	1
2	Leading cover(VPd280)(apricot ash)	26904101	1
3	Back cover plate	01313261P	1
4	Front cover plate	01264142P	1
5	Windshield(left)	01354102	1
6	Condenser assy	01124160	1
7	Windshield（right）	01354103	1
8	Fixing support sub-assy NO.2	01324120P	1
9	Fixing support sub-assy NO.1	01324221P	1
10	Axes flow wind leaf sub-assy (VPd280)(black)	10338702	1
11	Motor support	0132431501P	2
12	Motor SWZ750A	15704106	1
13	Motor support sub-assy	01324180P	1
14	Liquid branch circuit valve sub-assy 2	04634234	1
15	4-way valve sub-assy	04144160	1
16	Suction pipe sub-assy 1	04674172	1
17	Liquid branch circuit valve sub-assy 1	04634233	1
18	Liquid-gas separator	07424132	1
19	Oil return pipe sub-assy	04324739	1
20	Oil return pipe sub-assy Support	01804321P	1
21	Compressor and it’s fittings E405DHD-38D2Y	00204116	1
22	Lower panel sub-assy	01194134	1
23	Compressor fixing support sub-assy	01324223P	2
24	Oil separator	07424129	1
25	Localizer	02244101	8
26	Oil equalizing pipe sub-assy	06114145	1
27	Compressor and it’s fittings E505DH-49D2Y	99071264	2
28	Low pressure measure valve	06114146	1
29	Support	01804325P	2
30	Cut-off valve sub-assy 1	07334330	1
31	Electrical expansion vavle sub-assy	07334228	1
32	Electromagnetism vavle sub-assy	43044120	1
33	Liquid receiver	07424114	1
34	Handle(apricot ash)	26235253	2
35	Back grill	01238740	1
36	Panel Front	01543243P	1
37	Fixing support sub-assy 3	01313259P	1
38	Sustain lengthways girder	01894156P	1
39	Sustain transverse girder sub-assy	01874132P	1

40	Lower seat transverse girder	01874115P	2
41	Package wooden base	51094102	1
42	Lower seat lengthways girder sub-assy	01874137P	2
43	Cover of electrical box	01424136P	1
44	Terminal board 2-8	42011103	2
45	Main Board WZCB31	30220025	1
46	Main Board ZQ86	30228606	1
47	Radiator SRX11D250	49010605	1
48	Radiator	49018761	1
49	Main Board WZS901	30229004	1
50	AC Contactor LC1D25M7C	44010213	1
51	Electric element install Board sub-assy 2	01324319	1
52	Terminal Board (4 bit)	42011051	1
53	Electrical box sub-assy	01394839P	1
54	Over Current Protector (3/40A) OSMC32N3C40	45020214	1
55	Anti-phase Protector EWS	46020054	1
56	AC Contactor CJX9B-25S/D	44010245	1
57	filter board WZ814A	30228111	1
58	Electric element install Board sub-assy 1	01324318	1
59	Electric element install Board sub-assy 4	01324324	1
60	reactor L1.92mH/34A/10/300+400	43130174	1
61	Power Transformer Support	01804316	1
62	Power Transformer 48X26G	43110233	1
63	Electric element install Board sub-assy 3	01324320	1
64	filter FS23722-10-06	43130017	1
65	Main Board ZC831AZ	30278301	1

INV-Pdm335W/NaB-M exploded views

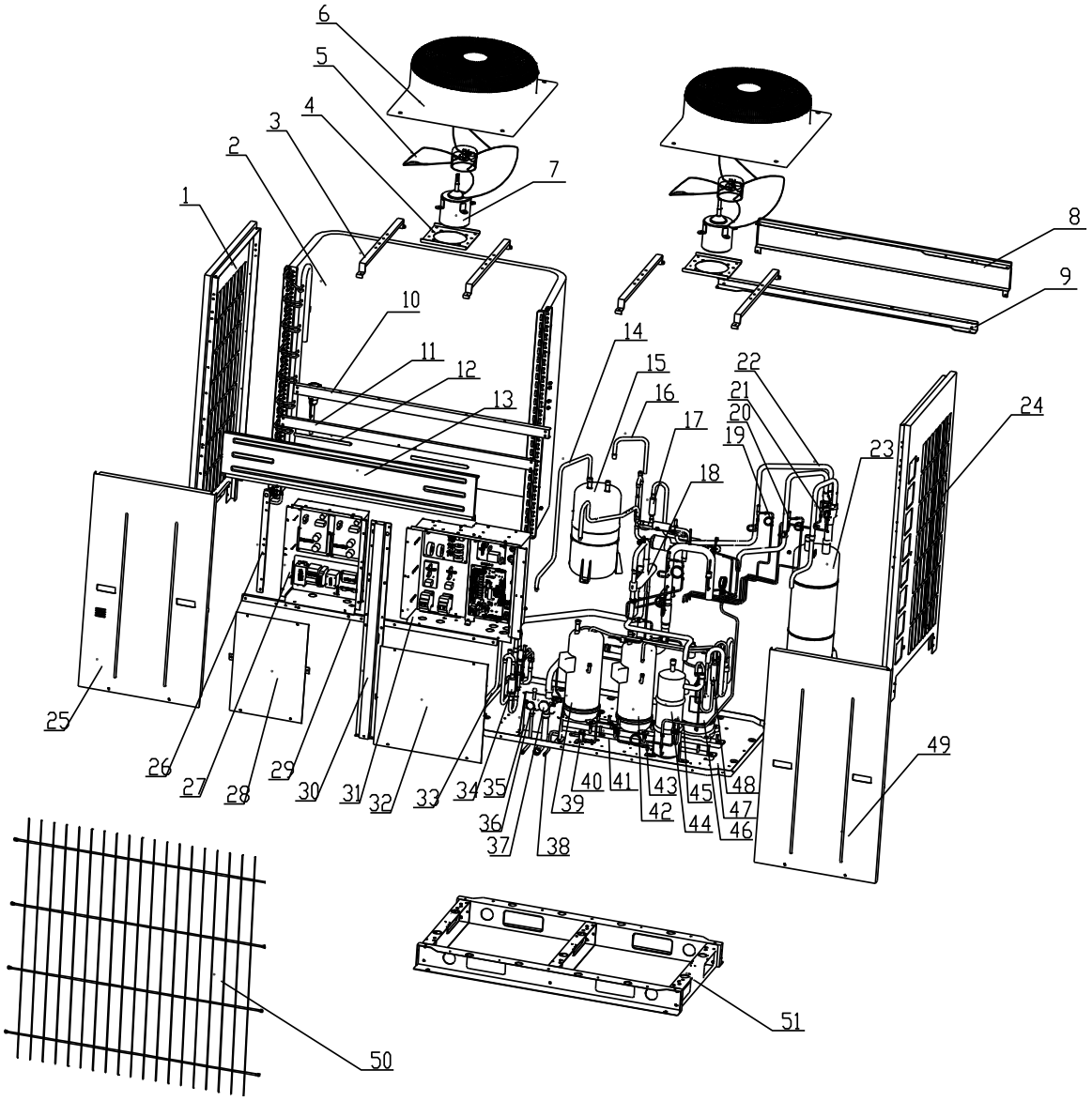


INV-Pdm335W/NaB-M parts list

No.	Name of part	Part code	Quantity
1	Left side panel sub-assy	01314143P	1
2	Condenser assy	01124165	1
3	Motor support	01324179P	4
4	Motor support sub-assy	01324177P	2
5	Wind leaf	10358202	2
6	Leading cover(VPd450)(apricot ash)	26904112	2
7	Motor SWB350A	15704105	2
8	Back cover plate	01264159P	1
9	Fixing support sub-assy 3	01324175P	1
10	Fixing support sub-assy 1	01324171P	1
11	Fixing support sub-assy 2	01324173P	1
12	Panel Front shore	01894135P	2
13	Front cover plate	01264158P	1
14	Liquid receiver inlet	04324753	1
15	Liquid receiver	07228812	1
16	U-Type Connection Pipe	05020152	1
17	Filter sub-assy	07414126	1
18	4-way valve sub-assy	04144164	1
19	Liquid branch circuit valve sub-assy 3	07334326	1
20	Liquid branch circuit valve sub-assy 2	07334325	1
21	Liquid branch circuit valve sub-assy 1	07334324	1
22	Suction pipe sub-assy	04674168	1
23	Liquid-gas separator	07224477	1
24	Right side panel	01314138P	1
25	Panel Front 1	01544116P	1
26	Sustain lengthways girder	01874134P	1
27	Electrical box assy(Left) INV-Pdm450W/NaB-N1	01394790	1
28	Cover of electrical box 2	01424187P	1
29	Sustain transverse girder sub-assy	01324228P	1
30	Middle exist pole	01854107P	1
31	Electrical box assy(Right) INV-Pdm450W/NaB-N1	01394789	1
32	Cover of electrical box 1	01424186P	1
33	Connection Pipes(Electrical expansion vavle)	05024954	1
34	Electrical expansion vavle sub-assy	07334244	1
35	Support	01804179P	1
36	Cut-off valve sub-assy 1	07334182	1
37	Cut-off valve sub-assy 3	07334183	1
38	Connection Pipes	05024901	1
39	Compressor and it’s fittings E505DH-49D2Y	99071264	1

40	Cut-off valve sub-assy	07334328	1
41	Support sub-assy	01324212P	2
42	Compressor and it’s fittings E505DH-49D2Y	99071264	1
43	Capillary sub-assy(Oil equalizing)	04104153	1
44	Oil separator	07424129	1
45	Capillary sub-assy(Oil return)	04104152	1
46	Compressor and it’s fittings E405DHD-38D2Y	00204116	1
47	Lower panel sub-assy	01194132P	1
48	Discharge pipe sub-assy	04634222	1
49	Panel Front 2	01544117P	1
50	Netted mantle	01574102	1
51	Lower seat sub-assy	01284141	1

INV-Pdm400W/NaB-M exploded views

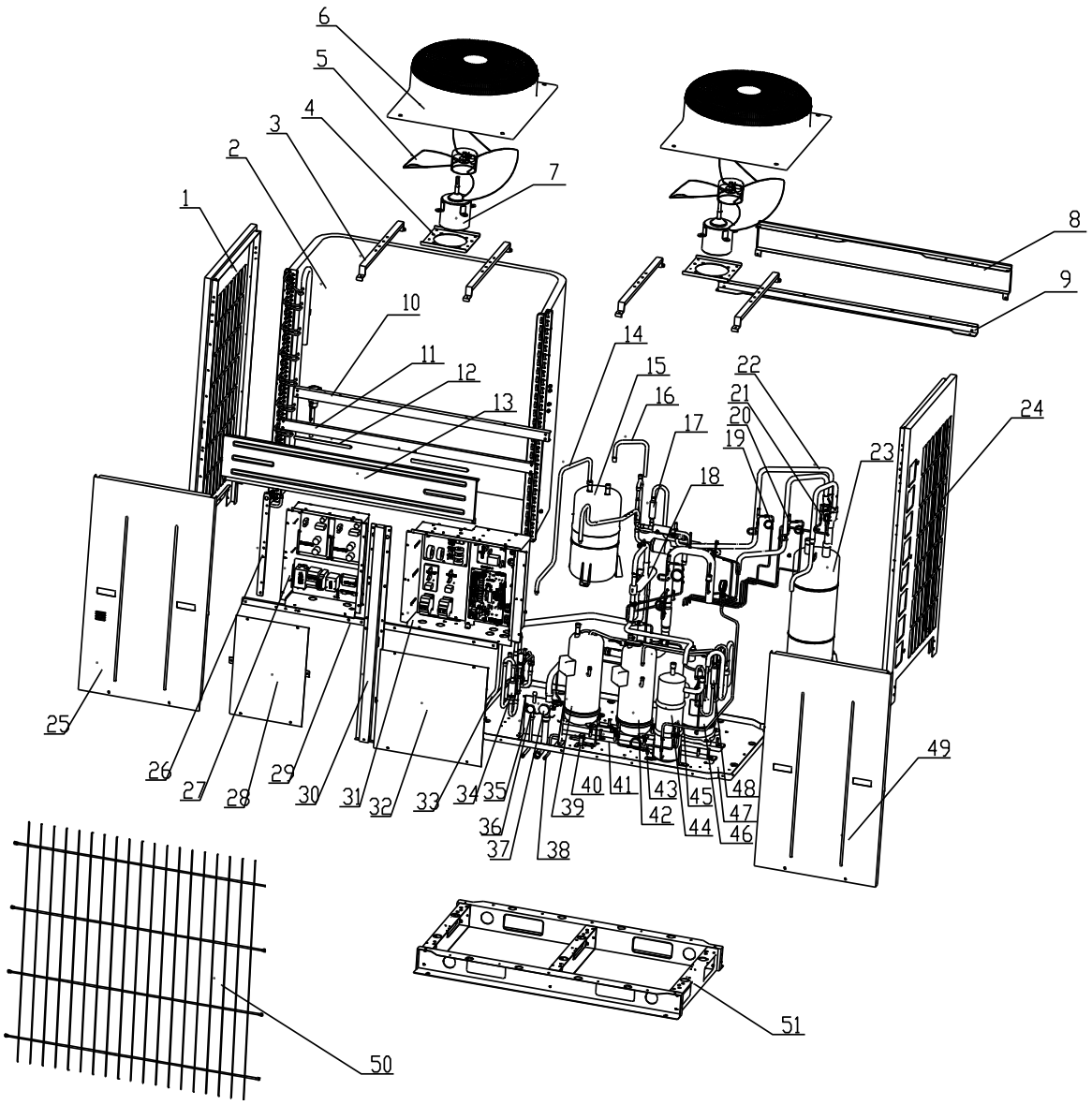


INV-Pdm400W/NaB-M parts list

No.	Name of part	Part code	Quantity
1	Left side panel sub-assy	01314143P	1
2	Condenser assy	01124165	1
3	Motor support	01324179P	4
4	Motor support sub-assy	01324177P	2
5	Wind leaf	10358202	2
6	Leading cover(VPd450)(apricot ash)	26904112	2
7	Motor SWB350A	15704105	2
8	Back cover plate	01264159P	1
9	Fixing support sub-assy 3	01324175P	1
10	Fixing support sub-assy 1	01324171P	1
11	Fixing support sub-assy 2	01324173P	1
12	Panel Front shore	01894135P	2
13	Front cover plate	01264158P	1
14	Liquid receiver inlet	04324753	1
15	Liquid receiver	07228812	1
16	U-Type Connection Pipe	05020152	1
17	Filter sub-assy	07414126	1
18	4-way valve sub-assy	04144164	1
19	Liquid branch circuit valve sub-assy 3	07334326	1
20	Liquid branch circuit valve sub-assy 2	07334325	1
21	Liquid branch circuit valve sub-assy 1	07334324	1
22	Suction pipe sub-assy	04674168	1
23	Liquid-gas separator	07224477	1
24	Right side panel	01314138P	1
25	Panel Front 1	01544116P	1
26	Sustain lengthways girder	01874134P	1
27	Electrical box assy(Left) INV-Pdm450W/NaB-N1	01394790	1
28	Cover of electrical box 2	01424187P	1
29	Sustain transverse girder sub-assy	01324228P	1
30	Middle exist pole	01854107P	1
31	Electrical box assy(Right) INV-Pdm450W/NaB-N1	01394789	1
32	Cover of electrical box 1	01424186P	1
33	Connection Pipes(Electrical expansion vavle)	05024954	1
34	Electrical expansion vavle sub-assy	07334244	1
35	Support	01804179P	1
36	Cut-off valve sub-assy 1	07334182	1
37	Cut-off valve sub-assy 3	07334183	1
38	Connection Pipes	05024901	1
39	Compressor and it’s fittings E505DH-49D2Y	99071264	1

40	Cut-off valve sub-assy	07334328	1
41	Support sub-assy	01324212P	2
42	Compressor and it’s fittings E505DH-49D2Y	99071264	1
43	Capillary sub-assy(Oil equalizing)	04104153	1
44	Oil separator	07424129	1
45	Capillary sub-assy(Oil return)	04104152	1
46	Compressor and it’s fittings E405DHD-38D2Y	00204116	1
47	Lower panel sub-assy	01194132P	1
48	Discharge pipe sub-assy	04634222	1
49	Panel Front 2	01544117P	1
50	Netted mantle	01574102	1
51	Lower seat sub-assy	01284141	1

INV-Pdm450W/NaB-M exploded views



INV-Pdm450W/NaB-M parts list

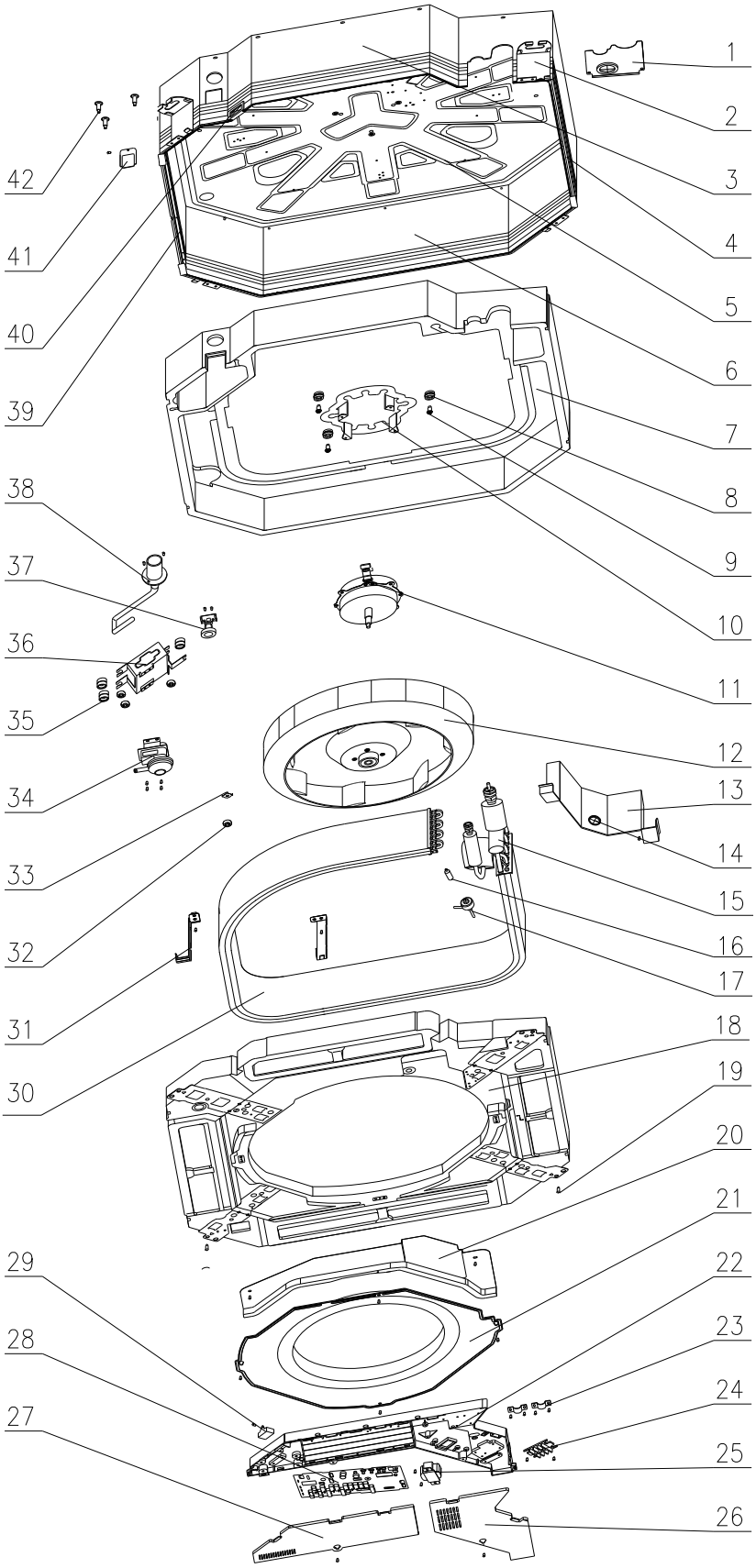
No.	Name of part	Part code	Quantity
1	Left side panel sub-assy	01314143P	1
2	Condenser assy	01124165	1
3	Motor support	01324179P	4
4	Motor support sub-assy	01324177P	2
5	Wind leaf	10358202	2
6	Leading cover(VPd450)(apricot ash)	26904112	2
7	Motor SWB350A	15704105	2
8	Back cover plate	01264159P	1
9	Fixing support sub-assy 3	01324175P	1
10	Fixing support sub-assy 1	01324171P	1
11	Fixing support sub-assy 2	01324173P	1
12	Panel Front shore	01894135P	2
13	Front cover plate	01264158P	1
14	Liquid receiver inlet	04324753	1
15	Liquid receiver	07228812	1
16	U-Type Connection Pipe	05020152	1
17	Filter sub-assy	07414126	1
18	4-way valve sub-assy	04144164	1
19	Liquid branch circuit valve sub-assy 3	07334326	1
20	Liquid branch circuit valve sub-assy 2	07334325	1
21	Liquid branch circuit valve sub-assy 1	07334324	1
22	Suction pipe sub-assy	04674168	1
23	Liquid-gas separator	07224477	1
24	Right side panel	01314138P	1
25	Panel Front 1	01544116P	1
26	Sustain lengthways girder	01874134P	1
27	Electrical box assy(Left) INV-Pdm450W/NaB-N1	01394790	1
28	Cover of electrical box 2	01424187P	1
29	Sustain transverse girder sub-assy	01324228P	1
30	Middle exist pole	01854107P	1
31	Electrical box assy(Right) INV-Pdm450W/NaB-N1	01394789	1
32	Cover of electrical box 1	01424186P	1
33	Connection Pipes(Electrical expansion vavle)	05024954	1
34	Electrical expansion vavle sub-assy	07334244	1
35	Support	01804179P	1
36	Cut-off valve sub-assy 1	07334182	1
37	Cut-off valve sub-assy 3	07334183	1
38	Connection Pipes	05024901	1
39	Compressor and it’s fittings E605DH-59D2Y	99071264	1

40	Cut-off valve sub-assy	07334328	1
41	Support sub-assy	01324212P	2
42	Compressor and it’s fittings E605DH-59D2Y	99071264	1
43	Capillary sub-assy(Oil equalizing)	04104153	1
44	Oil separator	07424129	1
45	Capillary sub-assy(Oil return)	04104152	1
46	Compressor and it’s fittings E405DHD-38D2Y	00204116	1
47	Lower panel sub-assy	01194132P	1
48	Discharge pipe sub-assy	04634222	1
49	Panel Front 2	01544117P	1
50	Netted mantle	01574102	1
51	Lower seat sub-assy	01284141	1

5.2 Indoor Unit

5.2 .1 Exploede diagram of Casstte and list of components

（ 1 ） INV(L)-R28T/Na-K, INV(L)-R36T/Na-K, INV(L)-R45T/Na-K, INV(L)-R50T/Na-K, INV(L)-R56T/Na-K, INV(L)-R71T/Na-K, INV(L)-R80T/Na-K



NO.	Name	INV-R28T/Na-K,	INVL-R28T/Na-K,

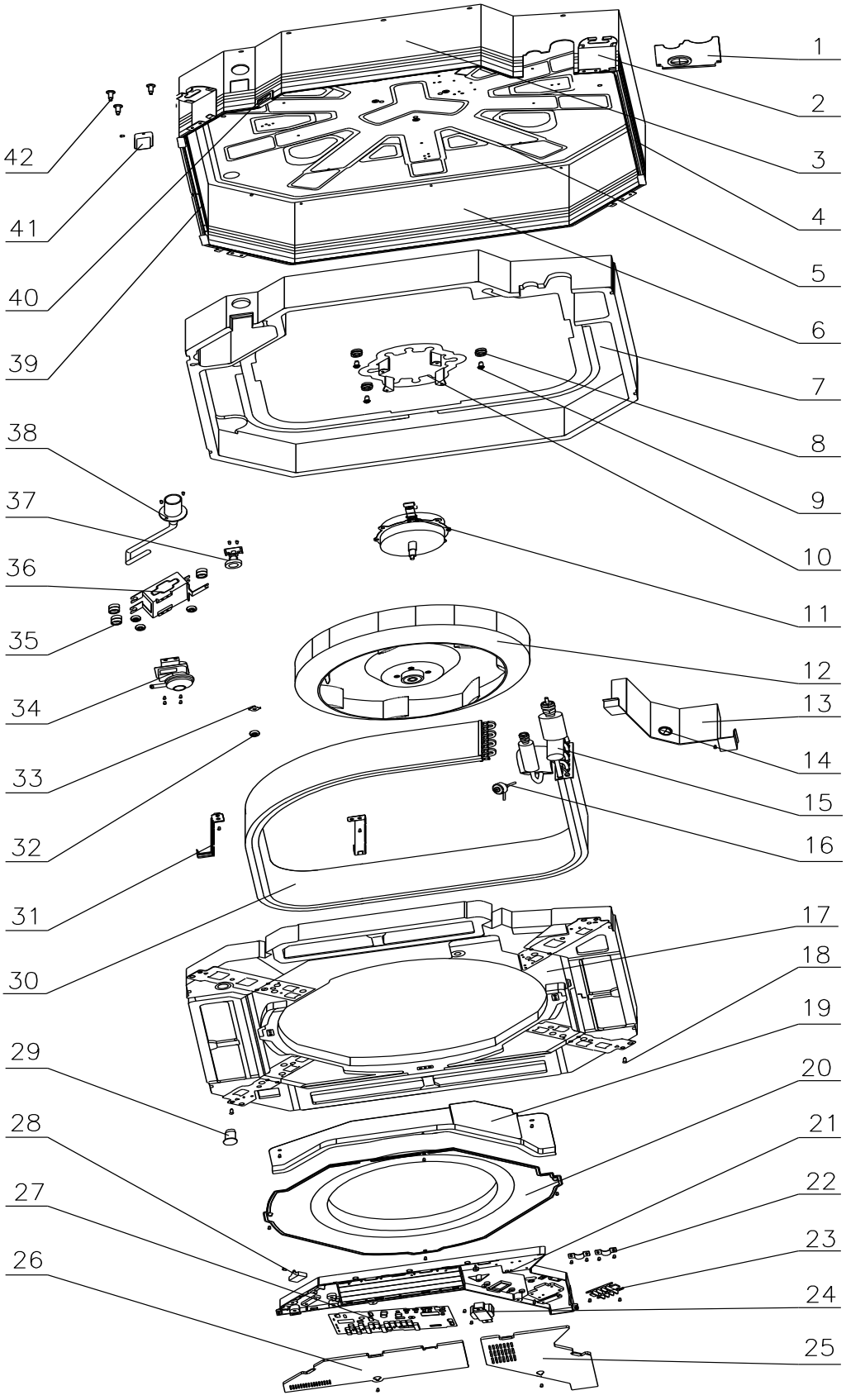
		INV-R36T/Na-K		INVL-R36T/Na-K	
		Coding	Qty	Coding	Qty
1	Tube Exit Plate	01382710	1	01382710	1
2	Body Fixed Plate	01332701	4	01332701	4
3	Front Side Plate	01302717	1	01302717	1
4	Left Side Plate	01302740	1	01302740	1
5	Base Plate	01222702	1	01222702	1
6	Rear Side Plate	01302719	1	01302719	1
7	Bottom Foam	52012716	1	52012716	1
8	Motor Gasket	76712711	3	76712711	3
9	Bolt	70212701	3	70212701	3
10	Motor Fixer	01702701	1	01702701	1
11	Fan Motor	15704901	1	15704901	1
12	Centrifugal Fan	10312721	1	10312721	1
13	Evaporator Connection	01072004	1	01072004	1
14	Cable-cross Loop	76513101	2	76513101	2
15	shunt	072287842	1	072287842	1
16	Water Tray	12412701	1	12412701	1
17	Screw	70140032	4	70140032	4
18	Electric Box Base Plate	01412721	1	01412721	1
19	Flow Guide Loop	10372701	1	10372701	1
20	Electric Box	20102701	1	20102701	1
21	Wire Clamp	71010102	4	71010102	4
22	Terminal Board T360B	42011222	1	42011222	1
23	Transformer	43110233	1	43110233	1
24	Electric Box Cover I	20102702	1	20102702	1
25	Electric Box Cover II	20102703	1	20102703	1
26	Main Board	30226316	1	30226316	1
27	Capacitor	33010010	1	33010010	1
28	Rubber plug	76712701	1	76712701	1
29	Evaporator	01038778	1	01038778	1
30	Evaporator Support	01072003	2	01072003	2
31	Nut with Washer M6	70310012	1	70310012	1
32	Bolt subassembly	70210051	1	70210051	1
33	Pipe Pump PJV-1415	43130324	1	43130324	1
34	Pump Gasket	76712702	3	76712702	3
35	Pump Support	01332001	1	01332001	1
36	Water Level Switch	45010201	1	45010201	1
37	Drainage Pipe Pump	05232721	1	05232721	1
38	Right Side Plate	01302710	1	01302710	1
39	Cable-cross Loop	76512702	1	76512702	1
40	Pump Cover	01252710	1	01252710	1
41	Bolt	70212701	3	70212701	3
42	Electronic Expansive Valve	0713411201	1	0713411201	1

NO	Name	INV-R45T/Na-K,	INVL-R45T/Na-K,

		INV-R50T/Na-K		INVL-R50T/Na-K	
		Coding	Qty	Coding	Qty
1	Tube Exit Plate	01382710	1	01382710	1
2	Body Fixed Plate	01332701	4	01332701	4
3	Front Side Plate	01302717	1	01302717	1
4	Left Side Plate	01302740	1	01302740	1
5	Base Plate	01222702	1	01222702	1
6	Rear Side Plate	01302719	1	01302719	1
7	Bottom Foam	52012716	1	52012716	1
8	Motor Gasket	76712711	3	76712711	3
9	Bolt	70212701	3	70212701	3
10	Motor Fixer	01702701	1	01702701	1
11	Fan Motor	15704901	1	15704901	1
12	Centrifugal Fan	10312721	1	10312721	1
13	Evaporator Connection	01072004	1	01072004	1
14	Cable-cross Loop	76513101	2	76513101	2
15	shunt	07228807	1	07228807	1
16	Water Tray	12412701	1	12412701	1
17	Screw	70140032	4	70140032	4
18	Electric Box Base Plate	01412721	1	01412721	1
19	Flow Guide Loop	10372701	1	10372701	1
20	Electric Box	20102701	1	20102701	1
21	Wire Clamp	71010102	4	71010102	4
22	Terminal Board T360B	42011222	1	42011222	1
23	Transformer	43110233	1	43110233	1
24	Electric Box Cover I	20102702	1	20102702	1
25	Electric Box Cover II	20102703	1	20102703	1
26	Main Board	30226316	1	30226316	1
27	Capacitor	33010010	1	33010010	1
28	Rubber plug	76712701	1	76712701	1
29	Evaporator	01038778	1	01038778	1
30	Evaporator Support	01072003	2	01072003	2
31	Nut with Washer M6	70310012	1	70310012	1
32	Bolt subassembly	70210051	1	70210051	1
33	Pipe Pump PJV-1415	43130324	1	43130324	1
34	Pump Gasket	76712702	3	76712702	3
35	Pump Support	01332001	1	01332001	1
36	Water Level Switch	45010201	1	45010201	1
37	Drainage Pipe Pump	05232721	1	05232721	1
38	Right Side Plate	01302710	1	01302710	1
39	Cable-cross Loop	76512702	1	76512702	1
40	Pump Cover	01252710	1	01252710	1
41	Bolt	70212701	3	70212701	3
42	Electronic Expansive Valve	0713411201	1	0713411201	1

NO.	Name	INV-R56/71/80T/Na-K		INVL-R56/71/80T/Na-K	
		Coding	Qty	Coding	Qty
1	Tube Exit Plate	01382711	1	01382711	1
2	Body Fixed Plate	01332701	4	01332701	4
3	Front Side Plate	01302718	1	01302718	1
4	Left Side Plate	01302715	1	01302715	1
5	Base Plate	01222702	1	01222702	1
6	Rear Side Plate	01302714	1	01302714	1
7	Bottom Foam	52012711	1	52012711	1
8	Motor Gasket	76712711	3	76712711	3
9	Bolt	70212701	3	70212701	3
10	Motor Fixer	01702701	1	01702701	1
11	Fan Motor	15704102	1	15704102	1
12	Centrifugal Fan	10312705	1	10312705	1
13	Evaporator Connection	01072710	1	01072710	1
14	Cable-cross Loop	76513101	2	76513101	2
15	shunt	07228806	1	07228806	1
16	Water Tray	12412701	1	12412701	1
17	Screw	70140032	4	70140032	4
18	Electric Box Base Plate	01412721	1	01412721	1
19	Flow Guide Loop	10372701	1	10372701	1
20	Electric Box	20102701	1	20102701	1
21	Wire Clamp	71010102	4	71010102	4
22	Terminal Board T360B	42011222	1	42011222	1
23	Transformer	43110233	1	43110233	1
24	Electric Box Cover I	20102702	1	20102702	1
25	Electric Box Cover II	20102703	1	20102703	1
26	Main Board	30226316	1	30226316	1
27	Capacitor	33010010	1	33010010	1
28	Rubber plug	76712701	1	76712701	1
29	Evaporator	01004641	1	01004641	1
30	Evaporator Support	01072715	2	01072715	2
31	Nut with Washer M6	70310012	1	70310012	1
32	Bolt subassembly	70210051	1	70210051	1
33	Pipe Pump PJV-1415	43130324	1	43130324	1
34	Pump Gasket	76712702	3	76712702	3
35	Pump Support	01332001	1	01332001	1
36	Water Level Switch	45010201	1	45010201	1
37	Drainage Pipe Pump	05232721	1	05232721	1
38	Right Side Plate	01302716	1	01302716	1
39	Cable-cross Loop	76512702	1	76512702	1
40	Pump Cover	01252711	1	01252711	1
41	Bolt	70212701	3	70212701	3
42	Electronic Expansive Valve	0713411401	1	0713411401	1

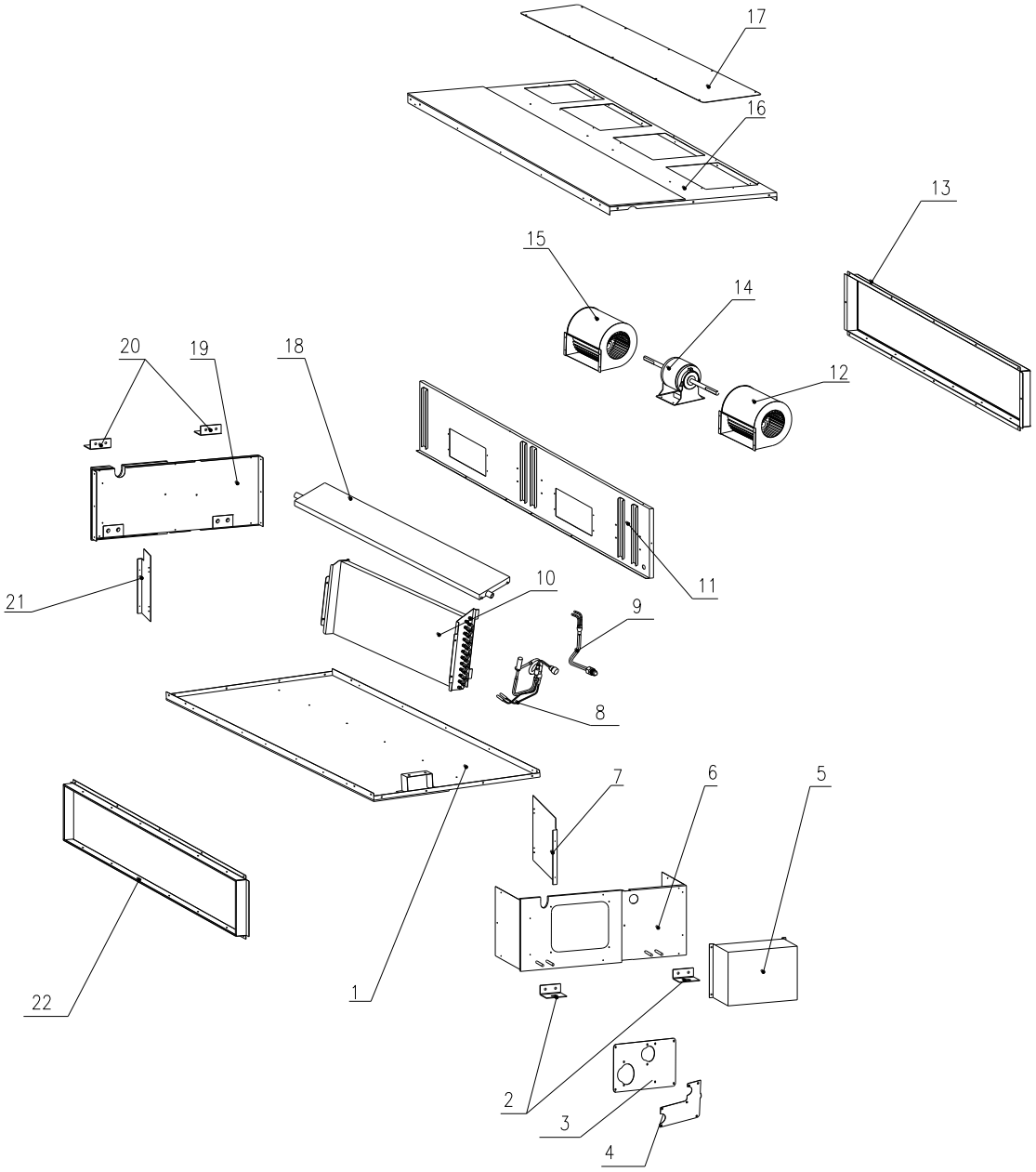
（2） INV(L)-R90T/Na-K, INV(L)-R112T/Na-K, INV(L)-R125T/Na-K Exploded diagram and list of components



NO.	Name	INV-R90/112/125/Na-K		INVL-R90/112/125/Na-K	
		Coding	Qty	Coding	Qty
1	Tube Exit Plate	01382711	1	01382711	1
2	Body Fixed Plate	01332701	4	01332701	4
3	Front Side Plate	01302713	1	01302713	1
4	Left Side Plate	`01302711	1	`01302711	1
5	Base Plate	01222702	1	01222702	1
6	Rear Side Plate	01302709	1	01302709	1
7	Bottom Foam	52012717	1	52012717	1
8	Motor Gasket	76712711	3	76712711	3
9	Bolt	70212701	3	70212701	3
10	Motor Fixer	01702701	1	01702701	1
11	Fan Motor	15704103	1	15704103	1
12	Centrifugal Fan	10310101	1	10310101	1
13	Evaporator Connection	01072733	1	01072733	1
14	Cable-cross Loop	76512702	2	76512702	2
15	shunt	07228804	1	07228804	1
16	Electronic Expansive Valve	`07334102	1	`07334102	1
17	Water Tray	12412701	1	12412701	1
18	Screw	70140032	4	70140032	4
19	Electric Box Base Plate	01412721	1	01412721	1
20	Flow Guide Loop	10372701	1	10372701	1
21	Electric Box	20102701	1	20102701	1
22	Wire Clamp	71010102	4	71010102	4
23	Terminal Board T360B	42011142	1	42011142	1
24	Transformer	43110233	1	43110233	1
25	Electric Box Cover I	20102702	1	20102702	1
26	Electric Box Cover II	20102703	1	20102703	1
27	Main Board	30226316	1	30226316	1
28	Capacitor	33010012	1	33010012	1
29	Rubber plug	76712701	1	76712701	1
30	Evaporator	01004640	1	01004640	1
31	Evaporator Support	01072708	2	01072708	2
32	Nut with Washer M6	70310012	1	70310012	1
33	Bolt subassembly	70210051	1	70210051	1
34	Pipe Pump PJV-1415	43130324	1	43130324	1
35	Pump Gasket	76712702	3	76712702	3
36	Pump Support	01332001	1	01332001	1
37	Water Level Switch	45010201	1	45010201	1
38	Drainage Pipe Pump	05232721	1	05232721	1
39	Right Side Plate	01302716	1	01302716	1
40	Cable-cross Loop	76512702	1	76512702	1
41	Pump Cover	01252711	1	01252711	1
42	Bolt	70212701	3	70212701	3

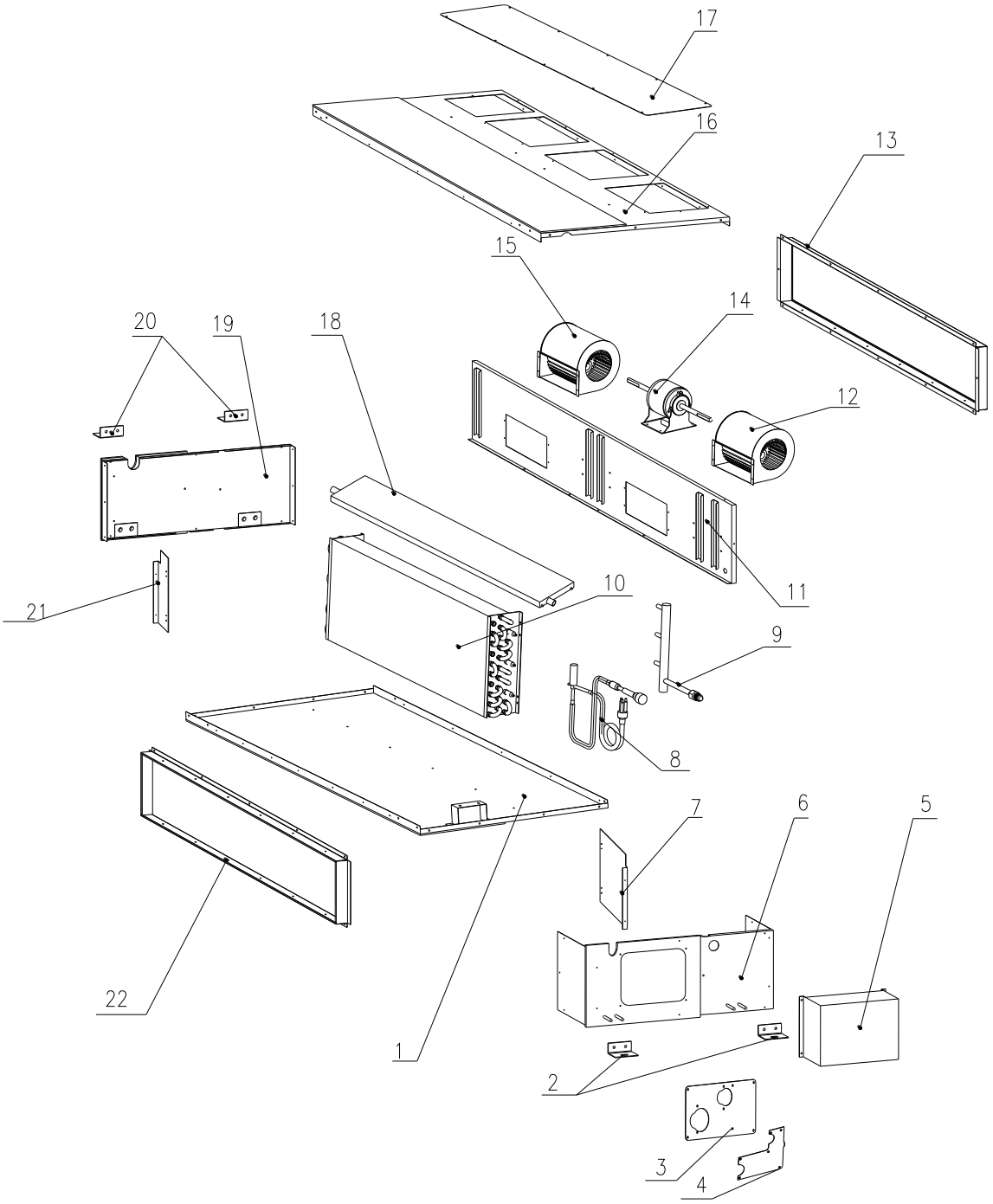
5.2 .2 Exploded Diagram of Duct and List of Components

（1）INV(L)-R22P/Na-K, INV(L)-R25P/Na-K, INV(L)-R28P/Na-K, INV(L)-R32P/Na-K, INV(L)-R36P/Na-K Exploded diagram and list of components



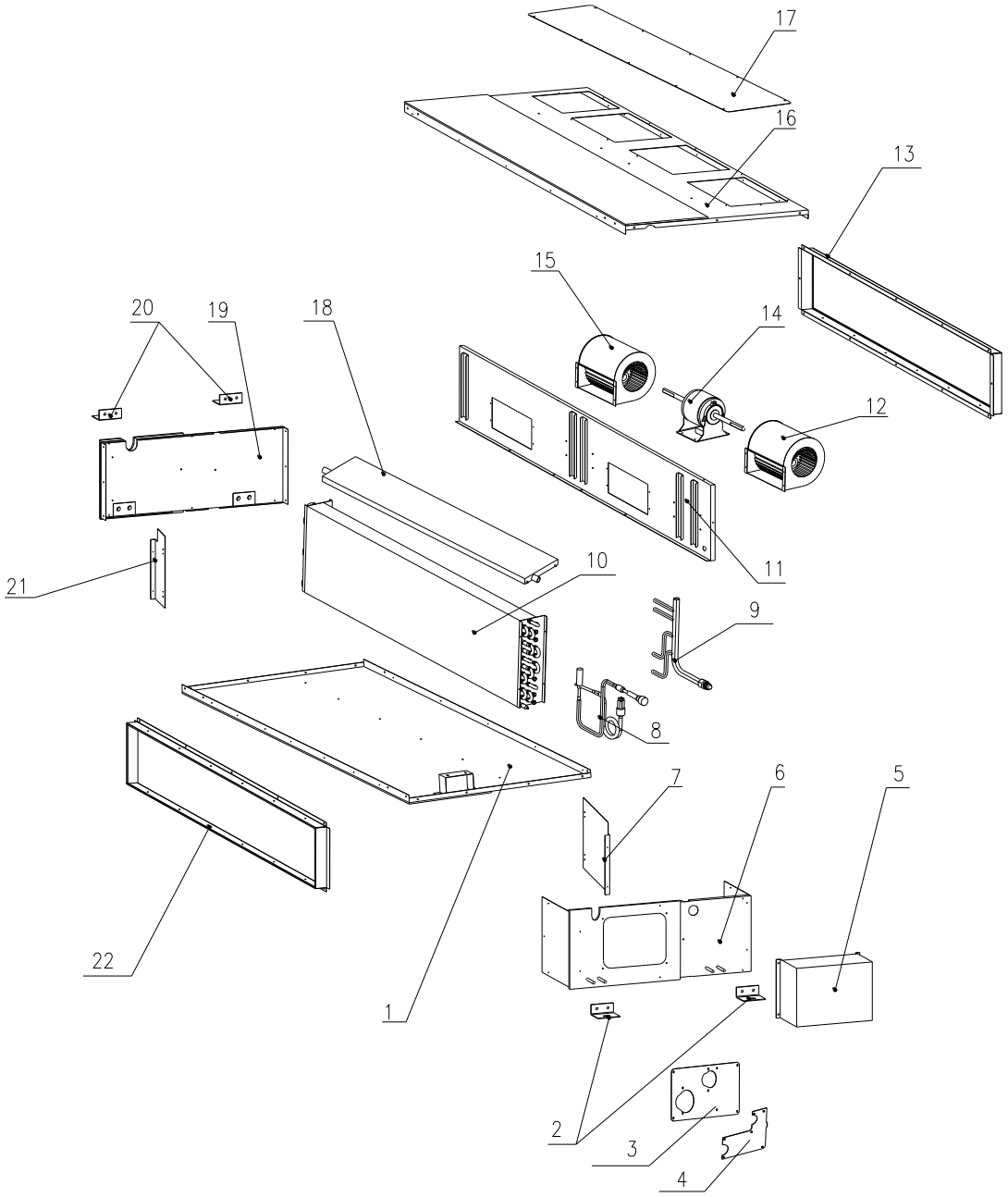
NO	Name	INV(L)-R22P/Na-K, INV(L)-R25P/Na-K		INV(L)-R28P/Na-K, INV(L)-R32P/Na-K, INV(L)-R36P/Na-K	
		Coding	Qty	Coding	Qty
1	Top Cover Sub-assy	01259052	1	01259052	1
2	Hook	02112446	2	02112446	2
3	Seal of Left Side Plate Sub-assy	01499051	1	01499051	1
4	Seal of Connection Pipe Sub-assy	01499053	1	01499053	1
5	Electric Box Assy	01408739	1	01394605	1
6	Left Side Plate Sub-assy	01308788	1	01308788	1
7	Left Support of Evaporator	01078774	1	01078774	1
8	Liquid-entered Pipe Sub-assy	03334601	1	03338810	1
9	Collect Gas Pipe Sub-assy	01305018	1	04674609	1
10	Evaporator Sub-assy	01038785	1	01038786	1
11	Fan Fixed Plate Sub-assy	01339095	1	01339095	1
12	Centrifugal fan	10319051	1	10319051	1
13	Air inlet side-board Sub-assy	01499055	1	01499055	1
14	Motor	15019053	1	15019522	1
15	Centrifugal fan	10319051	1	10319051	1
16	Bottom Cover	01259086	1	01259086	1
17	Cover of Air-in	01259056	1	01259056	1
18	Water Tray Assy	01279051	1	01279051	1
19	Right Side Plate Sub-assy	01309055	1	01309055	1
20	Hook	02112446	2	02112446	2
21	Left Support of Evaporator	01079056	1	01079056	1
22	Air inlet side-board Sub-assy	01498783	1	01498783	1

（2）INV(L)-R40P/Na-K, INV(L)-R45P/Na-K, INV(L)-R50P/Na-K Exploded diagram and list of components



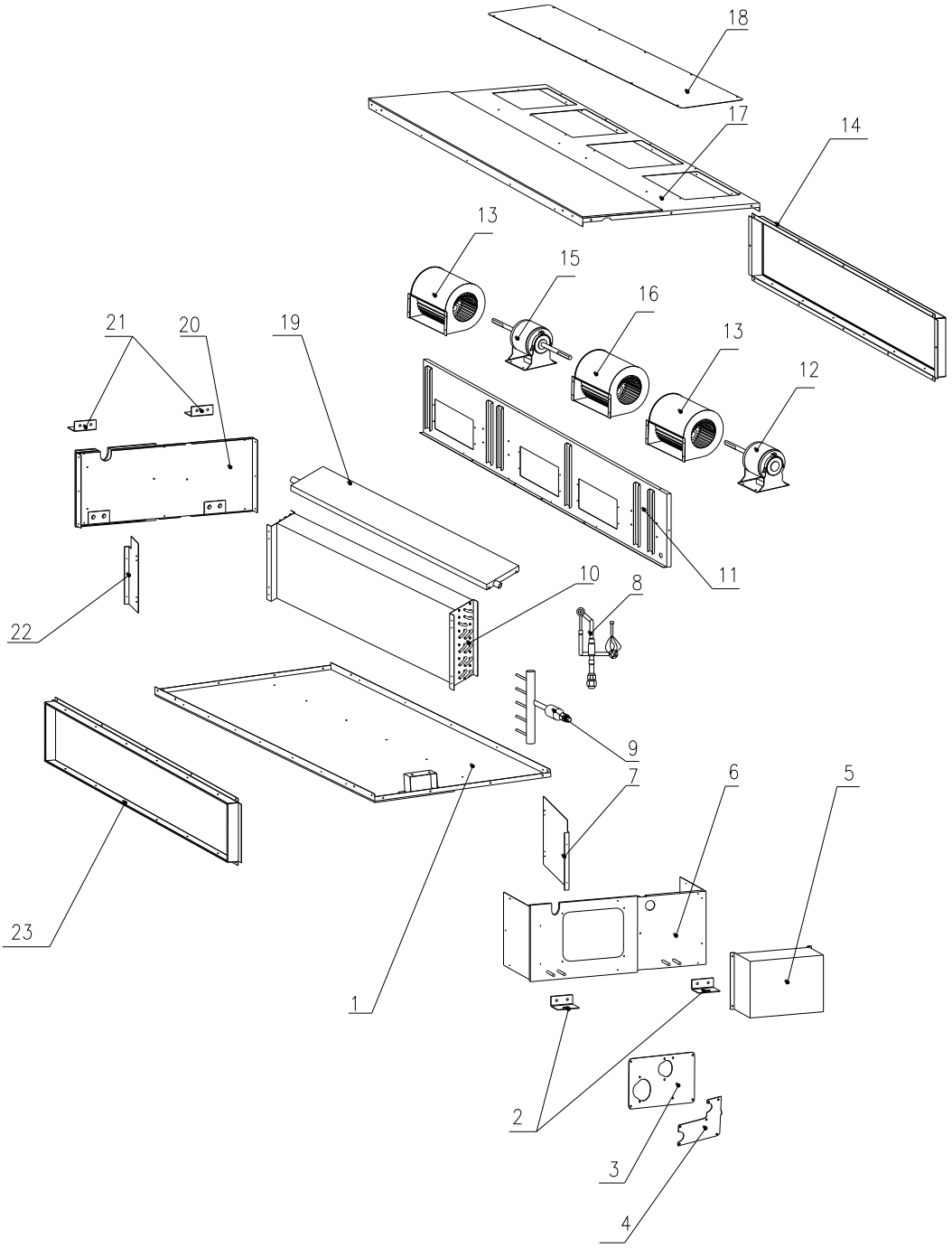
NO.	Name	INV(L)-R40P/Na-K, INV(L)-R45P/Na-K, INV(L)-R50P/Na-K	
		Coding	Qty
1	Top Cover Sub-assy	01259064	1
2	Hook	02112446	2
3	Seal of Connection Pipe 2	01498644	1
4	Seal of Connection Pipe 1	01498604	1
5	Electric Box Assy	01404688	1
6	Left Side Plate Sub-assy	01308668	1
7	Left Support of Evaporator	01078629	1
8	Liquid-entered Pipe Sub-assy	04324601	1
9	Collect Gas Pipe Sub-assy	04674601	1
10	Evaporator Sub-assy	01038623	1
11	Fan Fixed Plate Sub-assy	01339058	1
12	Centrifugal fan	10319051	1
13	Air inlet Sub-assy	01499061	1
14	Motor FG70B	15018322	1
15	Centrifugal fan	10319051	1
16	Bottom Cover	01258649	1
17	Cover of Air-in	01258650	1
18	Water Tray Sub-assy	01278633	1
19	Right Side Plate Sub-assy	01308670	1
20	Hook	02112446	2
21	Left Support of Evaporator	01078625	1
22	Air inlet Sub-assy	01498641	1

（3）INV(L)-R56P/Na-K, INV(L)-R63P/Na-K, INV(L)-R71P/Na-K, INV(L)-R80P/Na-K Exploded diagram and list of components



No.	Name	INV(L)-R56P/Na-K, INV(L)-R63P/Na-K, INV(L)-R71P/Na-K, INV(L)-R80P/Na-K	
		Coding	Qty
1	Top Cover Sub-assy	01258652	1
2	Hook	02118504	2
3	Left Side Seal-hole Plate Sub-assy	01308680	1
4	Seal of Connection Pipe	01498610	1
5	Electric Box Assy	01394609	1
6	Left Side Plate Sub-assy	01308676	1
7	Left Support of Evaporator	01078603	1
8	Liquid-entered Pipe Sub-assy	04324603	1
9	Collect Gas Pipe Sub-assy	04674602	1
10	Evaporator Sub-assy	01054601	1
11	Fan Fixed Plate Sub-assy	01338631	1
12	Fan Motor (Left)SYP-200/190J-1	15018603	1
13	Air inlet side-board Sub-assy	01499074	1
14	Motor FG150B	15018612	1
15	Fan motor (Right)SYP-200/190J-1	15018604	1
16	Bottom Cover	01258612	1
17	Cover of Air-in	01258614	1
18	Water Tray Assy	01278612	1
19	Right Side Plate Sub-assy	01308677	1
20	Hook	02118504	2
21	Left Support of Evaporator	01078604	1
22	Air inlet Sub-assy	01498612	1

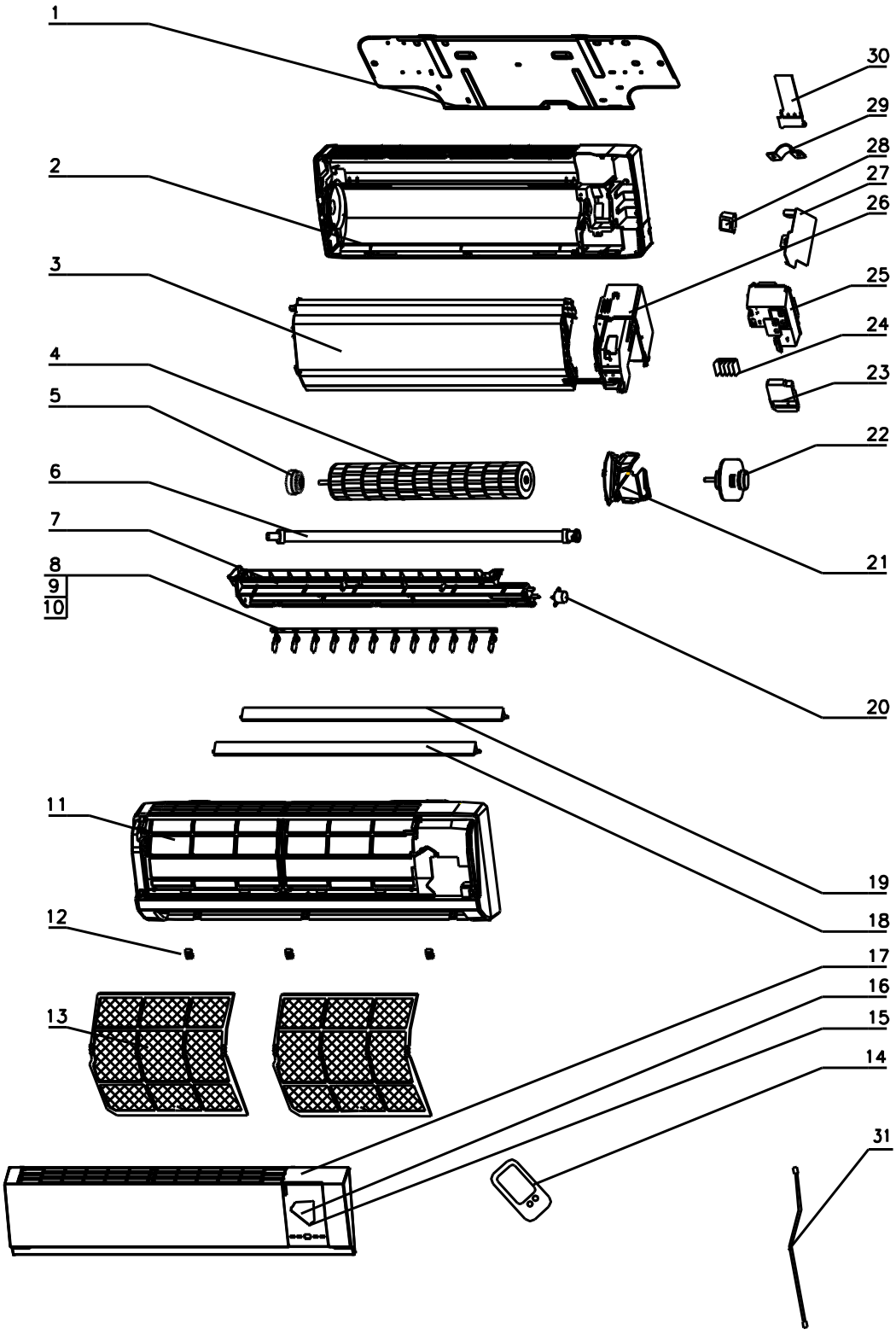
（4）INV(L)-R90P/Na-K, INV(L)-R100P/Na-K, INV(L)-R112P/Na-K, INV(L)-R125P/Na-K, INV(L)-R140P/Na-K
Exploded diagram and list of components



NO.	Name	INV(L)-R90P/Na-K, INV(L)-R100P/Na-K, INV(L)-R112P/Na-K, INV(L)-R125P/Na-K, INV(L)-R140P/Na-K	
		Coding	Qty
1	Top Cover Sub-assy	01258606	1
2	Hook	02118504	2
3	Left Side Seal-hole Plate Sub-assy	01308673	1
4	Seal of Connection Pipe	01498601	1
5	Electric Box Assy	01394602	1
6	Left Side Plate Sub-assy	01308676	1
7	Left Support of Evaporator	01078603	1
8	Liquid-entered Pipe Sub-assy	03338802	1
9	Collect Gas Pipe Sub-assy	04674608	1
10	Evaporator Sub-assy	01038624	1
11	Fan Fixed Plate Sub-assy	01338630	1
12	Motor FG75B	15018613	
13	Fan Motor (Left)SYP-200/190J-1	15018603	2
14	Air inlet side-board Sub-assy	01499066	1
15	Motor FG150B	15018612	1
16	Fan motor (Right)SYP-200/190J-1	15018604	1
17	Bottom Cover Assy	01258603	1
18	Cover of Air-in	01258602	1
19	Water Tray Assy	01278603	1
20	Right Side Plate Sub-assy	01308677	1
21	Hook	02118504	2
22	Left Support of Evaporator	01078604	1
23	Air inlet Sub-assy	01498608	1

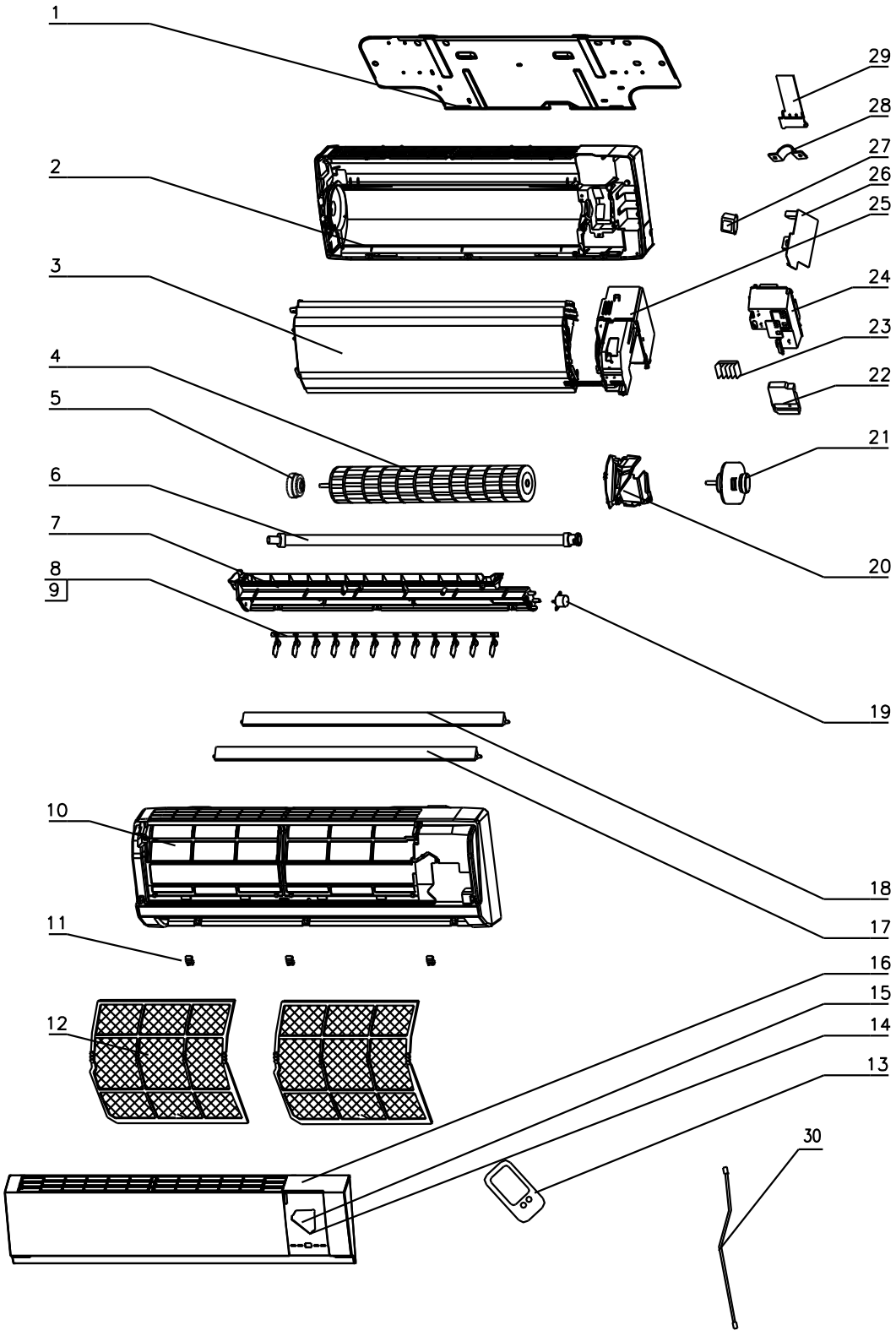
5.2 .3 Exploded diagram of wall mounted unit and list of components

（1）INV(L)-R22G/NaB-K, INV(L)-R28G/NaB-K Exploded diagram and list of components



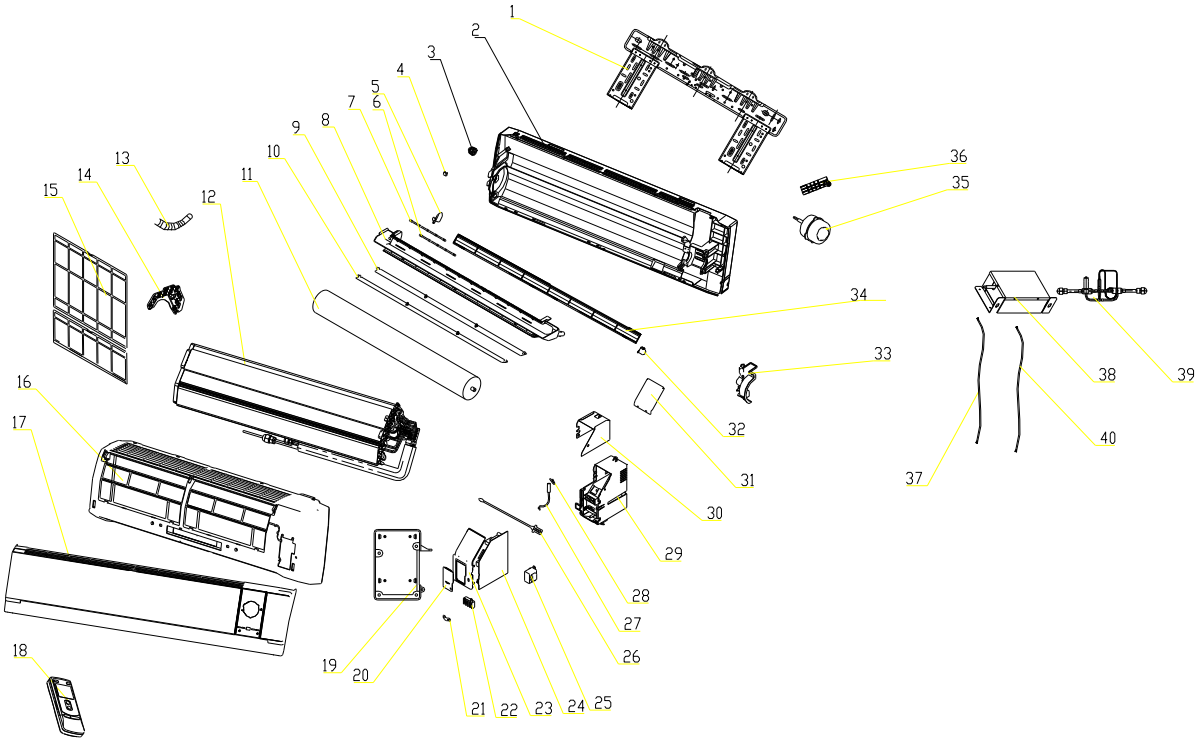
NO.	Name	INV(L)-R22G/NaB-K, INV(L)-R28G/NaB-K	
		Coding	Qty
1	Wall-Mounting Frame	01252220	1
2	Rear Case	222020012	1
3	Evaporator Assy	01004628	1
4	Cross Flow Fan	10352001	1
5	Ring of Bearing	76512203	1
6	Drainage Pipe	0523001401	1
7	Water Tray	20182027	1
8	Swing Louver	10512032	1
9	Swing Linkage 1	10582002	1
10	Swing Linkage 2	10582003	1
11	Front Case	20002215	1
12	Screw Cover	24252006	3
13	Filter	11122002	2
14	Remote Control Y612C	305125033	1
15	Decorate Piece	68012019	1
16	Receiver Board	30545702	1
17	Front Panel	20002209	1
18	Guide Louver 2	10512034	1
19	Guide Louver 1	10512033	1
20	Motor MP28VA	15212110	1
21	Motor Clamp A	26112017	1
22	Motor FN14A	150121081	1
23	Electric Box Cover	22242030	1
24	Terminal Board T4B3A	42011233	1
25	Covering Plate	201220061	1
26	Electric Box	20102178	1
27	Main PCB Z6H15C	30226074	1
28	Transformer 48X26F	43110226	1
29	Wire Clamp	71010103	1
30	Rear Clamp	24242001	1
31	Signal Cable	400103953	1

（2）INV(L)-R36G/NaB-K；INV(L)-R45G/NaB-K Exploded diagram and list of components



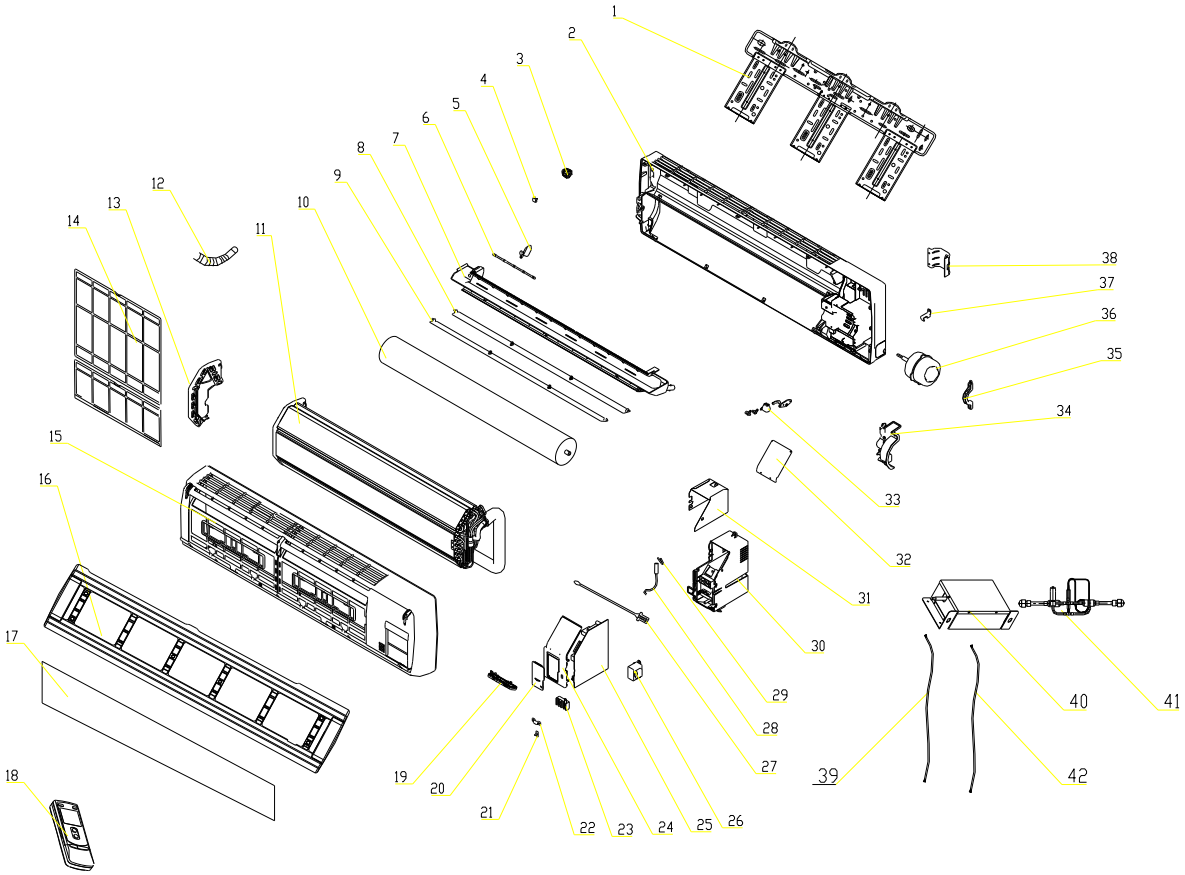
NO.	Name	INV(L)-R36G/NaB-K；INV(L)-R45G/NaB-K	
		Coding	Qty
1	Wall-Mounting Frame	01252384	1
2	Rear Case	22202050	1
3	Evaporator Assy	01004629	1
4	Cross Flow Fan	10352005	1
5	Ring of Bearing	76712015	1
6	Drainage Pipe	05232411	1
7	Water Tray	20182030	1
8	Swing Louver	10512041	12
9	Swing Linkage	10582439	1
10	Front Case	200022955	1
11	Screw Cover	24252007	3
12	Filter	11122440	2
13	Remote Control Y612C	305160051	1
14	Decorate Piece	68012019	1
15	Receiver Board	30545552	1
16	Front Panel	20002292	1
17	Guide Louver	26112043	1
18	Guide Louver	26112042	1
19	Motor MP28EA	15212105	1
20	Right Motor Clamp	26112429	1
21	Motor FN22A	15012062	1
22	Electric Box Cover	22242017	1
23	Terminal Board T4B3A	42011233	1
24	Covering Plate	20102119	1
25	Electric Box	20102108	1
26	Main PCB Z6J15C	30226072	1
27	Transformer 48X26F	43110226	1
28	Wire Clamp	71010103	1
29	Rear Clamp	26112430	1
30	Signal Cable	400103953	1

（3）INV(L)-R50G/NaB-K；INV(L)-R56G/NaB-K Exploded diagram and list of components



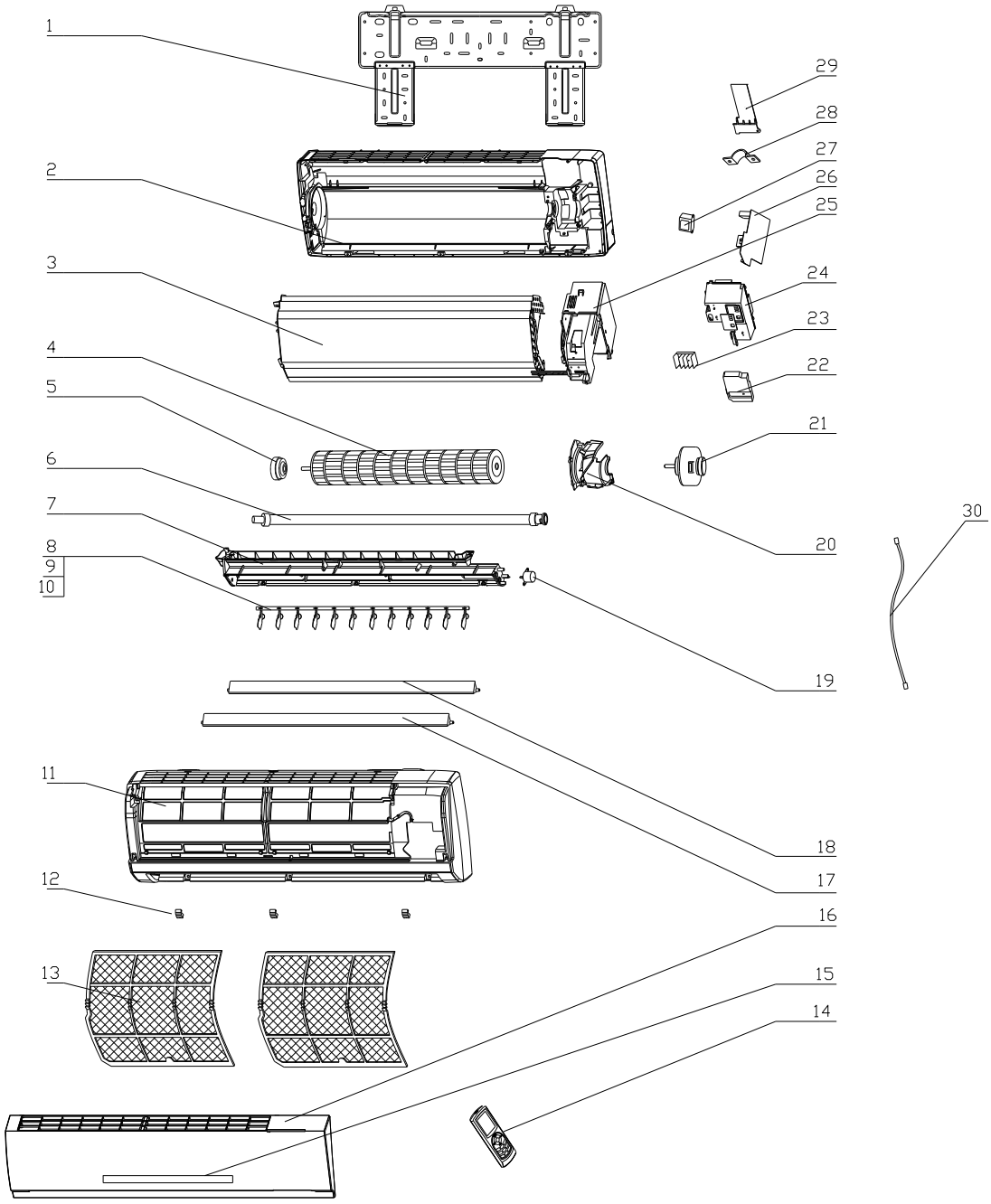
NO.	Name	INV(L)-R50G/NaB-K；INV(L)-R56G/NaB-K	
		Coding	Qty
1	Wall-Mounting Frame	`01252004	1
2	Rear Case	`22202329	1
3	Fan Bearing	`76512203	1
4	Screw Cover	`24252015	3
5	Swing Louver	`10512429	11
6	Swing Link 1	`10582057	1
7	Swing Link 2	`10582058	1
8	Water Tray	`20182057	1
9	Guide Louver（up）	`10512085	1
10	Guide Louver（down）	`10512086	1
11	Cross Flow Fan	`10352022	1
12	Evaporator Assy	`01024147	1
13	Drainage Pipe	`0523001403	1
14	Evaporator Support	`24212067	1
15	Filter	`11122048	2
16	Front Case	`200026529	1
17	Front Panel	`01544115	1
18	Remote Controller Y512	`305125063	1
19	Displaying Light Board	`22432071	1
20	Electric Box Cover 1	`20112019	1
21	Wire Clamp	`71010103	1
22	Terminal Board T4B3A	`42011233	1
23	Electric Box Cover	`20112020	1
24	Main PCB	`30226116	1
25	Transformer 57X25C	`43110237	1
26	Room Sensor 15k	`3900019813	1
27	Tube Sensor 20k	`3900019814	1
		`3900019815	1
		`3900019816	1
28	Sensor Insert	`42020063	3
29	Electric Box	`20112018	1
30	Lower Shield of Electric Box	`01592037	1
31	Upper Shield of Electric Box	`01592038	1
32	Stepping Motor MP35XY	`15212117	1
33	Motor Clamp	26112095	1
34	Helicoid tongue	`26252009	1
35	Motor FN20C-PG	`150120671	1
36	Pipe Clamp	`24242001	1
37	Signal Cable	`400103953	1
38	Fix sub-assy	`01324110P	1
39	EXV sub-assy	`07334255	1
40	Connecting Wire	`40010267	1

（4）INV(L)-R71G/Na-K；INV(L)-R80G/Na-K Exploded diagram and list of components



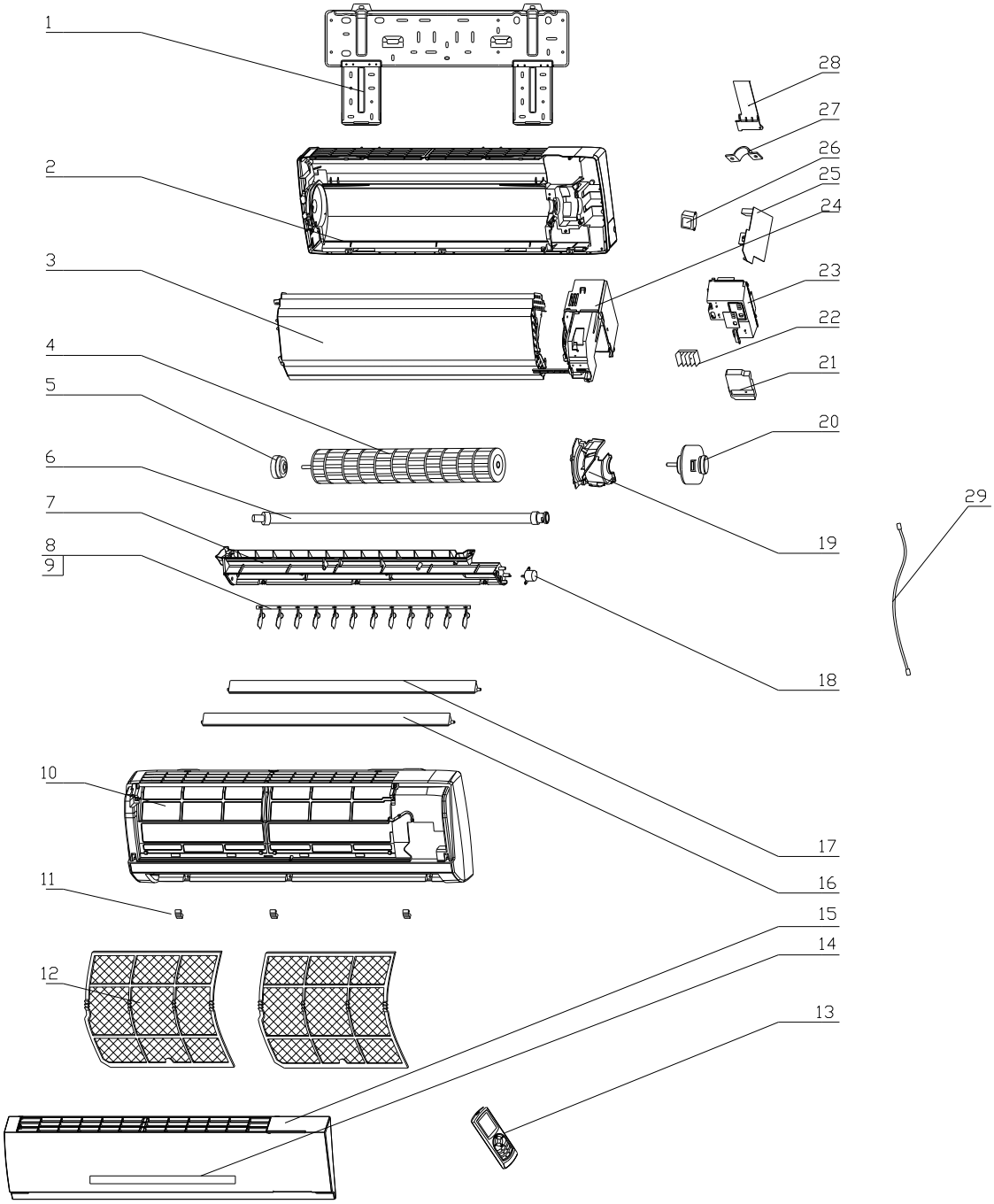
NO.	Name	INV(L)-R71G/Na-K；INV(L)-R80G/Na-K	
		Coding	Qty
1	Wall-Mounting Frame	` 01252398	1
2	Rear Case	` 22202091	1
3	Fan Bearing	` 76512203	1
4	Screw Cover	` 242520053	3
5	Swing Louver	` 10512110	15
6	Swing Link	` 10582040	3
7	Water Tray	` 20182043	1
8	Guide Louver（up）	` 10512062	1
9	Guide Louver（down）	` 10512063	1
10	Cross Flow Fan	` 10352420	1
11	Evaporator Assy	` 0102411202	1
12	Drainage Pipe	` 0523001404	1
13	Evaporator Support（left）	` 24212041	1
14	Filter	` 11122051	2
15	Front Case	` 26904107	1
16	Front Panel	` 20002698	1
17	Front Panel A	` 22432258	1
18	Remote Controller Y512	` 305125063	1
19	Receiver Board JD	` 30046093	1
20	Electric Box Cover	` 20102252	1
21	Switch Lever	` 10582007	1
22	Wire Clamp	` 71010103	1
23	Terminal Board T4B3A	` 42011233	1
24	Electric Box Cover	` 201022513	1
25	Main PCB	` 30226420	1
26	Transformer 48X26G	` 43110233	1
27	Room Sensor	`3900019813	1
28	Tube Sensor	`3900019814	1
		`3900019815	1
		`3900019816	1
29	Sensor Insert	` 42020063	3
30	Electric Box	` 20102250	1
31	Lower Shield of Electric Box	` 01592034	1
32	Upper Shield of Electric Box	` 01592033	1
33	Stepping Motor MP24GA	15212102	1
34	Evaporator Support（rihgt）	` 24212042	1
35	Motor Clamp	` 26112069	1
36	Motor FN26D	` 150121053	1
37	Fixer(evaporator)	` 02112009	1
38	Pipe Clamp	` 26112071	1
39	Signal Cable	`400103953	1
40	Fix sub-assy	`01324110P	1
41	EXV sub-assy	`07334255	1
42	Connecting Wire	`40010267	1

（5）INV(L)-R22G/NaC-K；INV(L)-R28G/NaC-K Exploded diagram and list of components



NO.	Name	INV(L)-R22G/NaC-K；INV(L)-R28G/NaC-K	
		Coding	Qty
1	Wall Mounting Frame	01252220	1
2	Rear Case	222020012	1
3	Evaporator Assy	01004628	1
4	Cross Flow Fan	10352001	1
5	O-Gasket of Cross Fan Bearing	76512203	1
6	Drain Pipe	0523001401	1
7	Water Tray	201820272	1
8	Air Louver	10512080	1
9	Swing Lever	10582002	1
10	Swing Lever	10582003	1
11	Front Case	200024442	1
12	Screw Cap	24252006	3
13	Filter	11122002	2
14	Remote Control Y512	305125063	1
15	Display Board	30545707	1
16	Front Panel	20002522	1
17	Guide Louver	10512034	1
18	Guide Louver	10512033	1
19	Stepping Motor	15212110	1
20	Motor Press Plate	26112014	1
21	Fan Motor	150121081	1
22	Electric Box Cover	22242030	1
23	4-bit Terminal Board	42011233	1
24	Electric Box Cover	201220061	1
25	Electric Box	20102178	1
26	Main PCB Z6H251B	30226077	1
27	Transformer	43110226	1
28	Fixed Clamp	71010103	1
29	Pipe Clamp	24242001	1
30	Connecting Wire（communicate)	400103953	1

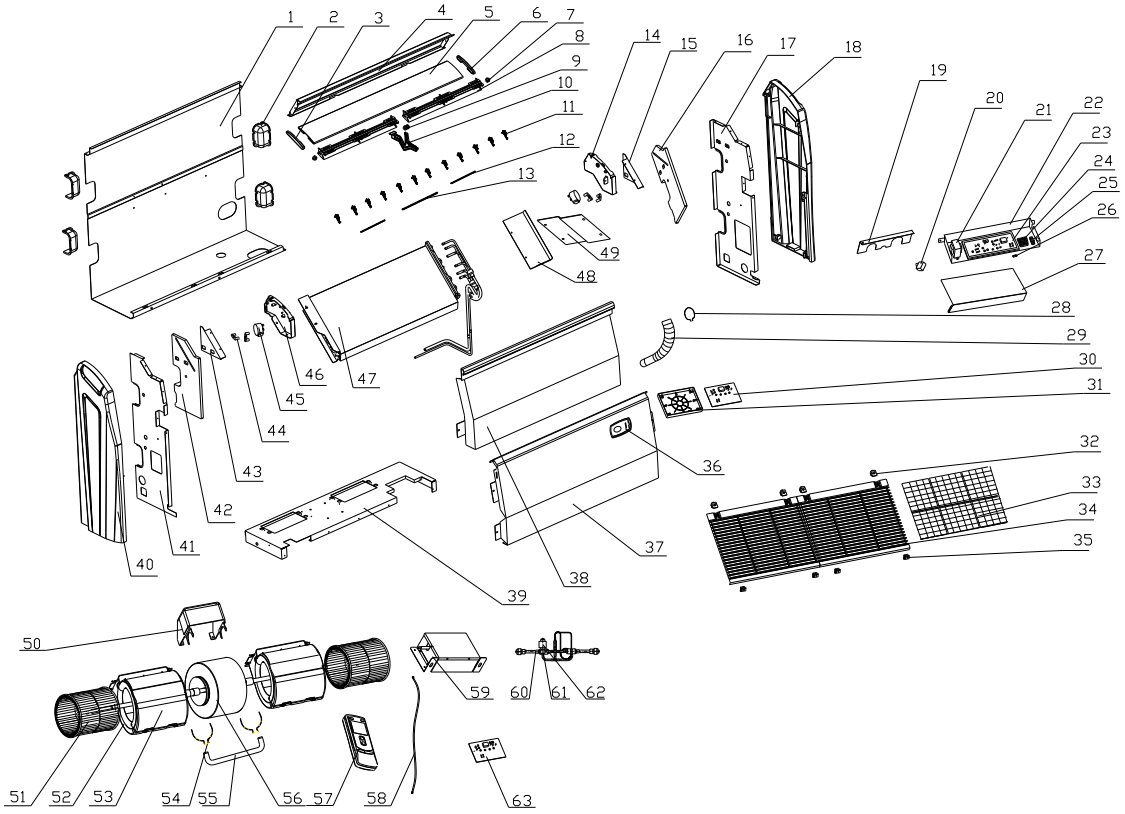
（6）INV(L)-R36G/NaC-K；INV(L)-R45G/NaC-K Exploded diagram and list of components



NO	Name	INV(L)-R36G/NaC-K；INV(L)-R45G/NaC-K	
		Coding	Qty
1	Wall Mounting Frame	01252384	1
2	Rear Case Sub-Assy	22202051	1
3	Evaporator Assy	01004629	1
4	Cross Flow Fan	10352005	1
5	Ring of Bearing	76712015	1
6	Drain Pipe	0523001401	1
7	Water Tray	201820302	1
8	Air Louver	10512041	12
9	Swing Lever	10582439	1
10	Front Case	200025253	1
11	Screw Cap	24252007	3
12	Filter	11122440	2
13	Remote Control Y512	305125063	1
14	Display Board	30545558	1
15	Front Panel	20002524	1
16	Lower Guide Louver	26112043	1
17	Upper Guide Louver	26112042	1
18	Stepping Motor	15212105	1
19	Motor Right Clamp	26112429	1
20	Motor FN22G	150120623	1
21	Electric Box Cover	22242017	1
22	4-bit Terminal Board	42011233	1
23	Covering Plate	20102119	1
24	Electric Box	20102108	1
25	Main PCB Z6J251B	30226075	1
26	Transformer	43110226	1
27	Fixed Clamp	71010103	1
28	Rear Clamp	26112430	1
29	Connecting Wire（communicate)	400103953	1

5.2 .4 Exploded diagram of floor ceiling unit and list of components

（1）INV(L)-R28Zd/Na-K, INV(L)-R36Zd/Na-K, INV(L)-R50Zd/Na-K　Exploded diagram and list of components

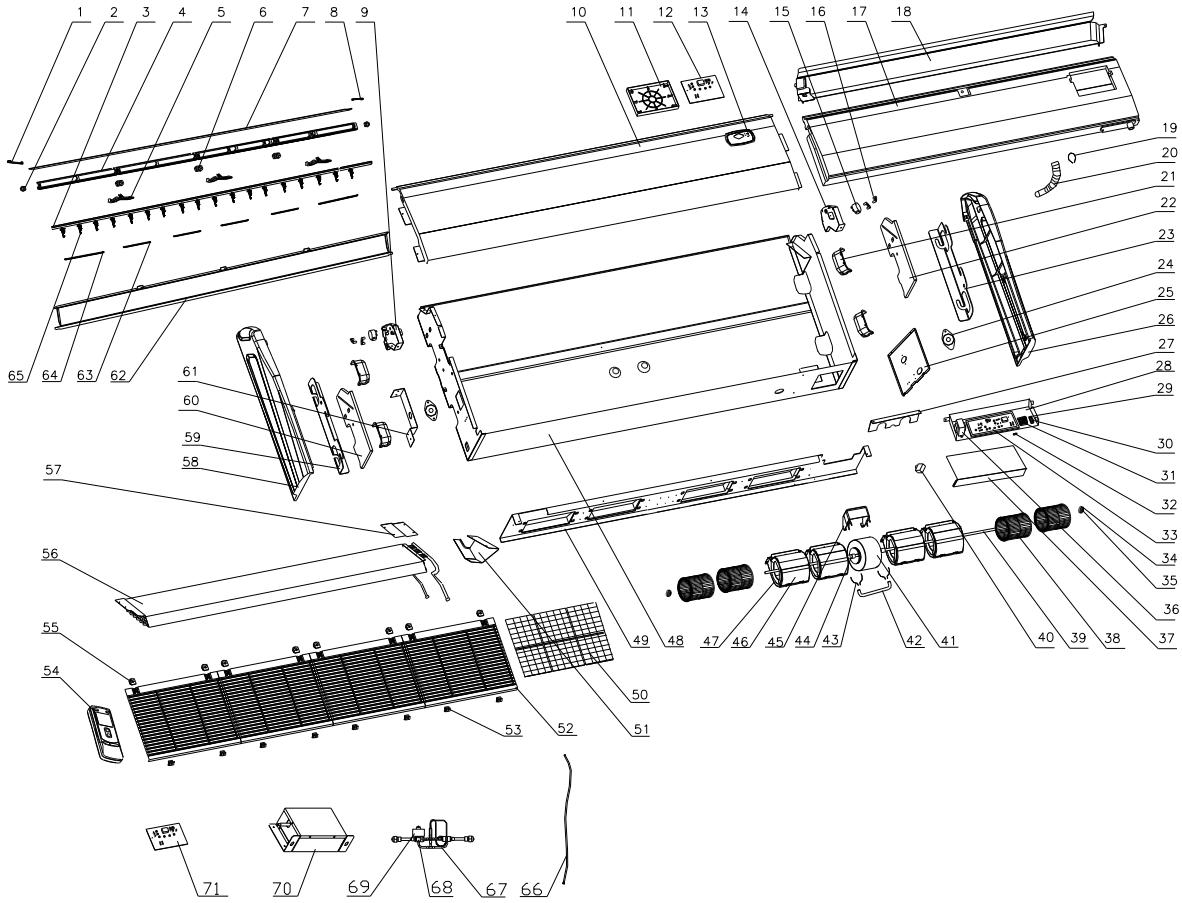


NO.	Name	INV(L)-R28Zd/Na-K, INV(L)-R36Zd/Na-K, INV(L)-R50Zd/Na-K	
		Coding	Qty
1	Rear Side Plate	01302013	1
2	Handle	26232001	4
3	Left Decoration Plate	261124152	1
4	Rear Side Plate of Air Outlet	0130201501	1
5	Louver	1051953202	1
6	Right Decoration Plate	261124162	1
7	Shaft of Louver II	10512026	2
8	Louver Support	24212019	2
9	Shaft of Louver I	10512025	1
10	Louver Fixer	24212018	1
11	Swing Louver	10512027	12
12	Connecting Lever	10582009	1
13	Connecting Lever	10582008	2
14	Right Swing Motor Fixer	26152006	1
15	Right Fixing Plate of Evaporator	01072411	1
16	Right Side Foam sub-assy	12312404	1
17	Right Fixing Plate	01332404	1
18	Right Decoration Panel	26112027	1
19	Pipe Clamp Plate	0107243701	1
20	Capacitor 1uF/500V	33010089	1
21	Transformer 57X25C	43110237	1
22	Electric Box	01402407	1
23	Main PCB Z6935	30226903	1
24	Terminal Board RS9413G	42011159	1
25	Wire Base	24253001	1
26	Wire Clamp	24253002	1
27	Fuse 5A 250VAC	46010013	1
28	Cover of Electric Box	01412408	1
29	Pipe Clip	70812001	1
30	Drainage Pipe	05235433	1
31	Display Board 5T52	30545654	1
32	Electric Box	20102138	1
33	Front Grill Clip 1	26252002	4
34	Filter	11122013	2
35	Front Grill	22412010	2
36	Front Grill Clip 2	26252003	4
37	Front Panel	01544106	1
38	Front Panel	01532001P	1
39	Water Tray Panel	01272205P	1
40	Motor Support	01709532	1
41	Left Decoration Panel	26112028	1
42	Left Fixing Plate	01332405	1
43	Left Side Foam sub-assy	12312403	1

44	Left Fixing Plate of Evaporator	01072410	1
45	Motor Clamp	26112026	4
46	Step Motor MP35CA	15212402	2
47	Left Swing Motor Fixer	26152005	1
48	Evaporator Assy	01024134 ①	1
		01024135 ②	1
		01024121 ③	1
49	Water Lead Panel	01362001	1
50	Cover of Evaporator	01072409	1
51	Fixed Mount	01708763	1
52	Centrifugal Fan	10312401	2
53	Rear Snail Shell	22202032	2
54	Front Snail Shell	22202031	2
55	Bar Clasp	70819522	4
56	Hoop	70819521	1
57	Motor	15707302 ④	1
		157073024 ⑤	1
58	Remote Controller	305125063	1
59	Signal Cable	400103953	1
60	Fix sub-assy	01324110P	1
61	EXV sub-assy	07334258	1
62	EXV SPF-16D70	07334191	1
63	Magnet Coil for EXV DPF-AS001A	430001087	1
64	Display Board Z63351F	30296309	1

Remarks：1 Evaporator omponent ①is only used in INV(L)-R28Zd/Na-K；
2 Evaporator omponent ②is only used in INV(L)-R36Zd/Na-K；
3 Evaporator omponent ③is only used in INV(L)-R50Zd/Na-K；
4 Electrical motor ④is only used in INV(L)-R28Zd/Na-K, INV(L)-R36Zd/Na-K；
5 Electrical motor ⑤is only used in INV(L)-R50Zd/Na-K；

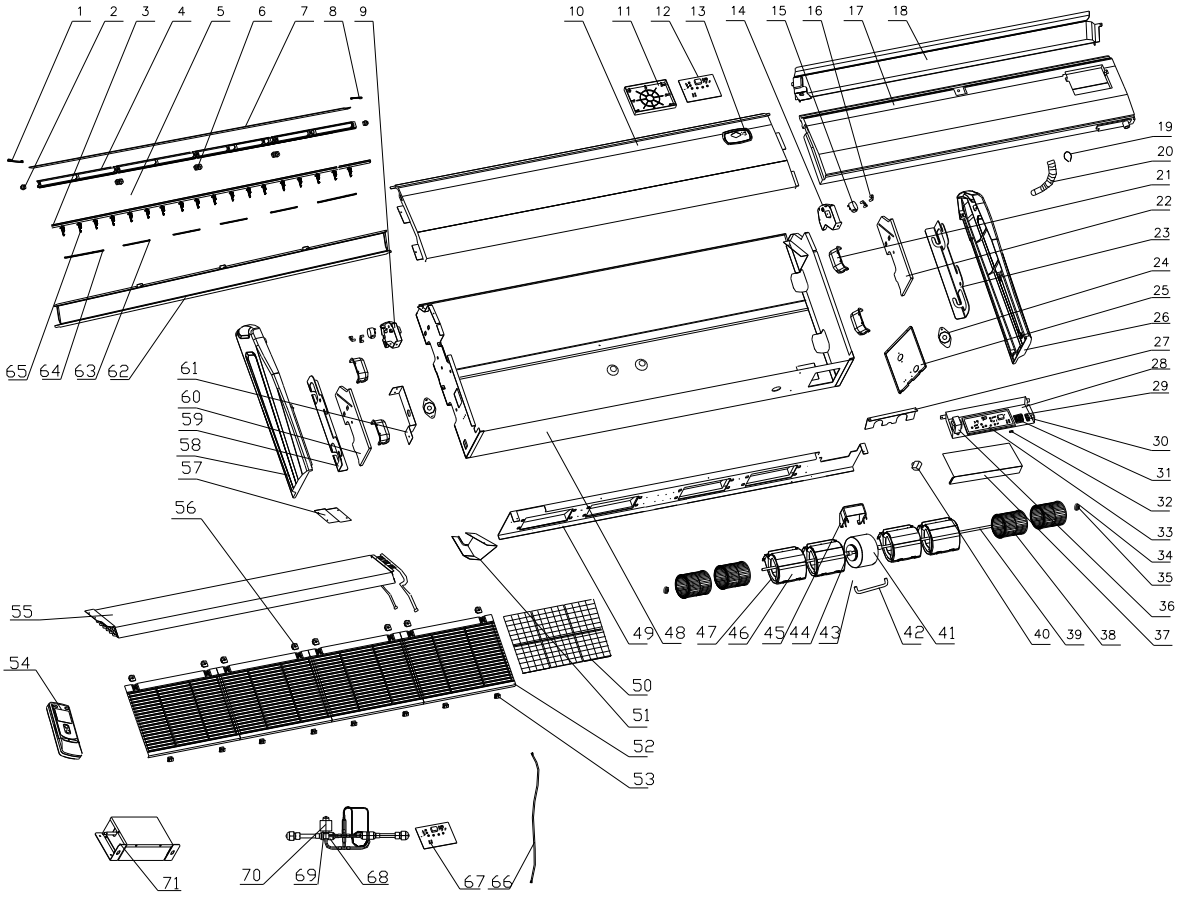
（2）INV(L)-R71Zd/Na-K Exploded diagram and list of components



NO.	Nsme	INV(L)-R71Zd/Na-K	
		Coding	Qty
1	Left Decoration Plate	261124172	1
2	Shaft of Louver I	10512025	2
3	Swing Louver Fixer sub-assy	013324232	1
4	Louver Support	24212020	3
5	Louver Fixer	24222016	2
6	Louver	105124042	1
7	Shaft of Louver II	10512026	2
8	Right Decoration Plate	261124212	1
9	Left Swing Motor Fixer	26152007	1
10	Front Panel	01532414	1
11	Display Box	20102138	1
12	Display Board 5T52	30545654	1
13	Front Panel	01544106	1
14	Right Swing Motor Fixer	26152008	1
15	Step Motor MP35CA	15212402	2
16	Motor Clamp	26112026	4
17	Water Tray	01272412	1
18	Auxiliary Water Tray	01272413	1
19	Pipe Clip	70812001	1
20	Drainage Pipe	05235433	1
21	Handle	26232001	4
22	Right Side Foam sub-assy	12312407	1
23	Right Fixing Palte	01332404	1
24	Support of Motor Bearing	01792408	2
25	Fixer of Motor Support	01792409	1
26	Right Decoration Panel	26112033	1
27	Pipe Clamp	01072424	1
28	Electric Box	01402407	1
29	Wire Base	24253001	1
30	Wire Clamp	24253002	1
31	Terminal Board	42011159	1
32	Fuse 5A 250VAC	46010013	1
33	Main PCB Z6935	30226903	1
34	Ring of Bearing	76512404	2
35	Fan Bearing	76512210	2
36	Transformer 57X25C	43110237	1
37	Cover of Electric Box	01412408	1
38	Centrifugal Fan	10312401	4
39	Rotary Axis	73012401	2
40	Capacitor CBB61 3uF/450	33010027	1
41	Motor FN100A	15012406	1
42	Motor Fixer	01722409	1
43	Motor Clamp	01702405	2
44	Axes Connector	73012403	2

45	Motor Fixing Plate	01332426	1
46	Front Snail Shell	22202031	4
47	Rear Snail Shell	22202032	4
48	Rear Side Plate	01302429	1
49	Motor Support	01702410	1
50	Filter	11122012	2
51	Water Lead Plate	01362401	1
52	Front Grill	22412011	2
53	Front Grill Clip 2	26252003	4
54	Remote Controller	305125063	1
55	Front Grill Clip 1	26252002	4
56	Evaporator Assy	01024123	1
57	Cover of Evaporator	01072417	1
58	Left Decoration Panel	26112032	1
59	Left Fixing Plate	01332405	1
60	Left Side Foam sub-assy	12312406	1
61	Bearing Fixing Plate	01332407	1
62	Rear Side Plate of Air Outlet	01302405	1
63	Connecting Lever	10582008	3
64	Connecting Lever	10582009	2
65	Swing Louver	10512028	22
66	Signal Cable	400103953	1
67	EXV sub-assy	07334255	1
68	EXV SPF-18D88	07334193	1
69	Magnet Coil for EXV	430001087	1
70	Fix sub-assy	01324110P	1
71	Display Board Z63351F	30296309	1

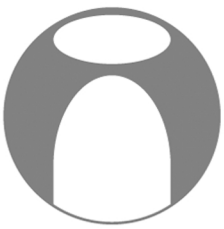
（3）INV(L)-R90Zd/Na-K, INV(L)-R112Zd/Na-K, INV(L)-R125Zd/Na-K Exploded diagram and list of components



NO	Name	INV(L)-R71Zd/Na-K	
		Coding	Qty
1	Left Decoration Plate	261124152	1
2	Shaft of Louver I	10512025	3
3	Swing Louver Fixer sub-assy	0133241802	1
4	Louver Support	24212019	4
5	Louver Fixer	24212018	3
6	Shaft of Louver II	10512026	2
7	Louver	105124082	1
8	Right Decoration Plate	261124162	1
9	Left Swing Motor Fixer	26152005	1
10	Front Panel	01532413	1
11	Display Box	20102138	1
12	Display Board 5T52	30545654	1
13	Front Panel	01544106	1
14	Right Swing Motor Fixer	26152006	1
15	Step Motor MP35CA	15212402	2
16	Motor Clamp	26112026	4
17	Water Tray	0127240802	1
18	Auxiliary Water Tray	01272409	1
19	Pipe Clip	70812001	1
20	Drainage Pipe	05235433	1
21	Handle	26232001	4
22	Right Side Foam sub-assy	12312404	1
23	Right Fixing Palte	01332404	1
24	Support of Motor Bearing	01792408	2
25	Fixer of Motor Support	01792407	1
26	Right Decoration Panel	26112027	1
27	Pipe Clamp	01072425	1
28	Electric Box	01402407	1
29	Wire Base	24253001	1
30	Wire Clamp	24253002	1
31	Terminal Board	42011159	1
32	Fuse 5A 250VAC	46010013	1
33	Main PCB Z6935	30226903	1
34	Ring of Bearing	76512404	2
35	Fan Bearing	76512210	1
36	Transformer 57×25C	43110237	1
37	Cover of Electric Box	01412408	1
38	Centrifugal Fan	10319051	4
39	Rotary Axis	73012402	2
40	Capacitor	33010064 ①	1
		33010056 ②	1
41	Motor	15012405 ③	1
		15012404 ④	1
42	Motor Fixer	01722410	1

43	Motor Clamp	01702405	2
44	Axes Connector	73012403	2
45	Motor Fixing Plate	01332425	1
46	Front Snail Shell	22202030	4
47	Rear Snail Shell	22202029	4
48	Rear Side Plate	01302431	1
49	Motor Support	01702411	1
50	Filter	11122013	1
51	Water Lead Plate	01362407	1
52	Front Grill	22412010	4
53	Front Grill Clip 2	26252003	8
54	Remote Controller	305125063	1
55	Evaporator Assy	01024122	1
56	Front Grill Clip 1	26252002	8
57	Cover of Evaporator	01072409	1
58	Left Decoration Panel	26112028	1
59	Left Fixing Plate	01332405	1
60	Left Side Foam sub-assy	12312403	1
61	Bearing Fixing Plate	01332406	1
62	Rear Side Plate of Air Outlet	01302416	1
63	Connecting Lever	10582008	2
64	Connecting Lever	10582009	4
65	Swing Louver	10512027	26
66	Signal Cable	400103953	1
67	Display Board Z63351F	30296309	1
68	EXV sub-assy	07334256	1
69	EXV VPF-25D*B3	07334195	1
70	Magnet Coil for EXV	43000110	1
71	Fix sub-assy 2	01324110P	1

Remarks：1 Capacitance ①is only used in INV(L)-R90Zd/Na-K；
2 Capacitance ②is only used in INV(L)-R112Zd/Na-K, INV(L)-R125Zd/Na-K；
3 Electrical motor ③is only used in INV(L)-R90Zd/Na-K；
4 Electrical motor ④is only used in INV(L)-R112Zd/Na-K, INV(L)-R125Zd/Na-K；



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