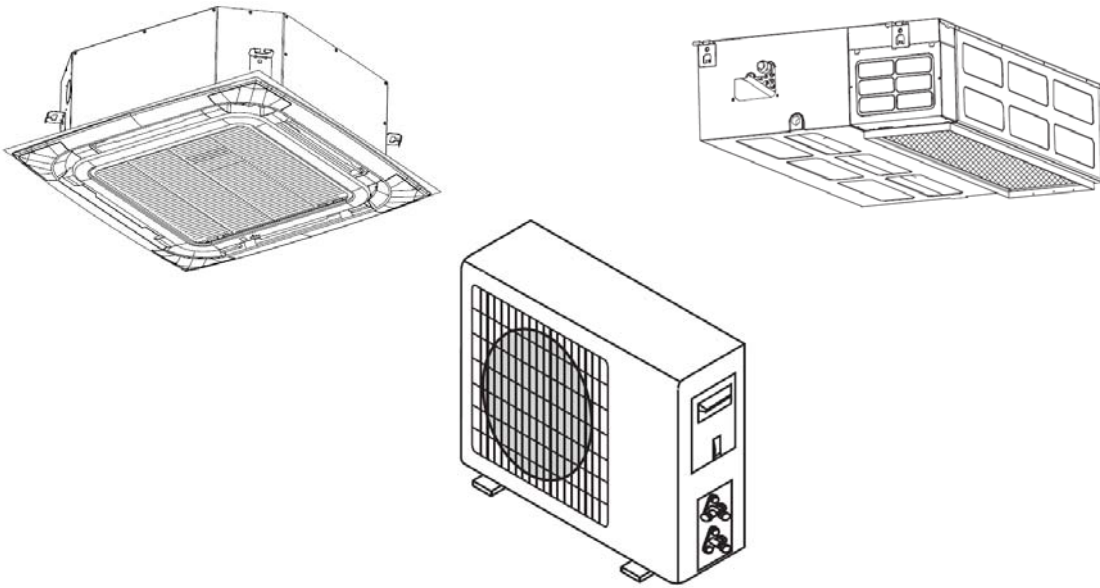


R32 SERIES DC INVERTER AIR CONDITIONERS

Service Manual



CASSETTE

24k 36k 42k

DUCT

24k 30k 36k

OUTDOOR

24k 30k 36k 42k

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Part I Technical Information

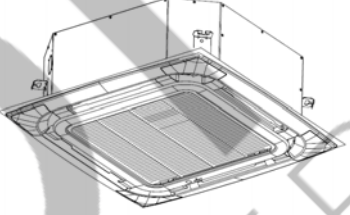
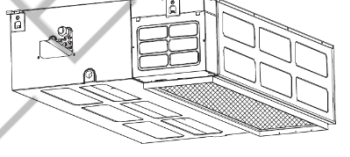
1. Important Notice

This service manual is intended for use by individuals possessing adequate backgrounds of electrical, electronic and mechanical experience. Any attempt to repair the appliance may result in personal injury and property damage. The manufacturer or seller cannot be responsible for the interpretation of this information, nor can it assume any liability in connection with its use.

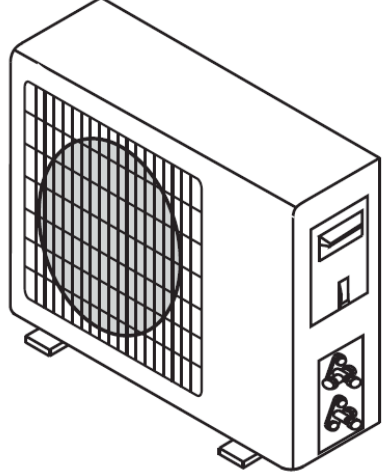
The information, specifications and parameter are subject to change due to technical modification or improvement without any prior notice. The accurate specifications are presented on the nameplate label.

2. Model List

2.1 Indoor Units

Type	Model Name	Product Code	Nominal Capacity Cooling/Heating (Btu/h)	Power Supply (V, Ph, Hz)	Appearance
Cassette Type	TCC-24CHRH/DVI	Z2U30303000614	24000/26000	220-240V ~ 1ph 50Hz	
	TCC-36CHRH/DVI	Z1U30303000096	36000/39000	220-240V ~ 1ph 50Hz	
	TCC-42CHRH/DVI	Z2U30303000615	42000/46000	220-240V ~ 1ph 50Hz	
Duct Type	TCC-24D2HRH/DVI	Z2U30304000267	24000/26000	220-240V ~ 1ph 50Hz	
	TCC-30D2HRH/DVI	Z2U30304000270	30000/32000	220-240V ~ 1ph 50Hz	
	TCC-36D2HRH/DVI	Z1U30304000115	36000/39000	220-240V ~ 1ph 50Hz	

2.2 Outdoor Units

Model Name	Product Code	Power Supply (V, Ph, Hz)	Appearance
TCC-24HRH/DVO	Z2U30307000639	220-240V~1ph 50Hz	
TCC-30HRH/DVO	Z4U30307001192	220-240V~1ph 50Hz	
TCC-36HRH/DVO	Z4U30307001191	220-240V~1ph 50Hz	
TCC-36HRH/DV7O	Z4U30307001190	380-415V~3ph 50Hz	

TCC-42HRH/DV70	Z4U30307001180	380-415V~3ph 50Hz	
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3. PRODUCT DATA

3.1 Specifications Sheet

3.1.1 Cassette Type

Model		TCC-24CHRH/DV	TCC-36CHRH/DV	TCC-36CHRH/DV7	TCC-42CHRH/DV7	
Product Code		Z2U30301000755	Z4U30301001244	Z4U30301001242	Z4U30301001240	
Type		heating pump	heating pump	heating pump	heating pump	
Control type		remote controller	remote controller	remote controller	remote controller	
Declared cooling capacity	W	7040(2200~7920)	10550(3960~12300)	10550(3960~12300)	12310(3520~13200)	
Declared heating capacity	W	7620(2320~8350)	11500(2820~13500)	11500(2820~13500)	13500(3810~14950)	
Pdesignc	W	7000	10500	10500	12300	
SEER declared	W/W	6.1	6.1	6.1	5.6	
Energy Class		A++	A++	A++	A+	
EER declared	W/W	3.02(4.63~2.90)	3.11(4.00~2.68)	2.98(4.00~2.68)	2.64(2.96~2.60)	
COP declared	W/W	3.54(4.85~3.00)	3.72(3.20~2.91)	3.65(3.20~2.91)	3.60(3.02~2.83)	
Pdesignh Average	W	5600	9800	9800	11000	
SCOP Average declared	W/W	4.0	4.0	4.0	4.0	
Energy Class(Average)		A+	A+	A+	A+	
Declare capacity(-10℃)	W	5450	9800	9800	10700	
Back up heating capacity(-10℃)	W	150	0	0	300	
Annual energy consumption	Cooling	kwh/a	402	602	602	769
	Average	kwh/a	1960	3430	3430	3850
Moisture removal	Liter s/h	2.20	3.60	3.60	4.80	
Indoor sound power(S/H/M/L/Mute)	dB(A)	54/52/50/48/44	62/60/58/54/52	62/60/58/54/52	63/61/59/55/52	
Indoor sound power(Standard rating conditions)	dB(A)	56	62	62	62	
Outdoor sound power(Standard rating conditions)	dB(A)	68	70	70	71	
Indoor sound pressure(S/H/M/L/Mute)	dB(A)	49/47/44/40/36	54/52/48/44/42	54/52/48/44/42	54/52/49/45/42	
Indoor sound pressure(Standard rating conditions)	dB(A)	47	52	52	52	
Outdoor sound pressure(Standard rating conditions)	dB(A)	55	60	60	61	
Electrical Data						
Power supply		Indoor: 220-240V~/50Hz/1P Outdoor: 220-240V~/50Hz/1P	Indoor: 220-240V~/50Hz/1P Outdoor: 220-240V~/50Hz/1P	Indoor: 220-240V~/50Hz/1P Outdoor: 380~415V/50Hz/3P	Indoor: 220-240V~/50Hz/1P Outdoor: 380~415V/50Hz/3P	
Power supply side		Outdoor and Indoor	Outdoor and Indoor	Outdoor and Indoor	Outdoor and Indoor	
Voltage Range	V	176~265	176~265	176~265	176~265	

Cooling Operating current	Indoor	A	0.6(0.3~0.8)	1.0(0.4~1.2)	1.0(0.4~1.2)	1.1(0.4~1.2)
	Outdoor	A	9.9(3.1~11.4)	15.0(4.2~19.7)	4.5(1.2~6.0)	6.2(1.4~6.8)
Heating Operating current	Indoor	A	0.6(0.3~0.8)	1.0(0.4~1.2)	1.0(0.4~1.2)	1.1(0.4~1.2)
	Outdoor	A	9.1(3.1~11.7)	13.2(3.7~20.1)	3.9(1.0~6.1)	4.8(1.6~7.1)
Cooling Power consumption	Indoor	W	70(20~90)	120(35~150)	120(35~150)	130(35~150)
	Outdoor	W	2260(455~2640)	3270(955~4430)	3420(955~4430)	4530(1155~4920)
Heating Power consumption	Indoor	W	70(20~90)	120(35~150)	120(35~150)	130(35~150)
	Outdoor	W	2080(458~2690)	2970(845~4490)	3030(845~4490)	3620(1225~5130)
Max. powerconsump		W	2800	4400	4900	6000
Max.current		A	13.5	20.5	8.5	10.5
Refrigerating System						
Refrigerant type/Charge/GWP/CO2 equivalent			R32/1.25kg/675/0.844tonnes	R32/2.40kg/675/1.620tonnes	R32/2.40kg/675/1.620tonnes	R32/2.80kg/675/1.890tonnes
Compressor	Type		Rotary	Rotary	Rotary	Rotary
	Model		C-6RZ146H3BAF	KTF310D43UMT	KTF310D43UMT	KTF310D43UMT
	MFG		SANYO	GMCC	GMCC	GMCC
Indoor air circulation Cooling/heating		m ³ /h	1300/1450	1600/1850	1600/1850	1650/1900
Indoor fan type			centrifugal fan	centrifugal fan	centrifugal fan	centrifugal fan
Indoor fan speed S/H/ML/Mute	Cooling	rpm	700/650/580/500/420	850/800/700/600/520	850/800/700/600/520	850/800/700/600/520
	Heating	rpm	700/650/580/500/420	850/800/700/600/520	850/800/700/600/520	850/800/700/600/520
	Dry	rpm	500/500	600/600	600/600	600/600
	Sleep	rpm	500/500	600/600	600/600	600/600
Outdoor fan type			Propeller fan	Propeller fan	Propeller fan	Propeller fan
Outdoor air circulation		m ³ /h	2700	4300	4300	4300
Outdoor fan speed		rpm	860	750	750	800
External Static Pressure(Rated)		Pa	0	0	0	0
External Static Pressure(Range)		Pa	0	0	0	0
Connections			3×0.75mm ² Communication line	3×0.75mm ² Communication line	3×0.75mm ² Communication line	3×0.75mm ² Communication line
Connecting Wiring	Core x Size		Indoor: 3×1.0mm ² Outdoor: 3×2.5mm ²	Indoor: 3×1.0mm ² Outdoor: 3×2.5mm ²	Indoor: 3×1.0mm ² Outdoor: 5×2.5mm ²	Indoor: 3×1.0mm ² Outdoor: 5×2.5mm ²
Expension device			Capillary +EXV	Capillary +EXV	Capillary +EXV	Capillary +EXV
Connecting Pipe	Gas	Inches	3/4"	7/8"	7/8"	7/8"
	Liquid	Inches	7/16"	5/8"	5/8"	5/8"
Others						
Application area		m ²	27~45	39~71	39~71	44~85
Max. refrigerant pipe length		m	50	65	65	65
Max. difference in level		m	25	30	30	30
Operation temperature range		°C	16-31	16-31	16-31	16-31
Ambient temperature range	Outdoor	°C	Cooling:-15-50 Heating:-15-24	Cooling:-15-50 Heating:-15-24	Cooling:-15-50 Heating:-15-24	Cooling:-15-50 Heating:-15-24
	Indoor	°C	Cooling:17-32 Heating:0-30	Cooling:17-32 Heating:0-30	Cooling:17-32 Heating:0-30	Cooling:17-32 Heating:0-30

Net dimensions(W x H x D)	Indoor	mm	840×230×840	840×300×840	840×300×840	840×300×840
Net dimensions(W x H x D)	Outdoor	mm	845×694×330	940×885×338	940×885×338	940×885×338
	Panel	mm	950×45×950	950×45×950	950×45×950	950×45×950
Net weight	Indoor	kg	22	30	30	30
	Outdoor	kg	39	69	86	95
	Panel	kg	6	6	6	6
Packing dimensions(W x H x D)	Indoor	mm	925×285×925	925×355×925	925×355×925	925×355×925
	Outdoor	mm	960×735×430	1060×1045×430	1060×1045×430	1060×1045×430
	Panel	mm	1035×80×1035	1035×80×1035	1035×80×1035	1035×80×1035
w/i pipe	Outdoor	mm	/	/	/	/
Gross weight	Indoor	kg	26	35	35	35
	Outdoor	kg	44	79	96	105
	Panel	kg	9	9	9	9

3.1.2 Duct Type

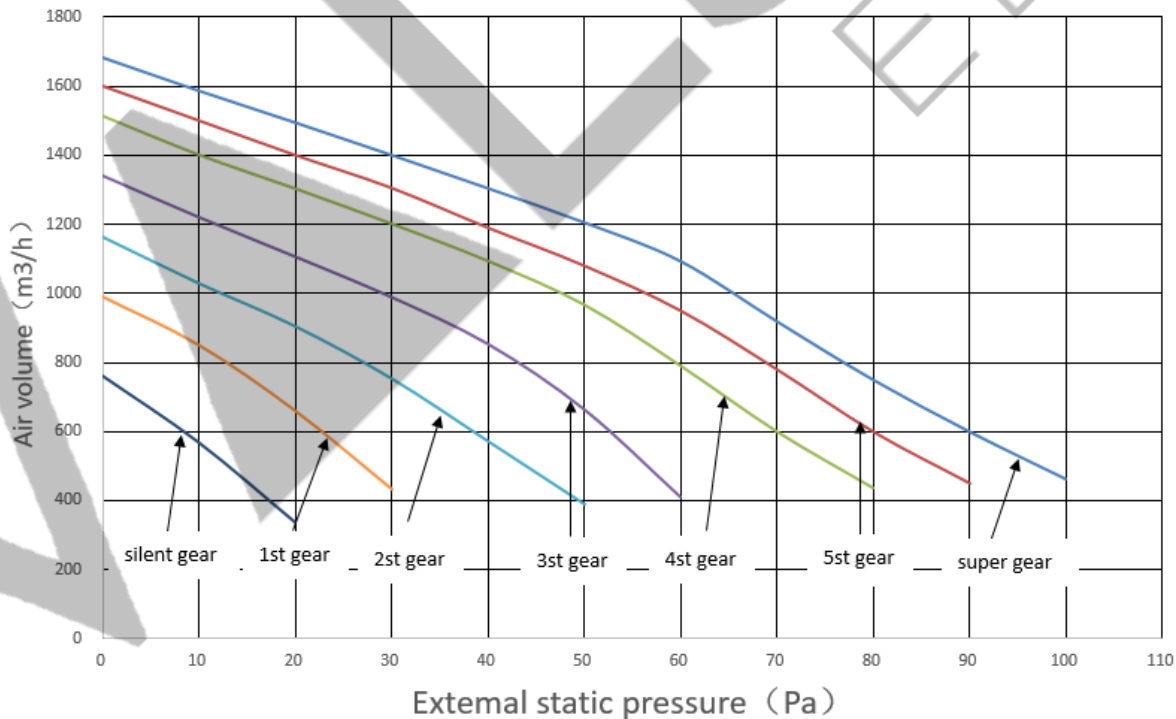
Model		TCC-24D2HRH/DV	TCC-30D2HRH/DV	TCC-36D2HRH/DV	TCC-36D2HRH/DV7	
Product Code		Z2C30301000007	Z4U30301001245	Z4U30301001243	Z4U30301001241	
Type		heating pump	heating pump	heating pump	heating pump	
Control type		remote controller	remote controller	remote controller	remote controller	
Declared cooling capacity	W	7040(2200~7920)	8800(2580~10600)	10550(3080~12300)	10550(3080~12300)	
Declared heating capacity	W	7620(2320~8350)	9380(2700~11500)	11500(3280~13500)	11500(3280~13500)	
Pdesignc	W	7000	8800	10500	10500	
SEER declared	W/W	6.1	6.1	6.1	6.1	
Energy Class		A++	A++	A++	A++	
EER declared	W/W	2.95(3.01~2.61)	3.28(3.58~2.90)	3.11(3.11~2.68)	3.11(3.11~2.68)	
COP declared	W/W	3.75(3.03~2.85)	4.06(3.75~2.90)	3.78(3.73~2.91)	3.78(3.73~2.91)	
Pdesignh Average	W	5600	8200	10200	10200	
SCOP Average declared	W/W	4.0	4.0	4.0	4.0	
Energy Class(Average)		A+	A+	A+	A+	
Declare capacity(-10℃)	W	5400	8000	10200	10200	
Back up heating capacity(-10℃)	W	200	200	0	0	
Annual energy consumption	Cooling	kwh/a	402	505	602	602
	Average	kwh/a	1960	2870	3570	3570
Moisture removal	Liter s/h	2.00	2.60	3.40	3.40	
Indoor sound power(S/H/M/L/Mute)	dB(A)	59/58/52/46/44	63/62/56/48/46	63/62/55/49/47	63/62/55/49/47	
Indoor sound power(Standard rating conditions)	dB(A)	58	62	62	62	
Outdoor sound power(Standard rating conditions)	dB(A)	68	69	70	70	
Indoor sound pressure(S/H/M/L/Mute)	dB(A)	48/46/42/36/34	51/49/46/38/36	50/48/45/39/37	50/48/45/39/37	
Indoor sound pressure(Standard rating conditions)	dB(A)	46	49	48	48	
Outdoor sound pressure(Standard rating conditions)	dB(A)	55	58	60	60	

Electrical Data						
Power supply			Indoor: 220-240V~/50Hz/1P Outdoor: 220-240V~/50Hz/1P	Indoor: 220-240V~/50Hz/1P Outdoor: 220-240V~/50Hz/1P	Indoor: 220-240V~/50Hz/1P Outdoor: 220-240V~/50Hz/1P	Indoor: 220-240V~/50Hz/1P Outdoor: 380~415V/50Hz/3P
Power supply side			Outdoor and Indoor	Outdoor and Indoor	Outdoor and Indoor	Outdoor and Indoor
Voltage Range		V	176~265	176~265	176~265	176~265
Cooling Operating current	Indoor	A	0.8(0.2~1.0)	1.4(0.3~1.6)	1.4(0.5~1.80)	1.4(0.5~1.80)
	Outdoor	A	10.2(3.8~12.8)	11.0(3.3~15.2)	14.6(4.8~19.1)	3.9(1.0~5.4)
Heating Operating current	Indoor	A	0.8(0.2~1.0)	1.4(0.3~1.6)	1.4(0.5~1.8)	1.4(0.5~1.8)
	Outdoor	A	8.5(4.0~12.5)	9.4(3.3~16.8)	12.5(4.2~19.5)	3.3(0.9~5.5)
Cooling Power consumption	Indoor	W	100(20~135)	180(25~215)	180(55~240)	180(55~240)
	Outdoor	W	2285(710~2900)	2500(695~3440)	3210(935~4340)	3210(935~4340)
Heating Power consumption	Indoor	W	100(20~135)	180(25~215)	180(55~240)	180(55~240)
	Outdoor	W	1930(745~2795)	2130(695~3745)	2860(825~4400)	2860(825~4400)
Max. powerconsump		W	2800	3900	4400	4900
Max.current		A	13.5	18.5	20.5	8.5
Refrigerating System						
Refrigerant type/Charge/GWP/CO2 equivalent			R32/1.25kg/675/0.844tonnes	R32/2.20kg/675/1.485tonnes	R32/2.40kg/675/1.620tonnes	R32/2.40kg/675/1.620tonnes
Compressor	Type		Rotary	Rotary	Rotary	Rotary
	Model		C-6RZ146H3BAF	KTM240D43UMT	KTF310D43UMT	KTF310D43UMT
	MFG		SANYO	GMCC	GMCC	GMCC
Indoor air circulation Cooling/heating		m³/h	1000/1250	1600/1850	1800/2000	1800/2000
Indoor fan type			centrifugal fan	centrifugal fan	centrifugal fan	centrifugal fan
Indoor fan speed S/H/M/L/Mute	Cooling	rpm	1100/1050/900/700/550	1150/1100/950/750/650	1080/1050/950/700/600	1080/1050/950/700/600
	Heating	rpm	1050/1000/800/650/550	1050/1000/900/700/600	1050/1000/900/700/600	1050/1000/900/700/600
	Dry	rpm	700/650	750/700	700/700	700/700
	Sleep	rpm	700/650	750/700	700/700	700/700
Outdoor fan type			Propeller fan	Propeller fan	Propeller fan	Propeller fan
Outdoor air circulation		m3/h	2700	4000	4300	4300
Outdoor fan speed		rpm	860	720	750	750
External Static Pressure(Rated)		Pa	25	37	37	37
External Static Pressure(Range)		Pa	0-80	0-100	0-100	0-100
Connections			3×0.75mm²Communication line	3×0.75mm²Communication line	3×0.75mm²Communication line	3×0.75mm²Communication line
Connecting Wiring	Core x Size		Indoor: 3×1.0mm² Outdoor: 3×2.5mm²	Indoor: 3×1.0mm² Outdoor: 3×2.5mm²	Indoor: 3×1.0mm² Outdoor: 3×2.5mm²	Indoor: 3×1.0mm² Outdoor: 5×2.5mm²
Expension device			Capillary +EXV	Capillary +EXV	Capillary +EXV	Capillary +EXV
Connecting Pipe	Gas	Inches	3/4"	7/8"	7/8"	7/8"
	Liquid	Inches	7/16"	5/8"	5/8"	5/8"
Others						
Application area		m²	27~45	33~58	39~71	39~71

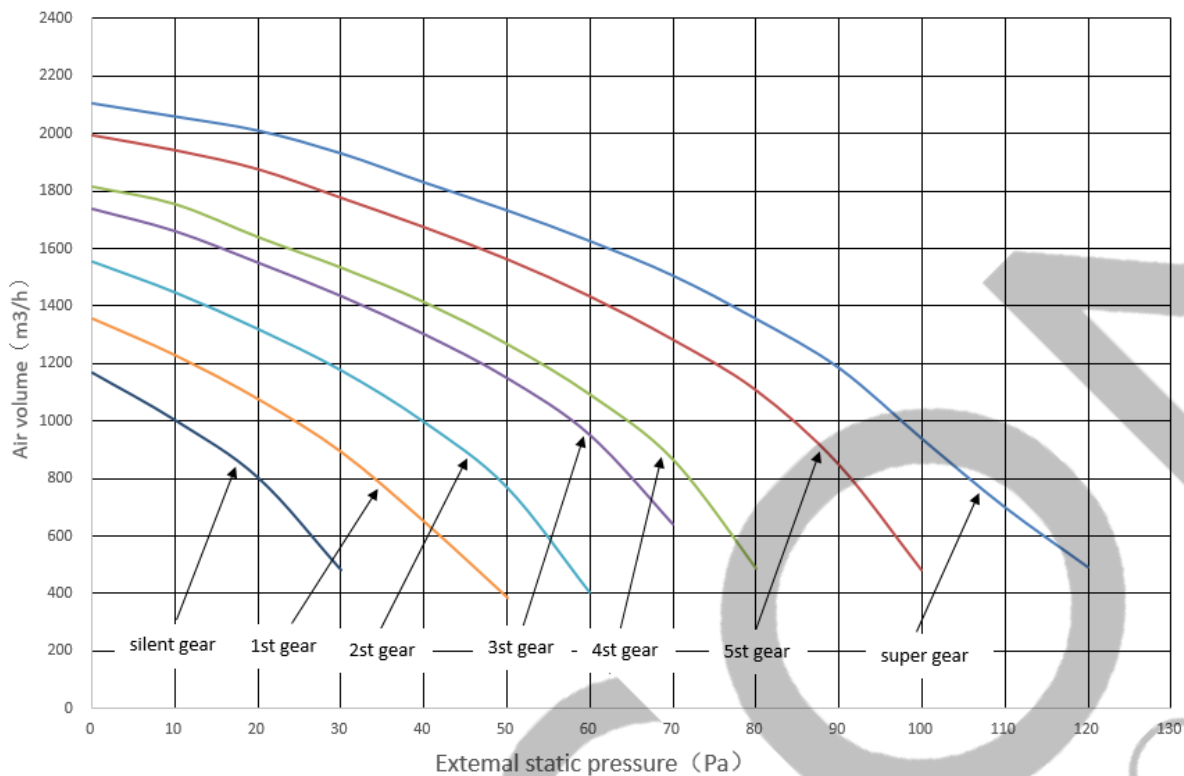
Max. refrigerant pipe length	m		50	50	65	65
Max. difference in level	m		25	25	30	30
Operation temperature range	°C		16-31	16-31	16-31	16-31
Ambient temperature range	Outdoor	°C	Cooling:-15-50 Heating:-15-24	Cooling:-15-50 Heating:-15-24	Cooling:-15-50 Heating:-15-24	Cooling:-15-50 Heating:-15-24
	Indoor	°C	Cooling:17-32 Heating:0-30	Cooling:17-32 Heating:0-30	Cooling:17-32 Heating:0-30	Cooling:17-32 Heating:0-30
Net dimensions(W x H x D)	Indoor	mm	920×270×570	1140×270×710	1200×300×800	1200×300×800
	Outdoor	mm	845×694×330	940×885×338	940×885×338	940×885×338
	Panel	mm	/	/	/	/
Net weight	Indoor	kg	27	37	44	44
	Outdoor	kg	39	62	69	86
	Panel	kg	/	/	/	/
Packing dimensions	Indoor	mm	1120x345x690	1345x345x830	1400x375x920	1400x375x920
	Outdoor	mm	960×735×430	1060×1045×430	1060×1045×430	1060×1045×430
	Panel	mm	/	/	/	/
w/i pipe	Outdoor	mm	/	/	/	/
Gross weight	Indoor	kg	31	44	51	51
	Outdoor	kg	44	72	79	96
	Panel	kg	/	/	/	/

3.2 The curve of Static Pressure(Duct Type)

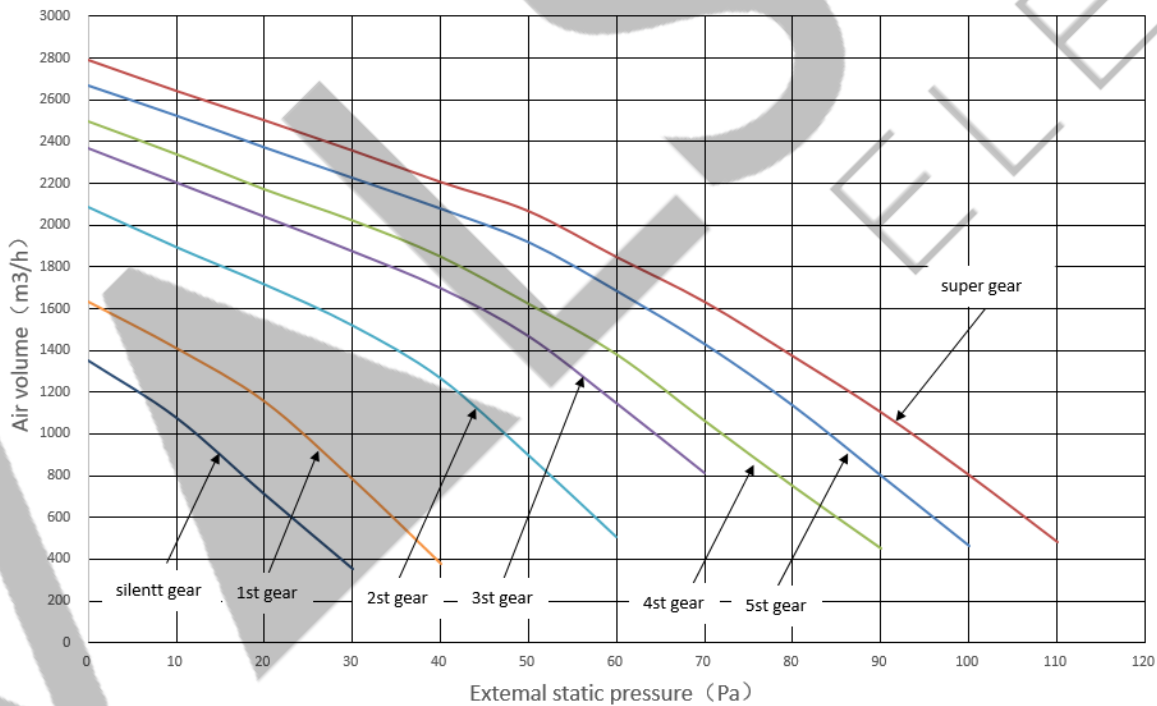
24K



30K

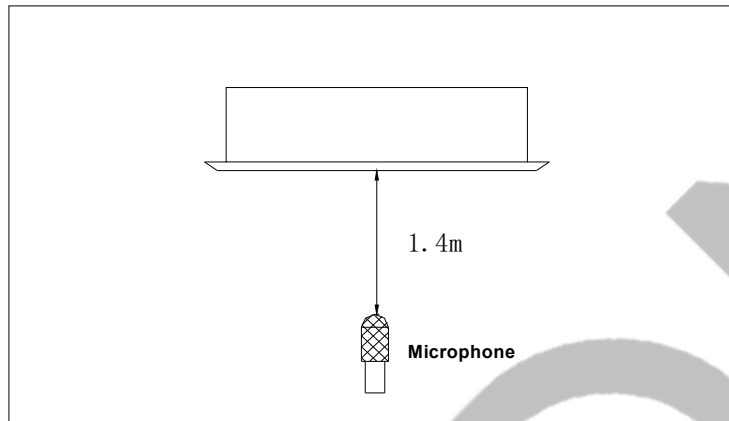


36K



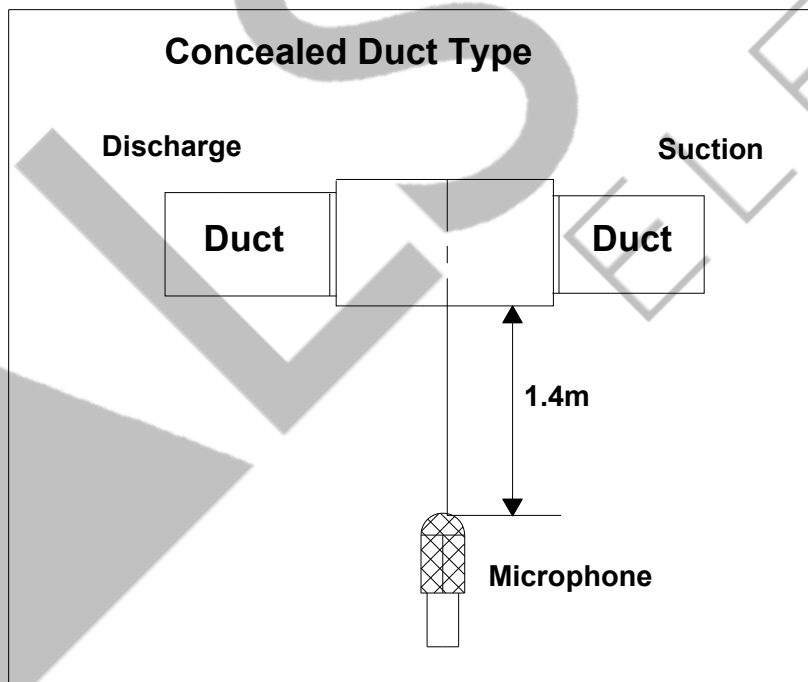
3.3 Sound Levels

3.3.1 Cassette Type



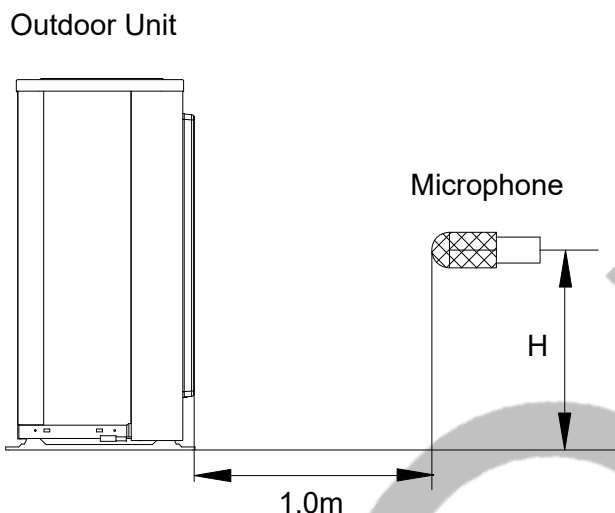
Model	Sound Power dB(A)					Sound Pressure dB(A)				
	S	H	M	L	Mute	S	H	M	L	Mute
TCC-24CHRH/DVI	54	52	50	48	44	49	47	44	40	36
TCC-36CHRH/DVI	62	60	58	54	52	53	51	48	44	42
TCC-42CHRH/DVI	63	61	59	55	52	54	52	49	45	42

3.3.2 Duct Type



Model	Sound Power dB(A)					Sound Pressure dB(A)				
	S	H	M	L	Mute	S	H	M	L	Mute
TCC-24D2HRH/DVI	59	58	52	46	44	48	46	42	36	34
TCC-30D2HRH/DVI	63	62	56	48	46	50	48	46	38	36
TCC-36D2HRH/DVI	63	62	55	49	47	50	48	45	39	37

3.3.3 Outdoor Units



Note: $H = 0.5 \times$ height of outdoor unit

Model	Sound Power dB(A)	Sound Pressure dB(A)
TCC-24HRH/DVO	68	55
TCC-30HRH/DVO	69	58
TCC-36HRH/DVO	70	60
TCC-36HRH/DV7O	70	60
TCC-42HRH/DV7O	71	61

3.4 Operation Limits

Mode	Temperature		
	Cooling operation	Heating operation	Drying operation
Room temperature	17°C~32°C	0°C~30°C	17°C~32°C
Outdoor temperature	0°C~50°C	-15°C~24°C	0°C~50°C
	(-15°C~50°C: For the models with low temperature cooling system)		

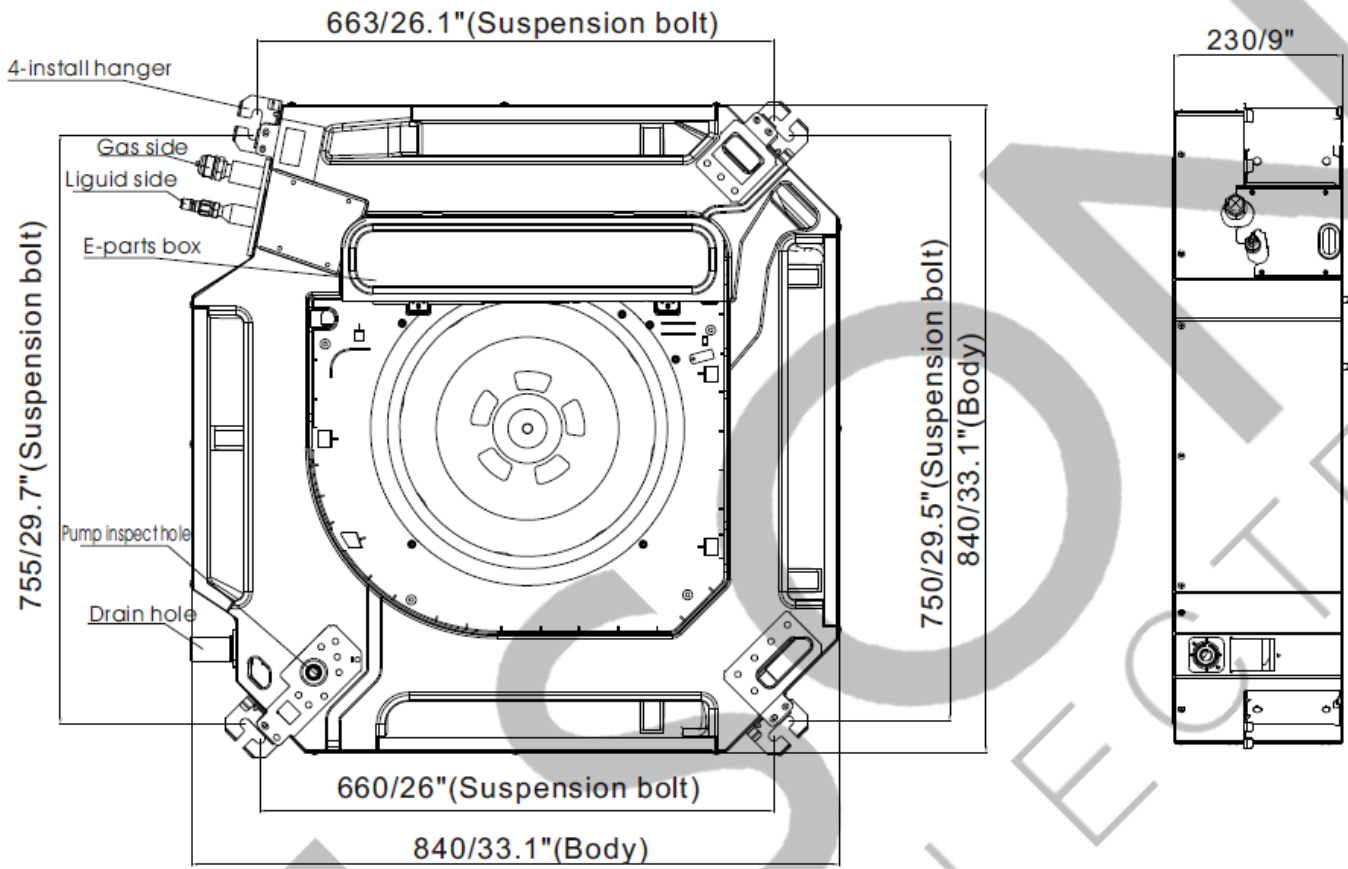
CAUTION:

1. If the air conditioner is used beyond the above conditions, certain safety protection features may come into operation and cause the unit to operate abnormally.
2. The room relative humidity should be less than 80%. If the air conditioner operates beyond this figure, the surface of the air conditioner may attract condensation. Please set the vertical air flow louver to its maximum angle (vertically to the floor), and set HIGH fan mode.
3. The optimum performance will be achieved during this operating temperature zone.

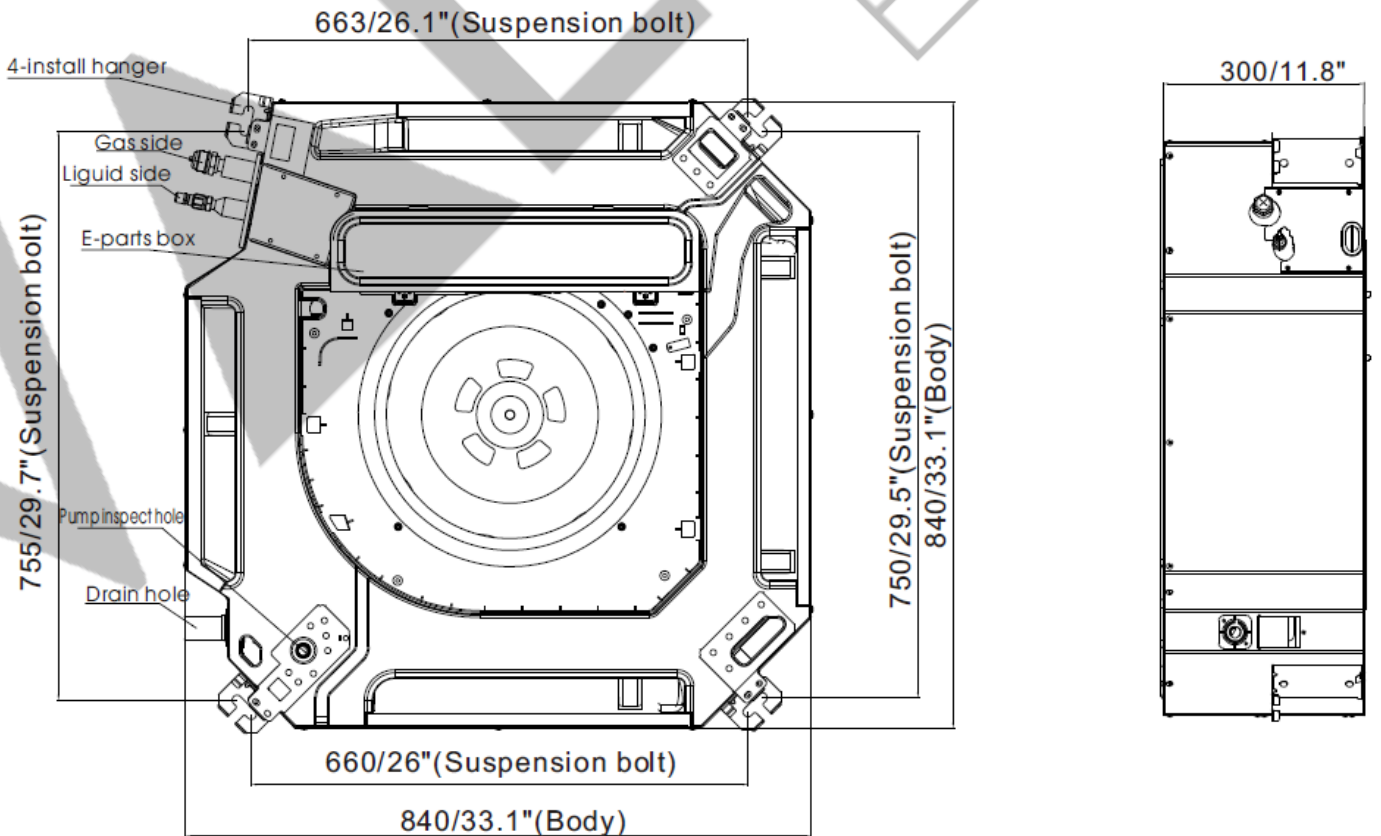
3.5 Product Dimensions

3.5.1 Cassette Type

18k-24k (Body dimension: 840X230X840)

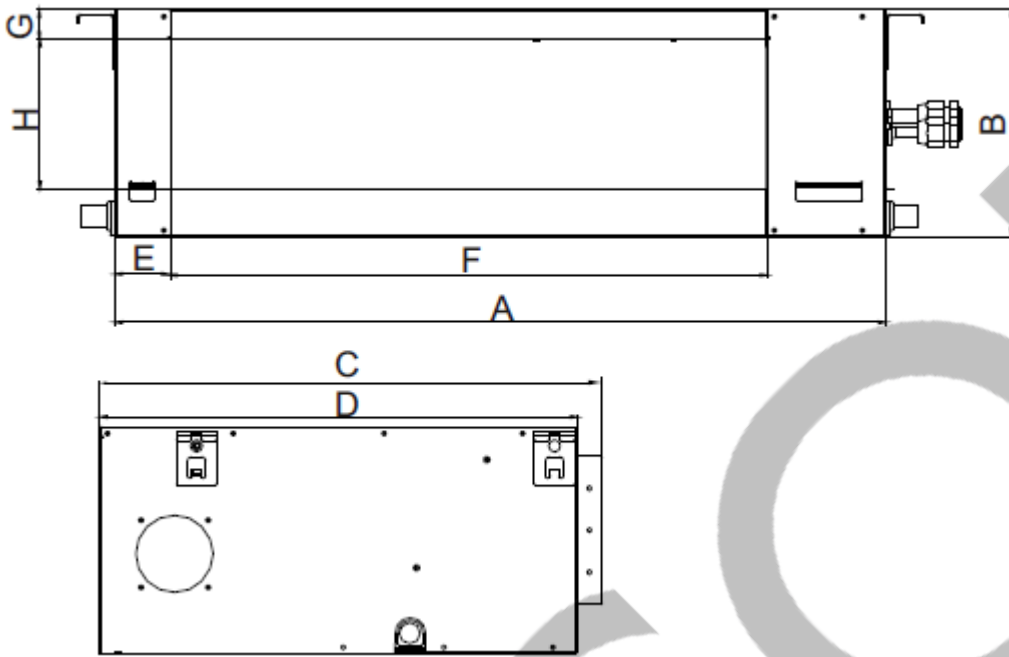


36k-60k (Body dimension: 840X300X840)

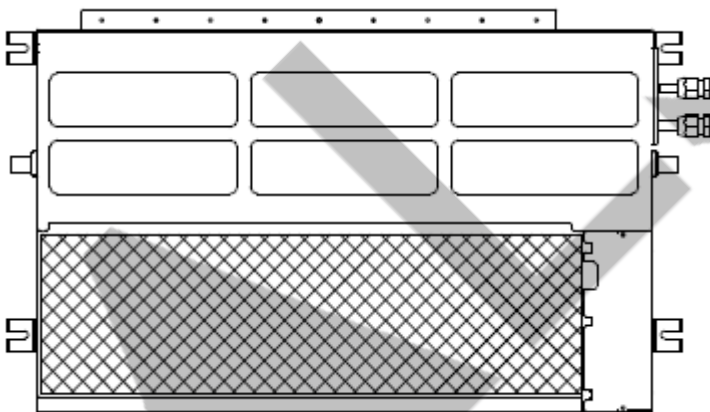


3.5.2 Duct Type

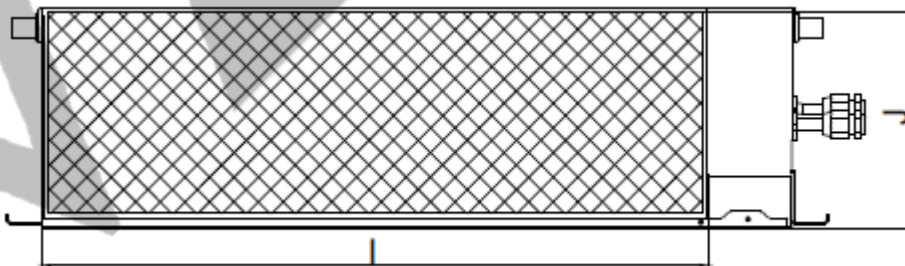
The positioning of ceiling hole, indoor unit and hanging screw bolts.



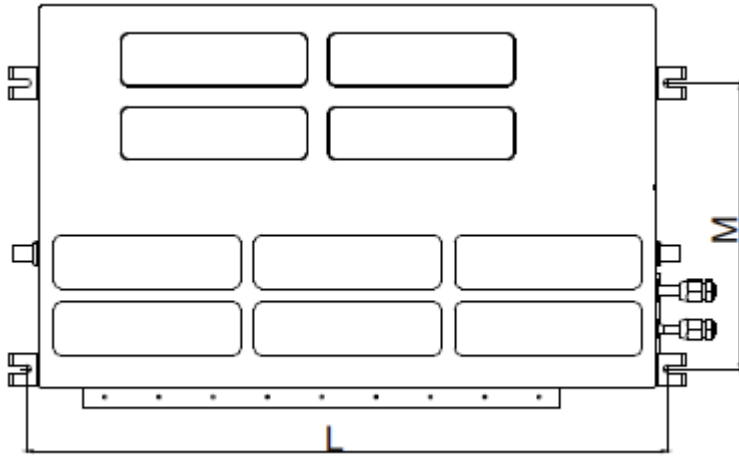
Position size of descensional ventilation opening



Air inlet size

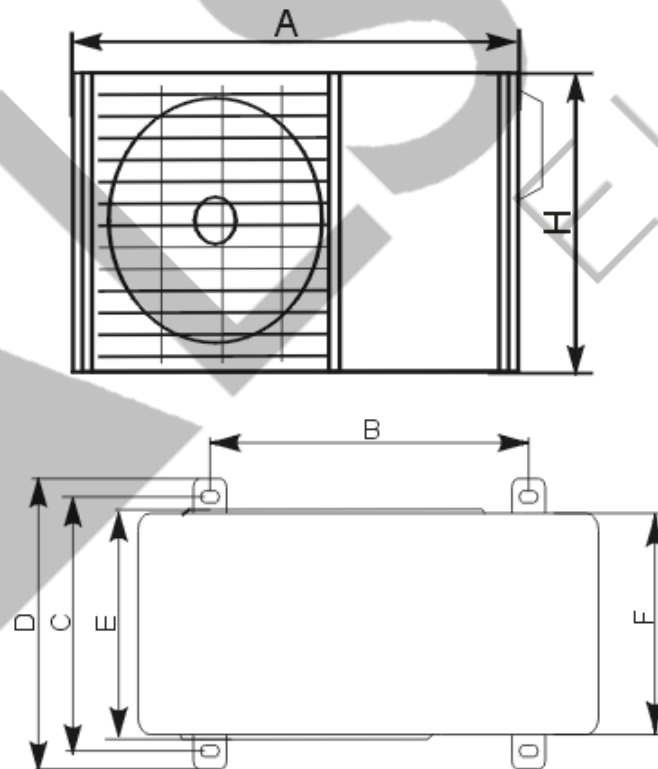


Size of mounted hook



	Outline dimension				Air outlet opening size				Air return opening size			Size of mounted lug	
	A	B	C	D	E	F	G	H	I	J	K	L	M
24K	920	270	635	570	65	713	35	179	815	260	20	960	350
30K	1140	270	775	710	65	933	35	179	1035	260	45	1240	500
36K	1200	300	865	800	80	968	40	204	1094	268	45	1240	500

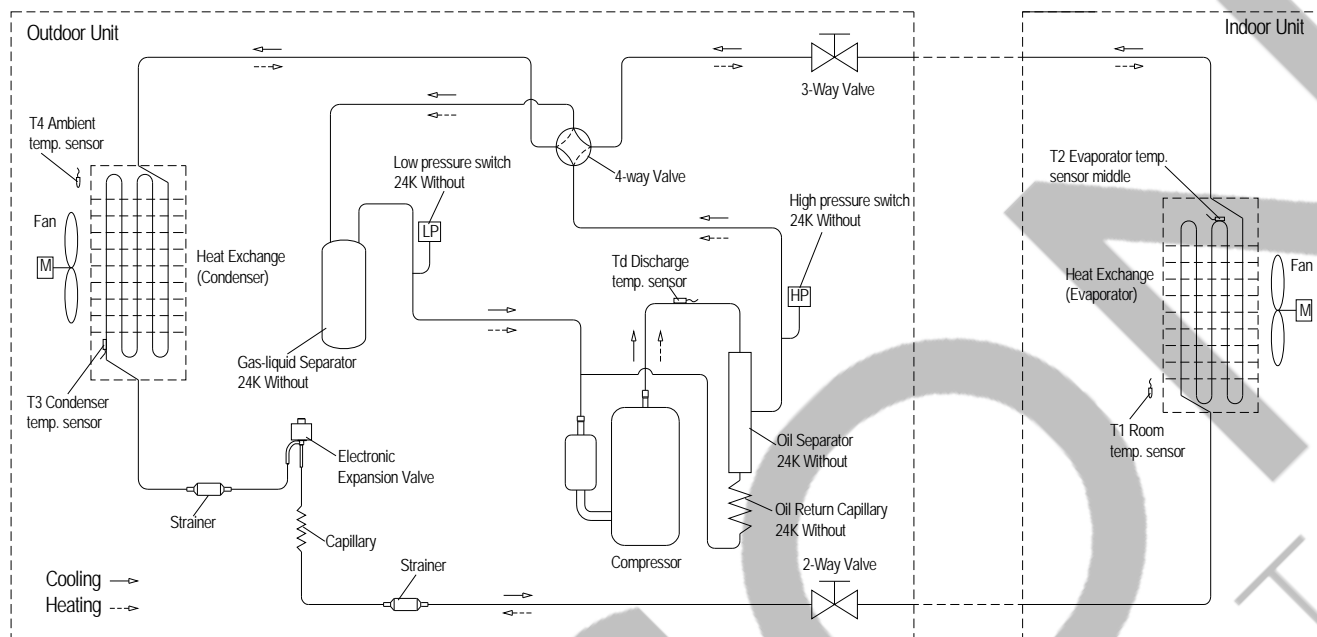
3.5.3 Outdoor Units



MODE	A	B	C	D	E	F	H
24K	845	586	347	372	342	312	700
30-42K	940	600	375	400	340	338	885

3.6 Refrigeration Cycle Diagram

Heat pump



3.7 Electric Characteristics

Model		Hz	Voltage	Min	Max	Power Supply MFA
Cassette Type	TCC-24CHRH/DVI	50	220-240V	198V	254V	5A/250VAC
	TCC-36CHRH/DVI	50	220-240V	198V	254V	5A/250VAC
	TCC-42CHRH/DVI	50	220-240V	198V	254V	5A/250VAC
Duct Type	TCC-24D2HRH/DVI	50	220-240V	198V	254V	5A/250VAC
	TCC-30D2HRH/DVI	50	220-240V	198V	254V	5A/250VAC
	TCC-36D2HRH/DVI	50	220-240V	198V	254V	5A/250VAC
Outdoor Units	TCC-24HRH/DVO	50	220-240V	198V	254V	30A/250VAC
	TCC-30HRH/DVO	50	220-240V	198V	254V	30A/250VAC
	TCC-36HRH/DVO	50	220-240V	198V	254V	30A/250VAC
	TCC-36HRH/DV7O	50	380-415V	342V	440V	6.3AL/250VAC
	TCC-42HRH/DV7O	50	380-415V	342V	440V	6.3AL/250VAC

Notes:

MFA: Max. Fuse Amps. (A)

3.8 The Specification of Power

3.8.1 Cassette Type

Model(Btu/h)		24000	36000	36000	42000
Indoor Power	Phase	1-phase	1-phase	1-phase	1-phase
	Frequency and Voltage	220-240V, 50Hz	220-240V, 50Hz	220-240V, 50Hz	220-240V, 50Hz
	POWER WIRING (mm ²)	0.75mm ²	0.75mm ²	0.75mm ²	0.75mm ²
CIRCUIT BREAKER/Fuse (A)		5A/250VAC	5A/250VAC	5A/250VAC	5A/250VAC
Outdoor Power	Phase	1-phase	1-phase	3-phase	3-phase
	Frequency and Voltage	220-240V, 50Hz	220-240V, 50Hz	380-415V, 50Hz	380-415V, 50Hz
	POWER WIRING (mm ²)	2.5 mm ²	4mm ²	2.5 mm ²	2.5 mm ²
CIRCUIT BREAKER/Fuse (A)		30A/250VAC	30A/250VAC	6.3AL/250VAC	6.3AL/250VAC
Indoor/Outdoor Connecting Wiring (Weak Electric Signal) (mm ²)		0.75mm ²	0.75mm ²	0.75mm ²	0.75mm ²
Indoor/Outdoor Connecting Wiring (Strong Electric Signal) (mm ²)		/	/	/	/

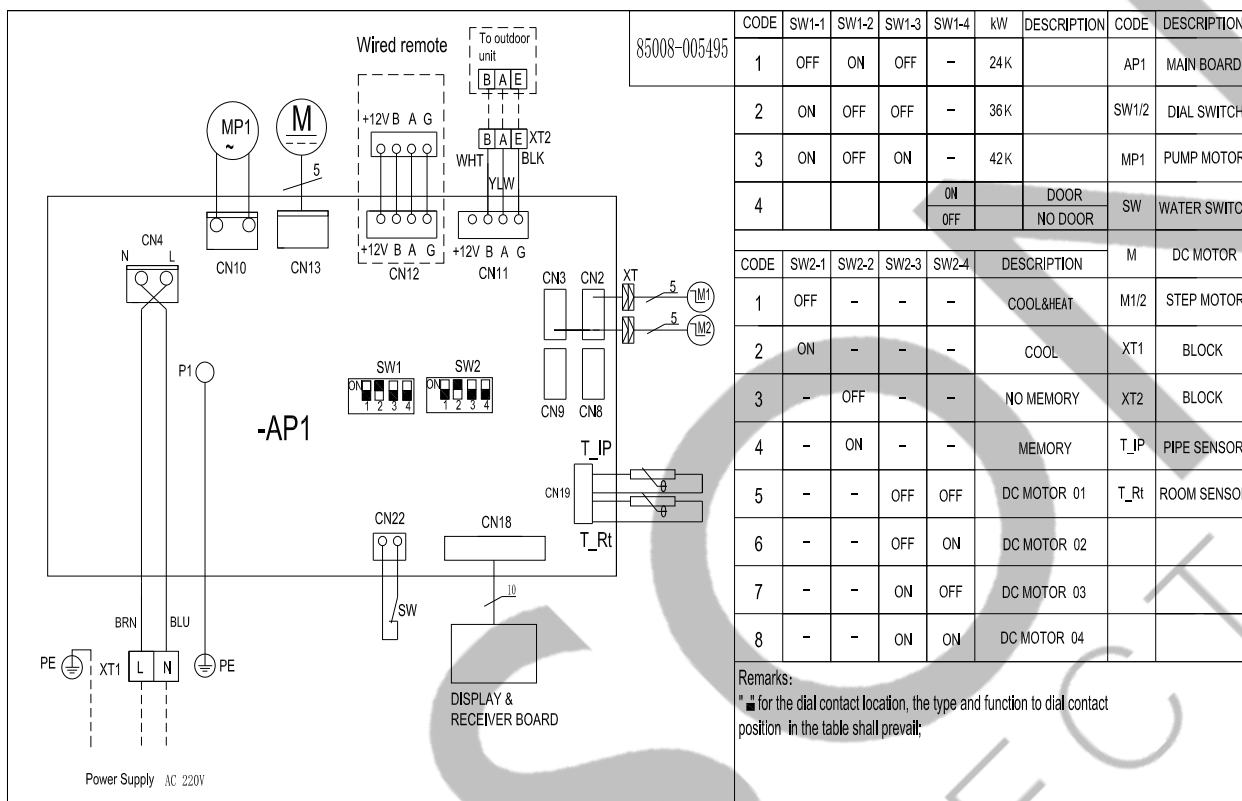
3.8.2 Duct Type

Model(Btu/h)		24000	30000	36000	36000
Indoor Power	Phase	1-phase	1-phase	1-phase	1-phase
	Frequency and Voltage	220-240V, 50Hz	220-240V, 50Hz	220-240V, 50Hz	220-240V, 50Hz
	POWER WIRING (mm ²)	0.75mm ²	0.75mm ²	0.75mm ²	0.75mm ²
CIRCUIT BREAKER/Fuse (A)		5A/250VAC	5A/250VAC	5A/250VAC	5A/250VAC
Outdoor Power	Phase	1-phase	1-phase	1-phase	3-phase
	Frequency and Voltage	220-240V, 50Hz	220-240V, 50Hz	220-240V, 50Hz	380-415V, 50Hz
	POWER WIRING (mm ²)	2.5 mm ²	2.5 mm ²	2.5 mm ²	2.5 mm ²
CIRCUIT BREAKER/Fuse (A)		30A/250VAC	30A/250VAC	30A/250VAC	6.3AL/250VAC
Indoor/Outdoor Connecting Wiring (Weak Electric Signal) (mm ²)		0.75mm ²	0.75mm ²	0.75mm ²	0.75mm ²
Indoor/Outdoor Connecting Wiring (Strong Electric Signal) (mm ²)		/	/	/	/

3.9 Wiring Diagram

3.9.1 INDOOR UNIT: Cassette Type

MODEL: 24K

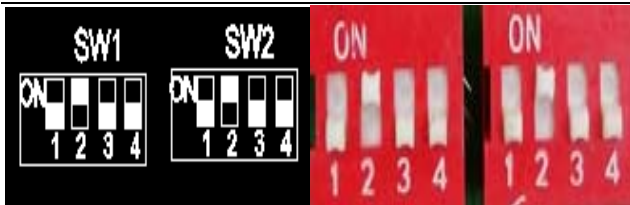


Micro-Switch Introduce:

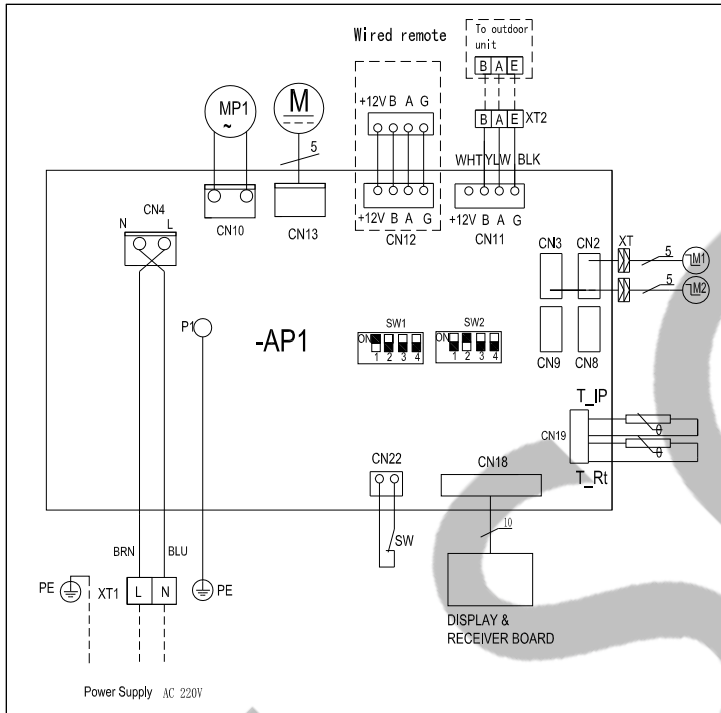
Sw1 is for selection of type, sw2 is for selection of function, see the below table.

CODE	SW1-1	SW1-2	SW1-3	SW1-4	KW	DESCRIPTION
1	OFF	ON	OFF	-	24K	
2	ON	OFF	OFF	-	36K	
3	ON	OFF	ON	-	42K	
4				ON		DOOR
				OFF		NO DOOR
CODE	SW2-1	SW2-2	SW2-3	SW2-4	DESCRIPTION	
1	OFF	-	-	-	COOL&HEAT	
2	ON	-	-	-	COOL	
3	-	OFF	-	-	NO MEMORY	
4	-	ON	-	-	MEMORY	
5	-	-	OFF	OFF	DC MOTOR 01	
6	-	-	OFF	ON	DC MOTOR 02	
7	-	-	ON	OFF	DC MOTOR 03	
8	-	-	ON	ON	DC MOTOR 04	

The material object figure of dial code switch



MODEL: 36K



CODE	SW1-1	SW1-2	SW1-3	SW1-4	kW	DESCRIPTION	CODE	DESCRIPTION
1	OFF	ON	OFF	-	24 K		AP1	MAIN BOARD
2	ON	OFF	OFF	-	36 K		SW1/2	DIAL SWITCH
3	ON	OFF	ON	-	42 K		MP1	PUMP MOTOR
4				ON		DOOR	SW	WATER SWITCH
				OFF		NO DOOR		
CODE	SW2-1	SW2-2	SW2-3	SW2-4	DESCRIPTION	M	DESCRIPTION	
1	OFF	-	-	-	COOL&HEAT	M1/2	STEP MOTOR	
2	ON	-	-	-	COOL	XT1	BLOCK	
3	-	OFF	-	-	Without memory	XT2	BLOCK	
4	-	ON	-	-	With memory	T_IP	PIPE SENSOR	
5	-	-	OFF	OFF	DC MOTOR 01	T_Rt	ROOM SENSOR	
6	-	-	OFF	ON	DC MOTOR 02			
7	-	-	ON	OFF	DC MOTOR 03			
8	-	-	ON	ON	DC MOTOR 04			

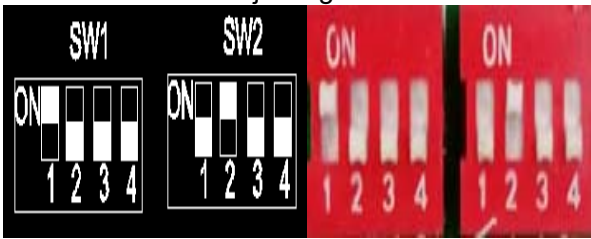
Remarks:
 * for the dial contact location, the type and function to dial contact position in the table shall prevail;

Micro-Switch Introduce:

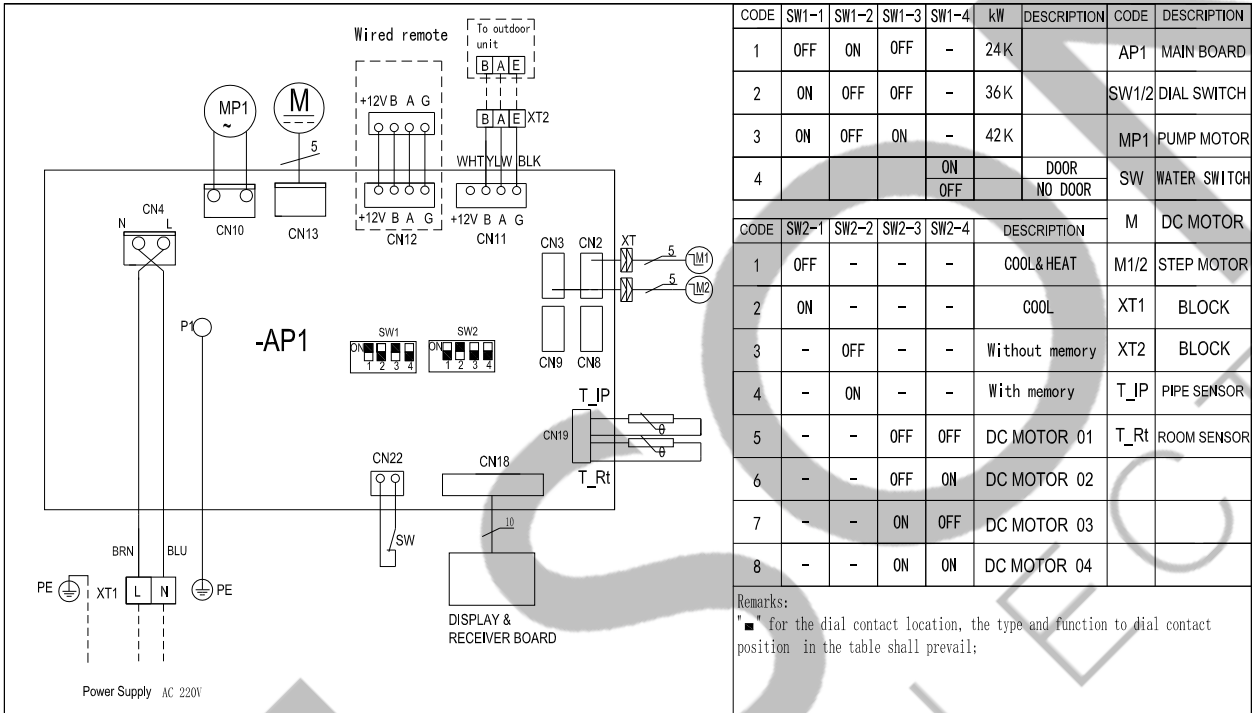
Sw1 is for selection of type, sw2 is for selection of function, see the below table.

CODE	SW1-1	SW1-2	SW1-3	SW1-4	kW	DESCRIPTION
1	OFF	ON	OFF	-	24 K	
2	ON	OFF	OFF	-	36 K	
3	ON	OFF	ON	-	42 K	
4				ON		DOOR
				OFF		NO DOOR
CODE	SW2-1	SW2-2	SW2-3	SW2-4	DESCRIPTION	
1	OFF	-	-	-	COOL&HEAT	
2	ON	-	-	-	COOL	
3	-	OFF	-	-	Without memory	
4	-	ON	-	-	With memory	
5	-	-	OFF	OFF	DC MOTOR 01	
6	-	-	OFF	ON	DC MOTOR 02	
7	-	-	ON	OFF	DC MOTOR 03	
8	-	-	ON	ON	DC MOTOR 04	

The material object figure of dial code switch



MODEL: 42K



Micro-Switch Introduce:

Sw1 is for selection of type, sw2 is for selection of function, see the below table.

CODE	SW1-1	SW1-2	SW1-3	SW1-4	KW	DESCRIPTION
1	OFF	ON	OFF	-	24 K	
2	ON	OFF	OFF	-	36 K	
3	ON	OFF	ON	-	42 K	
4				ON		DOOR
				OFF		NO DOOR

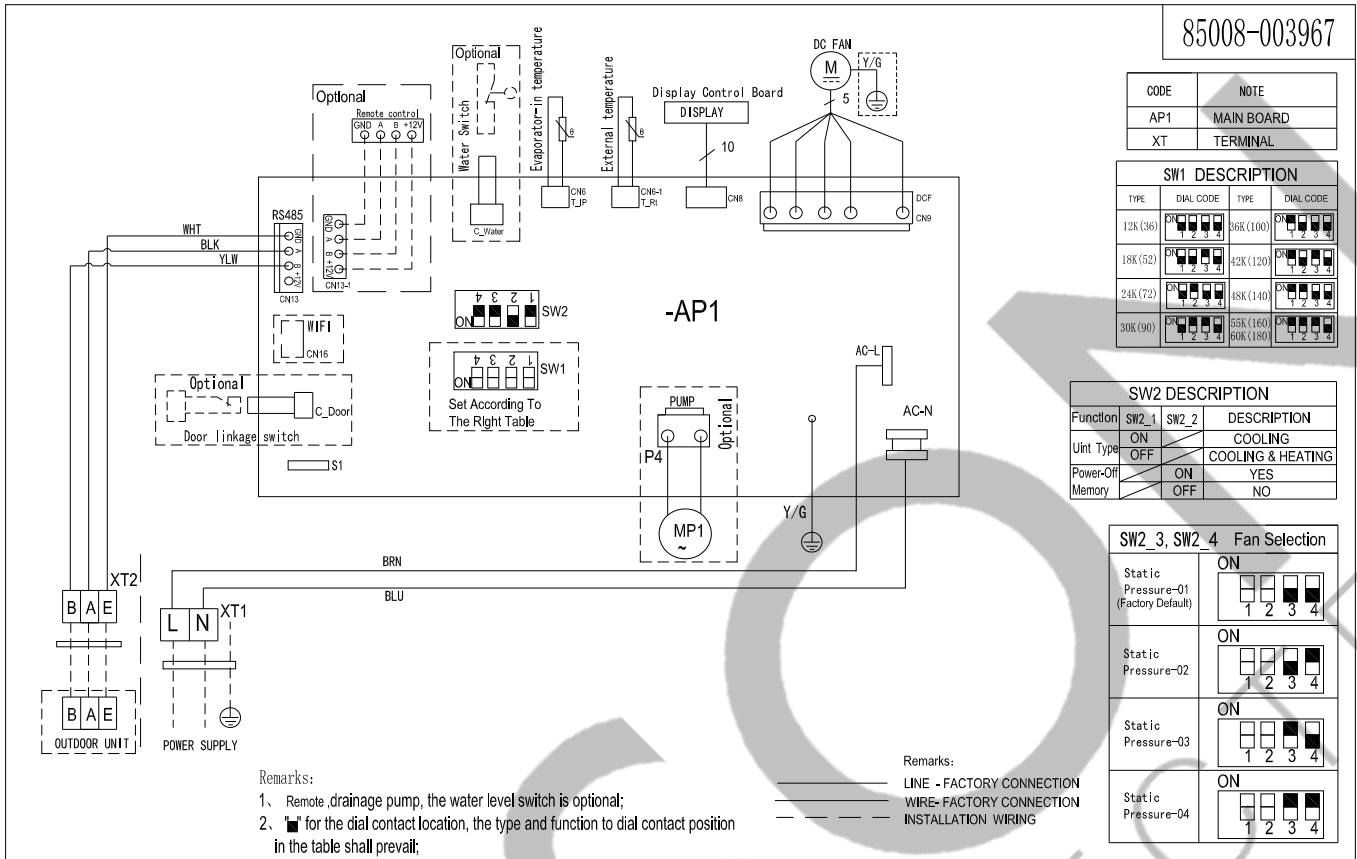
CODE	SW2-1	SW2-2	SW2-3	SW2-4	DESCRIPTION
1	OFF	-	-	-	COOL&HEAT
2	ON	-	-	-	COOL
3	-	OFF	-	-	Without memory
4	-	ON	-	-	With memory
5	-	-	OFF	OFF	DC MOTOR 01
6	-	-	OFF	ON	DC MOTOR 02
7	-	-	ON	OFF	DC MOTOR 03
8	-	-	ON	ON	DC MOTOR 04

The material object figure of dial code switch



3.9.2 INDOOR UNIT: Duct Type

85008-003967



CODE	NOTE
AP1	MAIN BOARD
XT	TERMINAL

SW1 DESCRIPTION			
TYPE	DIAL CODE	TYPE	DIAL CODE
12K (36)	ON ■ ■ ■ ■ 1 2 3 4	36K (100)	ON ■ ■ ■ ■ 1 2 3 4
18K (52)	ON ■ ■ ■ ■ 1 2 3 4	42K (120)	ON ■ ■ ■ ■ 1 2 3 4
24K (72)	ON ■ ■ ■ ■ 1 2 3 4	48K (140)	ON ■ ■ ■ ■ 1 2 3 4
30K (90)	ON ■ ■ ■ ■ 1 2 3 4	55K (160)	ON ■ ■ ■ ■ 1 2 3 4
		60K (180)	ON ■ ■ ■ ■ 1 2 3 4

SW2 DESCRIPTION			
Function	SW2_1	SW2_2	DESCRIPTION
Unit Type	ON	OFF	COOLING
Power-Off Memory	ON	OFF	COOLING & HEATING
	ON	OFF	YES
	OFF	OFF	NO

SW2_3, SW2_4 Fan Selection	
Static Pressure-01 (Factory Default)	ON ■ ■ ■ ■ 1 2 3 4
Static Pressure-02	ON ■ ■ ■ ■ 1 2 3 4
Static Pressure-03	ON ■ ■ ■ ■ 1 2 3 4
Static Pressure-04	ON ■ ■ ■ ■ 1 2 3 4

Micro-Switch Introduce:

SW1 DESCRIPTION			
TYPE	DIAL CODE	TYPE	DIAL CODE
12K (36)	ON ■ ■ ■ ■ 1 2 3 4	36K (100)	ON ■ ■ ■ ■ 1 2 3 4
18K (52)	ON ■ ■ ■ ■ 1 2 3 4	42K (120)	ON ■ ■ ■ ■ 1 2 3 4
24K (72)	ON ■ ■ ■ ■ 1 2 3 4	48K (140)	ON ■ ■ ■ ■ 1 2 3 4
30K (90)	ON ■ ■ ■ ■ 1 2 3 4	55K (160)	ON ■ ■ ■ ■ 1 2 3 4
		60K (180)	ON ■ ■ ■ ■ 1 2 3 4
SW1-4 Gate Control			
NO (Factory Default)	ON ■ ■ ■ ■ 1 2 3 4	YES	ON ■ ■ ■ ■ 1 2 3 4

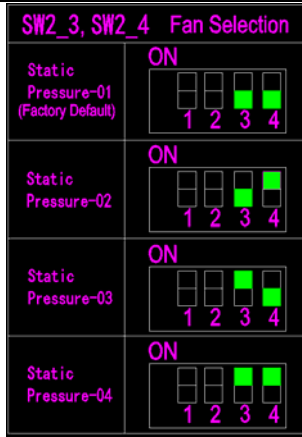


A. Micro-switch SW1-1、SW1-2 and SW1-3 is for selection of indoor unit capacity, it is usually set up by factory. SW1-4 is the gate control, which is not available by default and can be selected by users according to their needs.

SW2 DESCRIPTION			
Function	SW2_1	SW2_2	DESCRIPTION
Unit Type	ON	OFF	COOLING
Power-Off Memory	ON	OFF	COOLING & HEATING
	ON	OFF	YES
	OFF	OFF	NO



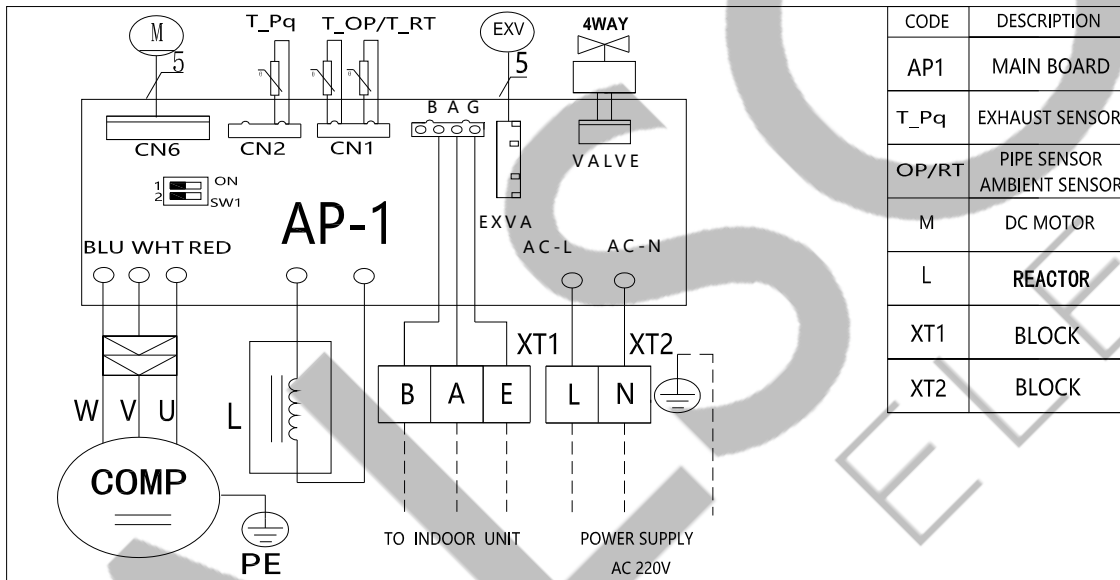
B. Micro-switch SW2-1 and SW2-2 is the function dial code of indoor unit, it is usually set up by factory.



SW2-3 and SW2-4 is the FAN gear selection for the indoor unit.

3.9.3 OUTDOOR UNIT:

MODEL: 24K(Single-Phase)

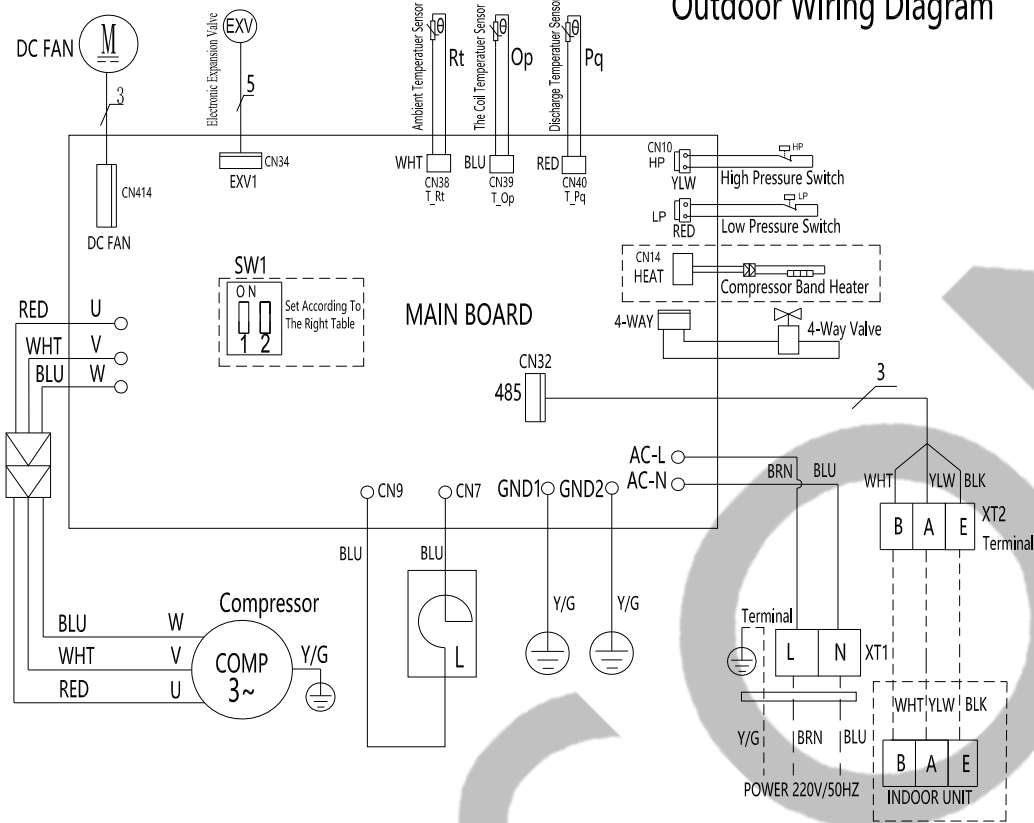


MODEL: 30K/36K (Single-Phase)

Outdoor Wiring Diagram

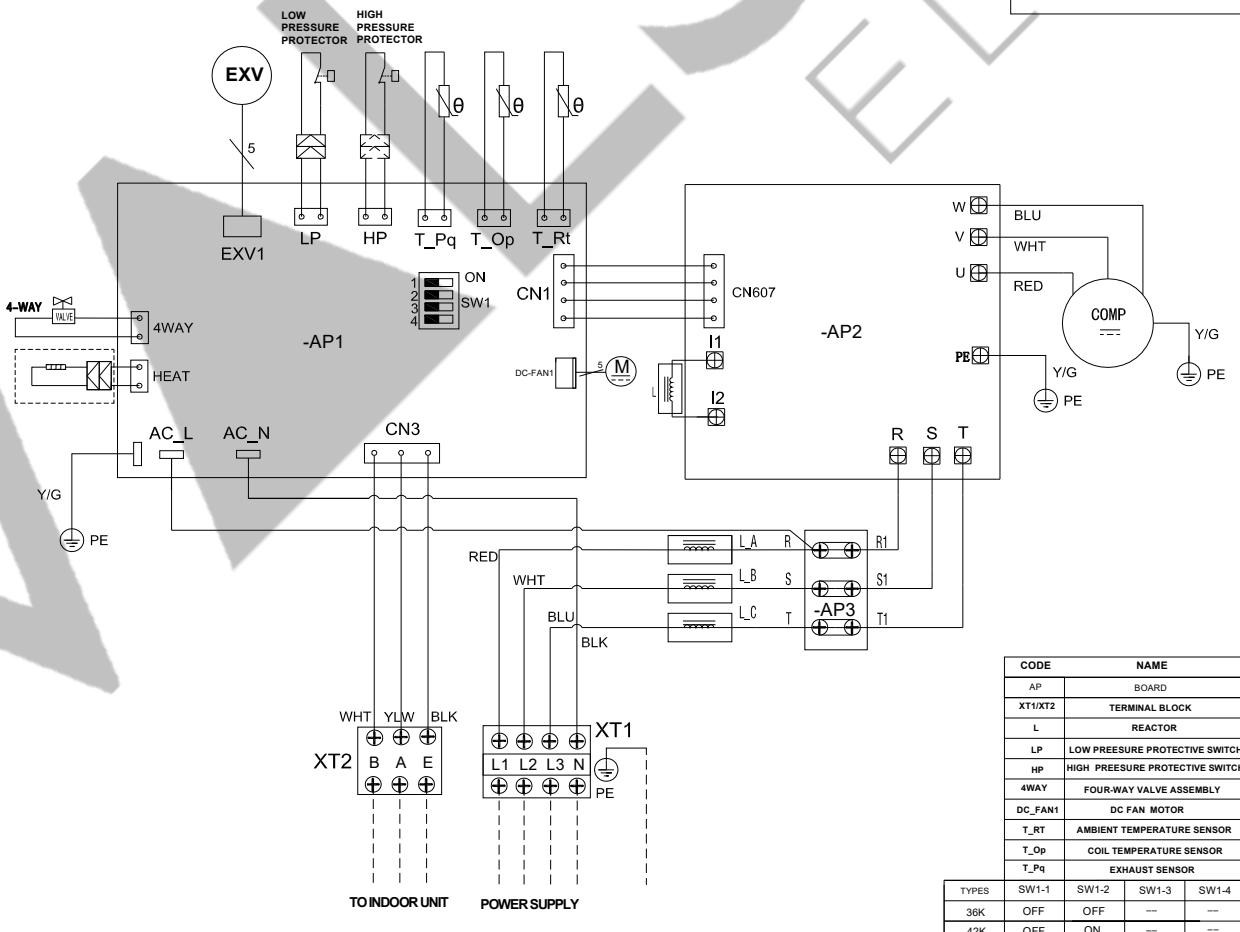
85008-005516

SW1 DESCRIPTION	
TYPE	CODE
30K(90)	
36K(100)	



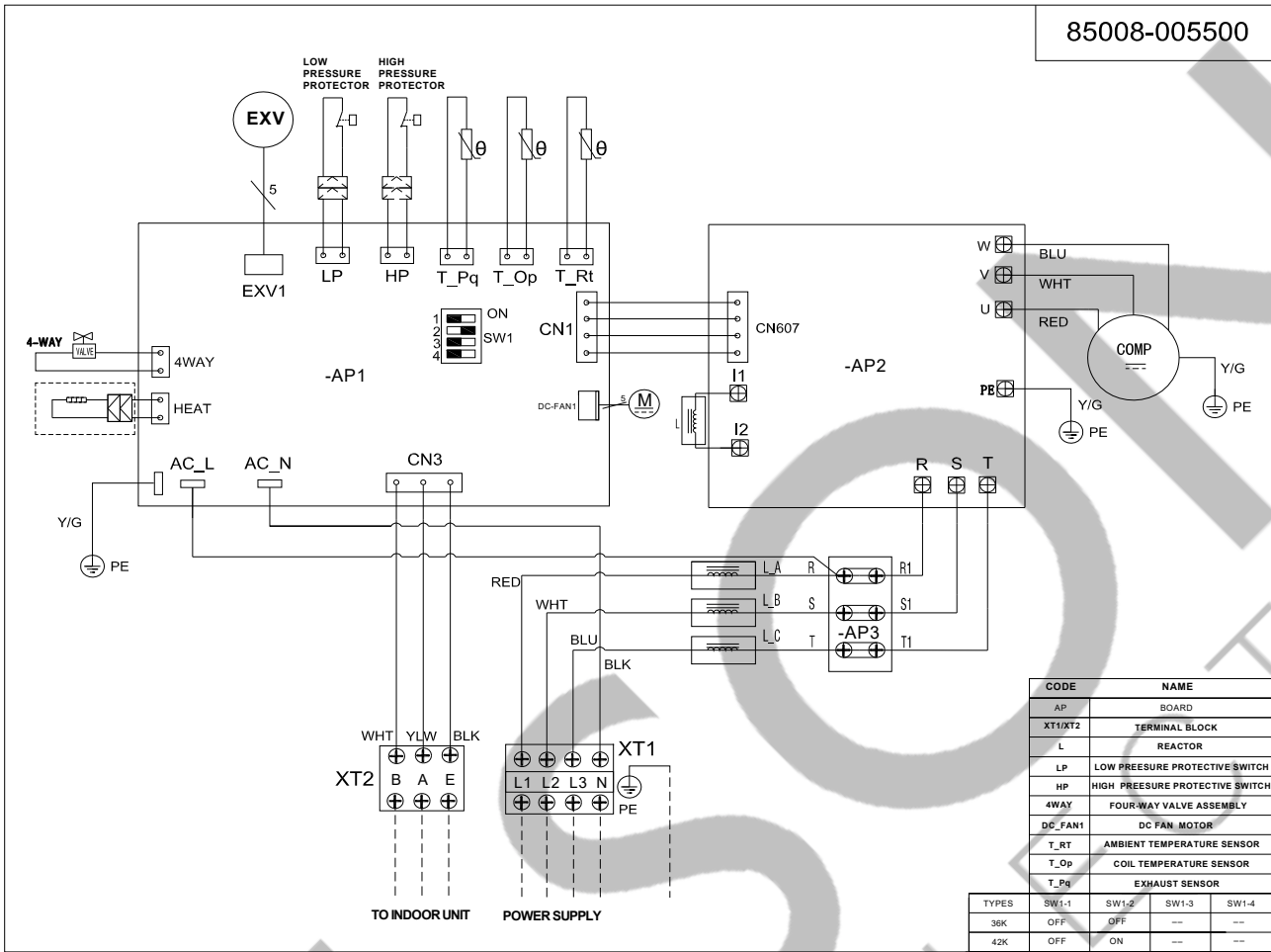
MODEL: 36K (Three-Phase)

85008-005499



CODE	NAME			
AP	BOARD			
XT1/XT2	TERMINAL BLOCK			
L	REACTOR			
LP	LOW PRESSURE PROTECTIVE SWITCH			
HP	HIGH PRESSURE PROTECTIVE SWITCH			
4WAY	FOUR-WAY VALVE ASSEMBLY			
DC_FAN1	DC FAN MOTOR			
T_RT	AMBIENT TEMPERATURE SENSOR			
T_Op	COIL TEMPERATURE SENSOR			
T_Pq	EXHAUST SENSOR			
TYPES	SW1-1	SW1-2	SW1-3	SW1-4
36K	OFF	OFF	---	---
42K	OFF	ON	---	---

MODEL: 42K (Three -Phase)

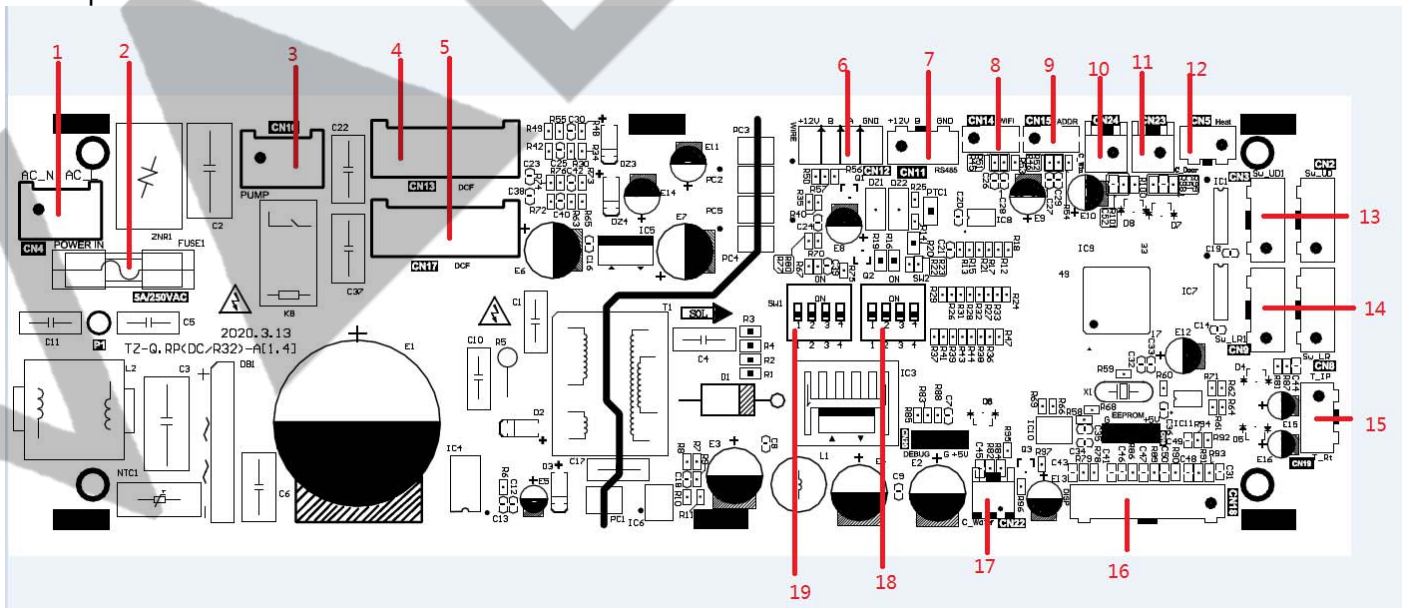


3.10 PCB Layout

3.10.1 INDOOR UNIT: Cassette Type

MODEL: 24K、36K、42K

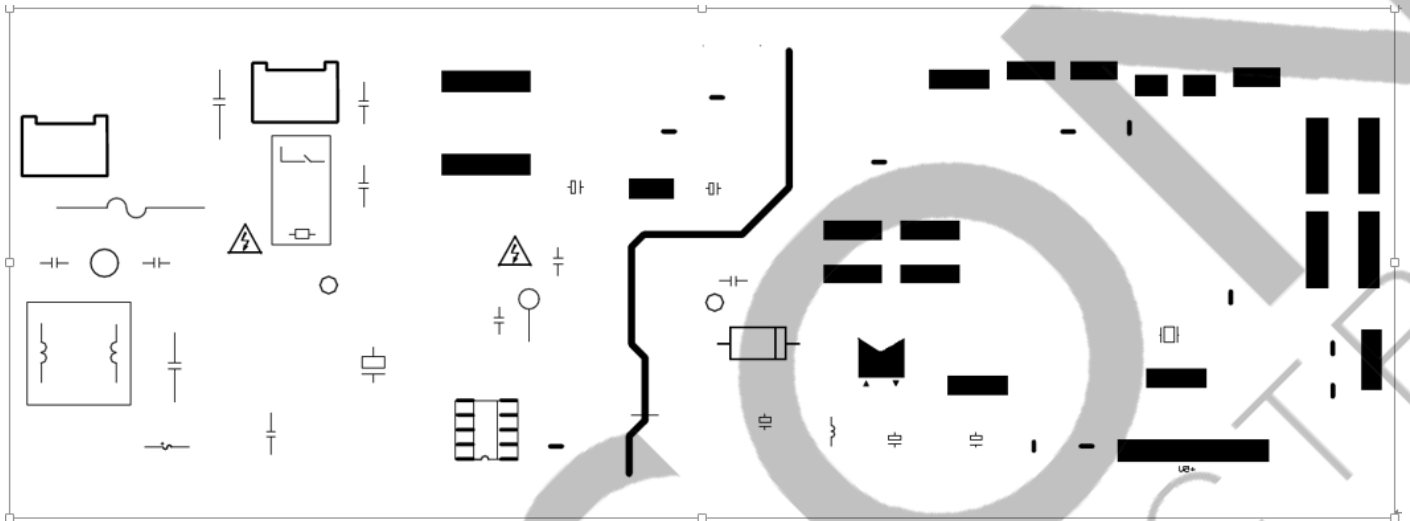
Top view



1	Power supply input	11	Access control switch connector
2	Fuse	12	Heat connector
3	Water pump	13	Up-Down swing motor connector

4	DC motor connector	14	Left-Right swing motor connector
5	Reserved connector	15	Temperature sensor connector
6	485 communication connector	16	Display board connector
7	485 communication connector	17	Water level switch connector
8	WiFi connector	18	Dial code switch 1
9	ADDR connector	19	Dial code switch 2
10	Window ban switch connector		

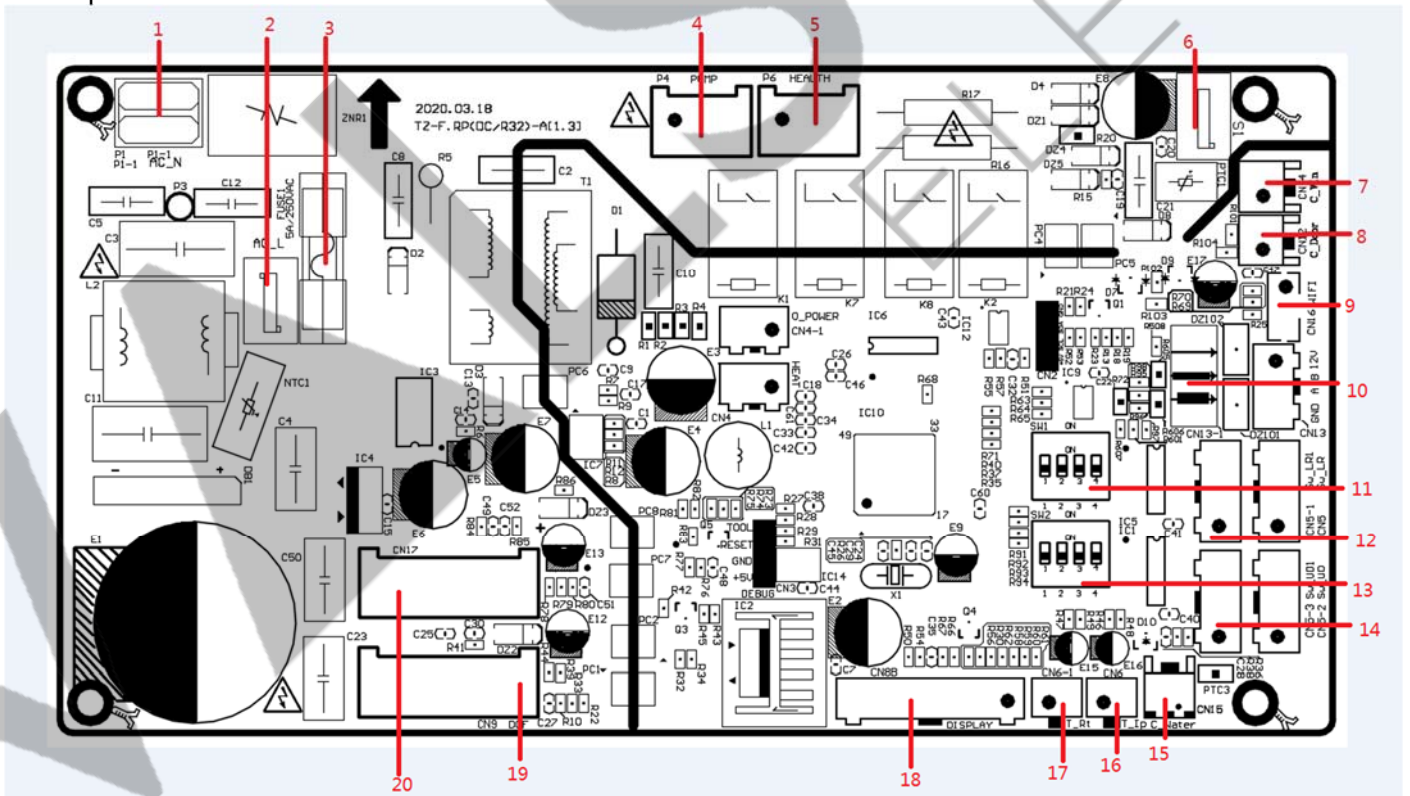
Bottom view



3.10.2 INDOOR UNIT: Duct Type

MODEL: 24K、30K、36K

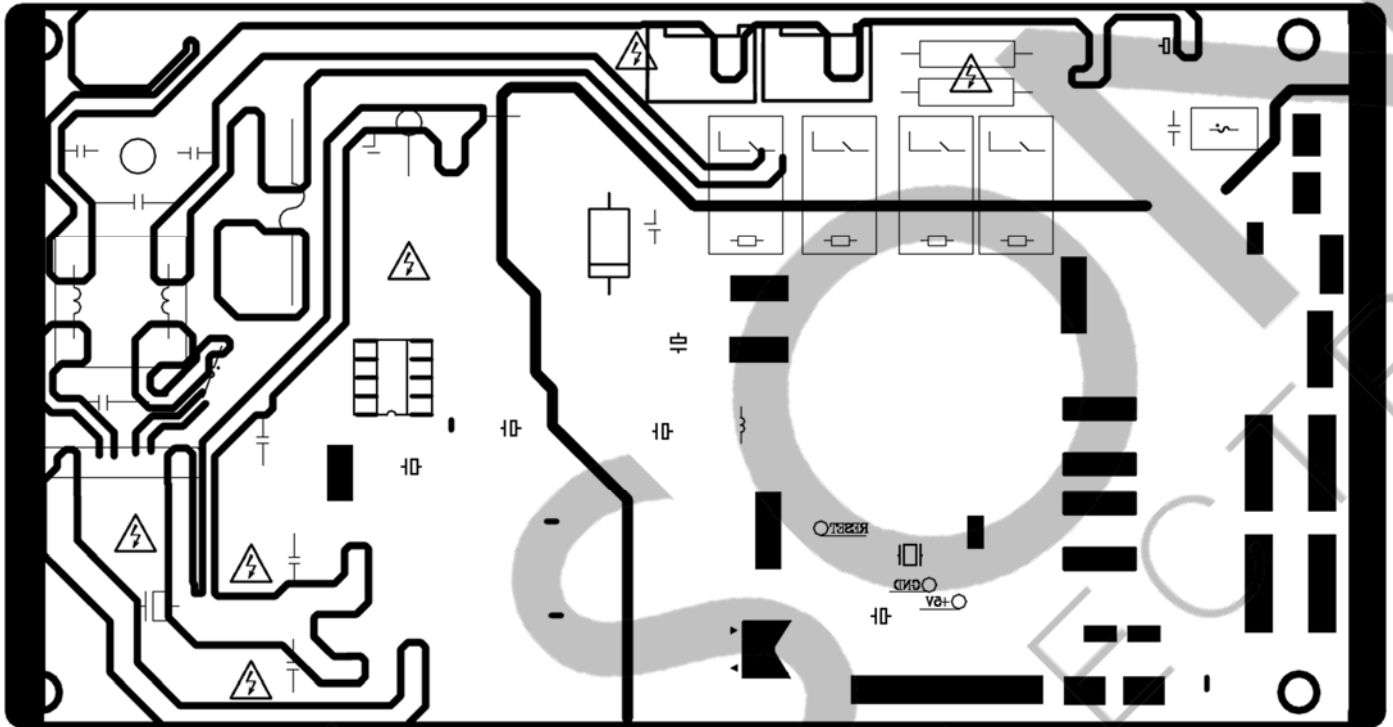
Top view



1	Neutral wire input	11	Dial code switch 1
2	Live wire input	12	Left-Right swing motor connector
3	Fuse	13	Dial code switch 2
4	Water pump	14	Up-Down swing motor connector
5	Reserved connector	15	Water level switch connector

6	Communication connector	16	Indoor coil temperature sensor connector
7	Window ban switch connector	17	Outdoor ambient temperature sensor connector
8	Access control switch connector	18	Display board connector
9	WIFI connector	19	DC motor connector
10	485 communication connector	20	Reserved connector

Bottom view

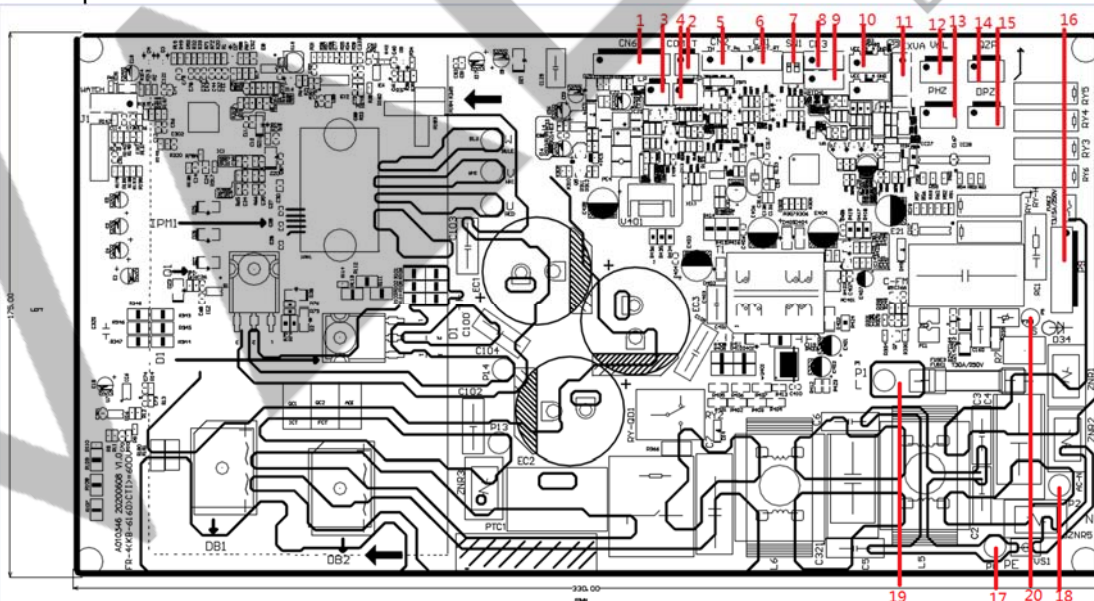


3.10.3 Outdoor Unit

MODEL: 24K (Single-Phase)

● Main Control Board

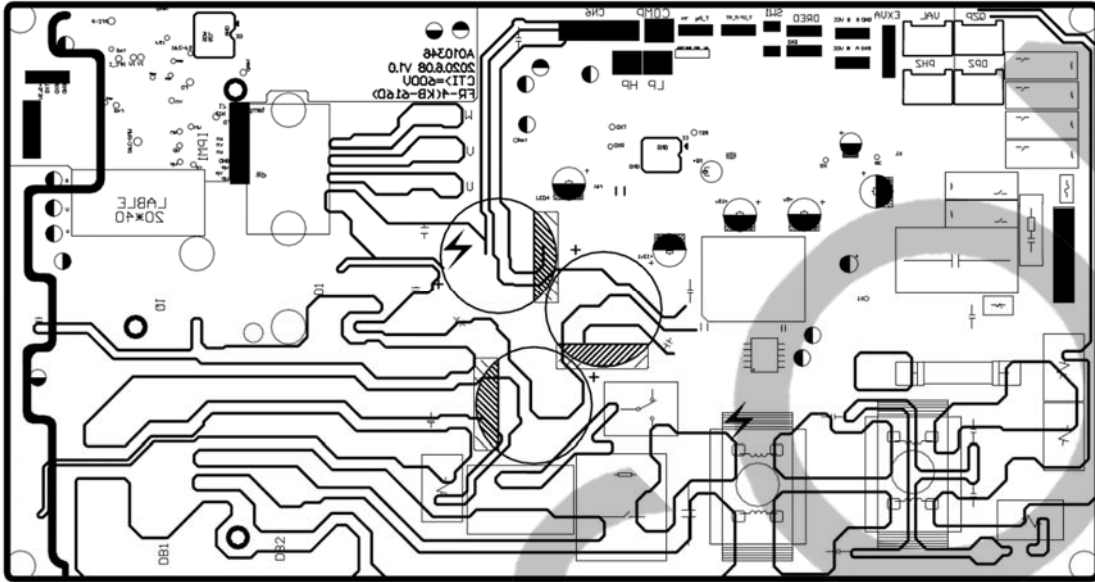
Top view



1	DC fan motor	11	Electronic expansion valve
2	Compressor overload	12	4-way valve
3	Low pressure protect	13	Enthalpy of spray valve
4	High pressure protect	14	Crankcase electric heating belt
5	Suction	15	Chassis electric heating belt

6	Outdoor ambient temperature/ Outdoor coil temperature	16	AC fan motor
7	Dial code, selection of type	17	Ground wire
8	DRED	18	Neutral wire
9	Monitor	19	Live wire
10	485 communication	20	Communication line

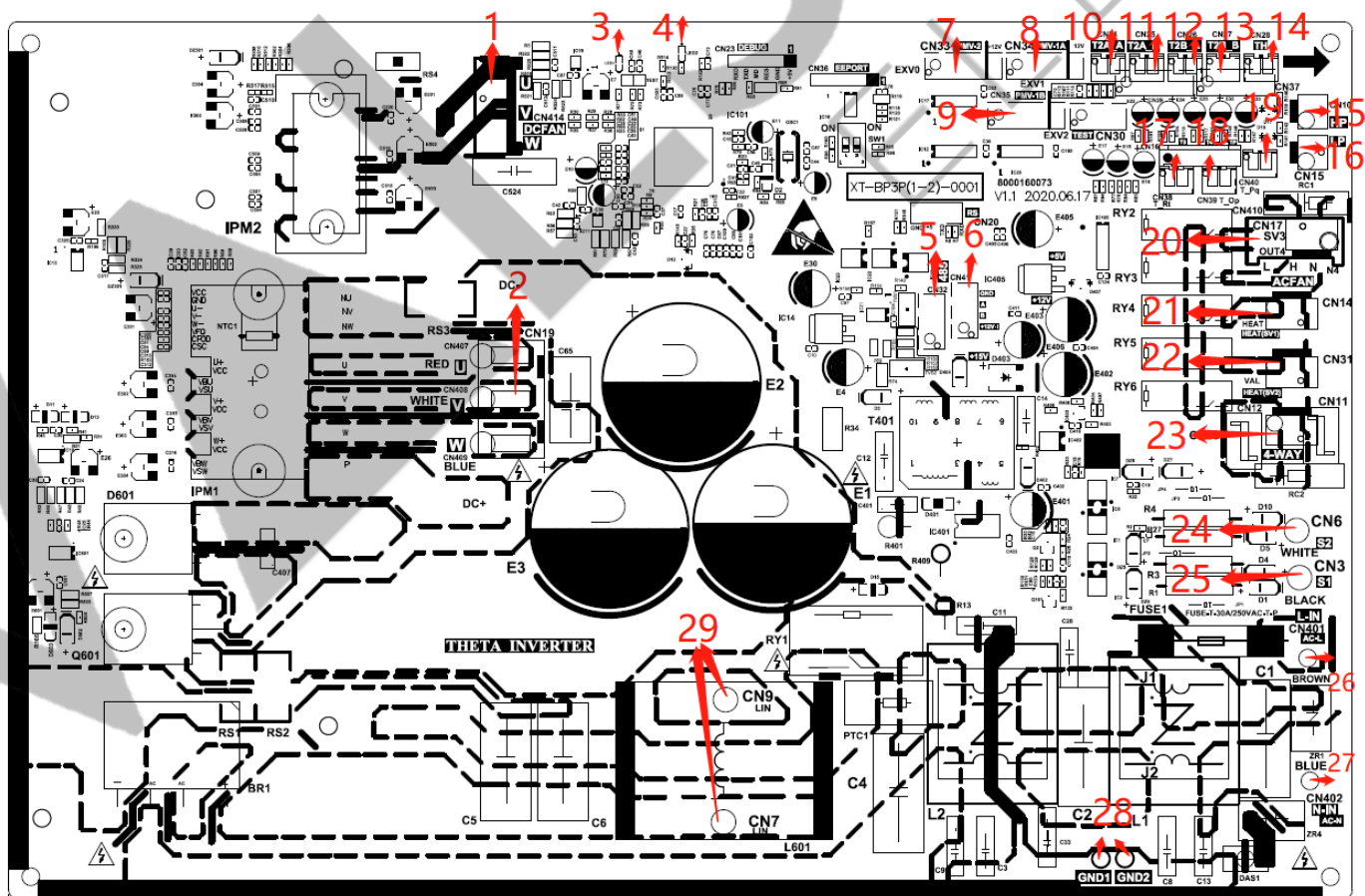
Bottom view



MODEL: 30K、36K (Single-Phase)

● Main Control Board

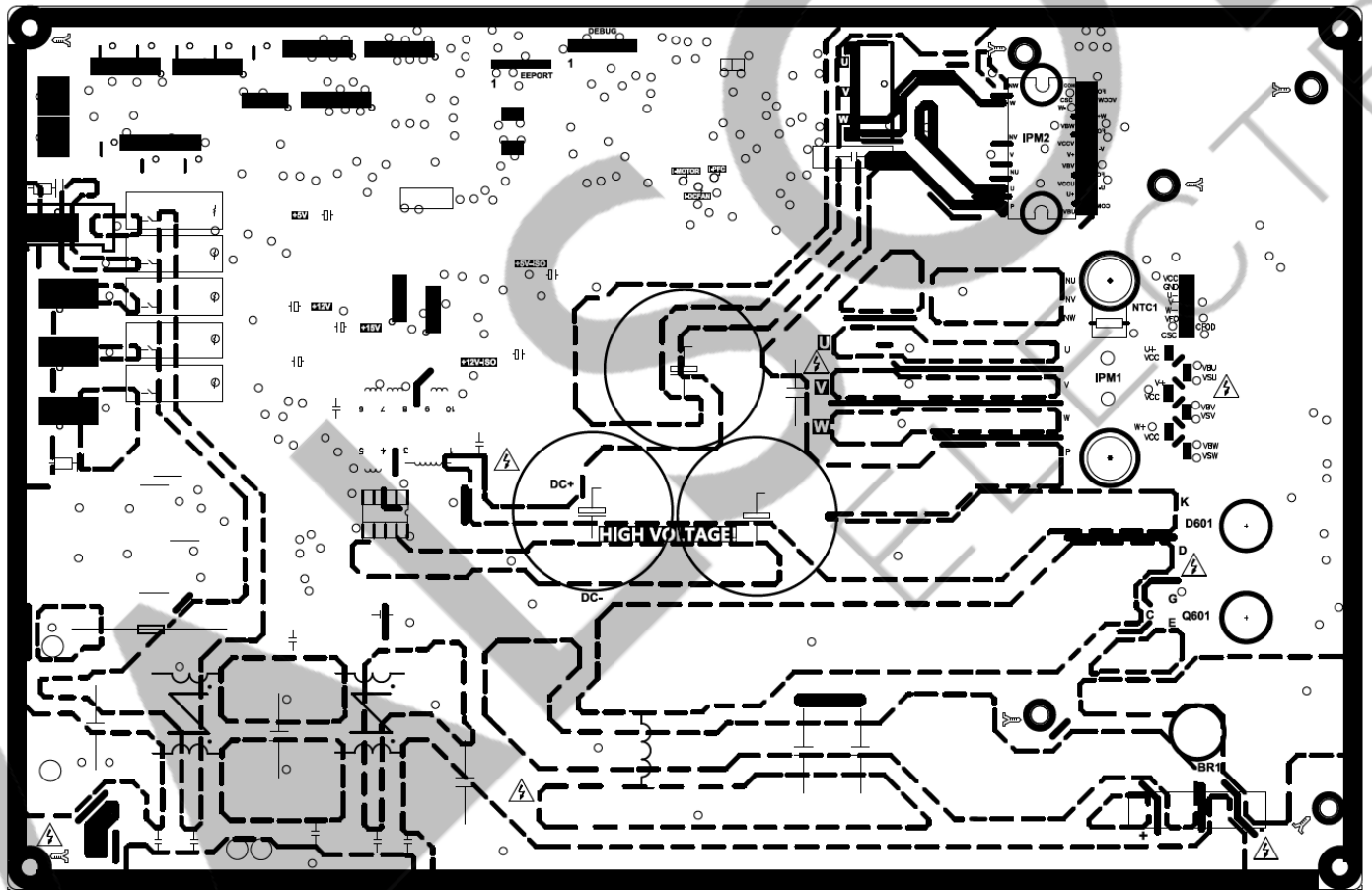
Top view



1	DC fan motor output	16	Low pressure switch
2	Compressor output	17	Outdoor temperature sensor

3	LED1	18	Outdoor coil temperature
4	LED2	19	Compressor discharge temperature
5	485 Communication	20	Ac fan motor output
6	485 Communication	21	Compressor crankcase electric heating belt
7	Reserved	22	Reserved
8	Electronic expansion valve output	23	Reserved
9	Reserved	24	Reserved
10	Reserved	25	Reserved
11	Reserved	26	Live wire input
12	Reserved	27	Neutral wire input
13	Reserved	28	Ground wire
14	Reserved	29	Reactance wire
15	High pressure switch		

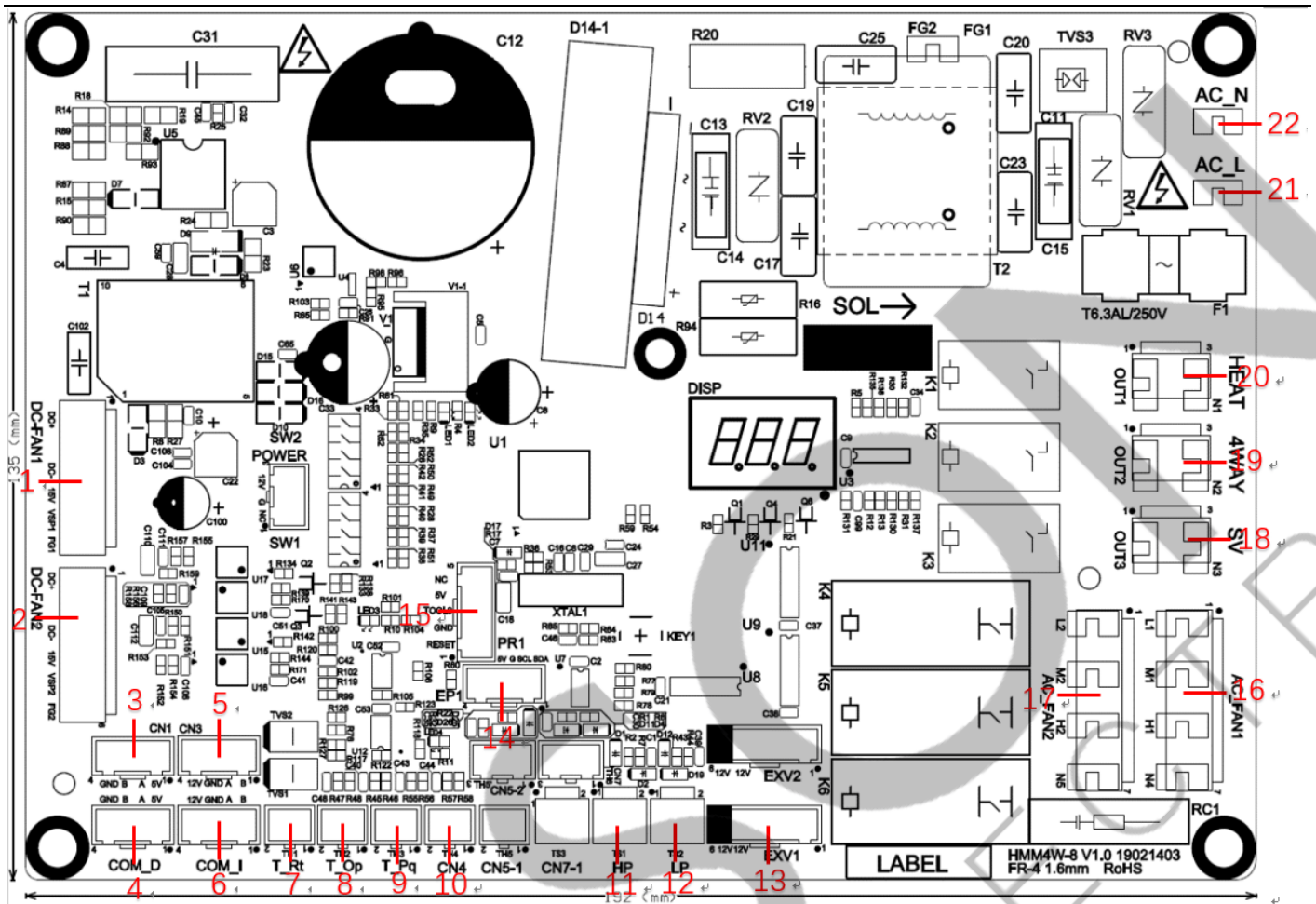
Bottom view



MODEL: 36K、42K (Three-Phase)

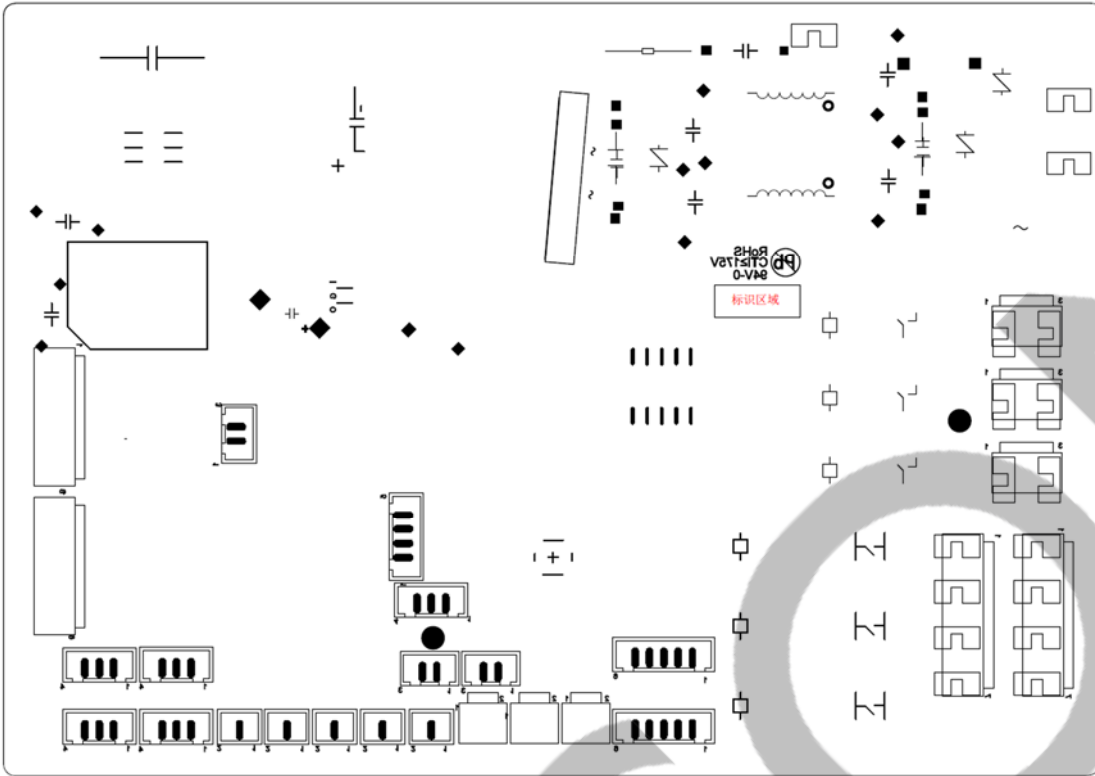
● Main Control Board

Top view

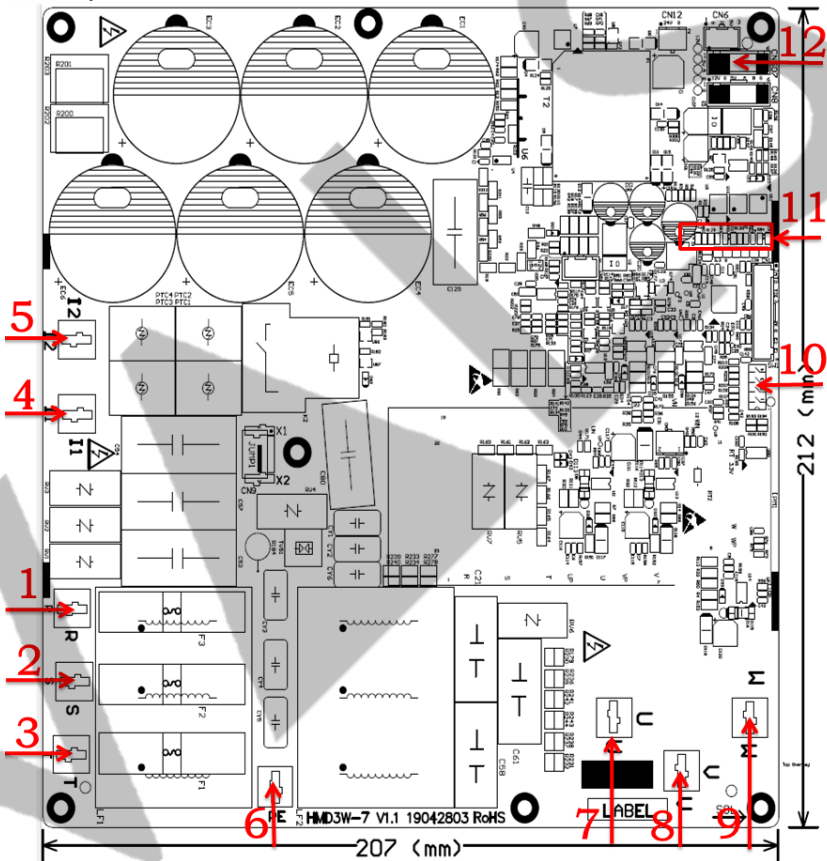


1	DC-FAN1	DC fan motor connector	12	LP	Low pressure switch connector
2	DC-FAN2	DC fan motor connector	13	EXV1	Electronic expansion valve
3	CN1	Driver board communication connector	14	EP1	EEPROM parameter programming connector
4	COM_D	Driver board communication connector	15	PR1	Main control program programming connector
5	CN3	Communication connector between indoor	16	AC_FAN1	AC fan motor connector (reserved)
6	COM_I	Communication connector between indoor	17	AC_FAN2	AC fan motor connector (reserved)
7	T_Rt	Outdoor ambient temperature sensor	18	SV	Enthalpy of spray valve connector
8	T_Op	Outdoor coil temperature sensor	19	4WAY	4-way valve connector
9	T_Pq	Outdoor discharge temperature sensor	20	HEAT	Chassis electric heating belt connector
10	CN4	Reserved	21	AC_L	Live wire input
11	HP	High pressure switch connector	22	AC_N	Neutral wire input

Bottom view

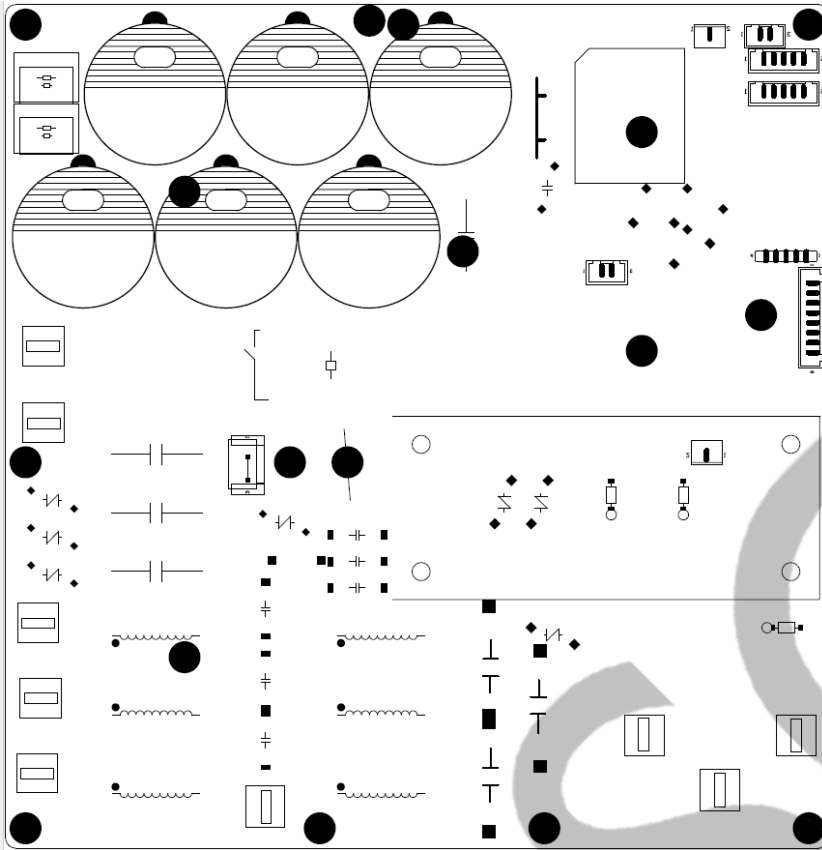


●Driving Board
Top view



1	R	3-Phase live wire R input	7	U	To Compressor phase U
2	S	3-Phase live wire S input	8	V	To Compressor phase V
3	T	3-Phase live wire T input	9	W	To Compressor phase W
4	I 1	To Connector	10	SW1	Dial code switch
5	I 2	To Connector	11	D1、D2、D3	Malfunctions indicator lamp
6	PE	Ground wire	12	CN607	Main control board communication connector

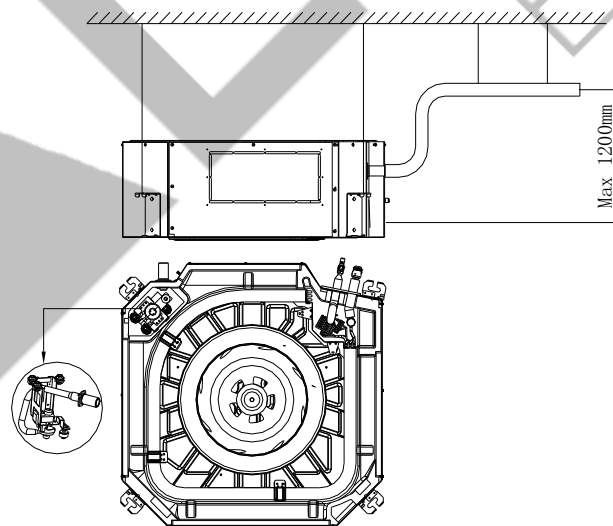
Bottom view



3.11 Built-in Draining Pump

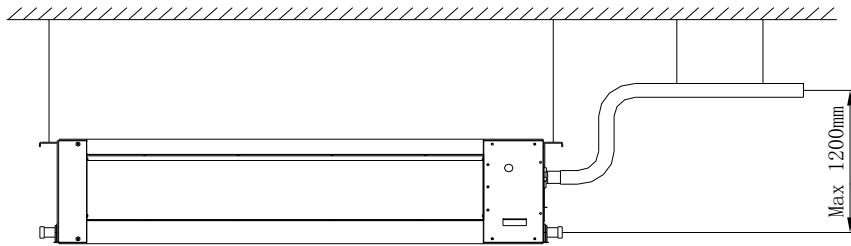
3.11.1 Cassette Type

➤ Built-in draining pump to make sure condensed water drain out reliably. Built-in drain pump can lift the water to 1200mm upmost, which widens the drainage piping range.

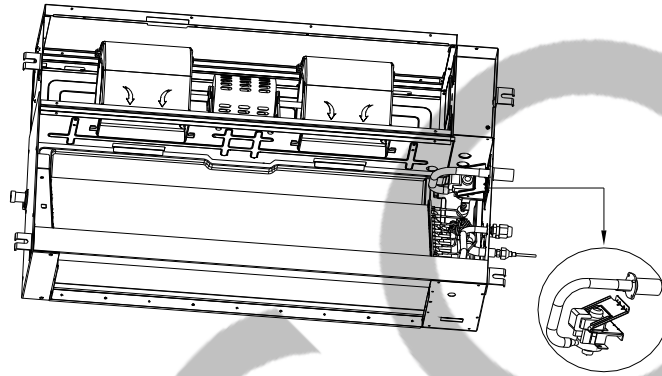


3.11.2 Duct Type (Optional)

- Built-in draining pump to make sure condensed water drain out reliably. Built-in drain pump can lift the water to 1200mm upmost, which widens the drainage piping range.

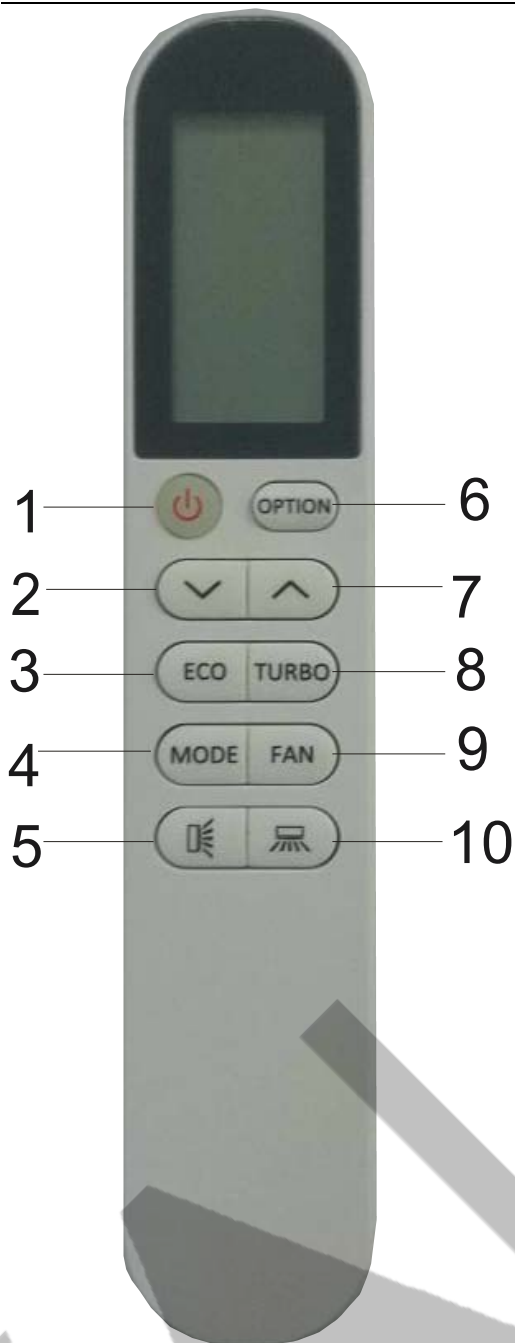



In the elevation section be sure to drain to avoid the water full protection because of converse flow.



4. Electronic Controller Introduction

4.1 Remote Controller





- 1 ON/OFF button**
To switch the conditioner on and off.
- 2 TEMP DOWN button**
Decrease the temperature or time by 1 unit.
- 3 ECO button**
Press this button to activate/deactivate the ECO function.
- 4 MODE button**
To select the mode of operation.
- 5 SWING button**
To activate the swing of horizontal flap(up/down) or deactivate it.
- 6 OPTION button**
To select the option function.
- 7 TEMP UP button**
Increase the temperature or time by 1 unit.
- 8 TURBO button**
Press this button to activate/deactivate the Super function which enables the unit to reach the preset temperature in the shortest time.
- 9 FAN SPEED button**
To select the fan speed of auto/mute/low/mid-low/mid/mid-high/high/turbo , cycle as below.

- 10 SWING button**
To activate the swing of vertical flap(left/right) or deactivate it.








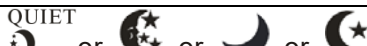




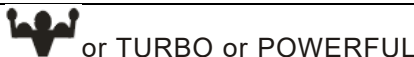








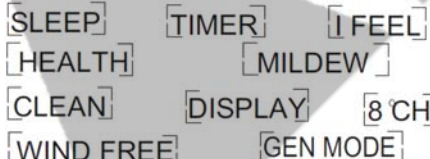
⚠ The out looking and some function of remote controller maybe difference.

⚠ The shape and position of switches and indicators may be different according to the model, but their function is the same. The actual shape and position shall prevail.

Remote controller DISPLAY

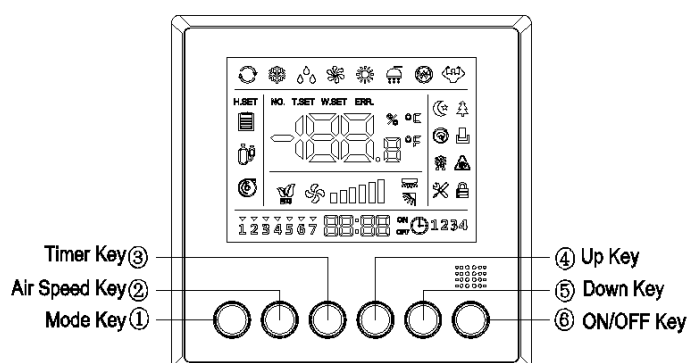
Meaning of symbols on the liquid crystal display.

1	 or  or AUTO	FEEL mode indicator
2	 or COOL	COOLING indicator
3	 or  or DRY	DEHUMIDIFYING indicator
4	 or FAN	FAN ONLY OPERATION indicator
5	 or HEAT	HEATING indicator

6		SIGNAL RECEPTION indicator
7		TIMER OFF indicator
8		TIMER ON indicator
9		AUTO FAN indicator
10		LOW FAN SPEED indicator
11		MIDDLE FAN SPEED indicator
12		HIGH FAN SPEED indicator
13		SLEEP indicator
14		COMFORTABLE SLEEP indicator (optional)
15		FEEL indicator(optional)
16		FLAP SWING indicator
17		FLAP and Deflectors SWING indicator
18		SUPER indicator
19		HEALTHY indicator
20		ECO indicator
21		ANTI-MILDEW indicator
22		BATTERY indicator
23		CLOCK indicator
24		Mute indicator
25	GEN	GEN function indicator
26		Comfortable cooling airflow indicator
27		Comfortable heating airflow indicator
28		Optional functions indicator

4.2 Wired Remote Controller

4.2.1 An Introduction to Wire Controller



◆ Description of Icons or Symbols

	Sleep			Fresh		Door Card		Defrost
	Anti-freeze			Set		Child Lock		Economic
	Up/Down Swing			Left/Right Swing		Degree centigrade		Fahrenheit
	Electric		<i>ERR.</i>	Error		Water Level		Water Pump Sign
<i>W.</i>	Current Water Temperature		<i>T.</i>	Ambient Temperature	<i>SET</i>	Set Temperature		Compressor
<i>ON</i>	Timer ON		<i>OFF</i>	Timer OFF				

Remark: If an icon goes on, it means “ON”; if such icon goes off, it means “OFF”.

◆ Dial Setting

Definition	SW1-1	SW1-2	Description
Reserve	ON	-	/
	OFF	-	/
Reserve	-	ON	/
	-	OFF	/

4.2.2 Initial Power-on

It is necessary to initially power the wire controller on for self-check wherein all the icons or symbols go on for 3 seconds. During such period, all the key and remote controller operations are invalid.

4.2.3 Key Description

4.2.3.1 [ON/OFF] Key

4.2.3.1.1

Press the [ON/OFF] key once to start the controller; press the [ON/OFF] key once again to stop the controller.

4.2.3.1.2 Liquid Crystal Self-check:

Press the [ON/OFF] key to power the controller on for 5 seconds and then release such key; the controller enters self-check at the moment. The controller executes the liquid crystal self-check in the following sequence:

After the buzzer short sounds once, the following outputs successively motion (wherein the liquid crystal successively goes on from left to right and then go off.) After that, the controller exits from the self-check.

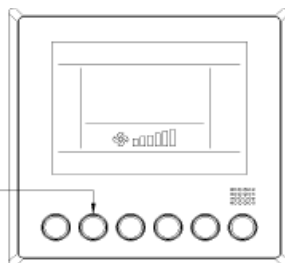
Notes:

1. The controller exits from the self-check status after it is powered off in the self-check status.
2. All the keys are invalid during the self-check.

4.2.3.2 [Mode] Key

4.2.3.2.1 Mode Switch

On the startup interface, press the [Mode] key once when the selected mode icon normally goes on and other icons go off. The switch sequence is as shown in the right picture.

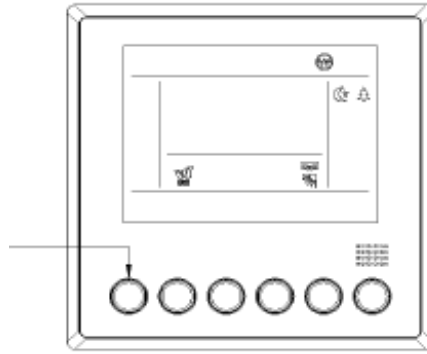


- The refrigeration machine is without the “Heat” icon.

- Automatic Mode: The controller with the power-down memory function can be powered on again after being powered down, re-judge the temperature and then re-execute the automatic mode; if the power-down memory function is not started, the controller will enter the standby mode.

4.2.3.2.2 Function Setting:

On the startup interface, long press the [Mode] key for over 5 seconds to enter the function setting interface; short press the [Mode] key when the selected function icon twinkles with the frequency of 1Hz and other icons act as per the actual status (if the status is ON, the icons normally go on; otherwise, the icons go off.)



4.2.3.3 [▲]/[▼] Key

4.2.3.3.1 On the startup interface, press the [▲]/[▼] key once to set the temperature increase or decrease by 1°C /1°F;

Note: The operations of [▲] and [▼] keys of fresh air machine are invalid;

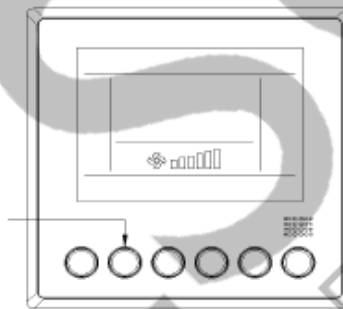
4.2.3.3.2 Forced Defrosting

On the startup interface, set the wire controller to be in the heating mode and at the temperature of 16°C, and then finish the following 6 keys of operations within 5 seconds:

“[▲]→[▼]→[▲]→[▼]→[▲]→[▼]”. At the moment, the system successfully enters the forced defrosting and then the buzzer long beeps once.

4.2.3.4 [Air Speed] Key

On the startup interface, press the [Air Speed] key once, the selected air speed icon normally goes on and other icons go off wherein the air speed switches in the cyclic sequence of low air speed → intermediate air speed → high air speed



- When the wire controller is initially powered on, its default air speed is low and the icon of low air speed is displayed.

- When the wire controller is at the time of automatic air, the air speed icon is successively displayed in the dynamic and cyclic sequence of low air speed→intermediate air speed→high air speed→low air speed.

- When the wire controller is at the time of automatic air, the air speed icon is successively displayed in the dynamic and cyclic sequence of low air speed→intermediate air speed→high air speed→idle→low air speed.

- If the air speed is of individual backup, the wire controller will display the last set air speed of the corresponding mode when it enters the same mode next time.

4.2.3.5 [Timer] Key

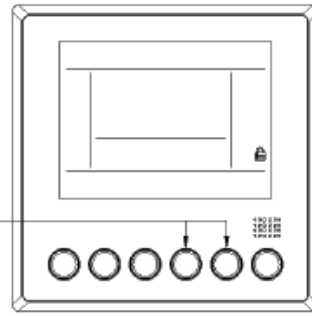
4.2.3.5.1 Continuously press the [Timer] key for over 5 seconds to enter the clock setting interface (See Chapter V---Clock setting for details).

4.2.3.5.2 Press the [Timer] key once to enter the timer setting interface (See Chapter VI---Timer Setting for details).

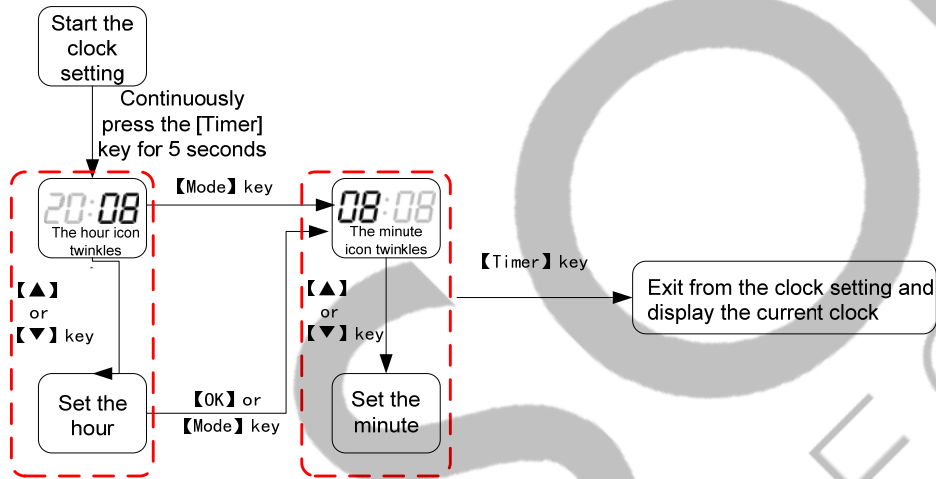
4.2.4 Auxiliary Functions

4.2.4.1 Child Lock

1. On the startup or shutdown interface, simultaneously press the [▲] and [▼] keys for over 5 seconds to enable the child lock when the child lock icon normally goes on.
2. When the child lock is valid, the operations of other keys are invalid but the icons twinkle with the frequency of 1Hz.



4.2.5 Clock Setting

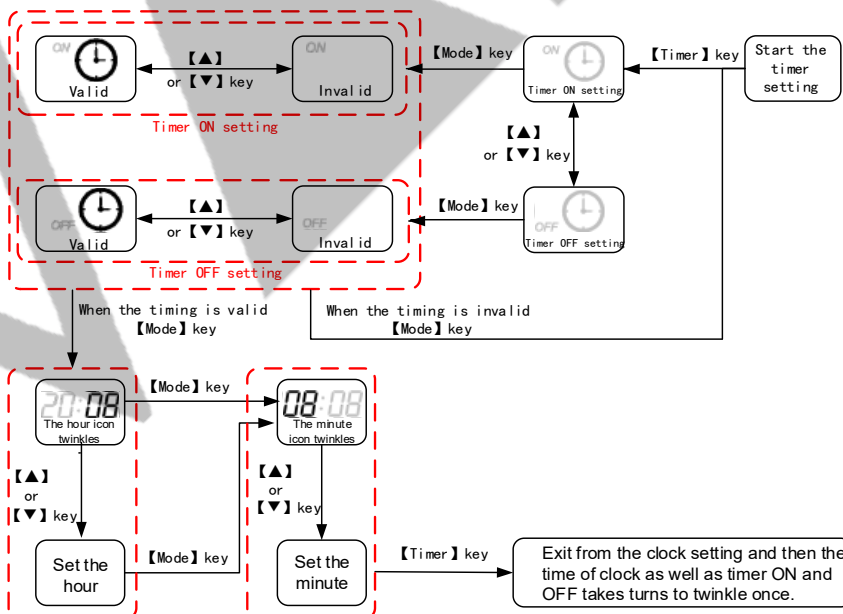


Set the period by pressing the [Timer] key and then exit from the clock setting with such setting saved;

Set the period by pressing the [ON/OFF] or [Mode] key and then exit from the clock setting with such setting not saved;

Set the status and if there are no key operations for 15 consecutive seconds, exit from the clock setting with such setting not saved.

4.2.6 Timer Setting



- Set the period by pressing the [Timer] key and then exit from the clock setting with such setting saved;
- Set the period by pressing the [ON/OFF] or [Mode] key and then exit from the clock setting with such setting not saved;
- Set the status and if there are no key operations for 15 consecutive seconds, exit from the clock setting with such setting not saved.

4.2.7 Parameter Query/Setting

4.2.7.1 Parameter Query

- ◆ Continuously press the “[Mode]+[▲]” combination keys for 5 seconds to automatically enter the parameter query interface when the “Time Area-Hour” icon twinkles and displays the “Parameter Code” and “Temperature Area” displays the current “Parameter Value” corresponding to such “Parameter Code”.
- ◆ When the parameter code twinkles, press the [▲] or [▼] key to switch the parameter code.

Parameter Code	Area Display	Parameter Name	Query the Current Parameter		Query Range
			Value to Query	Area Display	
01	Time Area-Hour	Indoor ambient temperature	Current value	Temperature Area	-30~150
02	Time Area-Hour	Aperture of expansion valve of the indoor unit	Current value	Temperature Area	0~500
03	Time Area-Hour	Temperature at the inlet of evaporator of the indoor unit	Current value	Temperature Area	-30~150
04	Time Area-Hour	Temperature in the middle of evaporator of the indoor unit	Current value	Temperature Area	-30~150
05	Time Area-Hour	Temperature at the outlet of evaporator of the indoor unit	Current value	Temperature Area	-30~150
06	Time Area-Hour	Engineering number of the indoor unit	Current value	Temperature Area	/
07	Time Area-Hour	IP address of the indoor unit	Current value	Temperature Area	/
E1	Time Area-Hour	Historical Error 1	Err+**	Temperature Area	
E2	Time Area-Hour	Historical Error 2	Err+**	Temperature Area	
E3	Time Area-Hour	Historical Error 3	Err+**	Temperature Area	
E4	Time Area-Hour	Historical Error 4	Err+**	Temperature Area	
E5	Time Area-Hour	Historical Error 5	Err+**	Temperature Area	

4.2.7.2 Parameter Setting

- ◆ Continuously press the “[Mode]+[▼]” combination keys for 5 seconds to automatically enter the parameter query interface when the “Time Area-Hour” icon twinkles and displays the “Parameter Code” and “Temperature Area” displays the current “Parameter Value” corresponding to such “Parameter Code”.
- ◆ When the parameter code twinkles, press the [▲] or [▼] key to switch the “Parameter Code”; press the [Mode] key to stop the “Parameter Code” from twinkling and enters the “Parameter Value” changing interface when the “Parameter Value” twinkles.
- ◆ When the parameter value twinkles, press the [▲] or [▼] key to change the “Parameter Value”; press the [Mode] key to save the “Parameter Value” and return to the “Parameter Code” twinkling interface.

Parameter Code		Query the Current Parameter			Query Range
Parameter Code	Area Display	Parameter Name	Value to Query	Area Display	
P1	Time Area-Hour	The indoor unit corresponding to the wire controller is the indoor unit in	SL	Temperature Display Area	SL: From the indoor unit

		the master mode			
P2	Time Area-Hour	Clearing Away the Master Indoor Unit from the Set	00	Temperature Display Area	00: No action
P3	Time Area-Hour	Address Setting of Two-wire Controller	01	Temperature Display Area	01: Upper computer of RS485 trunk
P5	Time Area-Hour	Power-down memory mode	Off	Temperature Display Area	On: Valid
			on		Off: Invalid
P6	Time Area-Hour	Temperature Unit Conversion	°C	Temperature Display Area	C: degree centigrade
			°F		
P7	Time Area-Hour	Selection of Ambient Temperature Sensing Bag	IL	Temperature Display Area	/
P8	Time Area-Hour	Modification Value of Return-air Temperature Sensing Bag(Cooling、Dry)	00	Temperature Display Area	-15°C~15°C
P9	Time Area-Hour	Modification Value of Return-air Temperature Sensing Bag(Heating)	00	Temperature Display Area	-15°C~15°C
PA	Time Area-Hour	Start-up default setting	00	Temperature Display Area	00: Display setting temperature
			01		01: Display ambient temperature
PC	Time Area-Hour	Fan speed setting	03	Temperature Display Area	03: 3 level speed
			07		07: 7 level speed
PF	Time Area-Hour	Thermal Aggregation Prevention(minute)	00	Temperature Display Area	00-60
PH	Time Area-Hour	Maximum Defrosting Duration(minute)	15	Temperature Display Area	00-20

4.2.8 Error Protection and Description

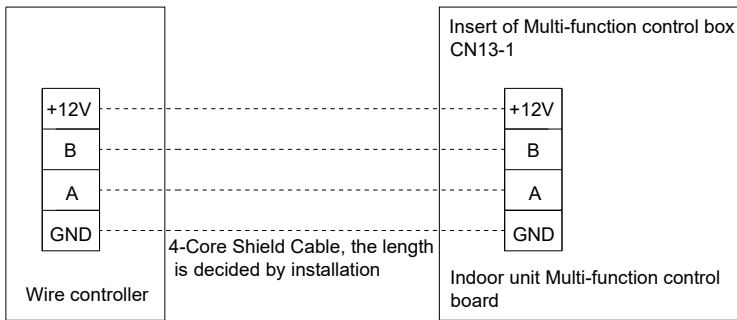
- ◆ When the system goes wrong or enters protection, the “ERR.” Icon normally goes on and the “Temperature Area” twinkles and displays the current error or protection code.
- ◆ When there are multiple errors or protections simultaneously, the codes are displayed in the cyclic sequence of “Code 1 → Code 2 → ...Code 5”.

Classification	Code	Error Description
Error	E0	The Indoor-outdoor communication goes wrong.
	E1	The Room Temperature Sensor T1 goes wrong.
	E2	The Internal Coil Temperature Sensor T2 goes wrong.
	E3	The External Coil Temperature Sensor T3 goes wrong.
	E4	The outdoor unit goes wrong.
	E5	The model configuration processing (frequency conversion) goes wrong.
	E6	The indoor fan goes wrong and/or the communication between the indoor DC fan and the indoor main control panel goes wrong.
	E7	The Outdoor Temperature Sensor T4 goes wrong.
	E8	The exhaust temperature sensor (TP1 of variable-frequency compressor) goes wrong.
	E9	The variable-frequency module goes wrong.
	EA	The current sensor goes wrong.
	EH	The Return-air Temperature Sensor T5 goes wrong.
	EC	The outdoor communication goes wrong.

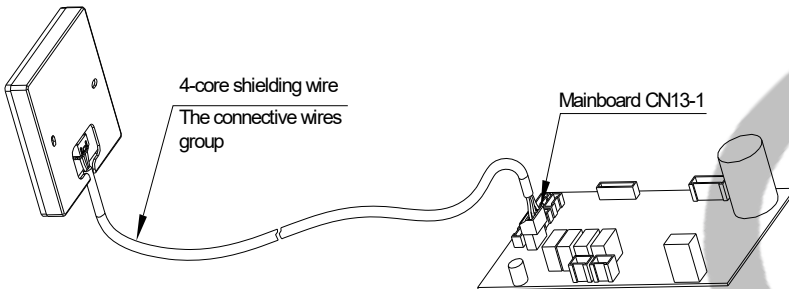
EL	The outdoor low-temperature protection goes wrong.
EE	The EEPROM goes wrong (The E2 of the outdoor unit goes wrong).
EF	The outdoor fan goes wrong.
	The wire controller communication goes wrong.
EP	The temperature switch at the top of compressor goes wrong.
EU	The voltage sensor goes wrong.
Eb	The communication between the main control panel and the display panel goes wrong.
Ed	The EEPROM of main control panel goes wrong (The E2 of the indoor unit goes wrong)
En	The indoor coil outlet temperature sensor goes wrong.
b1	The ambient temperature sensor goes wrong.
b2	The inlet pipe temperature sensor goes wrong.
b3	The middle temperature sensor goes wrong.
b4	The outlet pipe temperature sensor goes wrong.
b5	The humidity sensor goes wrong.
b6	The water temperature sensor goes wrong.
b7	The indoor EEPROM goes wrong.
b8	The swing motor goes wrong.
b9	The MAC address of the indoor unit is abnormal.
bA	The model dial is wrong.
H0	The outdoor unit goes wrong (including protection) in an all-round way.

Classification	Code	Error Description
Error	C0	The CAN communication goes wrong in an all-round way.
	C1	Multiple main control panel errors
	C2	The number of outdoor unit modules is abnormal (Deficiency/increase)
	C3	The communication between the main control panel and the variable-frequency compressor drive goes wrong.
	C4	The communication between the main control panel and the variable-frequency fan drive goes wrong.
	C5	The communication between the indoor unit and the wire controller goes wrong.
Protection	P0	Module protection
	P1	Over/Under-voltage protection
	P2	Over-current protection (Variable-frequency compressor)
	P3	Outdoor unit protection
	P4	Exhaust high-temperature protection (Variable-frequency compressor or Slave F3)
	P5	Under-cooling protection in the cooling mode (Indoor unit coil temperature protection)
	P6	Over-heating protection in the cooling mode (Condenser high-temperature protection)
	P7	Over-heating protection in the heating mode (Indoor unit coil temperature protection)
	P8	Outdoor high/low-temperature protection
	P9	Drive protection (load abnormal)
	PA	The modes conflict and the top air-out board communication goes wrong.
	d1	Indoor fan protection
	d2	Auxiliary electric heating protection
	d3	Water full protection
	d4	Anti-freezing protection
	d5	The modes conflict.
d6	The IP address of the indoor unit is abnormal.	
d7	The capacity dial is wrong.	
d8	The engineering numbers conflict.	

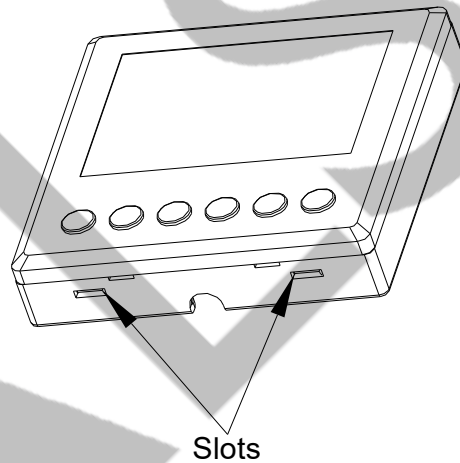
4.2.9 Installation



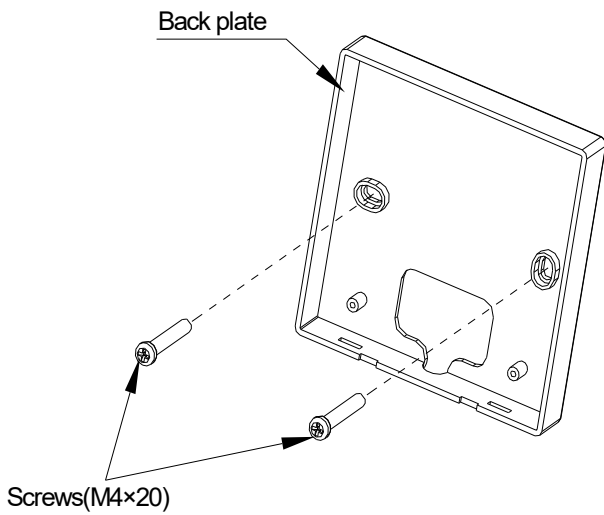
- ◆ Connect the stripping wire side of connective wires group with the terminal of the mainboard.
- ◆ Connect the other side of connective wires group with the female joint of wire controller.



- ◆ Insert a slot screwdriver into the slots in the lower part of the wire controller (2 places), and remove the upper part of the wire controller.

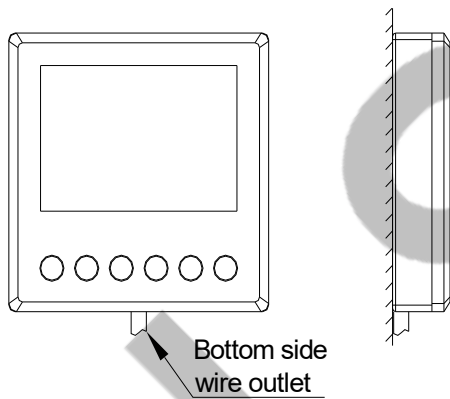


- ◆ Fasten the back plate of the wire controller
Fasten the back plate on the wall with the 2 screws (M4×20) .

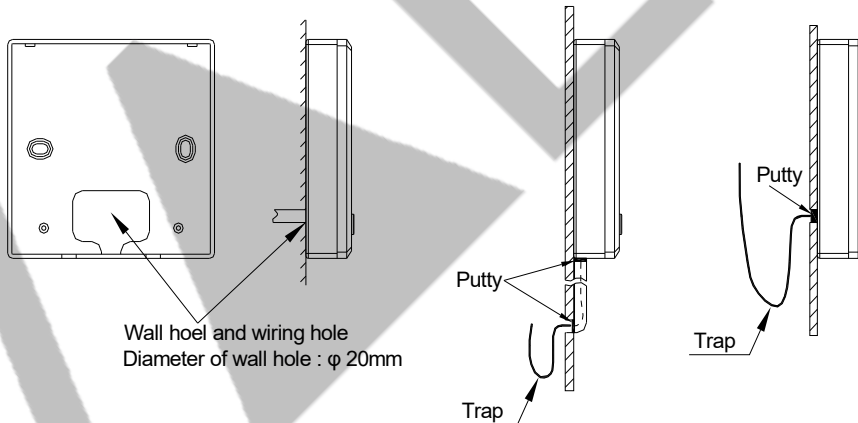


◆ Wiring

1) For exposed mounting, bottom side outlet positions.

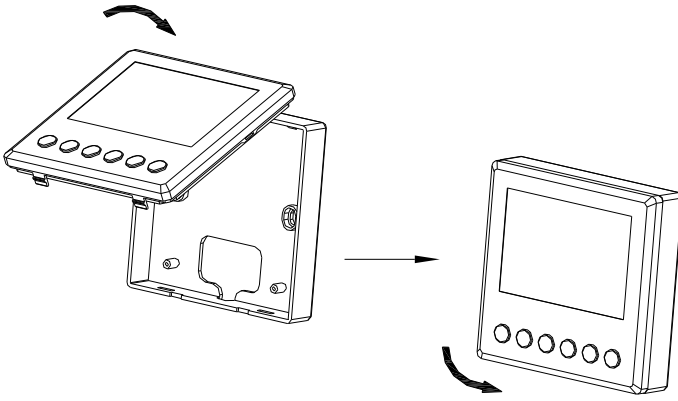


2) Shielded wiring



◆ Reattach the upper part of the wire controller

After adjusting the upper case and then buckle the upper case; avoid clamping the wiring during installation.



4.3 Electronic Controller

RT-----Room Temperature.

IPT-----Indoor Pipe (Coil) Temperature.

ST-----Indoor Setting Temperature.

OPT---Outdoor Pipe Temperature.

OAT---Outdoor Ambient Temperature.

ODT---Outdoor Discharge Temperature.

CRT---Compensated Room Temperature.

IDU--- Indoor unit

ODU---Outdoor unit.

IRT-----Initial Room Temperature (No temperature compensation)

IST-----Initial Indoor Setting Temperature (No temperature compensation)

Note: When AC finishing installation, because of the air ventilation and the distance of temperature test sensor to different location of the house, the temperature for IDU PCB control need compensation.

- 1) . Cooling mode. $CRT=RT+1$;
- 2) . Heating mode. $CRT=RT-3^{\circ}C$.

4.3.1 Auto mode

4.3.1.1. The set temperature can be adjusted from $16-31^{\circ}C$ on auto mode, the operation of fan speed and vane position according to preset.

4.3.1.2. Operation

When unit set to auto mode, it will work on cooling, heating or dry mode, Initial RT determines the working mode and initial ST, as shown in the following table:

Mode	IRT	IST
COOLING	$IRT \geq 26^{\circ}C$	$23^{\circ}C$
DRY	$20^{\circ}C \leq IRT < 26^{\circ}C$	$IST = IRT - 2^{*1}$
HEATING	$IRT < 20^{\circ}C$	$23^{\circ}C$

*1: When the dehumidification mode is determined, the set temperature display range is $18-23^{\circ}C$, and the set range is $18-23.9^{\circ}C$.

4.3.2 Cooling mode

4.3.2.1. Temperature control : $16-31^{\circ}C$, and the operation of fan speed and vane position according to preset.

4.3.2.2. Compressor and process control

- 1). When $RT-ST \geq 0.5^{\circ}C$, the compressor starts up working, AC operates as customer preset;
- 2). When
 - a. $-2 \leq RT-ST \leq 0^{\circ}C$, the compressor runs at the minimum operating frequency of refrigeration mode;
 - b. $RT-ST < -2^{\circ}C$, the compressor stops operation.
- 3). The compressor frequency control: Based on relation of RT & ST, and the changing speed of RT.
- 4). The compressor will also stop working while unit:

- a. switched off.
 - b. under protection.
 - c. changed to fan mode.
- 5). Under normal operation, the compressor can be stopped by program only working after 6 min once it starts up.
- 6). In the process of unit operation, once the compressor ceased, it should be 3 min delay for the next procedure.

4.3.2.3. ODU Fan motor control:

- 1). While unit:
 - a. switched off.
 - b. under protection.
 - c. to the set temperature.

After compressor ceased, stop the fan after lasting 60s according to the current gear.

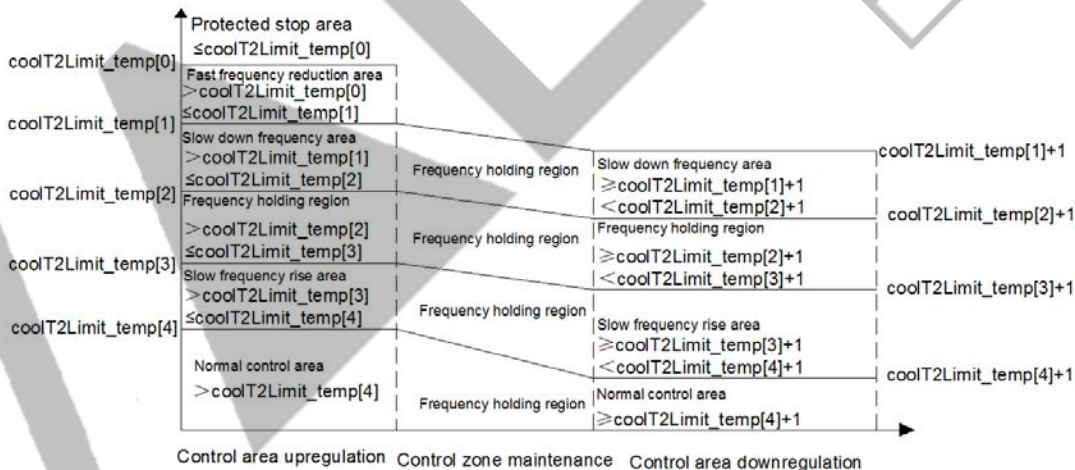
- 2). When switch on unit on cooling mode, ODU fan start up before the compressor starts up and runs 5s.

4.3.2.4. When ODU failure or stops for protection, after the fault lasts for 200s, the fault mark is sent to the IDU for display; otherwise, the fault mark is not sent to the IDU, and only the protection code is displayed in the outdoor machine: when the protection lock occurs three times in a row within one hour, the protection code is displayed in both the ODU and the IDU..

4.3.2.5. Anti-frosting protection

In refrigeration and dehumidification mode:

- 1) After the compressor runs for 6min continuously, if the temperature of indoor coil is $T_2 \leq -1^\circ\text{C}$ for 60 seconds continuously, the compressor will stop for protection;
- 2) During the shutdown of compressor protection, when the indoor coil temperature $T_2 \geq 10^\circ\text{C}$ and the compressor continuous shutdown time $\geq 3\text{min}$, the normal operation will resume
- 3) During the compressor operation, the control methods of frequency limit, frequency drop and frequency rise are shown in the figure below:



Note:

- a. When both freeze protection and return oil are present, run the return oil program;
- b. Anti- frosting protection is not sent to the internal machine display.

4.3.3 Dry mode

4.3.3.1. Temperature control: The temperature region cannot be set, and is automatically controlled by the IDU;

Fan speed: as customer preset

Vane blade position: as customer preset

4.3.3.2. When ODU failure or stops for protection, IDU works as preset.

4.3.3.3. Failure protection: as cooling mode.

4.3.3.4. Energy saving and sleep mode: Invalid.

4.3.3.5. The maximum percentage of IDU capacity demand in dehumidification mode A is 90% of the refrigeration mode. The opening conditions of electronic expansion valve, external fan, compressor and solenoid valve are the same as those of refrigeration mode

4.3.4 Heating mode

4.3.4.1. Temperature control: 16-31°C.

4.3.4.2. Compressor and process control.

- 1). When $ST-CRT \geq 0^{\circ}C$, the compressor starts up working, AC operates as customer preset;
- 2) When $-2^{\circ}C \leq ST-CRT \leq 0^{\circ}C$, the compressor operates at the minimum operating frequency for heating mode;
- 3) When $ST-CRT < -2^{\circ}C$, then the compressor stops running and the outdoor fan stops running with delay of 60s;
- 4) The compressor frequency control: Based on relation of RT & ST, and the changing speed of RT.;
- 5) The compressor will also stop working while unit:
 - a. switched off.
 - b. under protection.
 - c. changed to fan mode.
- 6) Under normal operation, the compressor can be stopped by program only working after 6 min once it starts up.
- 7) In the process of unit operation, once the compressor ceased, it should be 3 min delay for the next procedure.

4.3.4.3. IDU time delay: When compressor stops or unit switches off while in heating mode, IDU fan motor will work for a few seconds more to prevent overheat.

4.3.4.4. ODU Fan motor control:

- 1). While unit:
 - a. To be switched off
 - b. Under protection.
 - c. To the set temperature
 After compressor ceased, the fan motor stop after continuing to run 60sec at the current tap.
- 2). When switch on unit on cooling mode, ODU fan start up before the compressor starts up and runs 5s.
- 3). In the process of defrosting, the fan motor will stop operation 50s delay after compressor stopped.
- 4). Defrosting finish, the compressor stops operation, the fan motor will start working 55s delay after compressor stopped.

4.3.4.5. 4-way valve control

- 1). On Cooling/Dry/Fan mode, 4-way valve: **OFF**, when unit switched on heating mode, 4-way valve: **ON**.
- 2). When heating mode switched off, or changed from heating to other modes, the 4-way valve will be **OFF** after the compressor stops working.
- 3). Unit stops working caused by any kind of protection, the 4-way valve will be **OFF** 5min delay.
- 4). In the process of defrosting, 4-way valve will be **OFF** 45s delay after compressor stopped.
- 5). When defrosting finish, the compressor stops operation, 4-way valve will be **ON** after 50s delay.

4.3.4.6. Defrost

Note:

t1: compressor continuous works time.

T2: compressor accumulated working time

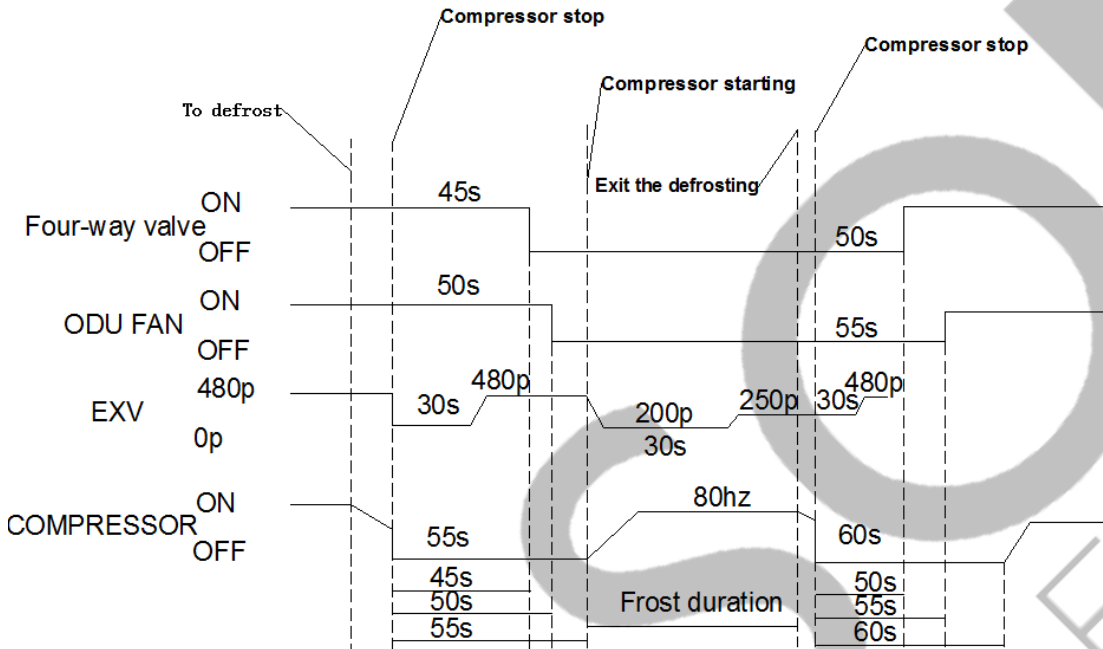
When AC unit working to:

$t1 \geq 45\text{min}$, or

$t1 < 45\text{min}$ and $t2 \geq 60\text{min}$

and $T3 \leq \text{FrostDeg-1}$ and $T3 \leq -1$ to defrosting.

- 1) Defrosting start up: Compressor stops working, and re-starts to working after 55s delay;
- 2) Conditions for quitting defrosting
 - a. $OPT > 12^{\circ}\text{C}$; or
 - b. $OAT < -5^{\circ}\text{C}$, and $OPT > 6^{\circ}\text{C}$ for 60s continuously; or
 - c. The defrosting for 8 min.
 When AC meet any of condition a, b or c, defrosting finish.
- 3) Defrosting end off: Compressor stops working, and re-starts to working after 60s delay;



4.3.4.7. Cold air prevention:

This function intends to prevent cold air from being discharged when the heating operation starts up
IDU fan motor cold air prevention

① When $RT < 15^{\circ}\text{C}$:

a. If $ITP \geq 28^{\circ}\text{C}$ or the compressor works for 90s, fan motor will work according to low wind speed.

b. If $IPT \geq 40^{\circ}\text{C}$, or the running time of low wind exceeds 2min, exit the cold wind, then change to preset speed.

② When $RT \geq 15^{\circ}\text{C}$:

a. If $ITP \geq 28^{\circ}\text{C}$ or the compressor works for 60s, fan motor will work according to low wind speed.

b. If $IPT \geq 40^{\circ}\text{C}$, or the running time of low wind exceeds 2min, exit the cold wind, then change to preset speed.

4.3.5 Fan mode

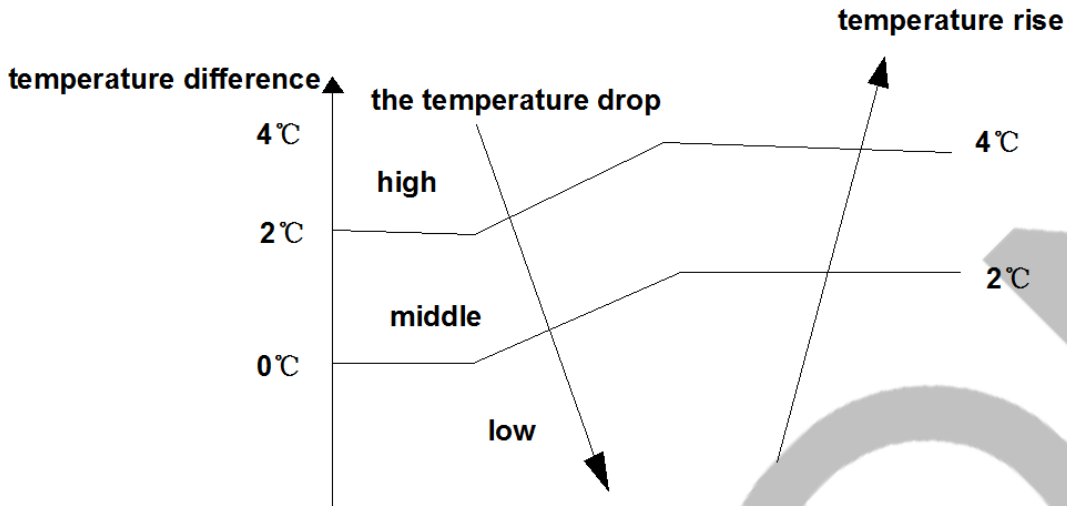
4.3.5.1. The temperature setting: $16 \sim 31^{\circ}\text{C}$,

Fan speed and vane position: as preset.

The relationship between temperature difference and wind speed is shown in the figure below:

4.3.5.2. For above function, when unit preset to be auto fan mode, the fan motor will change its operation speed based on the temperature difference of ambient and preset temperature.

4.3.5.3. ODU always OFF.



4.3.6 Timer

The unit has times control, when the unit meet the timer preset, it will be switched on or off automatically.

4.3.6.1 TIMER ON

- 1). TIMER ON can be set only when the air conditioner is OFF.
- 2). Press TIMER on the remote control ONCE to enter time setting.
- 3). Press “▲” or “▼” to set the time for unit to start working.
- 4). Set other function as MODE, FAN SPEED, SWING etc.
- 5). Press TIMER ONCE AGAIN to confirm the TIME ON setting

4.3.6.2 TIMER OFF

- 1). TIMER OFF can be set only when the air conditioner is ON.
- 2). Press TIMER on the remote control ONCE to enter time setting.
- 3). Press “▲” or “▼” to set the time for unit to stop working.
- 4). Press TIMER ONCE AGAIN to confirm the TIME OFF setting

4.3.7 Sleeping mode

While AC works in sleeping mode, the light of SLEEP always ON, the indoor fan is operated in low wind gear, and the digital display screen is turned off after 10 seconds

In this mode, the AC unit works according to the SLEEP CURVE as designed.

Sleeping mode the unit receives the sleep off signal or the emergency key is effectively pressed, after that it will quit from this mode.

4.3.8 Emergency switch

When the EMERGENCY switch is pressed one time, COOLING mode is selected and if it pressed again within 3min, HEATING mode selected, while press once again, the unit will be switched off.

When the remote controller out of function, batteries lost power, for example, the EMERGENCY button in the front of indoor unit can be used for function test.

NOTE: Do not press the EMERGENCY switch during normal operation.

4.3.9 Auto-restart function

While air conditioner is operating in one mode, all of its operation data, such as working mode, preset temperature etc. would be memorized into IC by main PCB. If power supply cut off due to reasons and recover again, the AUTO-RESTART function will set synchronously and the air conditioner would work at the same mode as before.

When the unit is in operation, press the SLEEP button 10 times within 8s, the AUTO-RESTART will be activated.

4.3.10 Protection

4.3.10.1 Overload protection

4.3.10.1.1. Overload protection for Cooling or Dry mode

1). if:

a. $OPT \geq 65^{\circ}\text{C}$ lasts 10s, unit stops working for overload protection.

b. $OPT < 54^{\circ}\text{C}$, after compressor stopped for 3 min, can the unit be started to operate.

2). When $OPT \geq 57^{\circ}\text{C}$, the compressor will be frequency limited/reduced for over load protection.

3). If unit have 3 times of over load stop-working protection continuously within 1h, this protection can't be recovered unless press ON/OFF button, and unit will show failure code.

In the process of operation, once the compressor runs continuously more than 6 min, the counter of over load stop-working protection will be reset to zero and start a new counting process.

The failure and times for protection will eliminate immediately once the unit to be switched off, on fan mode or changed to be heating mode from others.

4.3.10.1.2. Overload protection for Heating mode

1). If:

a. $IPT \geq 64^{\circ}\text{C}$ lasts 10s, unit stops working for overload protection.

b. $IPT < 54^{\circ}\text{C}$, after compressor stopped for 3 min, can the unit be started to operate.

2). When $IPT \geq 55^{\circ}\text{C}$, the compressor will be frequency limited/reduced for over load protection.

3). If unit have 3 times of over load stop-working protection continuously, this protection can't be recovered unless press ON/OFF button, and unit will show failure code.

In the process of operation, once the compressor runs continuously more than 6 min, the counter of over load stop-working protection will be reset to zero and start a new counting process.

The failure and times for protection will eliminate immediately once the unit to be switched off, on fan mode or changed to be heating mode from others.

4.3.10.2 The compressor discharge temperature protection

4.3.10.2.1. If $ODT \geq 115^{\circ}\text{C}$, unit stops working for over temperature protection;

While $ODT < 80^{\circ}\text{C}$, & after compressor stopped for 3 min, the unit can be started to operate.

4.3.10.2.2. If $ODT \geq 95^{\circ}\text{C}$, the compressor will be frequency limited/reduced for over temperature protection.

4.3.10.2.3. If unit have 3 times of **discharge over temperature stop working protection** continuously within 1h, this protection can't be recovered unless press ON/OFF button, and unit will show failure code.

In the process of operation, once the compressor runs continuously more than 6 min, the counter of discharge over temperature stop working protection will be reset to zero and start a new counting process.

The failure and times for protection will eliminate immediately once the unit to be switched off, or changed to fan mode.

4.3.10.3 The current protection

4.3.10.3.1. If the unit A/C working current more than **Limited current (ILC)**, the compressor will be frequency limited / reduced for over current protection.

4.3.10.3.2. When unit A/C working current more than **Stopped current (ISC)**, AC unit stops working. Only when the compressor stops for 3 min can the unit be recovered operation.

4.3.10.3.3. If unit have 3 times of **over current stop-working protection** continuously, this protection can't be recovered unless press ON/OFF button.

In the process of unit operation, once the compressor runs continuously more than 6 min, the counter of stop-working protection will be reset to zero and re-start a new counting process.

Note: For different models, ILC and ISC have different programmed value.

4.3.10.4 IPM overheating protection

4.3.10.4.1. When IPM temperature $TIPM \geq T1^{\circ}\text{C}$, the compressor will be frequency limited / reduced for IPM over temperature protection.

4.3.10.4.2. When $TIPM \geq T2^{\circ}\text{C}$, the AC unit stops working for AC system protection.

If $TIPM < T3^{\circ}\text{C}$, and after compressor stopped for 3 min, can the unit be started to operate.

4.3.10.4.3. If unit have 3 times of **IPM over temperature stop working protection** continuously, this protection can't be recovered unless press ON/OFF button, and unit will show failure code.

In the process of operation, once the compressor runs continuously more than 6 min, the counter of over load stop working protection will be reset to zero and re-start a new counting process.

The failure and times for protection will eliminate immediately once the unit to be switched off, or changed to fan mode.

Note: For different models, T1、T2 and T3 have different programmed value.

4.3.11 Complementary

4.3.11.1 Energy saving (ECO)

Function effective on Cooling and Heating mode only. Set temperature ST= set value of remote control or other controller, and send economic function sign to external machine or other controller.

4.3.11.2 The communication control

If ODU PCB can't get signal feedback from IDU for 2 min continuously, AC unit stops working and shows E0 error code as IDU/ODU communication failure.

Once the IDU & ODU communication recovery, and also the compressor stopped for 3 min already, can the unit be recovered to operate.

4.3.11.3 Calibration test mode

The mode is refrigeration or heating. Press the sleep button or ECO button for 8 times within 8 seconds after the digital tube flashes for 5 times, and the buzzer makes 3 long sounds to enter the test mode.

PART II Installation and Maintenance

1. Notes for Installation and Maintenance

Safety Precautions

Important!

Please read the safety of precautions carefully before installation and maintenance. The following contents are very important for installation and maintenance. Please follow the instructions below.

- The installation or maintenance must accord with the instructions.
- Comply with all national electrical codes and local electrical codes.
- Pay attention to the warnings and cautions in this manual.
- All installation and maintenance shall be performed by distributor or qualified person.
- All electric work must be performed by licensed technician according to local regulations and Instructions given in this manual.
- Be caution during installation and maintenance. Prohibit incorrect operation to prevent electric shock, casualty and other accidents.

Warnings

Electrical Safety Precautions.

- 1) Cut off the power supply of air conditioner before checking and maintenance.
- 2) The air conditioner must apply specialized circuit and prohibit share the same circuit with other appliances.
- 3) The air conditioner should be installed in suitable location and ensure the power plug is touchable.
- 4) Make sure each wiring terminal is connected firmly during installation and maintenance.
- 5) Have the unit adequately grounded. The grounding wire can't be used for other purposes.
- 6) Must apply protective accessories such as protective boards, cable-cross loop and wire clip.
- 7) The live wire, neutral wire and grounding wire of power supply must be corresponding to the live wire, neutral wire and grounding wire of the air conditioner.
- 8) The power cord and power connection wires can't be pressed by hard objects.
- 9) If power cord or connection wire is broken, it must be replaced by qualified person.
- 10) If the power cord or connection wire is not long enough, please get the specialized power cord or connection wire from the manufacture or distributor. Prohibit prolong the wire by yourself.
- 11) For the air conditioner without plug, an air switch must be installed in the circuit. The air switch Should be all-pole parting and the contact parting distance should be more then 3mm.
- 12) Make sure all wires and pipes are connected properly and the valves are opened before energizing.
- 13) Check if there is electric leakage on the unit body. If yes, please eliminate the electric leakage.
- 14) Replace the fuse with a new one of the same specification if it is burnt down, don't replace it with a cooper wire or conducting wire.
- 15) If the unit is to be installed in a humid place, the circuit breaker must be installed.

Installation Safety Precaution

- 1) Select the installation location according to the requirement of this manual. (See the requirements in installation part).
- 2) Handle unit transportation with care, the unit should not be carried by only one person if it is more than 20kg.
- 3) When installing the indoor unit and outdoor unit, a sufficient fixing bolt must be installed, make

sure The installation supporter is firm.

- 4) Wear safety belt if the height of working is above 2m.
- 5) Use equipped components or appointed components during installation.
- 6) Make sure no foreign objects are left in the unit after finishing installation.

Improper installation may lead to fire hazard, explosion, electric shock or injury.

**Safety precautions for Installing and Relocating the unit.
To ensure safety, please be mindful of the following precautions.**

Warnings

1) When installing or relocating the unit, be sure to keep the refrigerant circuit free from air or Substances other than the specified refrigerant.

Any presence of air or other foreign substance in the refrigerant circuit will cause system pressure rise or compressor rupture, resulting in injury.

2) When installing or moving this unit, do not charge the refrigerant which is not comply with that on the nameplate or unqualified refrigerant.

Otherwise, it may cause abnormal operation, wrong action, mechanical malfunction or even series safety accident.

3) When refrigerant needs to be recovered during relocating or repairing the unit, be sure that the unit is running in cooling mode. Then, fully close the valve at high pressure side (two-way valve). About 30-40 seconds later, fully close the valve at low pressure side (3-way valve), immediately stop the unit and disconnect power. Please note that the time for refrigerant recovery should not exceed 1 minute.

If refrigerant recovery takes too much time, may be cause compressor overheat, resulting in injury.

4) During refrigerant recovery, make sure that two-way valve and 3-way valve are fully closed and power is disconnected before detaching the connecting pipe.

If compressor starts running when the valves is open and connecting pipe is not yet connected, air will be sucked in and cause pressure rise and then compressor overheat or gas leak, resulting in injury.

5) When installing the unit, make sure that connecting pipe is securely connected before the compressor starts running.

If compressor starts running when the valves is open and connecting pipe is not yet connected, air will be sucked in and cause pressure rise and then compressor overheat or gas leak, resulting in injury.

6) Prohibit installing the unit at the place where there may be leaked corrosive gas or flammable gas.

If there leaked gas around the unit, it may cause explosion and other accidents.

7) Do not use extension cords for electrical connections. If the electric wire is not long enough, please contact a local service center authorized and ask for a proper electric wire. Poor connection may lead to electric shock or fire.

8) Use the specified types of wires for electrical connections between the indoor and outdoor units. Firmly clamp the wires so that their terminals receive no external stresses.

Electric wires with insufficient capacity, wrong wire connections and insecure wire terminals may cause electric shock or fire.

Introduction R32 air conditioner installation

1) Introduction to Refrigerants R32

The refrigerants used for air conditioners are environmentally friendly hydrocarbons R32. The two kinds of refrigerants are combustible and odorless. Moreover, they can burn and explode under certain condition. However, there will be no risk of burning and explosion if you comply with the following table to install your air conditioner in a room with an appropriate area and use it correctly.

Compared with ordinary refrigerants, Refrigerants R32 are environmentally friendly and do not destroy the ozone sphere and that their values of greenhouse effect are also very low.

2) R32 air conditioner installation area requirement

$$m1=(4m^3)\times LFL, m2=(26m^3)\times LFL, m3=(130m^3)\times LFL$$

Where LFL is the lower flammable limit in kg/m³, R32 LFL is 0.306kg/m³.

For the appliances with a charge amount $m1 < M < m2$:

The maximum charge in a room shall be in accordance with the flowing: $M_{max}=2.5\times(LFL)^{(5/4)}\times h_0\times A^{1/2}$

The required minimum floor area A_{min} to install an appliance with refrigerant charge M(kg) shall be in accordance with following: $A_{min}=(M/(2.5\times(LFL)^{(5/4)}\times h_0))^2$

Where:

M_{max} is the allowable maximum charge in a room, in kg;

M is the refrigerant charge amount in appliance, in kg;

A_{min} is the required minimum room area, in m²;

A is the room area, in m²;

LFL is the lower flammable limit, in kg/m³;

h_0 is the installation height of the appliance, in meters for calculating M_{max} or A_{min} , 1.8 m for wall mounted;

Table GG.1 - Maximum charge (kg)

Category	LFL (kg/m ³)	h0 (m)	Floor area (m ²)						
			Maximum charge (kg)						
			4	7	10	15	20	30	50
R32	0.306	0.6	0.68	0.9	1.08	1.32	1.53	1.87	2.41
		1	1.14	1.51	1.8	2.2	2.54	3.12	4.02
		1.8	2.05	2.71	3.24	3.97	4.58	5.61	7.254
		2.2	2.5	3.31	3.96	4.85	5.6	6.86	8.85

Table GG.2 - Minimum room area (m²)

Category	LFL (kg/m ³)	h0 (m)	Charge amount (M) (kg)						
			Minimum room area (m ²)						
			1.224kg	1.836kg	2.448kg	3.672kg	4.896kg	6.12kg	7.956kg
R32	0.306	0.6	/	29	51	116	206	321	543
		1	/	10	19	42	74	116	196
		1.8	/	3	6	13	23	36	60
		2.2	/	2	4	9	15	24	40

Caution:

- Please contact the nearest after-sale service center when maintenance is necessary. At the time of maintenance, the maintenance personnel must strictly comply with the Operation Manual provided by the corresponding manufacturer and any non-professional is prohibited to maintain the air

conditioner.

- It is necessary to comply with the provisions of gas-related national laws and regulations.
- It is necessary to clear away the refrigerant in the system when maintaining or scrapping an air conditioner.
- When filling the combustible refrigerant, any of your rude operations may cause serious injury or injuries to human body or bodies and object or objects.
- A leak test must be done after the installation is completed.
- It is a must to do the safety inspection before maintaining or repairing an air conditioner using combustible refrigerant in order to ensure that the fire risk is reduced to minimum.

1) Installation Safety

Installation Safety Principles

Site Safety



Open Flames Prohibited



Ventilation Necessary

Operation Safety



Mind Static Electricity



Must wear protective clothing and anti-static gloves



Don't use mobile phone

Installation Safety

<ul style="list-style-type: none"> ● Refrigerant Leak Detector ● Appropriate Installation Location 		<p>The left picture is the schematic diagram of a refrigerant leak detector.</p>
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Caution:

- The installation should be in a well-ventilated condition location.
- When you installing or maintaining an air conditioner using Refrigerant R32, the location should be free fire from open or any other goods temperature higher than 548°C for R32 which easily produces open fire include welding, smoking, drying oven.
- When installing an air conditioner of R32, it is necessary to take appropriate anti-static measures such as wear anti-static clothing and gloves.
- It is necessary to choose the location for installation or maintenance where in the air inlets and outlets of the indoor and outdoor units should be not surrounded by obstacles or close to any heat source or combustible and/or explosive environment.
- If the indoor unit suffers refrigerant leak during the installation, it is necessary to immediately turn off the valve of the outdoor unit and all the personnel should go out till the refrigerant leaks completely for 15 minutes. If the product is damaged, it is a must to carry such damaged product back to the maintenance station and it is prohibited to weld the refrigerant pipe or conduct other operations on the user's site.
- It is necessary to choose the place where the inlet and outlet air of the indoor unit is even.
- It is necessary to avoid the places where there are other electrical products, power switch plugs

and sockets, kitchen cabinet, bed, sofa and other valuables right under the lines on two sides of the indoor unit.

Special tools:

Tool Name	Requirement(s) for Use
Mini Vacuum Pump	It should be an explosion-proof vacuum pump; can ensure certain precision and its vacuum degree should be lower than 10Pa.
Filling Device	It should be a special explosion-proof filling device; have certain precision and its filling deviation should be less than 5g.
Leak Detector	It should be calibrated regularly; and its annual leak rate should not exceed 10g.
Concentration Detector	A) The maintenance site should be equipped with a fixed-type combustible refrigerant concentration detector and connected to a safeguard alarm system; its error must be not more than 5%. B) The installation site should be equipped with a portable combustible refrigerant concentration detector which can realize two-level audible and visual alarm; its error must be not more than 10%. C) The concentration detectors should be calibrated regularly. D) It is necessary to check and confirm the functions before using the concentration detectors.
Pressure Gauge	A) The pressure gauges should be calibrated regularly. B) The pressure gauge used for Refrigerant 22 can be used for Refrigerants R290 and R161; the pressure gauge used for R410A can be used for Refrigerant 32.
Fire Extinguisher	It is necessary to carry fire extinguisher(s) when installing and maintaining an air conditioner. On the maintenance site, there should be two or more kinds of dry powder, carbon dioxide and foam fire extinguishers and that such fire extinguishers should be placed at stipulated positions, with eye-catching labels and in handy places.

Maintenance

1). Inspections before maintenance.

(1) Inspection of maintenance environment

- There should be no leaked refrigerant in the room before operation.
- It is only allowed to operate in a room which meets the area requirement on the nameplate.
- It is necessary to make the room keep a continuous ventilation state at the time of maintenance.
- The room in the maintenance should be free from fire or welding, smoking, drying oven or any other goods temperature higher than 548°C (R32) which easily produces fire.
- During the maintenance, it is necessary to ensure that any person's any mobile phone or any electronic product with radiation in the room is powered off.
- The maintenance area should be equipped with a drying powder or carbon dioxide fire extinguisher and that such fire extinguisher can work.

(2) Inspection of maintenance equipment

- Check the maintenance equipment is applicable to the refrigerant or not and it is only allowed to use the professional equipment recommended by the air conditioner manufacturer.
- Check the refrigerant leak detector whether has been calibrated. The set maximum alarm concentration of the refrigerant leak detector should not exceed 25% of the lower explosion limit (LEL),

the refrigerant leak detector must be working during maintenance.

2). Inspection of air conditioner

- It is necessary to ensure that the air conditioner is in reliable ground connection before maintenance.
- Make sure powered supply to air conditioner is off. Before maintenance, it is necessary to cut off the power and discharge the capacitor power which used in the air conditioner. If it is a must to need the power supply during the maintenance, it is necessary to do ongoing leak detection at the most dangerous position/point in order to avoid potential danger.
- Check the warning labels on the air conditioner whether are in good condition. It is necessary to replace the damaged or smeared warning labels.

3). Leak inspection before maintenance

Before maintenance, use the leak detector or concentration detector (pump-type) recommended by the corresponding air conditioner manufacturer to check the air conditioner leak or not.

Warning

If leak may exist, it is necessary to move all the fire out from the site or extinguish fire and then immediately shut off the air conditioner. Meanwhile, it is necessary to make sure well-ventilated.

4). Safety principles during the maintenance

- At the time of maintenance, it is necessary to ensure well-ventilation on the site.
- It is prohibited to use fire including welding, smoking or other purposes. It is prohibited to use mobile phones.
- At the time of maintenance, if the relative humidity is lower than 40%, it is necessary to wear anti-static clothing and gloves.
- If the combustible refrigerant is found leaking during the maintenance, it is a must to immediately take forced ventilation and plug up the leak source.
- If the product is damaged to the extent that it is a must to open the refrigerating system for maintenance, it is a must to carry the product back to the maintenance station for maintenance. (It is prohibited to weld the refrigerant pipe and do other operations on the user's site.)
- It is necessary to return the air conditioner to its initial state if it is necessary to provide visiting service again due to lacking spare part during the maintenance. Moreover, it is a must to ensure that the refrigerating system is in secure ground connection.
- If it is necessary to provide visiting service with a refrigerant cylinder, the volume of refrigerant filled in such refrigerant cylinder should not exceed the stipulated value. When such cylinder is stored in a vehicle or placed on the installation or maintenance site, it is necessary to place it vertically and securely and keep it away from any place where there is any heat source, combustion source, radiation source or electrical equipment.

5). Requirements for the site of maintenance-station

- The maintenance location should be well-ventilated, with leveled ground and not in a basement.
- The maintenance should be divided into welding and non-welding areas both of which should be labeled clearly. There should be a certain safety distance between the two areas. The maintenance location should be equipped with ventilating and air-exhausting equipment to prevent the refrigerant gas from aggregating.
- It is necessary to provide some relevant instruments such as combustible refrigerant leak

detector and have a leak detecting instrument management system. It is necessary to confirm that the leak detector can work normally before maintenance.

- The main power switch should be set outside the maintenance location and equipped with protective (explosion-proof) devices.
- It is necessary to provide firefighting devices such as dry powder or carbon dioxide fire extinguisher appropriate for extinguishing the electrical fire and keep such firefighting devices in a usable condition.
- Temporary wires and sockets are prohibited on the maintenance location.

6). Requirements for fill the refrigerants

- It is necessary to use nitrogen to clear the cyclic system before operating the refrigerating system and vacuumize the outdoor unit for 30 minutes at least.
- It is necessary to ensure that there is no cross contamination among different refrigerants when the refrigerant filling device is used. The total length including the refrigerant pipeline should be as short as possible in order to reduce the residual refrigerant inside such pipeline.
- It is necessary to vertically place the refrigerant storage tanks.
- It is necessary to ensure that the refrigerating system is in ground connection before the refrigerant is filled.
- When filling the refrigerant, it is necessary to fill corresponding type and volume of refrigerant as per the requirements on the product nameplate and overfilling is prohibited.
- It is necessary to seal the system in a safe sealing way after maintaining the refrigerating system.
- It is necessary to ensure that the maintenance will not damage or reduce the safety protection grade of the original system.

7). In-maintenance welding

- It is necessary to ensure that the maintenance location is well-ventilated.
- Before welding the outdoor unit, it is a must to confirm that the refrigerating system has been drained and the system has been cleaned and ensure that there has been no refrigerant in the outdoor unit.
- It is necessary to close the stop valve of the outdoor unit when using a welding gun to do the maintenance work such as cutting and welding.

8). Maintenance of electrical components

- It is necessary to use a special leak detector to check whether the maintained electrical parts location have the leak refrigerant.
- It is not allowed to refit, remove or cancel any component with the safety protection function after finishing the maintenance process.
- When maintaining the sealed parts, it is necessary to turn off the power of air conditioner before opening the sealing cover. When power supply is needed, it is necessary to do the ongoing leak detection at the most dangerous position in order to prevent potential danger.
- It is necessary to specially note that the maintenance of electrical components will not affect the replacement of protective cover.
- In order to ensure that the sealing function is not damaged after maintenance or the sealing material will not lose the effect of preventing the combustible gas leak due to ageing. So the substitute components should meet the requirements recommended by the air conditioner manufacturer.

Warning

Before doing the trial operation after finishing the maintenance, it is a must to use a practical

leak detector to inspect the leakage and reliability of ground connection in order to ensure that no refrigerant leakage and reliable ground connection.

The refrigerant storage tanks should be separately placed in a well-ventilated place at the temperature ranging from -10°C to 50°C and label them with warning labels.

9). Emergency Accident Handling

A maintenance station should establish emergency handling plans. It is necessary to take appropriate precautionary measures in work. For example, it is prohibited to enter the location with any kindling material and it is prohibited to wear clothing or shoes which easily produce static.

Handling suggestions when a large amount of combustible refrigerant leaks:

- It is necessary to immediately operate the ventilating equipment while cutting off other power supply and evacuating the affected personnel urgently from the location.
- It is necessary to inform near residents of evacuating for over 20 meters from the location, make an alarm call, set the emergency area and prohibit irrelevant personnel and vehicles from approaching.
- The professional firefighters should wear anti-static clothing to handle the emergency on the site and cut off the source of leak.
- It is necessary to use nitrogen for blowing the site, especially the low-lying positions, clear away the residual combustible refrigerant gas from any area nearby and surrounding the leak point and use a handheld detector for detection and not clear the alarm until the concentration of refrigerant is zero.

2 Installation

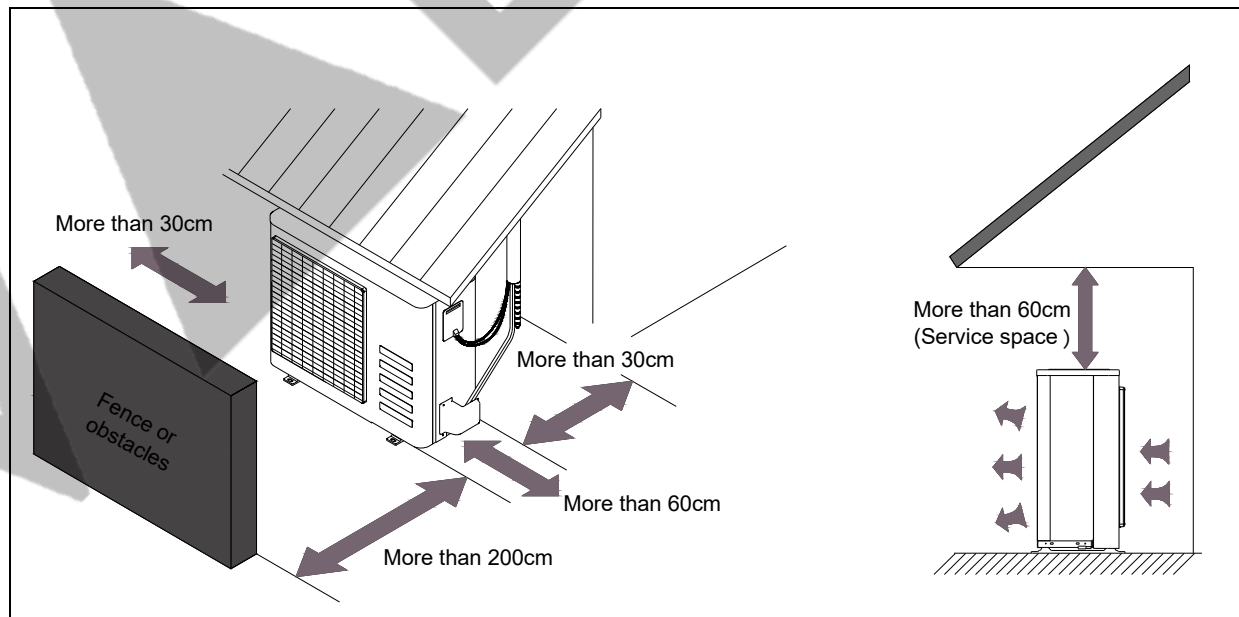
2.1 Location Selection

2.1.1 Indoor Unit Location Selection

- The place shall easily support the indoor unit's weight.
- The place can ensure the indoor unit installation and inspection.
- The place can ensure the indoor unit horizontally installed.
- The place shall allow easy water drainage.
- The place shall easily connect with the outdoor unit.
- The place where air circulation in the room should be good.
- There should not be any heat source or steam near the unit.
- There should not be any oil gas near the unit
- There should not be any corrosive gas near the unit
- There should not be any salty air neat the unit
- There should not be strong electromagnetic wave near the unit
- There should not be inflammable materials or gas near the unit
- There should not be strong voltage vibration.

2.1.2 Outdoor Unit Location Selection

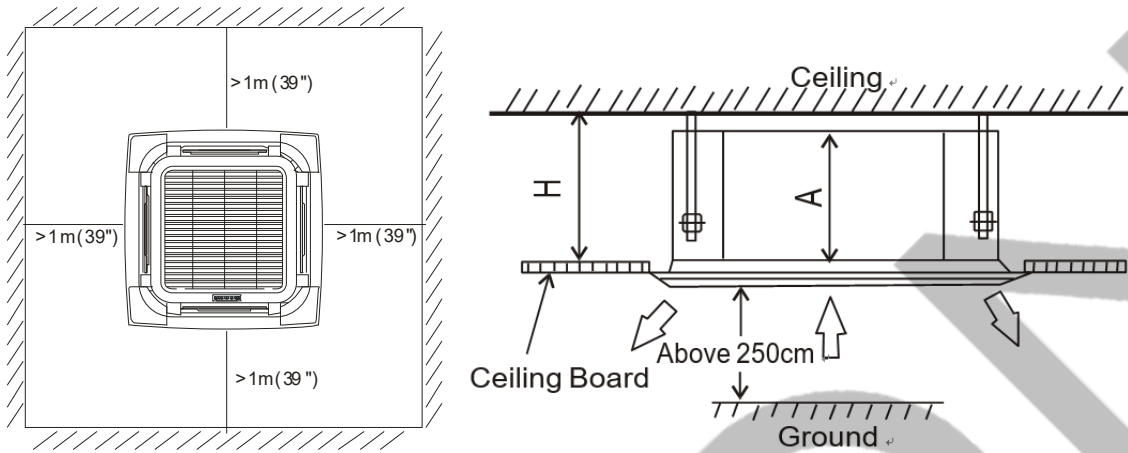
- The place shall easily support the outdoor unit's weight.
- Locate the outdoor unit as close to indoor unit as possible
- The piping length and height drop can not exceed the allowable value.
- The place where the noise, vibration and outlet air do not disturb the neighbors.
- There is enough room for installation and maintenance.
- The air outlet and the air inlet are not impeded, and not face the strong wind.
- It is easy to install the connecting pipes and cables.
- There is no danger of fire due to leakage of inflammable gas.
- It should be a dry and well ventilation place
- The support should be flat and horizontal
- Do not install the outdoor unit in a dirty or severely polluted place, so as to avoid blockage of the heat exchanger in the outdoor unit.
- If is built over the unit to prevent direct sunlight, rain exposure, direct strong wend, snow and other scraps accumulation, make sure that heat radiation from the condenser is not restricted.



2.2 Indoor Unit Installation

2.2.1 Installation of Cassette Type

2.2.1.1 Service Space for Indoor Unit



Model	Length of A (mm/inch)	Length of H (mm/inch)
24K	230/9	>260/10.2
36K-42K	300/11.8	>330/13

2.2.1.2 Install the Pendant Bolt

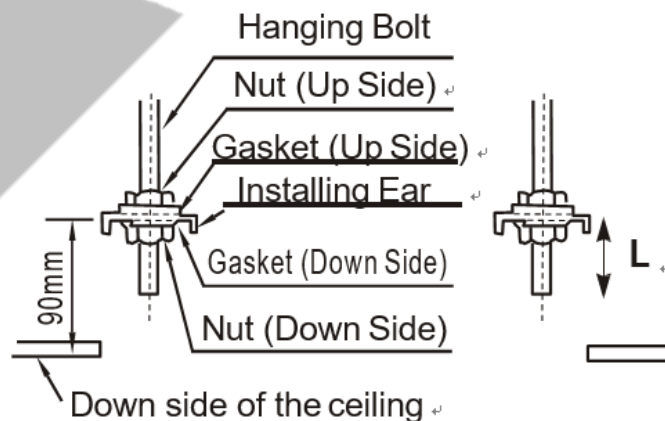
1. Use the uncluded paper template to cut a rectangular hole in the ceiling, leaving at least 1m (39") on all sides. The cut hole size should be 4cm(1.6") larger than the body size. Be sure to mark the areas where ceiling hook hole will be drilled.
2. Drill 4 holes 5cm (2") deep at the ceiling hook positions in the internal ceiling. Be sure to hold the drill at a 90 angle to the ceiling.
3. Using a hammer, insert the ceiling hooks into the pre-drilled holes. Secure the bolt using the washers and nuts.
4. Install the four suspension bolts.

Note: The unit body should align perfectly with the hole. Ensure that the unit and the hole are the same size before moving on.

2.2.1.3 Install the Main Body

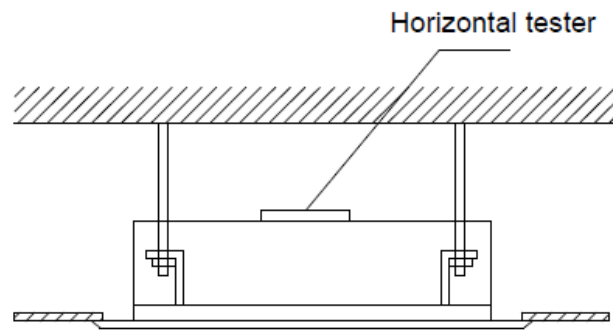
You will need two people to lift and secure it. Insert suspension bolts into the units hanging holes. Adjust the gasket (down side) to 90mm over the ceiling. Fasten them using the washers and nuts.

The bottom of the unit should be 10 - 18mm (0.4"-0.7") higher than ceiling board. Generally, L should be long enough to prevent the nuts from coming off.

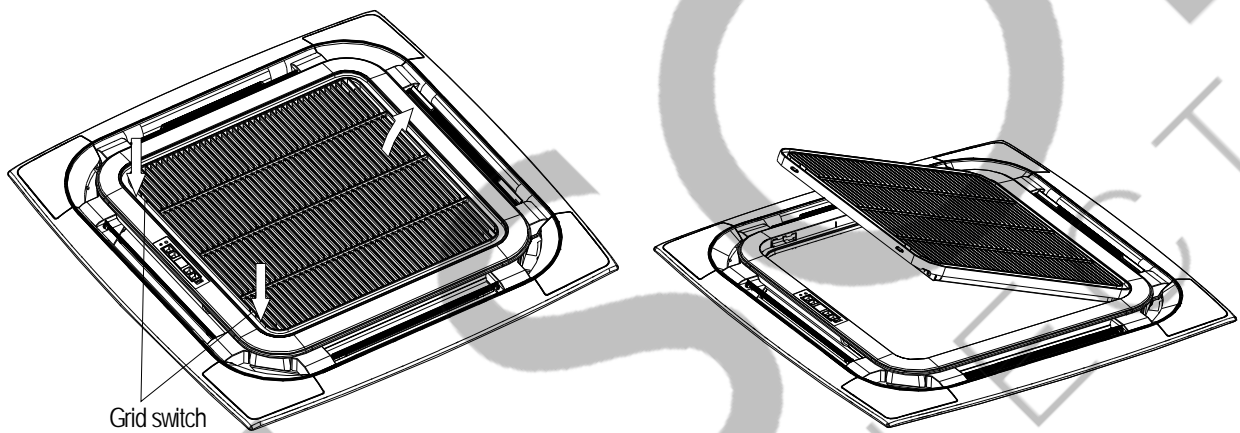


2.2.1.4 Leveling

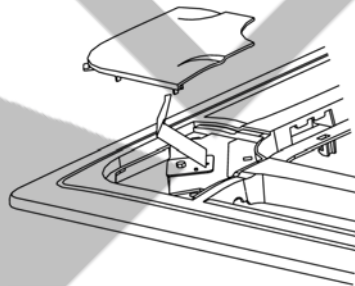
The water level test must be done after installing the indoor unit to make the unit is horizontal, as shown below



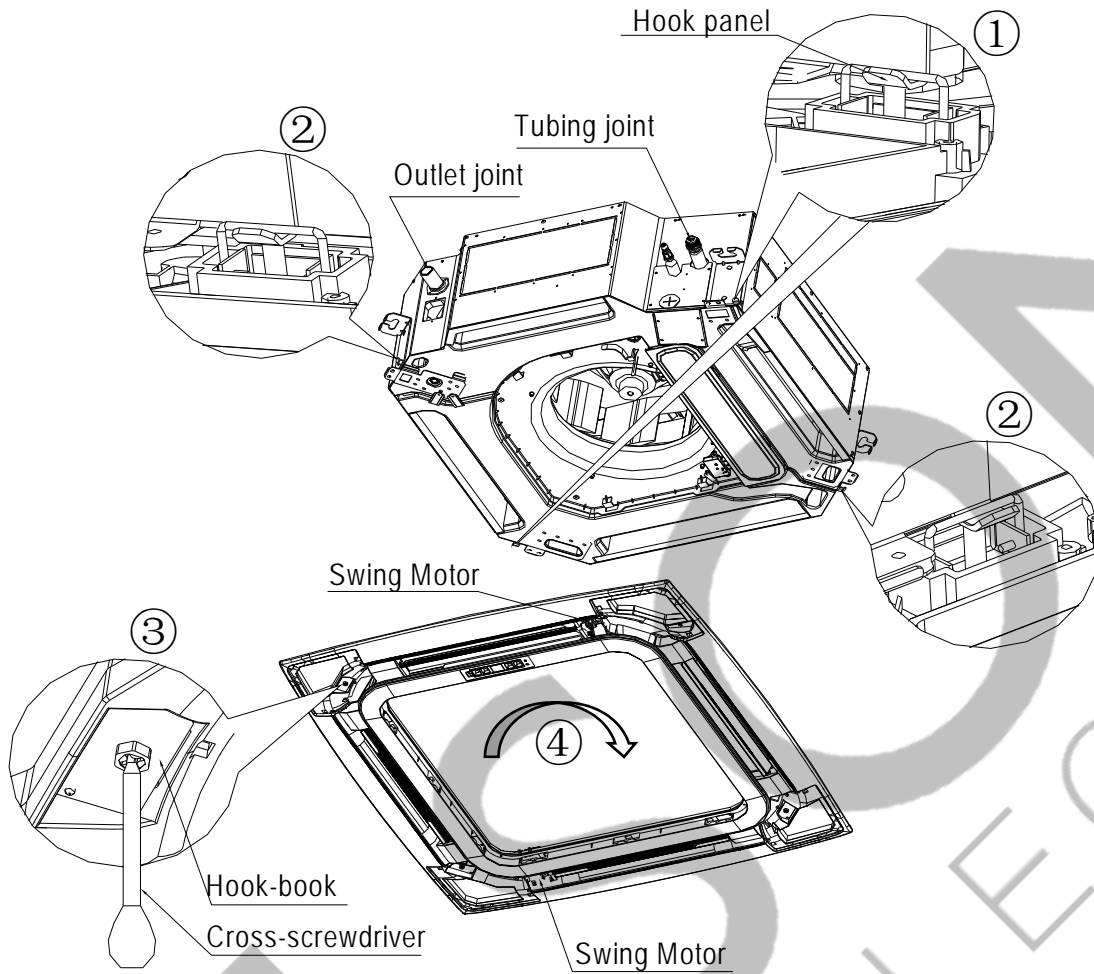
2.2.1.5 Install the Panel Remove the grille



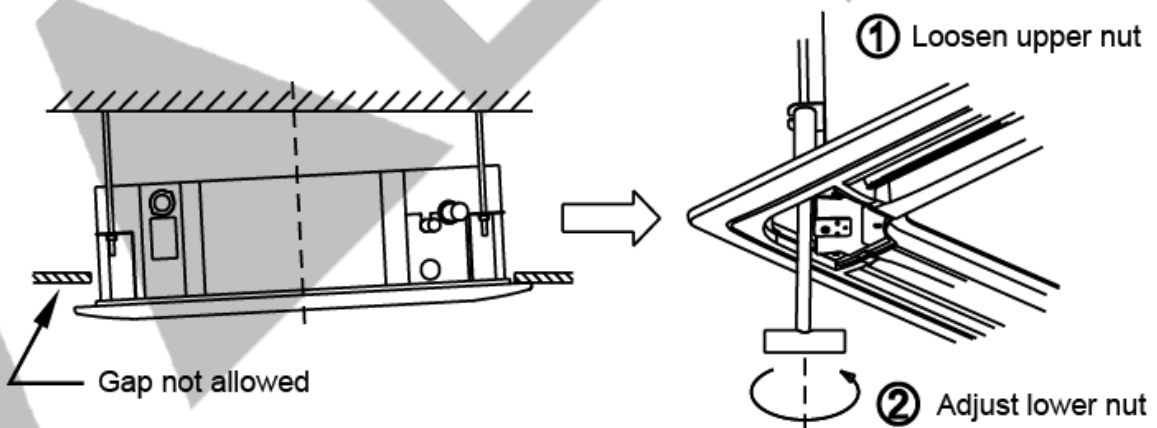
Remove the 4 corner covers.

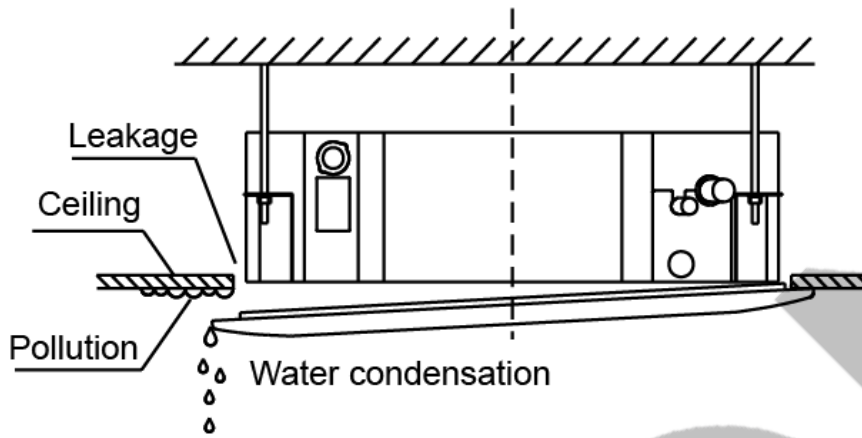


Hang the panel to the hooks on the main body. If the panel is with auto-lift grille, please watch the ropes lifting the grille, DO NOT make the ropes entwined or blocked.



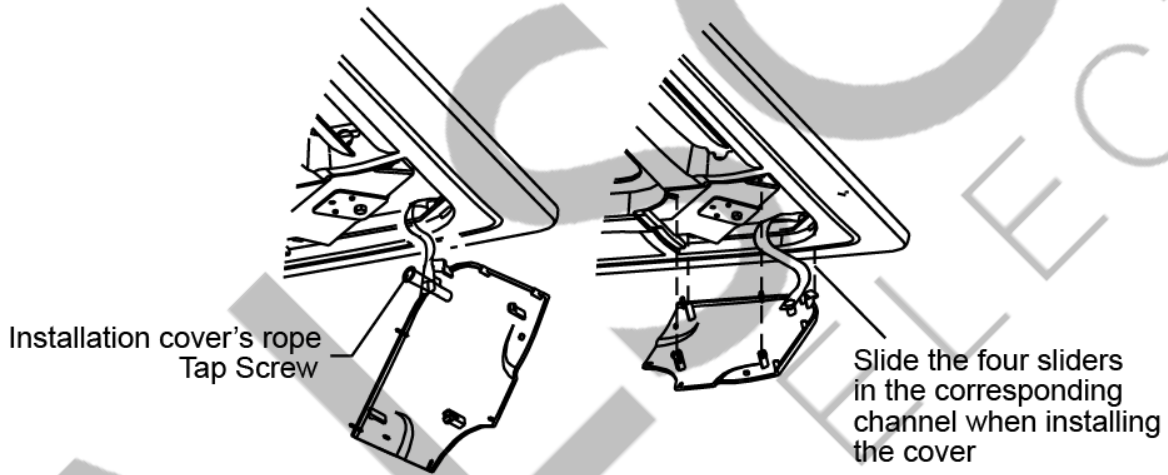
Tighten the screws under the panel hooks till the panel closely stick on the ceiling to avoid condensate water.





Hang the air-in grill to the panel, then connect the lead terminator of the swing motor and that of the control box with corresponding terminators on the body respectively.

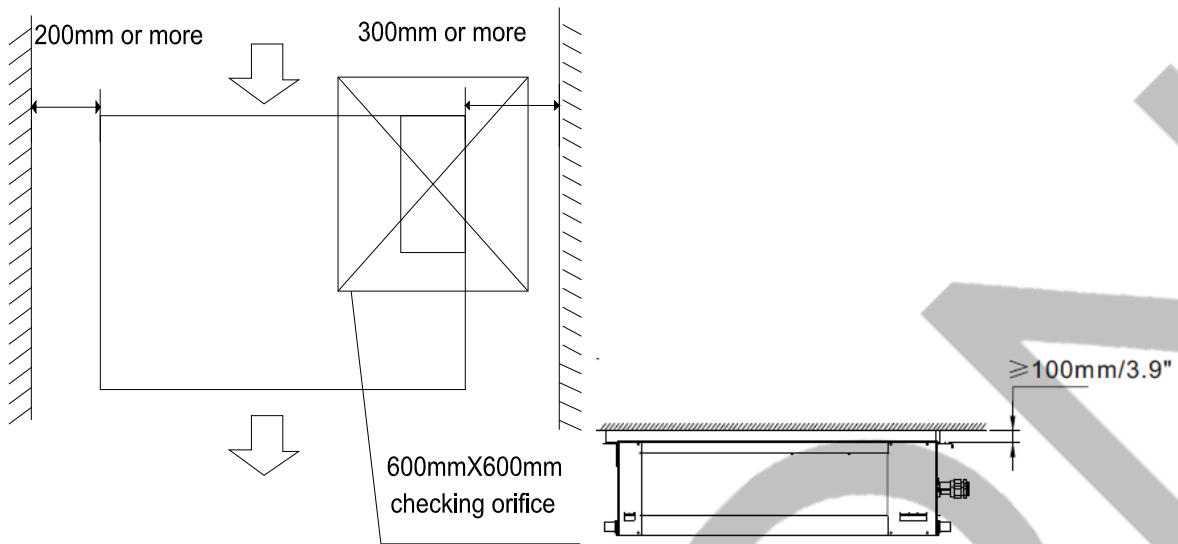
Install the 4 corner covers back.



Note: The panel shall be installed after the wiring connected.

2.2.2 Installation of Duct Type

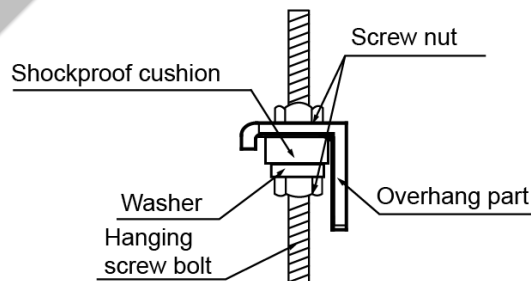
2.2.2.1 Service Space for Indoor Unit



Note: Install the indoor unit at a height of more than 2.5m (8') above the floor.

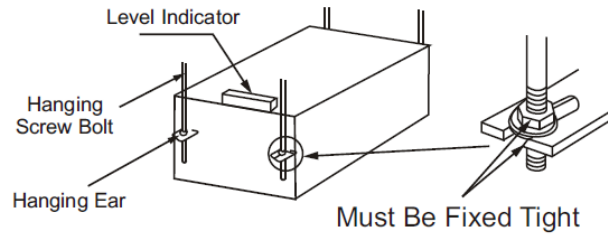
2.2.2.2 Hang Indoor Unit

1. Please refer to the part of 3.4.2 to locate the four positioning screw bolt hole on the ceiling. Be sure to mark the areas where ceiling hook holes will be drilled.
2. Install and fit pipes and wires after you have finished installing the main body. When choosing where to start, determine the direction of the pipes to be drawn out. Especially in cases where there is a ceiling involved, align the refrigerant pipes, drain pipes, and indoor and outdoor lines with their connection points before mounting the unit.
3. Install hanging screw bolts
 - Cut off the roof beam.
 - Strengthen the place that has been cut off, and consolidate the roof beam.
4. After you select an installation location, align the refrigerant pipes, drain pipes, as well as indoor and outdoor wires with their connection points before mounting the unit.
5. Drill 4 holes 10cm (4") deep at the ceiling hook positions in the internal ceiling. Be sure to hold the drill at a 90° angle to the ceiling.
6. Secure the bolt using the washers and nuts provided.
7. Install the four suspension bolts.
8. Mount the indoor unit with at least two people to lift and secure it. Insert suspension bolts into the unit's hanging holes. Fasten them using the washers and nuts provided.



Note: Hang the nut inside the U slot of the installation panel. To confirm level degree with gradienter . Leaning downside toward non-draining side is prohibited. (see below)

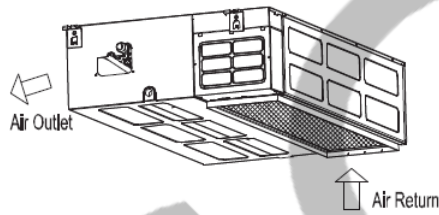
Note: Confirm the minimum drain tilt is 1/100 or more.



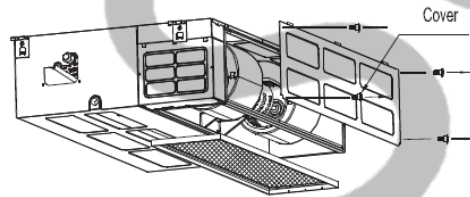
2.2.2.3 Choice of Air Return Ways

This indoor unit is fitted with downward air return, which can be change to its backward counterpart if necessary. Please follow the steps below to change it into the mode of air return backward.

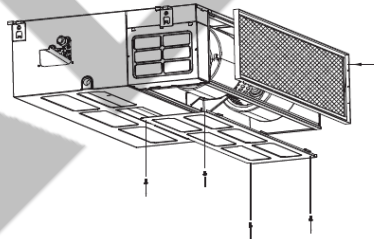
Air return downward



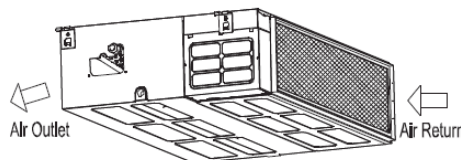
Loose the nut and dismantle flannel plate and filter; Loose the nut dismantle the back over



Install the flannel plate and filter at the backside; Install the cover to the downside.



Air return backward

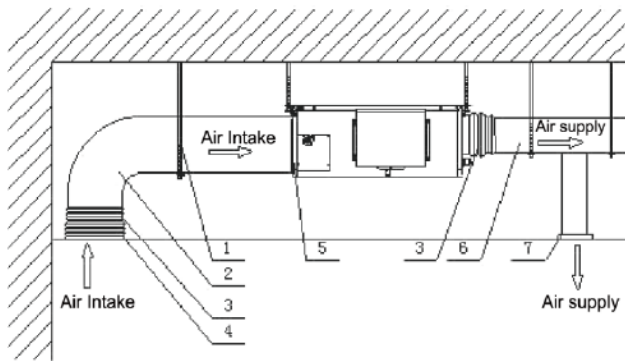


2.2.2.4 Duct Installation

2.2.2.4.1 Outlet Air Pipe Installation

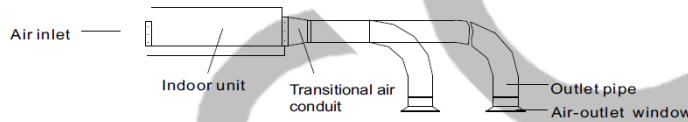
● Generally, we have two types of outlet pipe available, i.e. rectangular or round ones.

●Rectangular air conduit can be directly connected to air outlet of indoor unit by rivets. For outlet Dimensions, see outline drawing of the unit.



No.	Name	No.	Name
1	Hanger	5	Filter
2	Air Intake Pipe	6	Main Air Supply Pipe
3	Canvas Air Pipe	7	Air Supply Outlet
4	Air Intake		

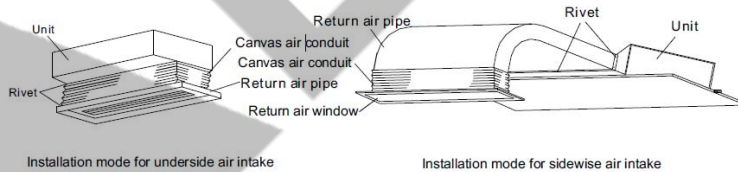
●Round air conduit should be connected to a piece of transitional air conduit before it is connected to air outlet of indoor unit, the other end of it can be separately connected to air conduit window or connected to air conduit window after air flow diversion, and the total length should not be over 6m. As shown in figure below, air speeds at all air outlets should be set to basically consistent so as to meet the room air-conditioning requirements.



2.2.2.4.2 Return Air Pipe Installation

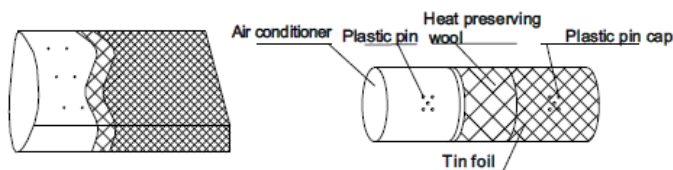
●In case sidewise air intake is adopted, return air pipe should be fabricated and rivet-connected to return air orifice, and the other end of it should be connected to return air window.

●In case of underside air intake, purchase or fabricate a section of pleated canvas air conduit serving as transition joint for return air orifice and return air window. in this way, it can be freely adjusted according to height of indoor ceiling board; in addition, during operation of the unit , canvas air conduit may avoid vibration of ceiling board, as shown in figure below.

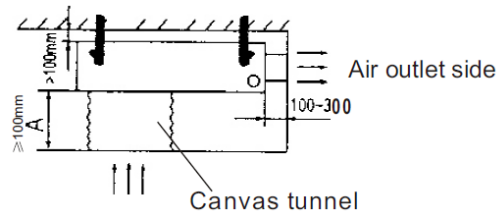


2.2.2.4.2 Tips for Installation of Return Air Pipe and Outlet Pipe

To minimize energy loss occurring in transmission process and condensed water during heating operation, return air pipe and outlet pipe should be equipped with heat-insulating layer as shown in figure below.

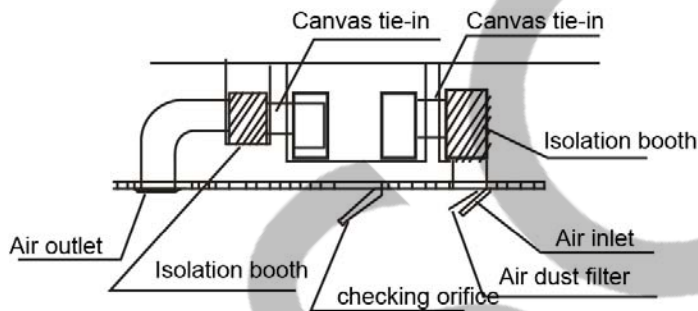


NOTE: Ensure sufficient space for installation and repair. (see the picture for details)

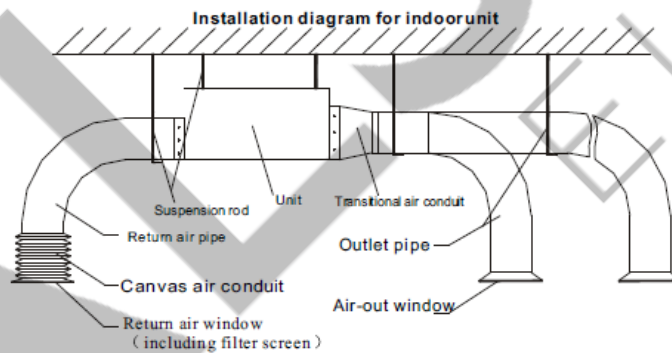


● Return air pipe and outlet pipe should be fixed to floor precast slabs by iron stand; in addition, all ports of the air conduit should be tightly sealed by gasket cement, and it is advisable that the edge clearance of return air pipe should be 150mm at least.

● Drain pipe for condensed water should be installed with minimum gradient of 1%, and the drain pipe should be insulated with heat-preserving pipe casing as well.



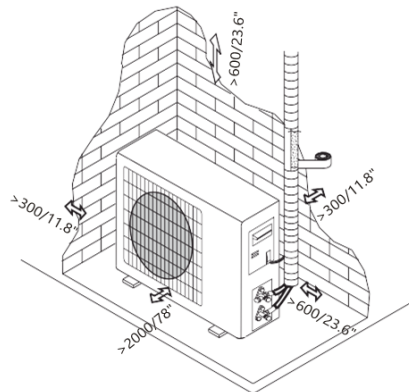
Installation of the rectangular duct



Installation of the round duct

2.3 Outdoor Unit Installation

2.3.1 Service Space for Outdoor Unit



NOTE: The minimum distance between the outdoor unit and walls described in the installation guide does not apply to airtight rooms. Be sure to keep the unit unobstructed in at least two of the

three directions (Front, Left, Right). (As shown on the right)

2.3.2 Install the Unit

Bolt pitch refers to the part of 3.4.3

Since the gravity center of the unit is not at its physical center, so please be careful when lifting it with a sling.

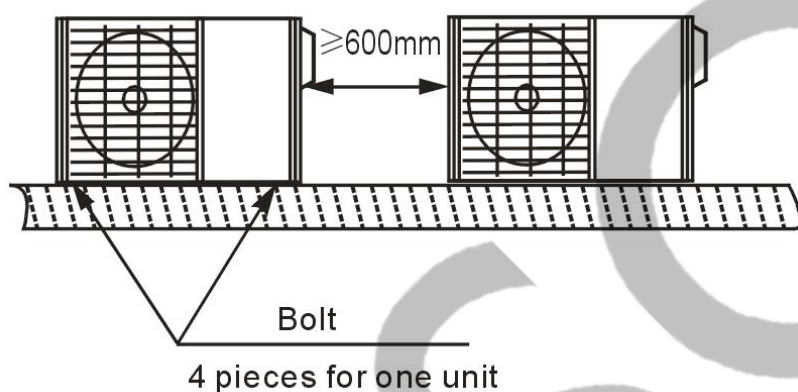
Never hold the inlet of the outdoor unit to prevent it from deforming.

Do not touch the fan with hands or other objects.

Do not lean it more than 45° , and do not lay it sidelong.

Make concrete foundation according to the specifications of the outdoor units.

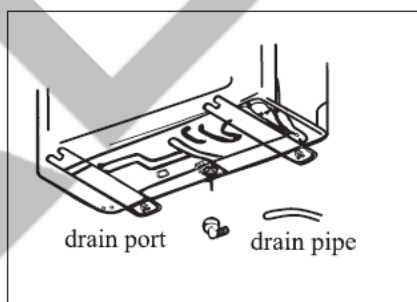
Fasten the feet of this unit with bolts firmly to prevent it from collapsing in case of earthquake or strong wind.



2.3.3 Outdoor Unit Condensed Water Drainage (Optional)

The condensed water and the ice formed in the outdoor unit during heating operation can be drained away through the drain pipe

1. Fasten the drain port in the 25mm hole placed in the part of the unit as shown in the picture.
2. Connect the drain port and the drain pipe. Pay attention that water is drained in a suitable place.



2.4 Drainage Pipe Installation

Install the drainage pipe as shown below and take measures against condensation. Improperly installation could lead to leakage and eventually wet furniture and belongings.

2.4.1 Installation Principle

- Ensure at least 1/100 slope of the drainage pipe
- Adopt suitable pipe diameter
- Adopt nearby condensate water discharge

2.4.2 Key Points of Drainage Water Pipe Installation

1. Drainage pipe selection

- The drainage pipe diameter shall not small than the drain hose of indoor unit
- According to the water flowrate and drainage pipe slope to choose the suitable pipe, the water flowrate is decided by the capacity of indoor unit.

Relationship between water flowrate and capacity of indoor unit

Capacity (x1000Btu)	Water flowrate (l/h)
12	2.4
18	4
24	6
30	7
36	8
42	10
48	12
60	14

According to the above table to calculate the total water flowrate for the confluence pipe selection.

For horizontal drainage pipe (The following table is for reference)

PVC pipe	Reference value of inner diameter of pipe (mm)	Allowable maximum water flowrate (l/h)		Remark
		Slope 1/50	Slope 1/100	
PVC25	20	39	27	For branch pipe
PVC32	25	70	50	
PVC40	31	125	88	
PVC50	40	247	175	Could be used for confluence pipe
PVC63	51	473	334	

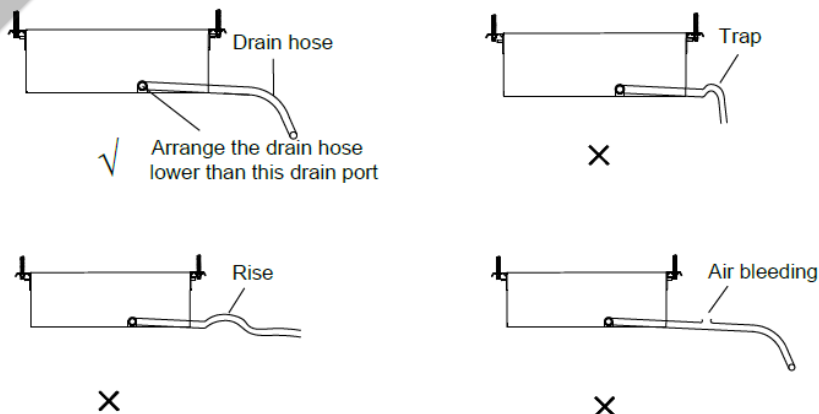
Attention: Adopt PVC40 or bigger pipe to be the main pipe.

For vertical drainage pipe (The following table is for reference)

PVC pipe	Reference value of inner diameter of pipe (mm)	Allowable maximum water flowrate (l/h)	Remark
PVC25	20	220	For branch pipe
PVC32	25	410	
PVC40	31	730	Could be used for confluence pipe
PVC50	40	1440	
PVC63	51	2760	
PVC75	67	5710	
PVC90	77	8280	

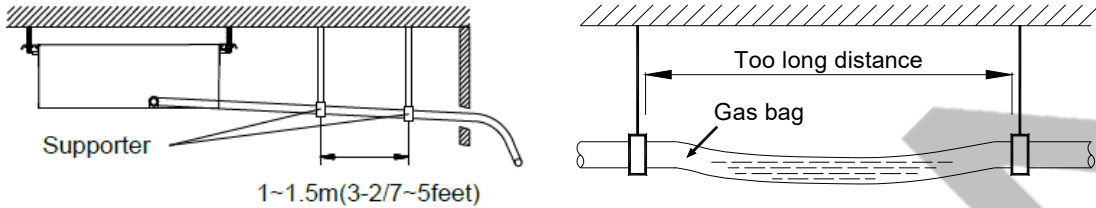
Attention: Adopt PVC40 or bigger pipe to be the main pipe.

2. Install the drain hose with downward gradient (1/50 to 1/100) and no risers or traps are used for the hose . Be sure there is no crack or leak on the drain hose to avoid the formation of air pocket (Figure)

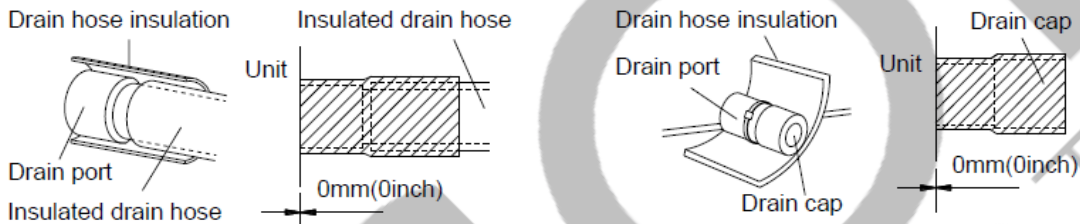


3. Supporter gap of drainage pipe

- In general, the supporter gap of the drainage pipe horizontal pipe and vertical pipe is respectively 1m~1.5m and 1.5m~2.0m.
- Each vertical pipe shall be equipped with not less than two hangers. Overlarge hanger gap for horizontal pipe shall create bending, thus leading to air block.

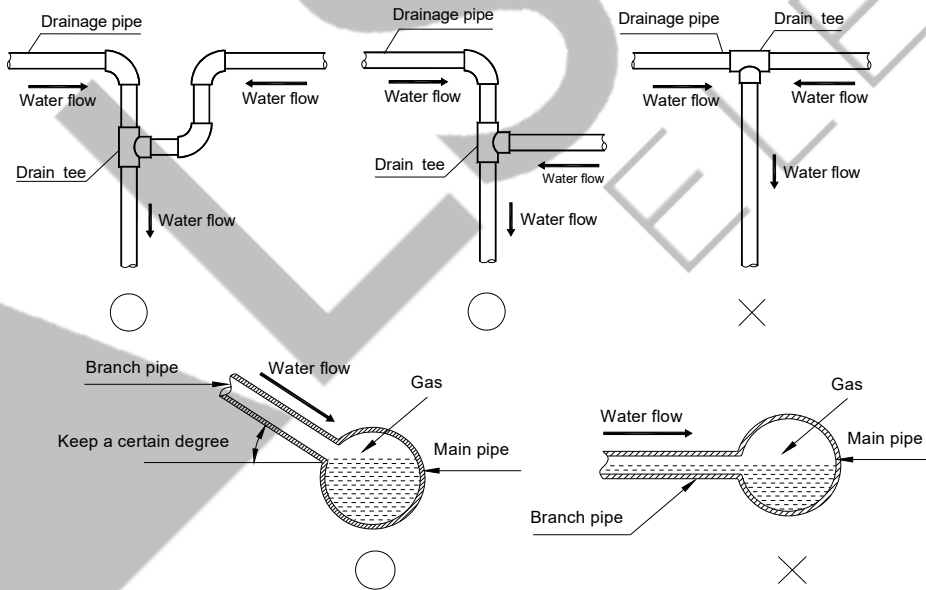


4. Be sure to insulate where the drain port and the drain hose is connected. The unused drain port also should be insulated properly.

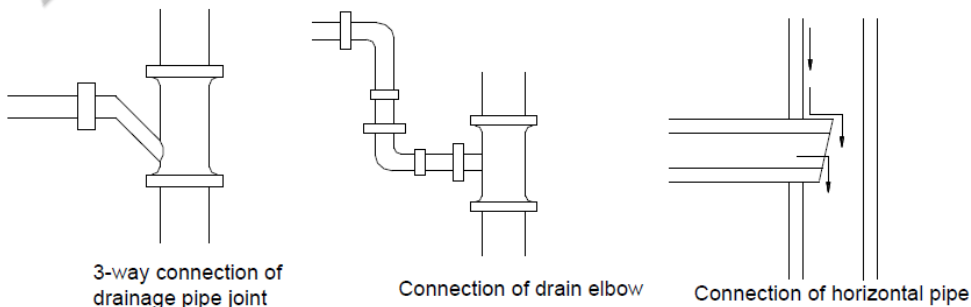


5. The horizontal pipe layout should avoid converse flow or bad flow

The correct installation will not cause converse water flow and the slope of the branch pipes can be adjusted freely. The false installation will cause converse water flow and the slope of the branch pipe can not be adjusted.

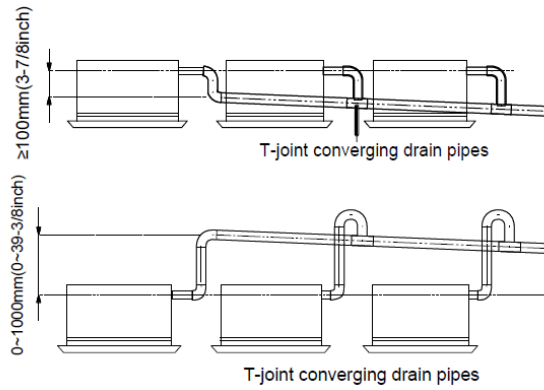


6. The horizontal pipe cannot be connected to the vertical pipe at a same height. It can be connected in a manner as shown below.



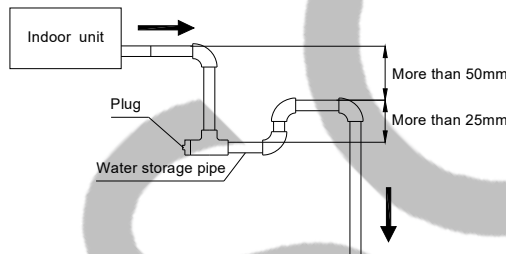
7. When unifying multiple drain pipes, install the pipes as Figure 3-1-51. Select converging drain pipes whose gauge is suitable for the operating capacity of the unit (take the cassette type unit for

example)



8. Water storage pipe setting

If the indoor unit has high extra static pressure and without water pump to elevate the condensate water, such as high extra static pressure duct unit, the water storage pipe should be set to avoid converse flow or blow water phenomena



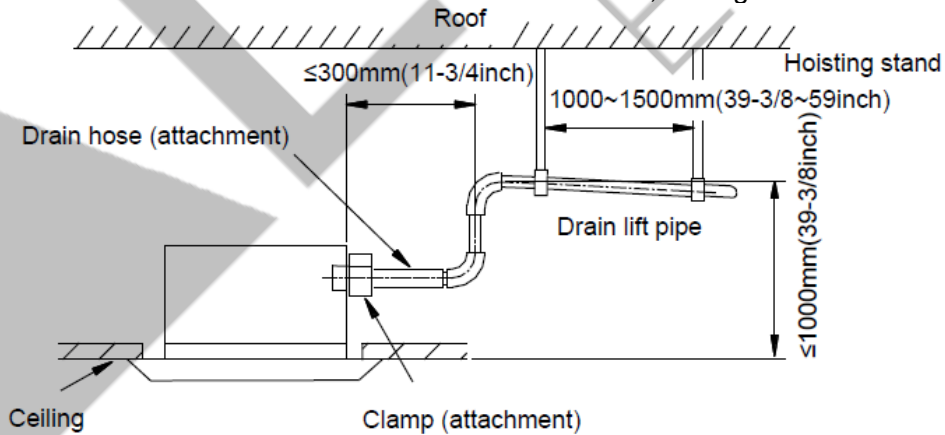
9. Precautions When Doing Riser Piping Work: (take the cassette type unit for example)

1) Make sure that heat insulation work is executed on the following 2 spots to prevent any possible water leakage due to dew condensation.

(1) Make sure that heat insulation work is executed on the following 2 spots to prevent any possible water leakage due to dew condensation.

1) Connect the drain hose to the drain lift pipe, and insulate them.

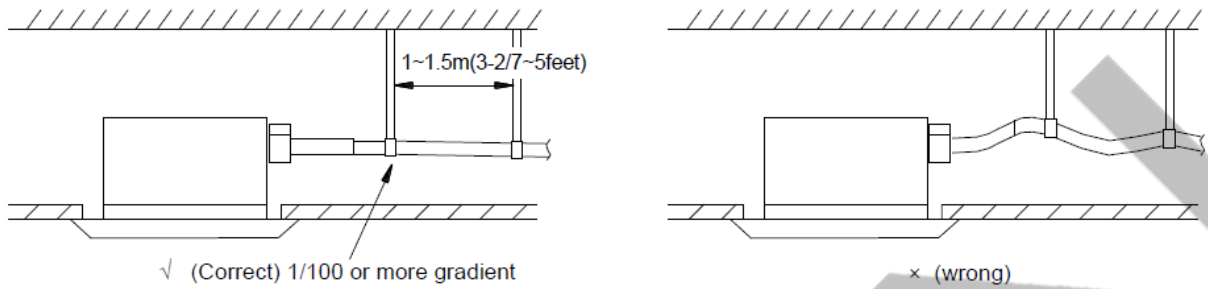
2) Connect the drain hose to the drain outlet on the indoor unit, and tighten it with the clamp.



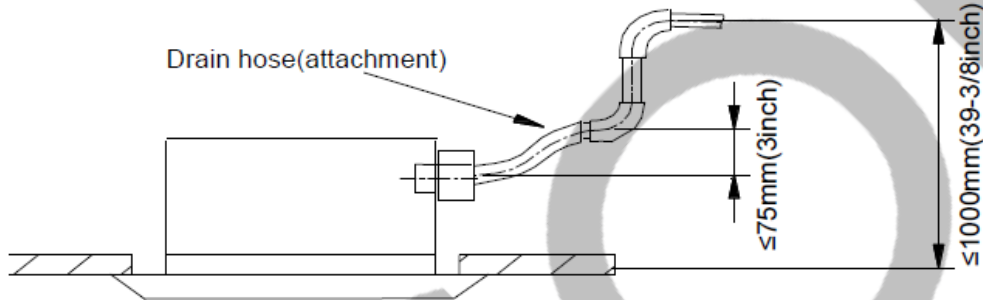
(2) Make sure the lift pipe is at most 280mm (11inch).

(3) Stand the lift pipe vertically, and make sure it is not further than 300mm (11-3/4inch) from the base of the drain outlet.

(4) Secure a downward gradient of 1/100 or more for the drain pipe. To accomplish this mount supporting brackets at an interval of 1~1.5m (3-2/7~5feet).

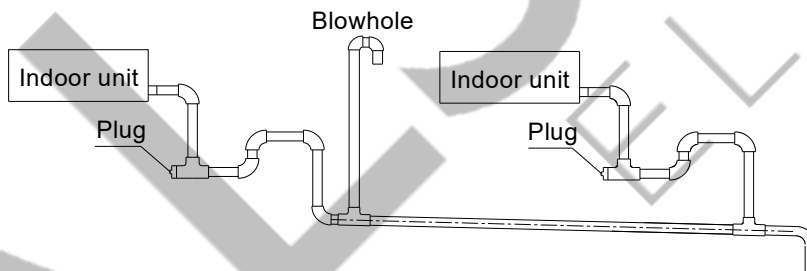


(5) The incline of attached drain hose should be 75mm (3inch) or less so that the drain outlet does not have to withstand additional force.

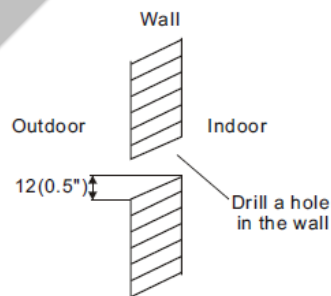


10. Blowhole setting

- For the concentrated drainage pipe system, there should design a blowhole at the highest point of main pipe to ensure the condensate water discharge smoothly.
- The air outlet shall face down to prevent dirt entering pipe.
- Each indoor unit of the system should be installed it.
- The installation should be considering the convenience for future cleaning.



11. Using a 65-mm (2.5") core drill, drill a hole in the wall. Make sure that the hole is drilled at a slight downward angle, so that the outdoor end of the hole is lower than the indoor end by about 12mm (0.5") This will ensure proper water drainage (as shown). Place the protective wall cuff in the hole. This protects the edges of the hole and will help seal it when you finish the installation process. Pass the drain hose through the wall hole. Make sure the water drains to a safe location where it will not cause water damage or a slipping hazard.



NOTE: When drilling the wall hole, make sure to avoid wires, plumbing, and other sensitive components.

The drainpipe outlet should be at least 50mm (1.9") above the ground. If it touches the ground, the unit may become blocked and malfunction.

2.5 Drainage Test

2.5.1 Water Leakage Test

After finishing the construction of drainage pipe system, fill the pipe with water and keep it for 24 hours to check whether there is leakage at joint section.

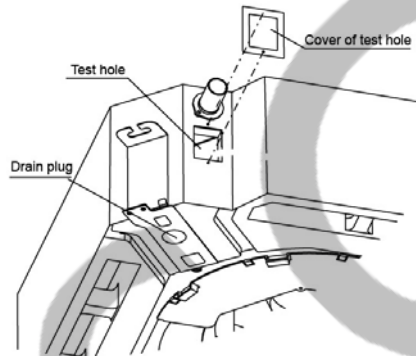
2.5.2 Water Discharge Test

1. Natural drainage mode(the indoor unit with outdoor drainage pump)

Infuse above 600ml water through water test hole slowly into the water collector, observe whether the water can discharge through the transparent hard pipe at drainage outlet.

2. Pump drainage mode

2.1 Disconnect the plug of water level switch, remove the cover of water test hole and slowly infuse about 2000ml water through the water test hole, be sure that the water will not touch the motor of drainage pump.



2.2 Power on and let the air conditioner operate for cooling. Check operation status of drainage pump, and then connect the plug of water level switch, check the operation sound of water pump and observe whether the water can discharge through the transparent hard pipe at drainage outlet. (In light of the length of drainage pipe, water shall be discharged about 1 minute delayed)

2.3 Stop the operation of air conditioner, power off the power supply and put the cover of water test hole back to the original place.

a. After stopped the air conditioner 3 minutes, check whether there is anything abnormal. If drainage pipes have not been distributed properly, over back-flow water shall cause the flashing of alarm indicator at remote-controlled receiving board and even water shall run over the water collector.

b. Continuously infusing water until water level alarmed, check whether the drainage pump could discharge water at once. If water level does not decline under warning water level 3 minutes later, it shall cause shutdown of unit. When this situation happens, the normal startup only can be recovered by turning down power supply and eliminating accumulated water.

Note: Drain plug at the main water-containing plate is used for eliminating accumulated water in water-containing plate when maintaining air conditioner fault. During normal operation, the plug shall be filled in to prevent leakage.

2.6 Refrigerant Pipe Installation

2.6.1 Pipe Dimension and Ways of Installation

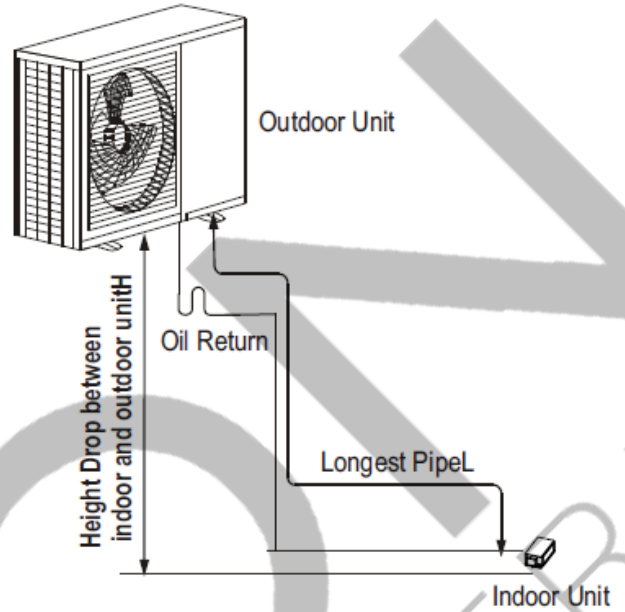
Outdoor pipe dimension and ways of install (in sequence of cooling capacity).

Pipe Material		Copper Pipe for Air Conditioner		
Model		18K-24K	30K-42K	48K-60K
Size(mm)	Liquid side	Φ 6.35(1/4inch)	Φ 9.52(3/8inch)	Φ 9.52(3/8inch)
	Gas side	Φ 12.7(1/2inch)	Φ 15.8(5/8inch)	Φ 15.8(5/8inch)

NOTE: Ensure that the length of the refrigerant pipe, the number of bends, and the drop height between the indoor and outdoor units meets the requirements

The maximum length and drop height based on models. (Unit: m/ft.)

Conventional pipe, cooling capacity <24KBtu/h		Allowed value
Longest pipe(L)		30/98.4
Maximum height drop	Height drop between indoor and outdoor unit	20/65.6
Conventional pipe, cooling capacity ≥24K-<36KBtu/h		Allowed value
Longest pipe(L)		50/164
Maximum height drop	Height drop between indoor and outdoor unit	25/82
Conventional pipe, cooling capacity ≥36KBtu/h		Allowed value
Longest pipe (L)		65/213
Maximum height drop	Height drop between indoor and outdoor unit H	30/98.4

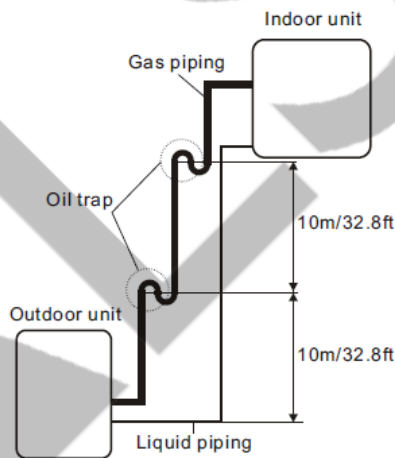


2.6.2 Oil Traps

2.6.2.1 If the Indoor Unit Is Installed Higher than the Outdoor Unit:

If oil flows back into the outdoor unit's compressor, this might cause liquid compression or deterioration of oil return. Oil traps in the rising gas piping can prevent this.

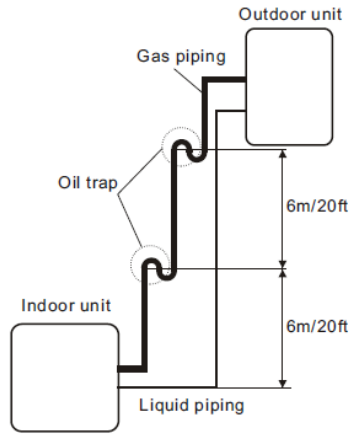
An oil trap should be installed every 10m (32.8ft) of vertical suction line riser.



2.6.2.2 If the Outdoor Unit Is Installed Higher than the Indoor Unit:

It is recommended that vertical suction risers not be upsized. Proper oil return to the compressor should be maintained with suction gas velocity. If velocities drop below 7.62m/s(1 500fpm (feet per minute)), oil return will be decreased.

An oil trap should be installed every 6m(20ft) of vertical suction line riser.



2.6.3 The Procedure of Connecting Pipes

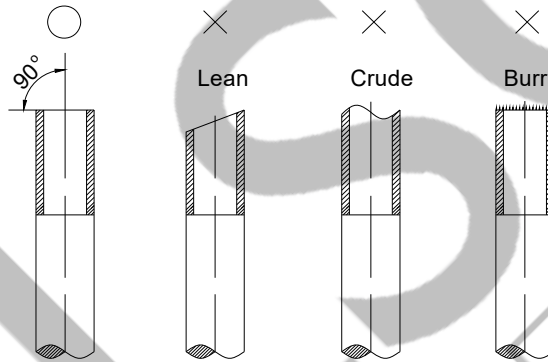
2.6.3.1 Choose the Pipe Size according to the Specification Table.

2.6.3.2 Confirm the Cross Way of the Pipes.

2.6.3.3 Measure the Necessary Pipe Length.

2.6.3.4 Cut the Selected Pipe with Pipe Cutter

- Make the section flat and smooth.



2.6.3.5 Insulate the Copper Pipe

- Before test operation, the joint parts should not be heat insulated.

2.6.3.6 Flare the Pipe

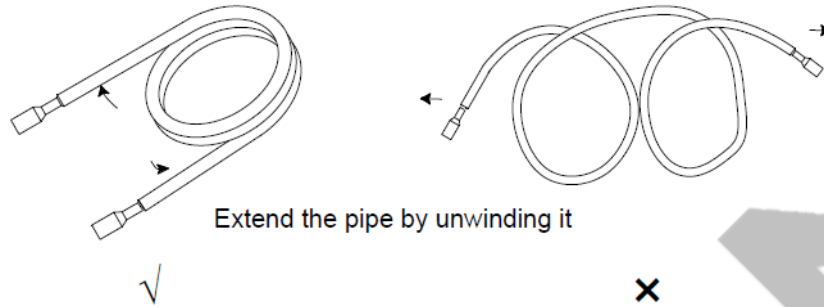
- Insert a flare nut into the pipe before flaring the pipe
- According to the following table to flare the pipe

Pipe diameter	Flare dimension A (mm)		Flare shape
	Min	Max	
1/4" (6.35)	8.3	8.7	
3/8" (9.52)	12.0	12.4	
1/2" (12.7)	15.4	15.8	
5/8" (15.9)	18.6	19.1	
3/4" (19)	22.9	23.3	

- After flared the pipe, the opening part must be seal by end cover or adhesive tape to avoid duct or exogenous impurity come into the pipe.

2.6.3.7 Bending Pipes

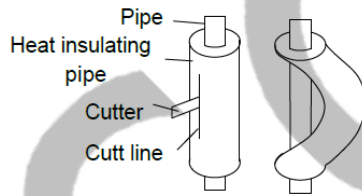
(1) The pipes are shaped by your hands. Be careful not to collapse them.



(2) Do not bend the pipes in an angle more than 90°.

(3) When pipes are repeatedly bent or stretched, the material will harden, making it difficult to bend or stretch them any more. Do not bend or stretch the pipes more than three times.

(4) When bending the pipe, do not bend it as is. The pipe will be collapsed. In this case, cut the heat insulating pipe with a sharp cutter as shown in Figure 3-3-3, and bend it after exposing the pipe. After bending the pipe as you want, be sure to put the heat insulating pipe back on the pipe, and secure it with tape.



NOTE:

① To prevent breaking of the pipe, avoid sharp bends. Bend the pipe with a radius of curvature of 150mm (5-7/8inch) or over.

② If the pipe is bent repeatedly at the same place, it will break.

2.6.3.8 Drill Holes if the Pipes Need to Pass the Wall.

2.6.3.9 According to the Field Condition to Bend the Pipes so that It Can Pass the Wall Smoothly.

2.6.3.10 Set the Wall Conduit.

2.6.3.11 Set the Supporter for the Pipe.

2.6.3.12 Locate the Pipe and Fix It by Supporter.

- For horizontal refrigerant pipe, the distance between supporters should not be exceed 1m.
- For vertical refrigerant pipe, the distance between supporters should not be exceed 1.5m.

2.6.3.13 Connect the Pipe to Indoor Unit and Outdoor Unit by Using Two Spanners.

NOTE: Connect the copper pipes to the indoor unit first, then connect it to the outdoor unit. You should first connect the low-pressure pipe, then the high-pressure pipe.

- When connecting the flare nuts, apply a thin coat of refrigeration oil to the flared ends of the pipes.
- Align the center of the two pipes that you will connect.
- Tighten the flare nut as tightly as possible by hand.
- Using a spanner, grip the nut on the unit tubing.
- Be sure to use two spanners and proper torque to fasten the nut, too large torque will damage the bellmouthing, and too small torque may cause leakage. Refer the following table for different pipe connection.

Pipe Diameter	Torque		Sketch map
	(kgf.cm)	(N.cm)	
1/4" (6.35)	144~176	1420~1720	
3/8" (9.52)	333~407	3270~3990	
1/2" (12.7)	504~616	4950~6030	

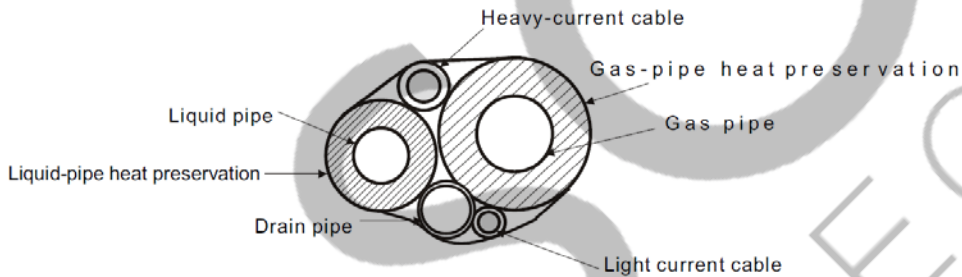
5/8" (15.9)	630~770	6180~7540	
3/4" (19)	990~1210	9270~11860	

NOTE: Ensure to wrap insulation around the piping. Direct contact with the bare piping may result in burns or frostbite.

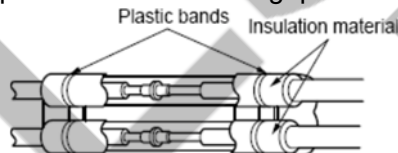
Make sure the pipe is properly connected. Over tightening may damage the bell mouth and under tightening may lead to leakage.

➤ After connecting the copper pipes to the indoor unit, wrap the power cable, signal cable and the piping together with binding tape.

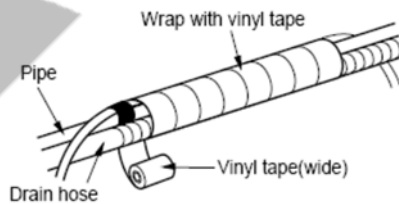
NOTE: While bundling these items together, DO NOT intertwine or cross the signal cable with any other wiring.



➤ Overlap the connection pipe insulation material and the indoor unit pipe insulation material. Bind them together with vinyl tape so that there is no gap



➤ Bundle the piping and drain hose together by wrapping them with vinyl tape over the range within which they fit into the rear piping housing section.



2.7 Vacuum Drying and Leakage Detection

2.7.1 Safety Precautions

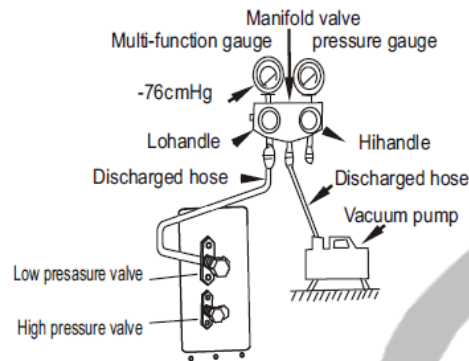
- Use a vacuum pump with a gauge reading lower than -0.1 MPa and an air discharge capacity above 40L/min.
- The outdoor unit does not need vacuuming. DO NOT open the outdoor unit's gas and liquid stop valves.
- Ensure that the Compound Meter reads -0.1 MP a or below after 2 hours. If after three hours of operation and the gauge reading is still above -0.1 MPa, check if there is a gas leak or water inside

the pipe. If there is no leakage, perform another evacuation for 1 or 2 hours.

- DO NOT use refrigerant gas to evacuate the system.

2.7.2 Evacuation Instructions

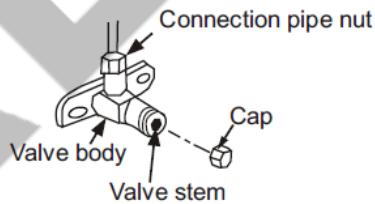
NOTE: Before using manifold pressure gauge and vacuum pump, please read their operating instructions and be familiar with how to use the manual correctly



1. Connect the hose of manifold pressure gauge to the maintenance port on the low pressure valve of outdoor unit.
2. Connect another hose from manifold pressure gauge to vacuum pump.
3. Open the Low Pressure side of the manifold gauge. Keep the High Pressure side closed.
4. Turn on the vacuum pump to empty the gas in the system.
5. Run the vacuum pump for at least 15 minutes, or until the compound meter reads - 76cmhg (- 1 X10⁵pa).
6. Close the low pressure side of the manifold pressure gauge and close the vacuum pump.
7. Wait for 5 minutes and check whether the system pressure changes.

NOTE: If there is no change in system pressure, unscrew the cap from the high pressure valve. If there is a change in system pressure, there may be a gas leak.

8. Insert a hex wrench into the high-pressure valve and open the valve by turning the wrench in a 1 / 4 counter clockwise turn. Listen for any gas coming out of the system and close the valve after 5 seconds.



9. Observe the pressure gauge for one minute to make sure that the pressure does not change. The pressure gauge should read slightly above atmospheric pressure
10. Remove the charge hose from the service port.
11. Using hexagonal wrench, fully open both the high pressure and low pressure valves.
12. Tighten valve caps by hand, then tighten it using the proper tool.

NOTE: When opening valve stems, turn the hexagonal wrench until it hits against the stopper. DO NOT try to force the valve to open further.

2.7. 3 Leakage Detection

- 1).With leakage detection.

Check if there is leakage with leakage detection.

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

2.8 Additional Refrigerant Charge

Note:

- Refrigerant charging must be done after wiring, vacuuming and leak testing.
- Use electronic scale or fluid infusion apparatus to weight refrigerant to be recharged. Be sure to avoid extra refrigerant charged, it may cause liquid hammer of the compressor or protections.
- Charging with mismatched refrigerant can cause an explosion or an accident. Make sure that a suitable refrigerant is used.
- The refrigerant container must be opened slowly. Always use guards when charging the system.
- Do not mix refrigerant types. For R32 refrigerant models, when adding refrigerant to the air conditioner, ensure the safety of the conditions in the area by controlling flammable materials
- Always use gloves and glasses to protect your hands and eyes during the charge work.
- Use supplementing flexible pipe to connect refrigerant cylinder, pressure gauge and outdoor unit. And The refrigerant should be charged in liquid state. Before recharging, The air in the flexible pipe and manifold gauge should be exhausted.
- After finished refrigerant recharge process, check whether there is refrigerant leakage at the connection joint part.(Using gas leakage detector or soap water to detect).

Some systems require additional refrigerant charge depending on the length of the pipe. The standard pipe length of this air conditioner is 5 meters (16 feet). The following table can be used to calculate the additional refrigerant to be charged:

Liquid pipe diameter	6.35(1/4")	9.52(3/8")	12.71(1/2")
Additional charge for 1m/ft (R32)	12g/0.13oz	24g/0.26oz	40g/0.42oz
Additional charge for 1m/ft (R410A)	15g/0.16oz	30g/0.32oz	65g/0.69oz

2.9 Engineering of Insulation

2.9.1 Insulation of Refrigerant Pipe

2.9.1.1 Operational Procedure of Refrigerant Pipe Insulation

Cut the suitable pipe → insulation (except joint section) → flare the pipe → piping layout and connection → vacuum drying → insulate the joint parts

2.9.1.2 Purpose of Refrigerant Pipe Insulation

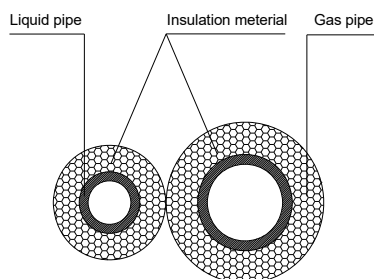
- During operation, temperature of gas pipe and liquid pipe shall be over-heating or over-cooling extremely. Therefore, it is necessary to carry out insulation; otherwise it shall debase the performance of unit and burn compressor.
- Gas pipe temperature is very low during cooling. If insulation is not enough, it shall form dew and cause leakage.
- Temperature of gas pipe is very high (generally 50-100°C) during heating. Insulation work must be carried out to prevent hurt by carelessness touching.

2.9.1.3 Insulation Material Selection for Refrigerant Pipe

- The burning performance should over 120°C
- According to the local law to choose insulation materials
- The thickness of insulation layer shall be above 10mm. If in hot or wet environment place, the layer of insulation should be thicker accordingly.

2.9.1.4 Installation Highlights of Insulation Construction

- Gas pipe and liquid pipe shall be insulated separately, if the gas pipe and liquid pipe were insulated together; it will decrease the performance of air conditioner.



- The insulation material at the joint pipe shall be 5~10cm longer than the gap of the insulation material.
- The insulation material at the joint pipe shall be inserted into the gap of the insulation material.
- The insulation material at the joint pipe shall be banded to the gap pipe and liquid pipe tightly.
- The linking part should be use glue to paste together
- Be sure not bind the insulation material over-tight, it may extrude out the air in the material to cause bad insulation and cause easy aging of the material.

2.9.2 Insulation of Drainage Pipe

2.9.2.1 Operational Procedure of Refrigerant Pipe Insulation

Select the suitable pipe → insulation (except joint section) → piping layout and connection → drainage test → insulate the joint parts

2.9.2.2 Purpose of Drainage Pipe Insulation

The temperature of condensate drainage water is very low. If insulation is not enough, it shall form dew and cause leakage to damage the house decoration.

2.9.2.3 Insulation Material Selection for Drainage Pipe

- The insulation material should be flame retardant material, the flame retardancy of the material should be selected according to the local law.
- Thickness of insulation layer is usually above 10mm.
- Use specific glue to paste the seam of insulation material, and then bind with adhesive tape. The width of tape shall not be less than 5cm. Make sure it is firm and avoid dew.

2.9.2.4 Installation and Highlights of Insulation Construction

- The single pipe should be insulated before connecting to another pipe, the joint part should be insulated after the drainage test.
- There should be no insulation gap between the insulation material.

2.10 Engineering of Electrical Wiring

2.10.1 Safety Precaution

- Always disconnect the power supply before working on the unit.
- All electrical wiring must be done according to local and national regulations.
- The wiring must be carried out by a certified technician. Improper connection may cause electrical failure, personal injury and fire.
- This unit must use independent circuit and single outlet. Please DO NOT plug other equipment or chargers into the same outlet. If the circuit capacity is insufficient or the electrical system fails, it will cause electric shock, fire, unit and property loss.
- Connect the power cord to the terminal and secure it with the wiring clamp. Improper connections may cause fire.
- Make sure all wiring is correct and the control box cover is installed correctly. Otherwise, may cause overheating at the connection points, fire, and electrical shock.
- Ensure that main supply connection is made through a switch that disconnects all poles, with contact gap of a least 3mm (0.118").
- DO NOT modify the length of the power cord or use an extension cord.
- Connect the outdoor wires before connecting the indoor wires.
- Be sure to ground the equipment. The grounding wire shall be away from gas pipeline, water

pipe, lightning rod, telephone or other grounding wire. Improper grounding may cause electric shock.

- DO NOT connect the unit with the power source until all wiring and piping is completed.
- Please make sure not to cross the wire with the signal wire, which will cause distortion and interference.
- The unit must be connected to the main outlet. Normally, the power supply must have a low output impedance of 32 ohms.
- No other equipment should be connected to the same power circuit.

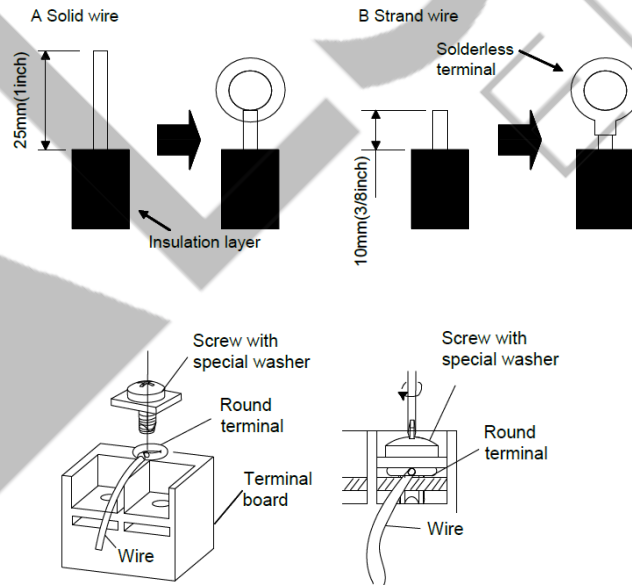
NOTE: The type of fuse for controller of indoor unit is 50CT/524 rated specification is T 5A,250VAC.Fuse for the whole unit is not supplied by the manufacturer, so the installer must employ a suitable fuse or other over-current protective device for the power supply circuit according to the maximum power input as required.

2.10.2 For Solid Core Wiring

- 1) Cut the wire end with a wire cutter or wire-cutting pliers, then strip the insulation about 25mm (1 inch).
- 2) Using a screwdriver, remove the terminal screw(s) on the terminal board.
- 3) Using pliers, bend the solid wire to form a loop suitable for the terminal screw.
- 4) Shape the loop wire properly, place it on the terminal board and tighten securely with the terminal screw using a screwdriver.

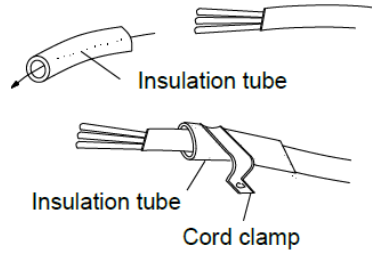
2.10.3 For Strand Wiring

- 1) Cut the wire end with a wire cutter or wire-cutting pliers, then strip the insulation about 10mm (3/8inch).
- 2) Using a screwdriver, remove the terminal screw (s) on the terminal board.
- 3) Using a round terminal fastener or pliers, securely clamp a round terminal to each stripped wire end.
- 4) Position the round terminal wire, and replace and tighten the terminal screw with a screwdriver.



2.10.4 How to Fix Connection Cord and Power Cord by Cord Clamp

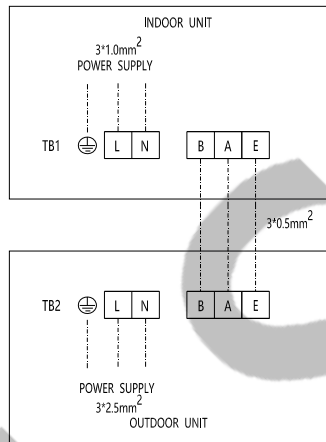
After passing the connection cord and power cord through the insulation tube, fasten it with the cord clamp



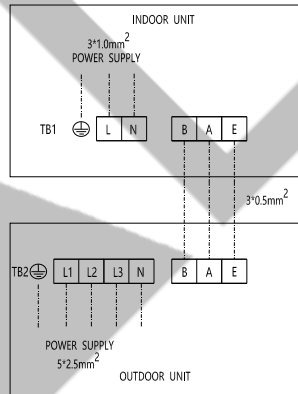
2.10.5 Electric Wiring between the Indoor and Outdoor Units

Cassette Type Unit:

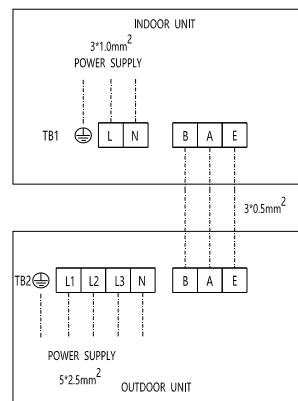
1-phase units: 24k



3-phase units: 36k

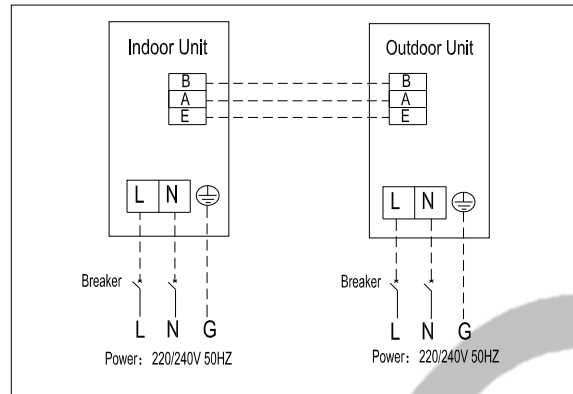


3-phase units: 42k



Duct Type Unit:

1-phase units: 24k、30k、36k



2.10.6 Electric Wiring of Outdoor Unit Side

2.10.6.1 Prepare The Cable For Connection

- 1) You must first choose the right cable size before preparing it for connection. Be sure to use H07RN-F cables.
- 2) Using wire strippers, strip the rubber jacket from both ends of signal cable to reveal about 15cm (5.9") of the wires inside.
- 3) Strip the insulation from the ends of the wires.
- 4) Using a wire crimper, crimp u-lugs on the ends of the wires.

Minimum Cross-Sectional Area of Power and Signal Cables

Rated Current of Appliance(A)	AWG
≤7	18
7-13	16
13-18	14
18-25	12
25-30	10

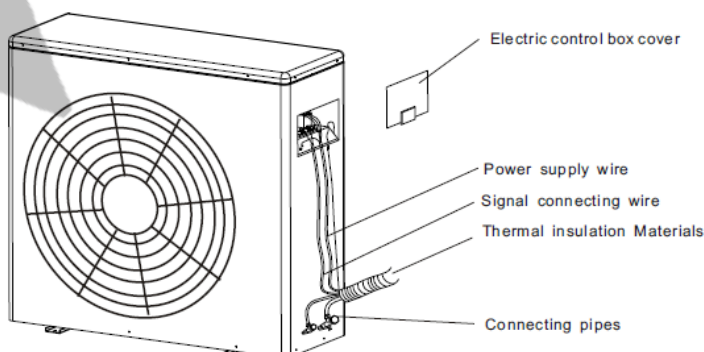
North America

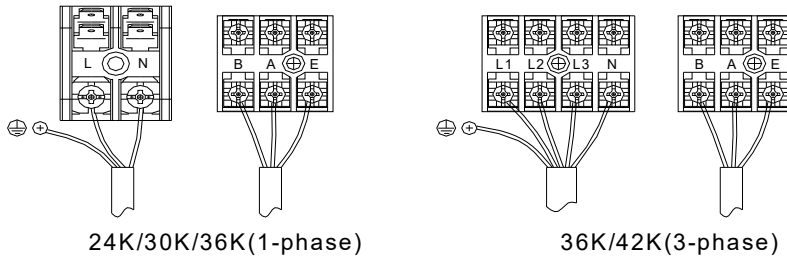
Rated Current of Appliance(A)	Nominal Cross-Sectional Area(mm ²)
≤6	0.75
6-10	1
10-16	1.5
16-25	2.5
25-32	4

Other Regions

2.10.6.2 Wiring Instructions

- 1) Remove the electric cover of the outdoor unit.
- 2) Connect the power connection cord to the terminal board. Wiring should fit that of indoor unit.
- 3) Fix the power connection cord with wire clamp.
- 4) Confirm if the wire has been fixed properly.
- 5) An efficient earth connection must be ensured.
- 6) Recover the control box cover.





NOTICE: When connecting the power supply cord, make sure that the phase of the power supply matches with the exact terminal board. If not, the compressor will rotate reversely and run improperly.

2.10.7 Electric Wiring of Indoor Unit Side

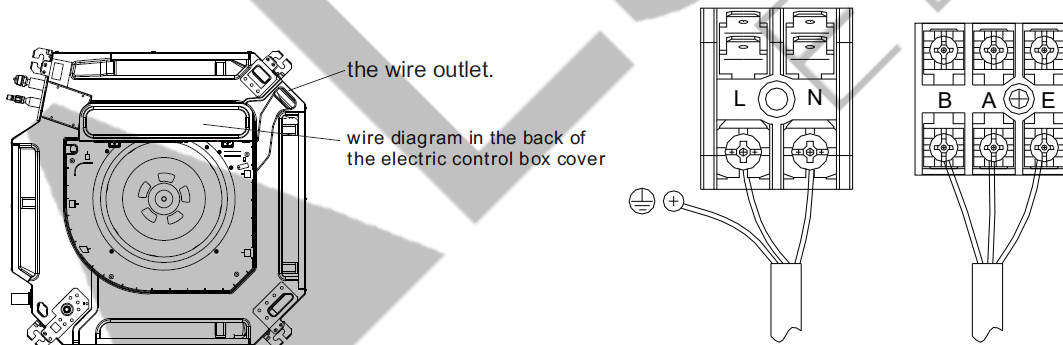
2.10.7.1 Prepare The Cable For Connection

- 1) Using wire strippers, strip the rubber jacket from both ends of signal cable to reveal about 15cm (5.9") of the wires inside.
- 2) Strip the insulation from the ends of the wires.
- 3) Using a wire crimper, crimp u-lugs on the ends of the wires.

2.10.7.2 Wiring Instructions

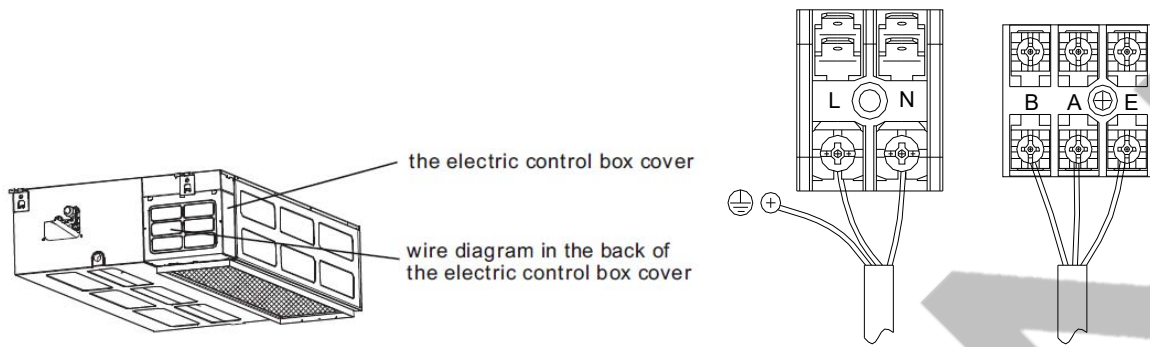
Cassette Type Unit:

- 1) Open the front panel of the indoor unit. Using a screwdriver, remove the cover of the electric control box.
- 2) Thread the power cable and the signal cable through the wire outlet.
- 3) Connect the power connection cord to the terminal board. Wiring should fit that of Outdoor unit.
- 4) Fix the power connection cord with wire clamp.
- 5) Confirm if the wire has been fixed properly.
- 6) An efficient earth connection must be ensured.
- 7) Reinstall the electric cover of the indoor unit.



Duct Type Unit:

- 1) Remove the electric cover of the outdoor unit.
- 2) Thread the power cable and the signal cable through the wire outlet rubber ring of the box.
- 3) Connect the power connection cord to the terminal board. Wiring should fit that of outdoor unit.
- 4) Fix the power connection cord with wire clamp.
- 5) Confirm if the wire has been fixed properly.
- 6) An efficient earth connection must be ensured.
- 7) Reinstall the electric cover of the indoor unit.
- 8) Wrap the power cable, signal cable and the piping together with binding tape.



2.11 Test Operation

2.11.1 Precaution

The test run needs to be performed after the entire system is completely installed. Before performing the test, please confirm the following points:

- 1) The indoor unit and outdoor unit are installed correctly according to the instructions.
- 2) The electrical wiring is properly connected.
- 3) Make sure there are no obstacles near the air conditioner. These obstacles may cause the air conditioner to malfunction or degrade performance.
- 4) The refrigeration system has no leakage.
- 5) The drain pipe has been installed as required.

Note: Failure to perform the test run may result in unit damage, property damage or even personal injury.

2.11.2 Test Run Instructions

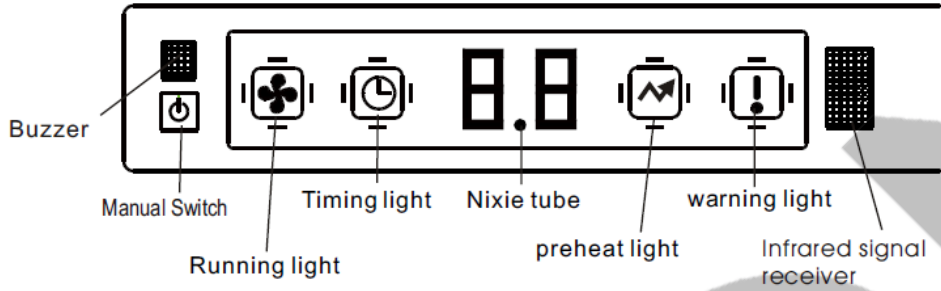
- 1) Open both the liquid and gas stop valves.
- 2) Turn on the main power switch and allow the unit to warm up.
- 3) Set the air conditioner to COOL mode.
- 4) For the Indoor Unit
 - Ensure the remote control and its buttons work properly.
 - Double check to see if the room temperature is being registered correctly.
 - Ensure the indicators on the remote control and the remote controller receiver work properly.
 - Ensure the manual buttons on the indoor unit works properly.
 - Check to see that the drainage system is unimpeded and draining smoothly.
 - Ensure there is no vibration or abnormal noise during operation.
- 5) For the Outdoor Unit
 - Check to see if the refrigeration system is leaking.
 - Make sure there is no vibration or abnormal noise during operation.
 - Ensure the wind, noise, and water generated by the unit do not disturb your neighbors or pose a safety hazard.

NOTE: If the unit malfunctions or does not operate according to your expectations, please refer to the Troubleshooting section of the Owner's Manual before calling customer service.

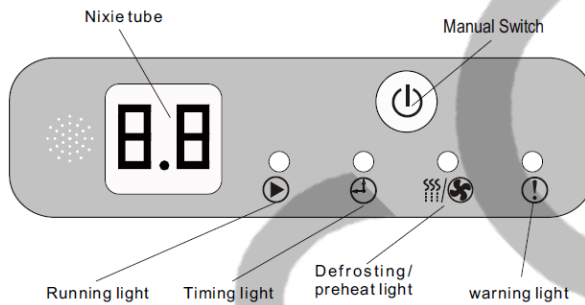
3. Maintenance

3.1 Display Board

3.1.1 Icon Explanation on Indoor Display Board (Cassette Type)



3.1.2 Icon Explanation on Indoor Display Board (Duct Type)



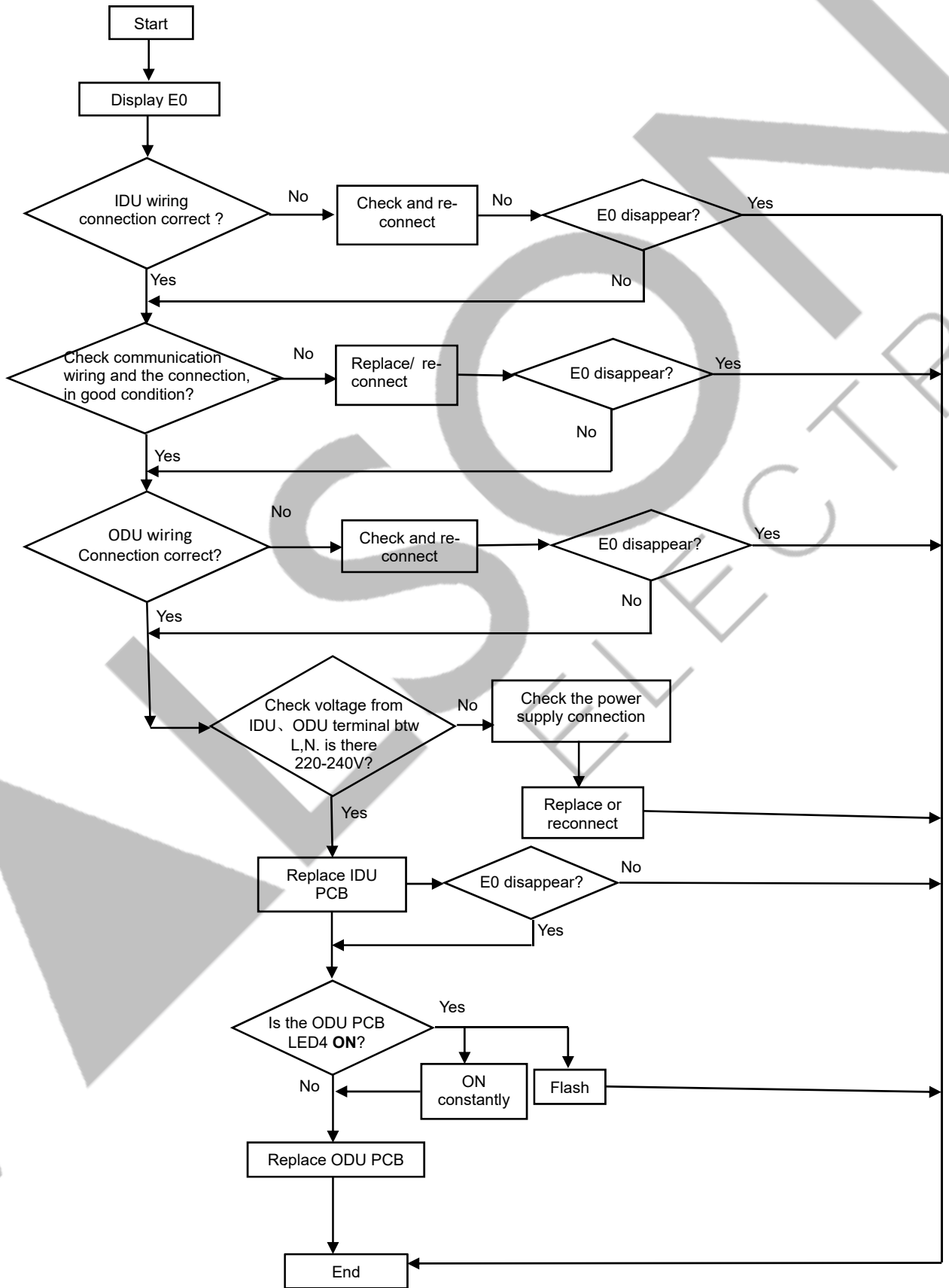
3.2 Failure code

Code	Description
E0	Communication fault between indoor and outdoor
E1	Indoor temperature sensor fault
E2	Indoor coil temperature sensor fault
E3	Outdoor coil temperature sensor fault
E4	System fault
E5	Unit wrong matching(with communication model)/Outdoor protection(without communication model)
E6	Indoor fan motor fault
E7	Outdoor temperature sensor fault
E8	Exhaust temperature sensor fault
E9	Inverter driver modular fault
EA	Current sensor fault
EC	Outdoor communication fault
Ed	Indoor EEPROM fault
EE	Outdoor EEPROM fault
EF	Outdoor fan motor fault
EH	Return temperature sensor fault
EP	Top-shell of compressor switch fault
EU	Voltage sensor fault
d3	Pump fault
P0	Modular protection
P1	Undervoltage/Overvoltage protection

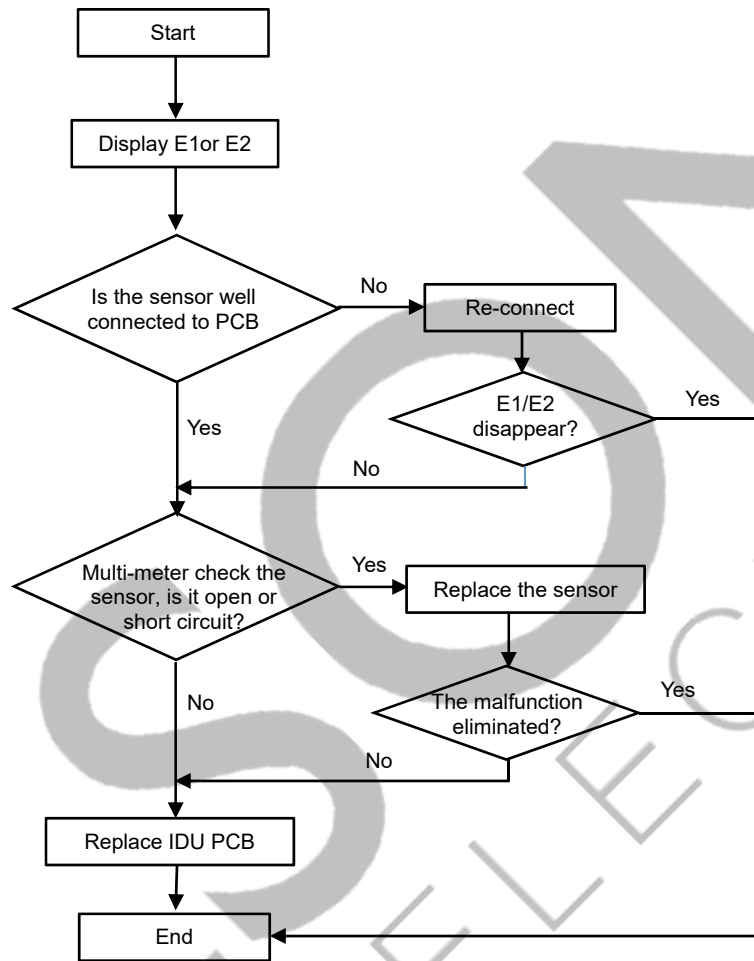
P2	Overcurrent protection
P3	System fault
P4	Exhaust temperature overtemperature protection
P5	Anti-supercooling protection in cooling mode
P6	Anti-overheating protection in cooling mode
P7	Anti-overheating protection in heating mode
P8	Outdoor ambient temp. too high/too low protection
P9	Driver protection
PA	Mode conflict
H1	High pressure switch protection
H2	Low pressure switch protection
H6	Lack of refrigerant protection
HE	Power phase sequence protection
PH	Outdoor exhaust temperature sensor failure protection
PC	Outdoor coil temperature sensor failure protection

3.3 Trouble Shooting

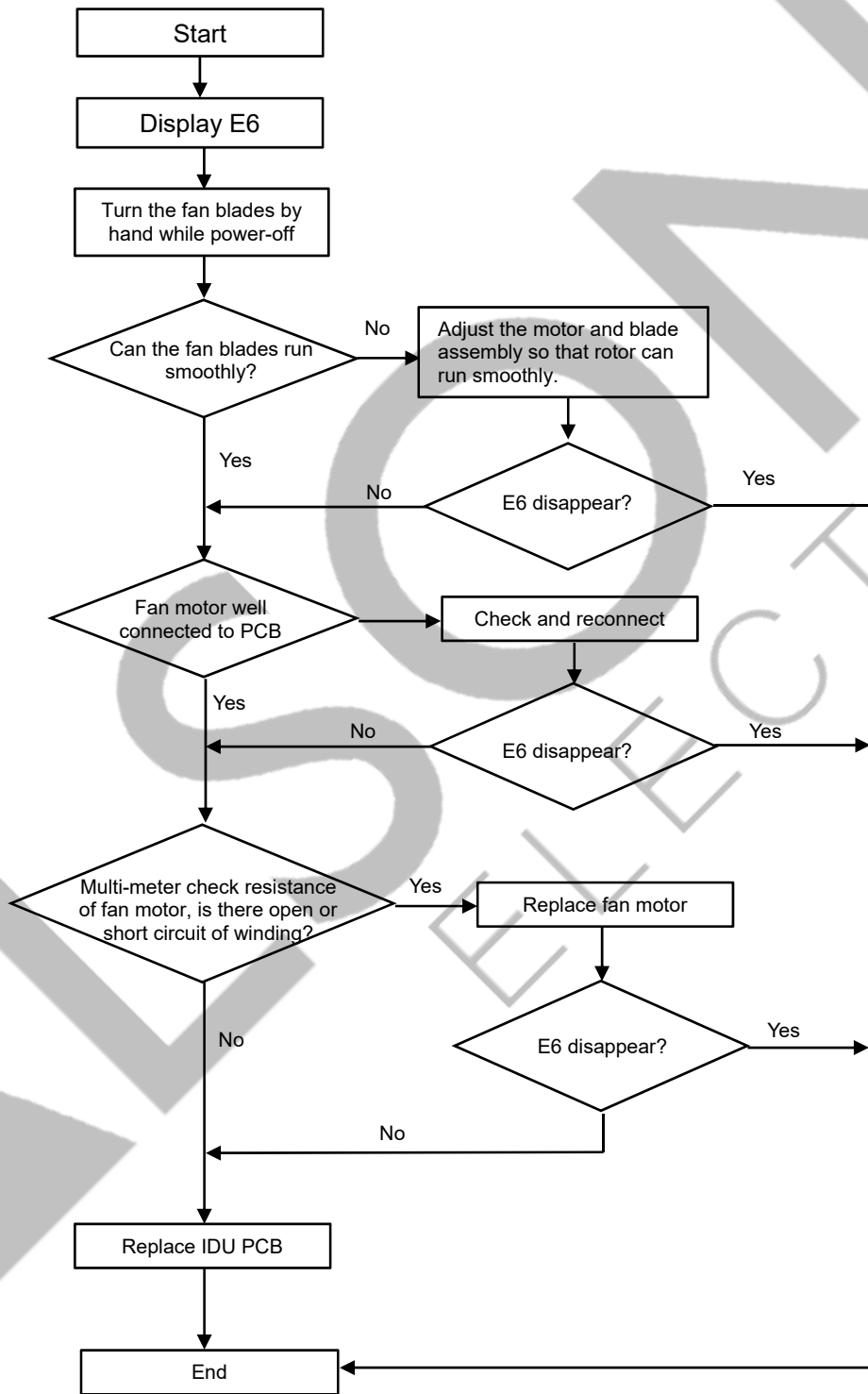
3.3.1 E0 ---IDU & ODU communication failure



3.3.2 E1, E2 ---IDU Room temperature sensor and/or coil temperature sensor failure.

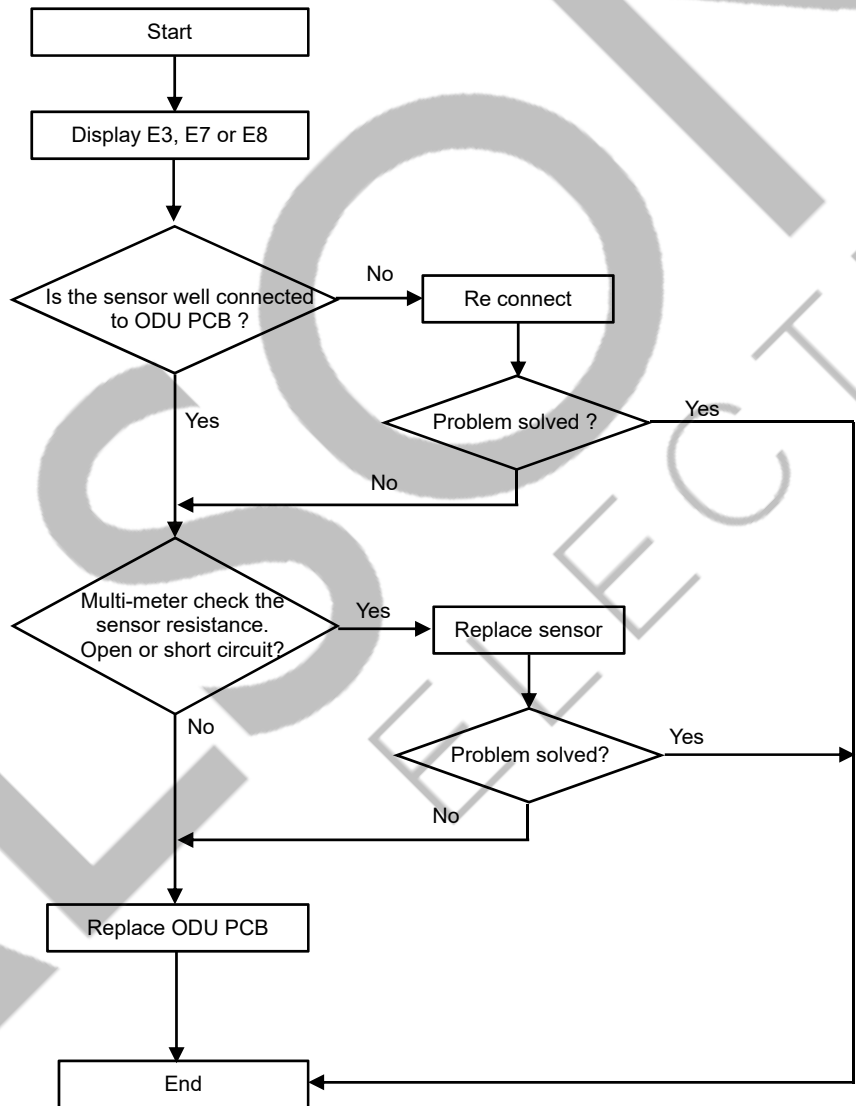


3.3.3 E6----IDU ventilation failure (PG and DC fan motor only)

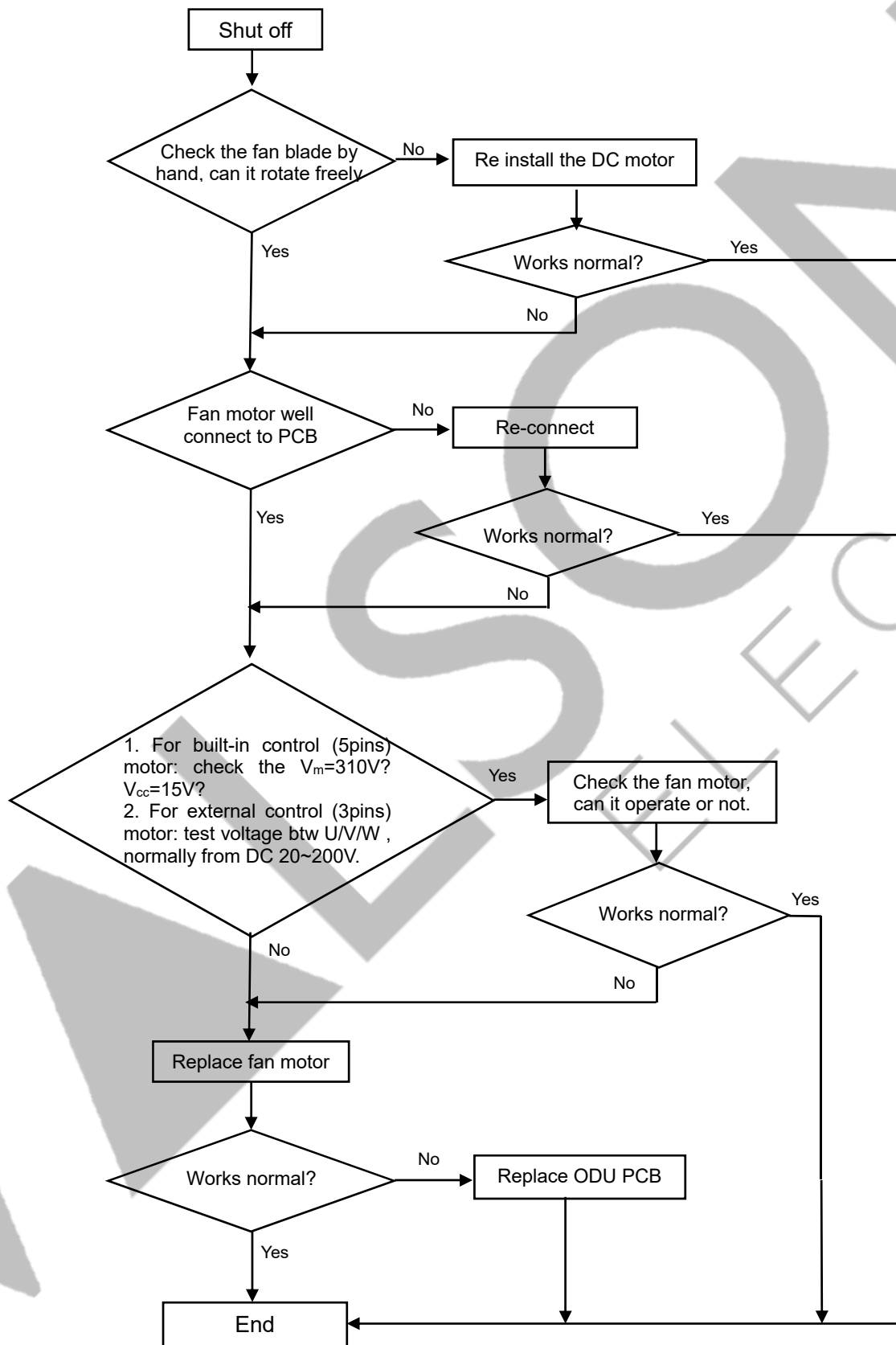


3.3.4 E3, E7 or E8---ODU Coil temperature sensor, Ambient temperature sensor or Discharge temperature sensor failure.

When any of the sensor resistance open or short circuit , unit will display failure code as E3/E7 or E8, IDU and ODU turns off. When the sensor resistance recovery, unit revert to be standby, customer can switch on the unit directly.

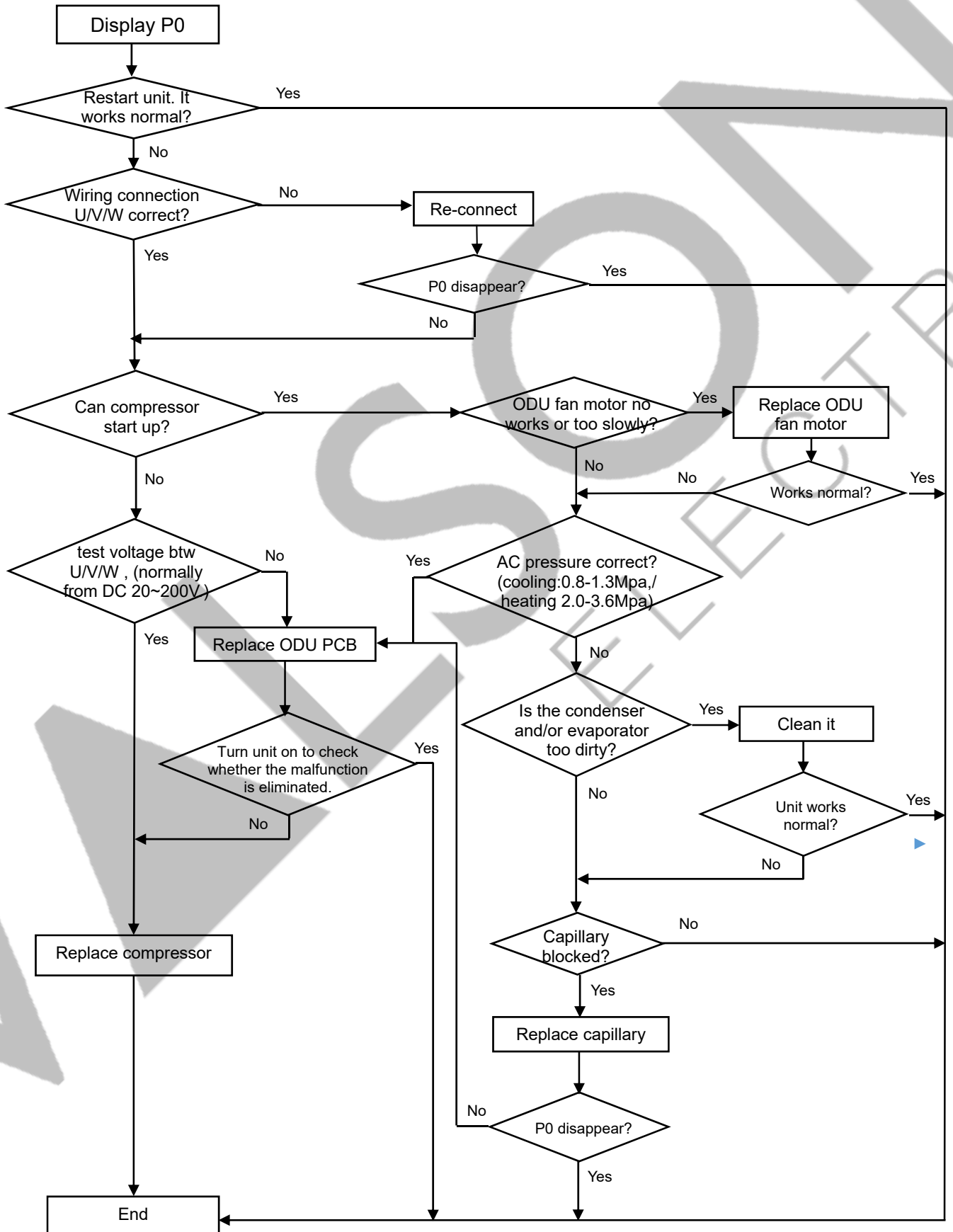


3.3.5 EF---ODU DC fan motor failure



3.3.6 P0---IPM protection

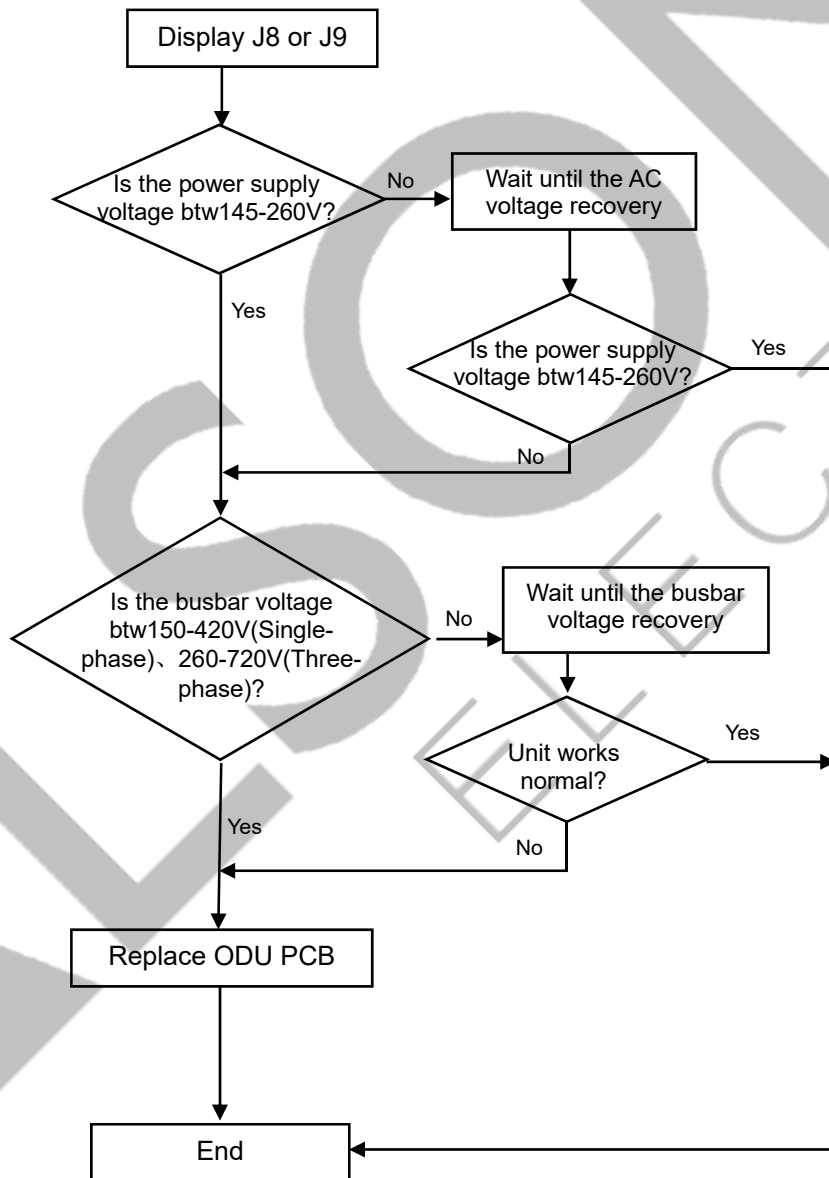
When overheat or overcurrent for IPM, AC unit will display P0 protection.



3.3.7 J8,J9--- Over / under voltage protection

1. Test voltage between L & N, When the power supply $V > AC260V$ or $V < AC150V$, AC will display J8 or J9 protection, unit will recover back to previous status while $V > AC155V$.

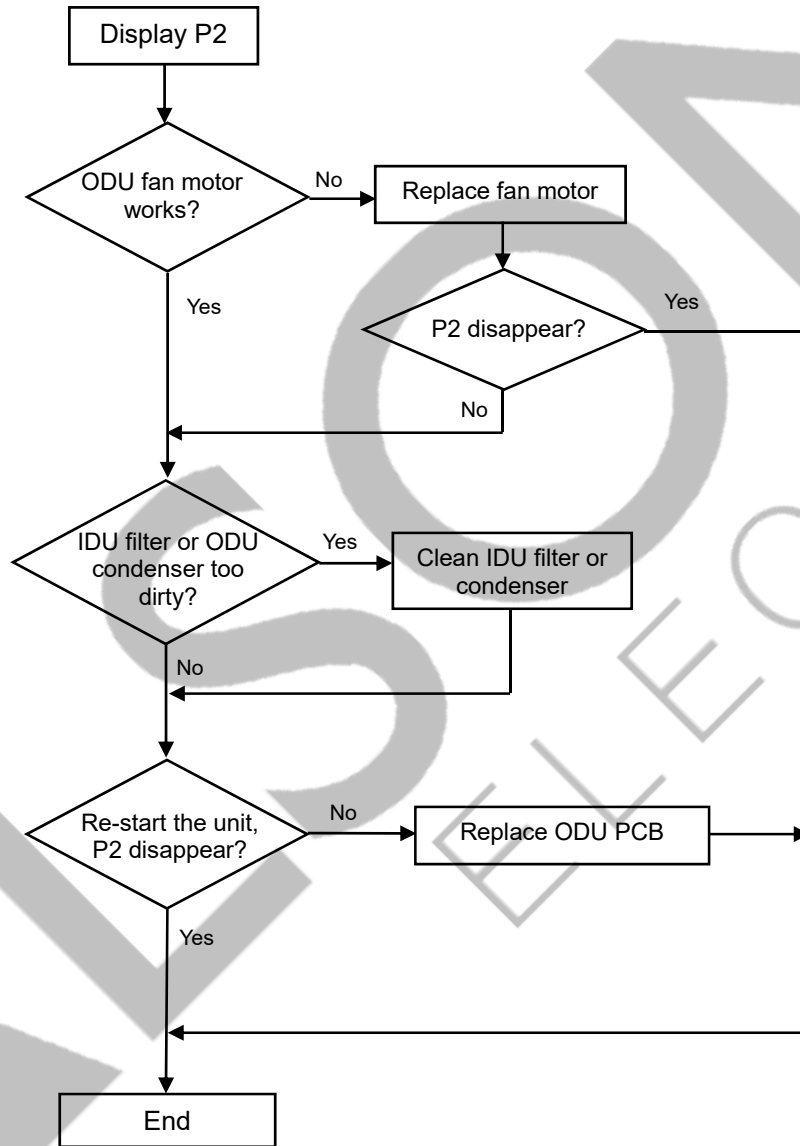
2. Test voltage on the big size electrolytic capacitor of ODU PCB, When DC busbar voltage $V > DC420V$ or $V < DC150V$, unit will recover back to previous status while $DC190V < V < DC410V$



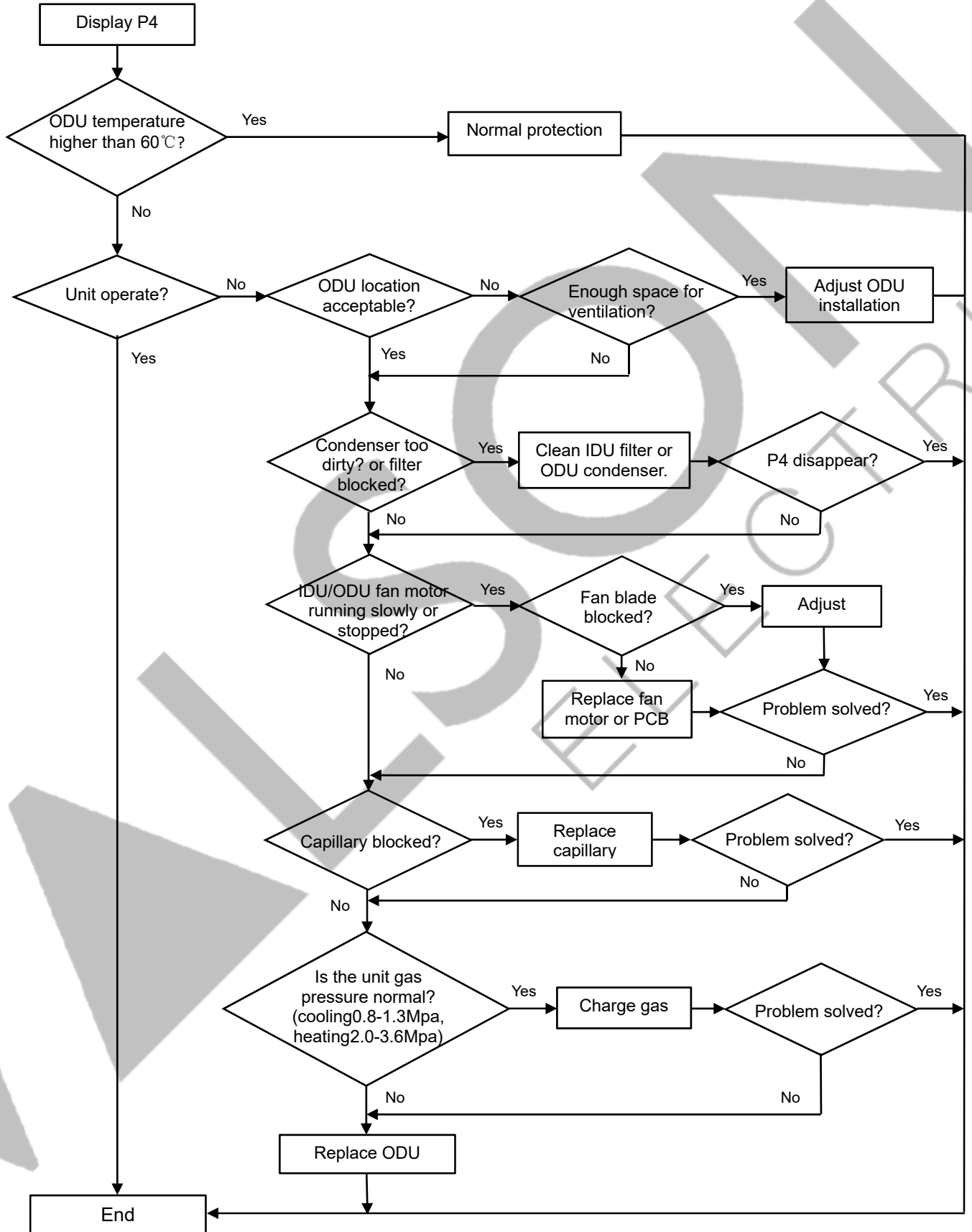
3.3.8 P2---Over Current protection

When the AC unit running current more than I_{max} , it will stop and display P2 protection.

Note: for different AC model, I_{max} has difference value.

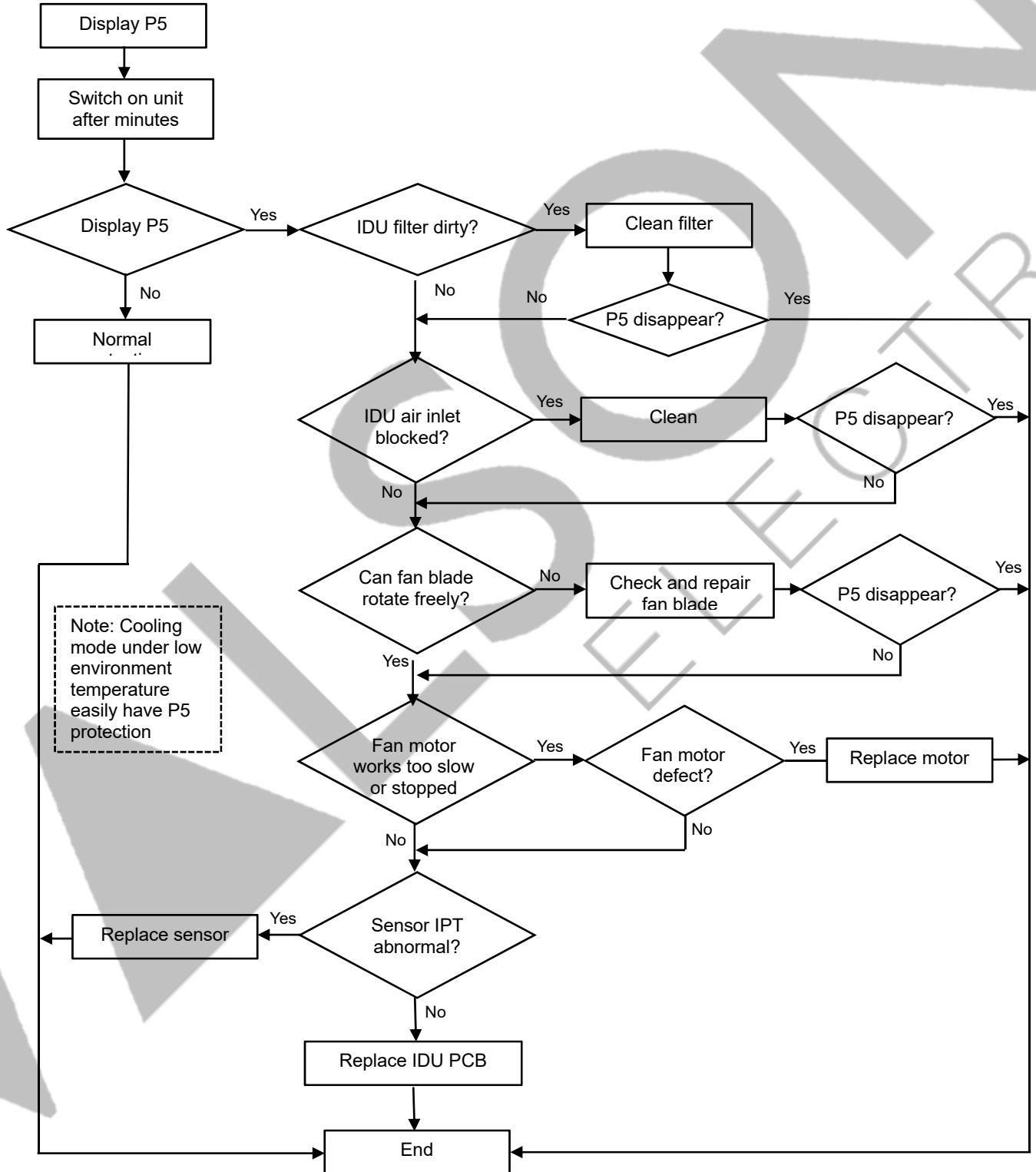


3.3.9 P4 ---ODU Discharge temperature overheating protection



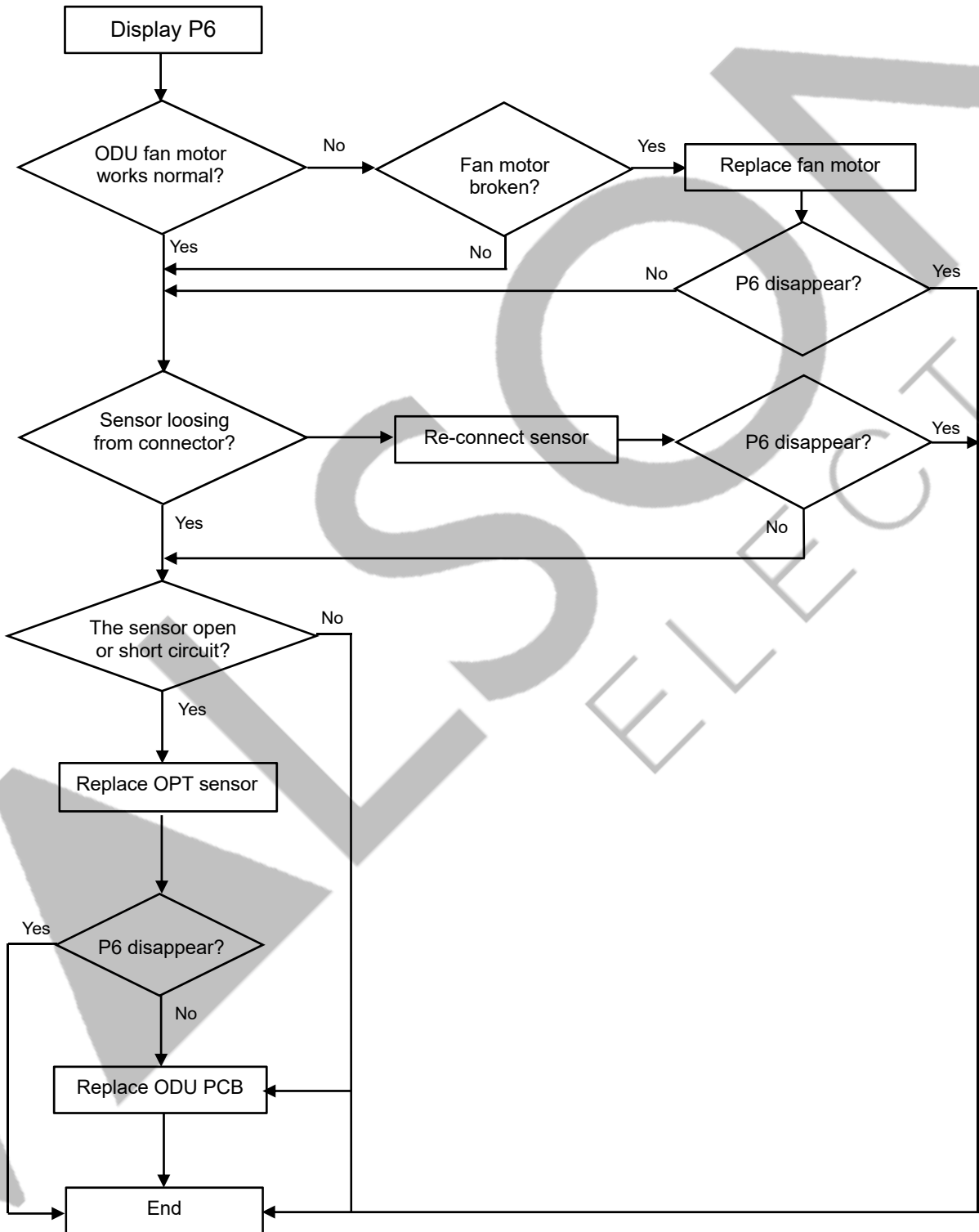
3.3.10 P5---Sub-cooling protection on Cooling/Dry mode

On Cooling or Dry mode, when IDU evaporator coil temperature $IPT < 1^{\circ}\text{C}$ continuously for 3 min after compressor start up for 6 min, CPU will switch off outdoor unit and show P5 failure code.



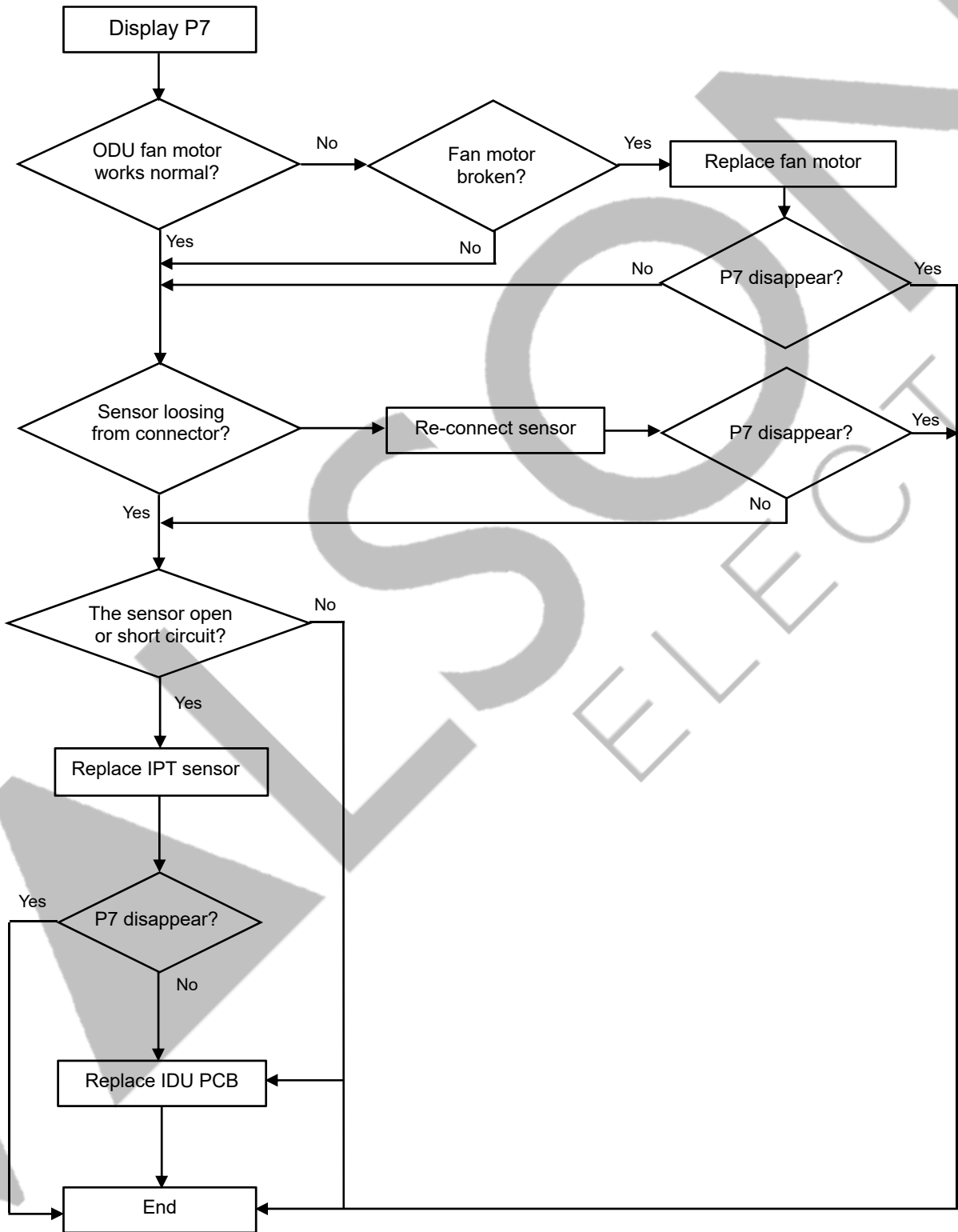
3.3.11 P6---Overheating protection on Cooling mode

On Cooling or Dry mode, when ODU condenser coil temperature $OPT \geq 65^{\circ}\text{C}$ (149°F) , MCU will switch off outdoor unit and show P6 failure code.



3.3.12 P7---Overheating protection on Cooling mode

On heating mode, when IDU evaporator coil temperature $IPT \geq 64^{\circ}\text{C}$ (147.2°F), ODU PCB will switch off outdoor unit and show P7 failure code.



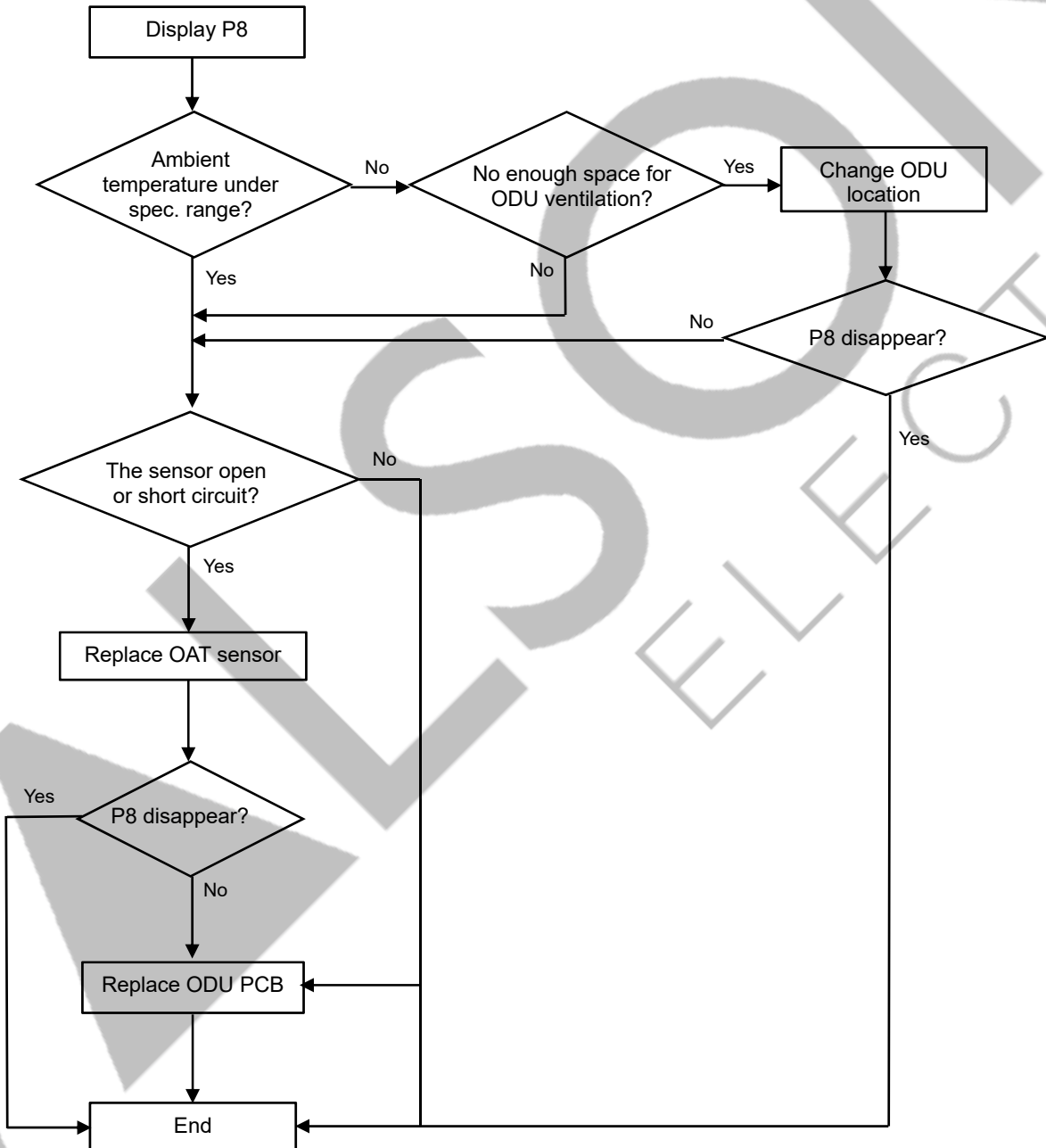
3.3.13 P8---Outdoor Overtemperature/Under-temperature protection

When environment temperature as below condition, the compressor will stop working, after 200s delay, the IDU will show P8 failure code.

(1). **On Cooling or Dry mode:** ODU ambient temperature: $OAT < -15^{\circ}\text{C}$ (5°F) or $OAT > 60^{\circ}\text{C}$ (140°F);

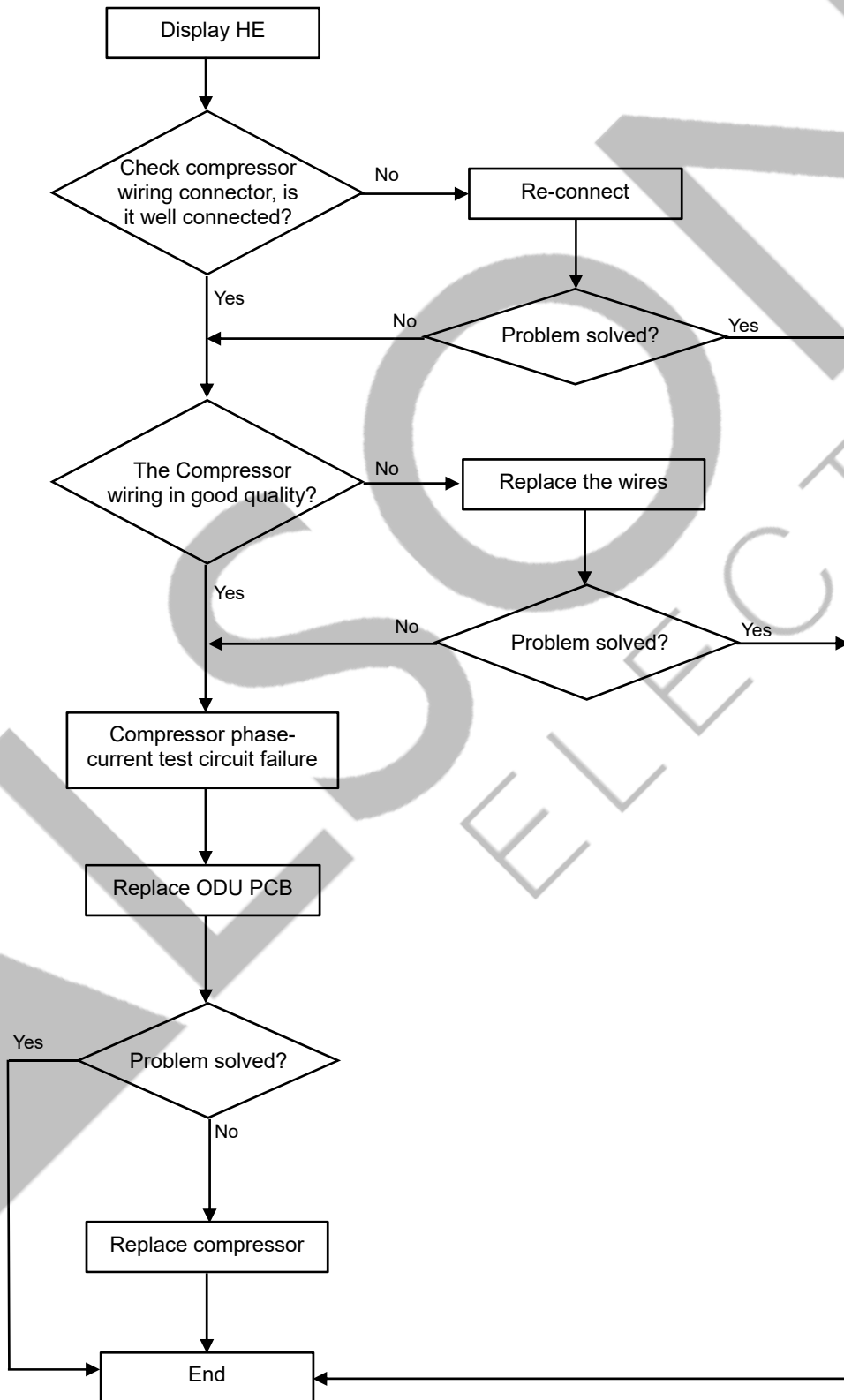
(2). **On Heating mode:**

$OAT \geq 40^{\circ}\text{C}$ (104°F)



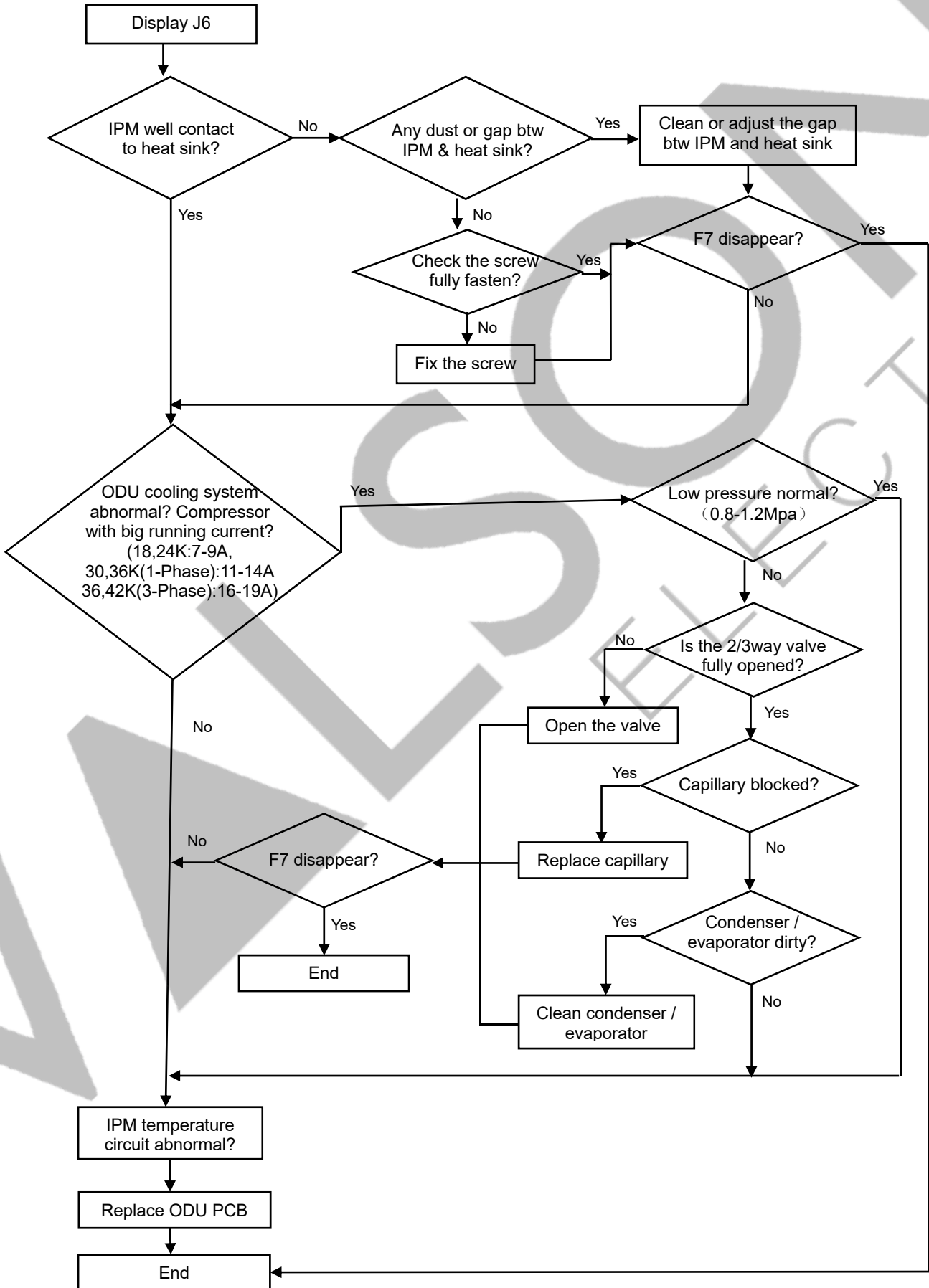
3.3.14 HE The Compressor Lack of phase / Anti-phase protection.

If ODU PCB can't test one, or even three phase of compressor current, it will show HE protection.



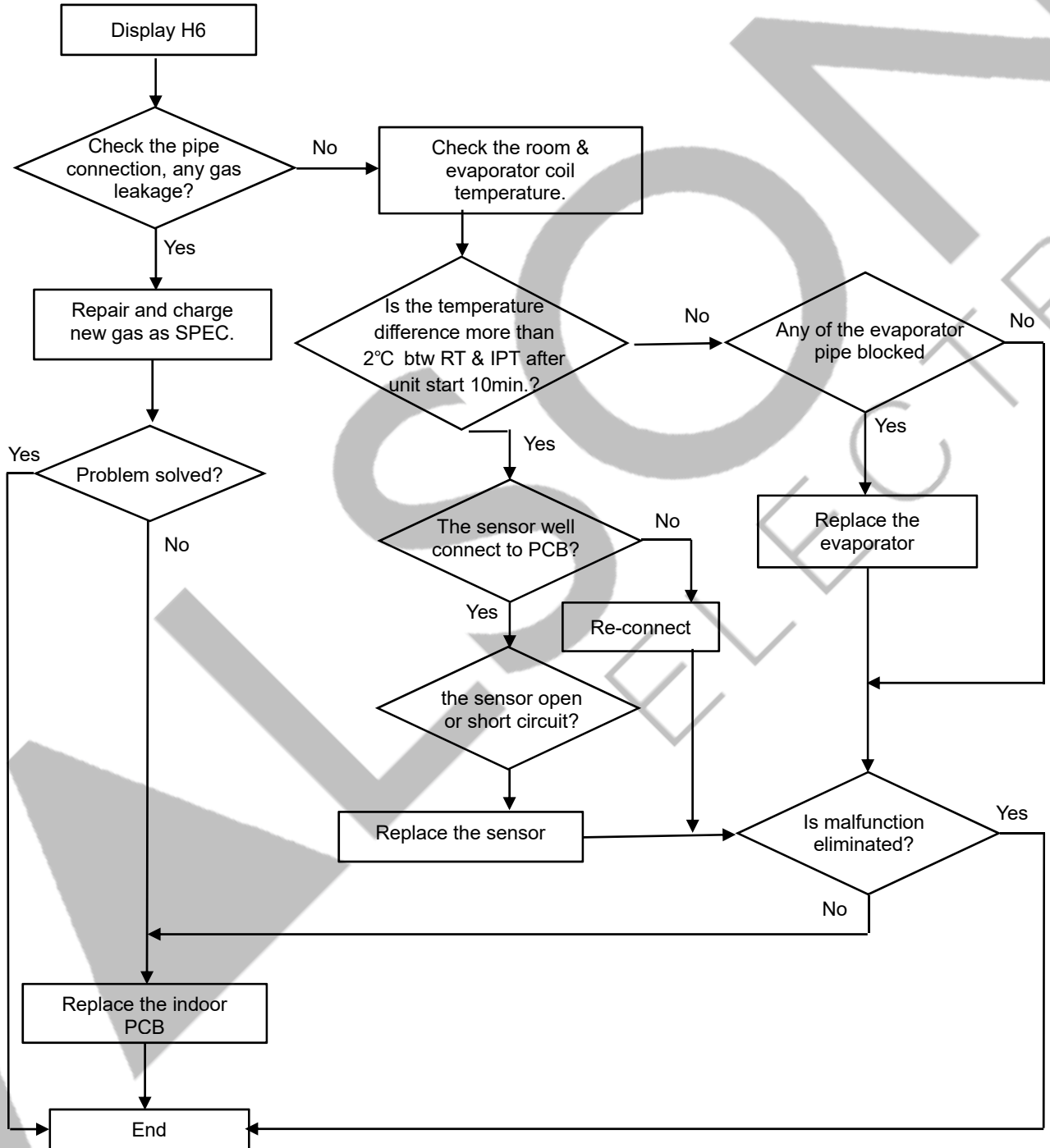
3.3.15 J6---Module temperature protection.

IPM overtemperature protection, when IPM temperature more than 95°C, it will show J6.



3.3.16 H6--- Gas leakage protection

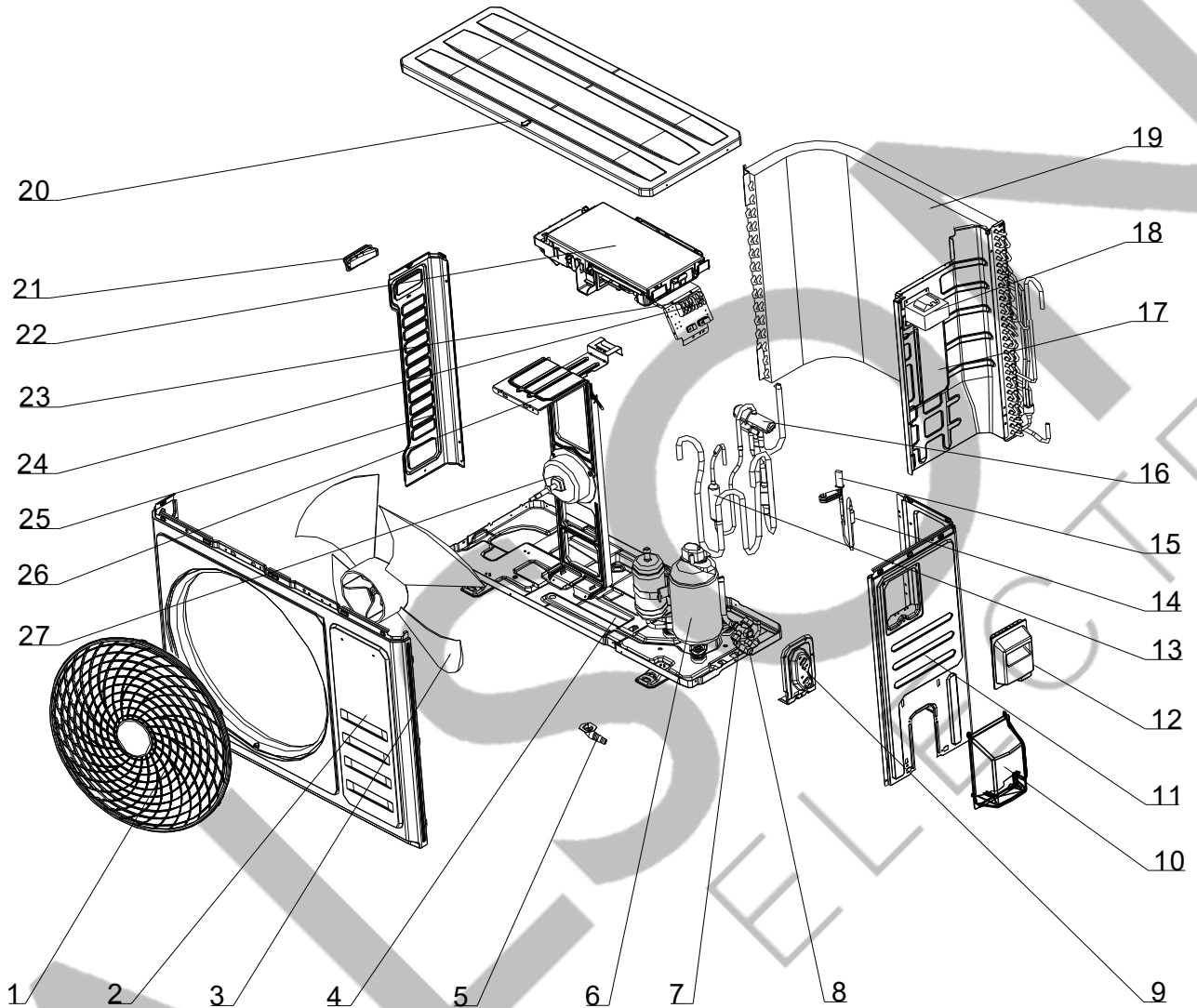
After compressor works in high frequency for 9 min, if the temperature on IDU evaporator & ODU condenser has only a little variation comparing previous, but, the compressor discharge temperature on high level, then the unit will show H6 failure code.



4. Exploded View and Parts List

4.1 Outdoor Unit

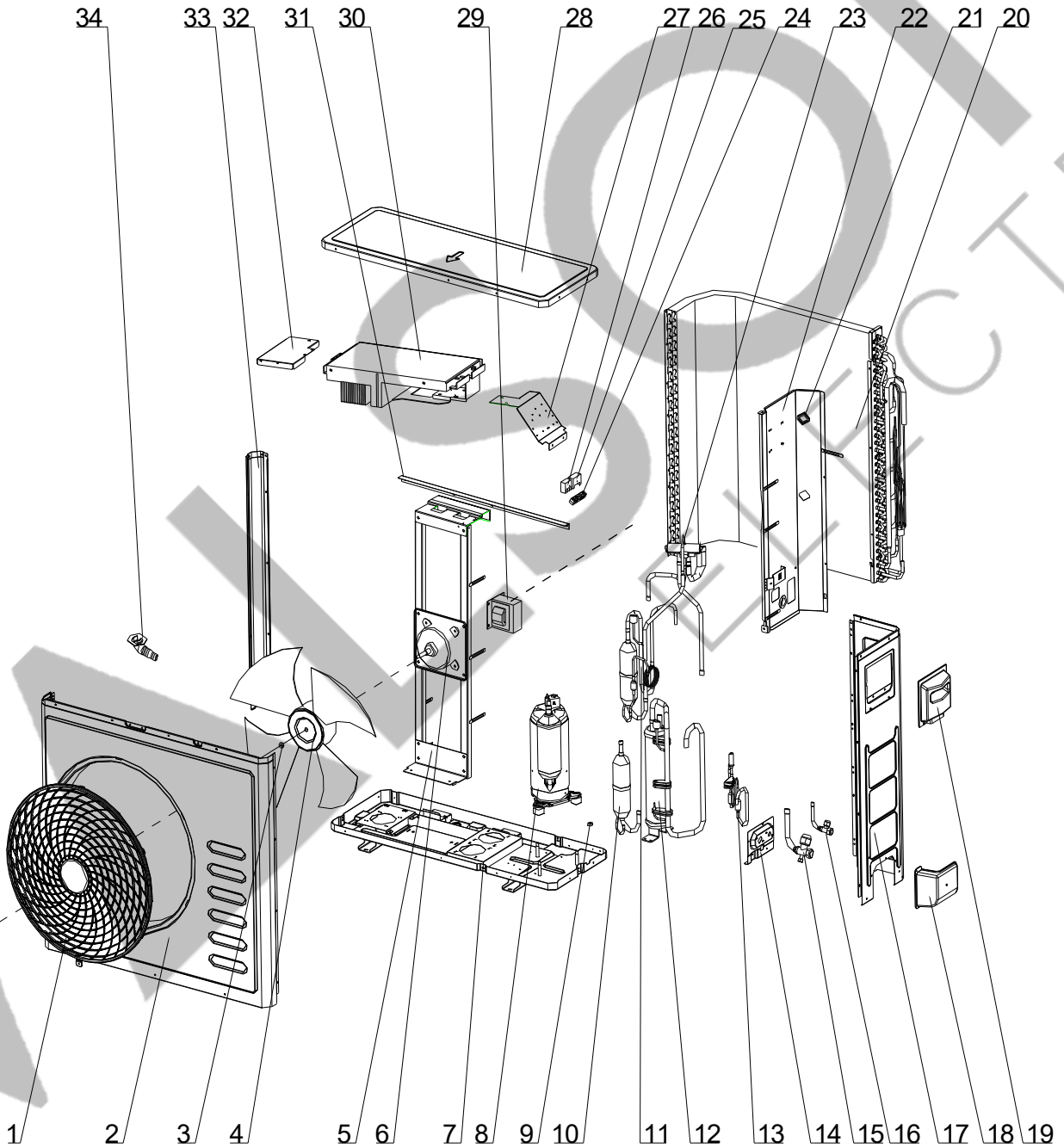
■ Model: TCC-24HRH/DVO (Z2U30307000639)



No.	Part No.	Part Name	Q'ty	Remark
1	42011-000090	Air Outlet Grille	1	
2	41206-000047	Front Side Plate	1	
3	42004-000105	Axial Flow Fan	1	
4	41202-000170	Chassis Sub-assy	1	
5	45014-002424	Outdoor Drainage Connector	1	
6	92014-000357	Compressor	1	
7	92008-000124	Three-way Valve	1	
8	92008-000024	Two-way Valve	1	
9	41204-000018	Valve Support	1	
10	41204-000041	Valve Cove	1	
11	41205-000037	Right Side Plate	1	
12	45014-003070	Handle Sub-Assy	1	
13	92003-000050	Silencer	1	
14	92003-000011	Strainer	1	
15	95002-000416	Electronic Expansion Valve	1	
16	95002-001108	4-way Valve	1	
17	41208-000059	Clapboard Sub-Assy	1	
18	22011-000011	Electric Reactor 22A/3mH	1	

19	92011-005350	Condenser Assy	1	
20	41207-000028	Top Cover	1	
21	41201-000038	Little Handle	1	
22	31201-001436	Electric Assy	1	
23	35005-000123	485 Communication Terminal	1	
24	35005-000114	Terminal Block	1	
25	41205-000116	Left Side Plate	1	
26	41203-000046	Motor Support	1	
27	22001-000120	Axial Flow Fan Motor	1	

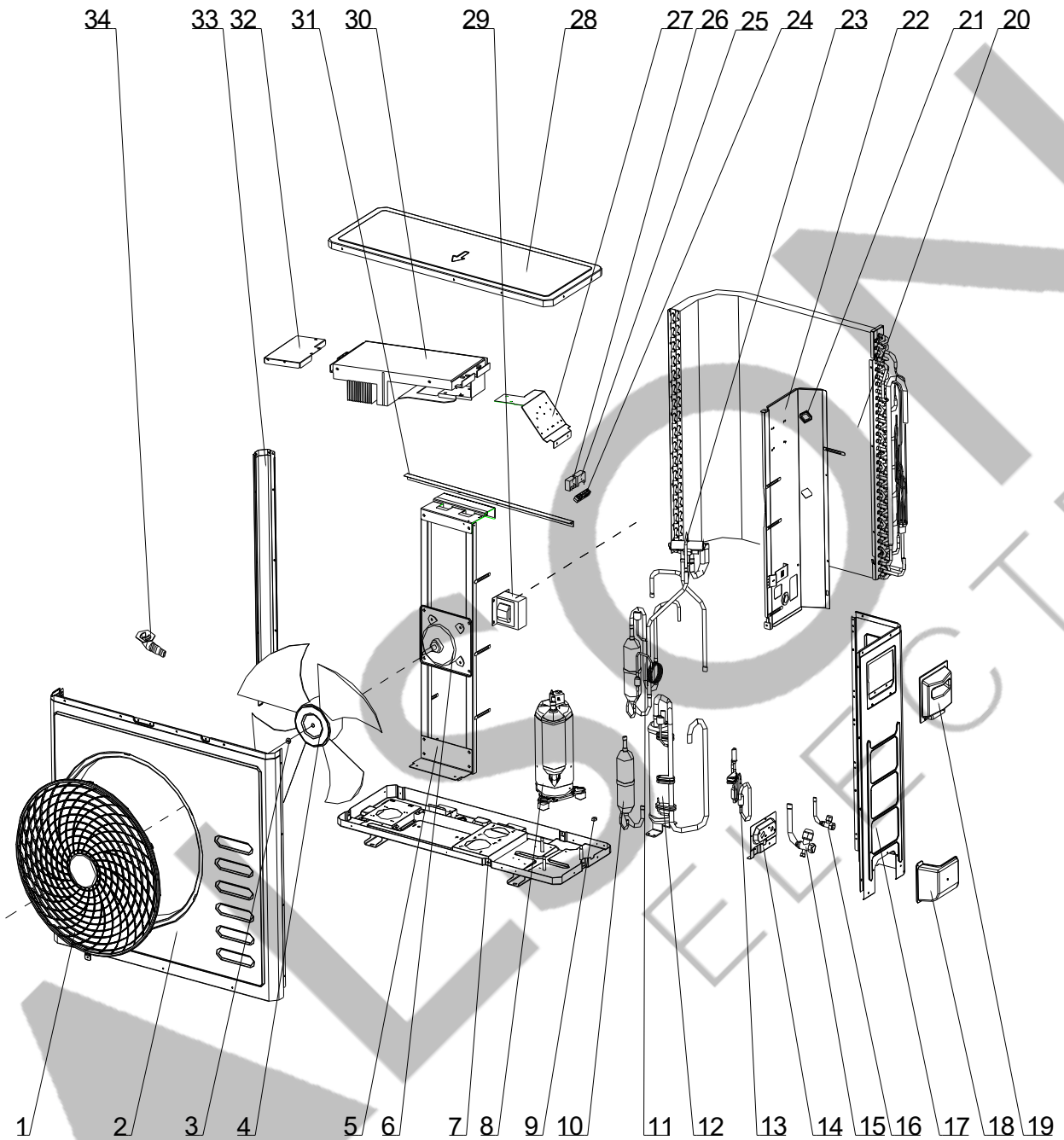
■ Model: TCC-30HRH/DVO(Z4U30307001192)



No.	Part No.	Part Name	Q'ty	Remark
1	42011-000103	Air Outlet Grille	1	
2	45013-000156	Front Side Plate	1	
3	50612-100008	Flange Face Lock Nut	1	

4	42004-000095	Axial Flow Fan	1	
5	45005-000471	Motor Support Assy	1	
6	25001-000242	Axial Flow Fan Motor	1	
7	45004-000374	Chassis Sub-assy	1	
8	95017-000031	Compressor	1	
9	50610-100020	Compressor Nut	3	
10	95007-000337	Oil Separator	1	
11	95015-001215	Discharge Pipe Sub-assy	1	
12	95015-001217	Suction Pipe Sub-assy	1	
13	95002-001107	Electronic Expansion Valve Assy		
14	45014-002373	Valve Support	1	
15	92008-000119	Three-way Valve	1	
16	92008-000025	Two-way Valve	1	
17	45003-000135	Right Side Plate	1	
18	45003-000106	Valve Cover	1	
19	41201-000021	Handle Sub-Assy	1	
20	95003-002851	Condenser Assy	1	
21	92012-000277	Rubber Sleeve	1	
22	45014-004314	Clapboard Sub-Assy	1	
23	95002-001106	4-way Valve Assy	1	
24	45002-000078	Wire Clamp	2	
24	11304-100013	Terminal Block	1	
26	35005-000123	485 Communication Terminal	1	
27	45006-000468	Terminal Mounting Plate	1	
28	46402-000004	Top Cover Sub-Assy	1	
29	25009-000155	Electric Reactor 25A/5mH	1	
30	35004-001423	Electric Control Box Sub-Assy	1	
31	45014-004345	Rear Protective Net Fixing Strip	1	
32	45006-000469	Support Plate of Electric Control Box	1	
33	46801-000246	Left Brace	1	
34	42009-000029	Outdoor Drainage Connector	1	

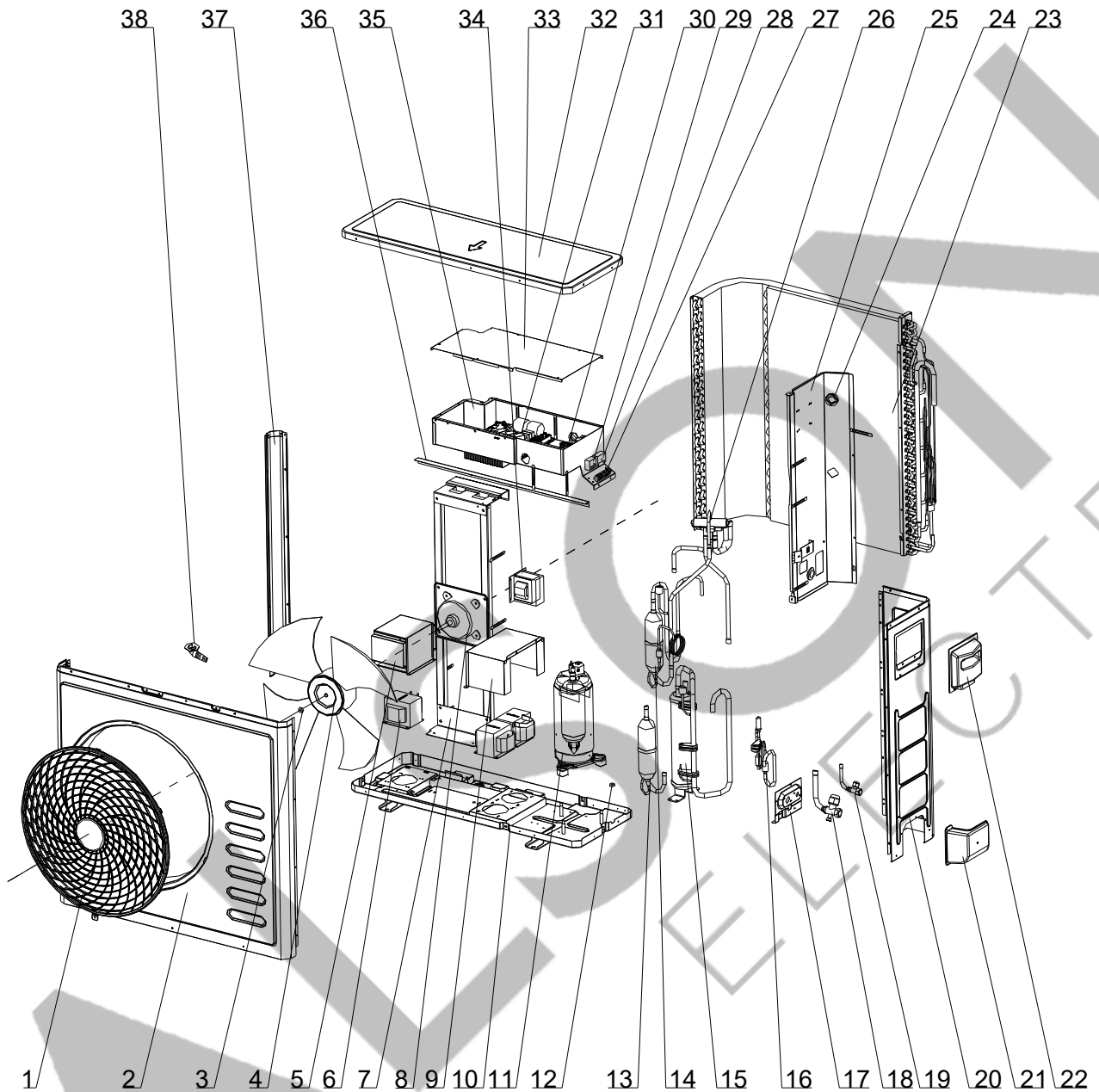
- Model: TCC-36HRH/DVO (Z4U30307001191)



No.	Part No.	Part Name	Q'ty	Remark
1	42011-000103	Air Outlet Grille	1	
2	45013-000087	Front Side Plate	1	
3	50612-100008	Flange Face Lock Nut	1	
4	42004-000095	Axial Flow Fan	1	
5	45005-000471	Motor Support Assy	1	
6	25001-000242	Axial Flow Fan Motor	1	
7	45004-000374	Chassis Sub-assy	1	
8	95017-000028	Compressor	1	
9	50610-100020	Compressor Nut	3	
10	95007-000337	Oil Separator	1	
11	95015-001210	Discharge Pipe Sub-assy	1	
12	95015-001219	Suction Pipe Sub-assy	1	
13	95002-001098	Electronic Expansion Valve Assy		
14	45014-002373	Valve Support	1	

15	92008-000119	Three-way Valve	1	
16	92008-000025	Two-way Valve	1	
17	45003-000135	Right Side Plate	1	
18	45003-000106	Valve Cover	1	
19	41201-000021	Handle Sub-Assy	1	
20	95003-002838	Condenser Assy	1	
21	92012-000277	Rubber Sleeve	1	
22	45014-004321	Clapboard Sub-Assy	1	
23	95002-001095	4-way Valve Assy	1	
24	45002-000078	Wire Clamp	2	
25	11304-100013	Terminal Block	1	
26	35005-000123	485 Communication Terminal	1	
27	45006-000468	Terminal Mounting Plate	1	
28	46402-000004	Top Cover Sub-Assy	1	
29	25009-000155	Electric Reactor 25A/5mH	1	
30	35004-001423	Electric Control Box Sub-Assy	1	
31	45014-004345	Rear Protective Net Fixing Strip	1	
32	45006-000469	Support Plate of Electric Control Box	1	
33	46801-000246	Left Brace	1	
34	42009-000029	Outdoor Drainage Connector	1	

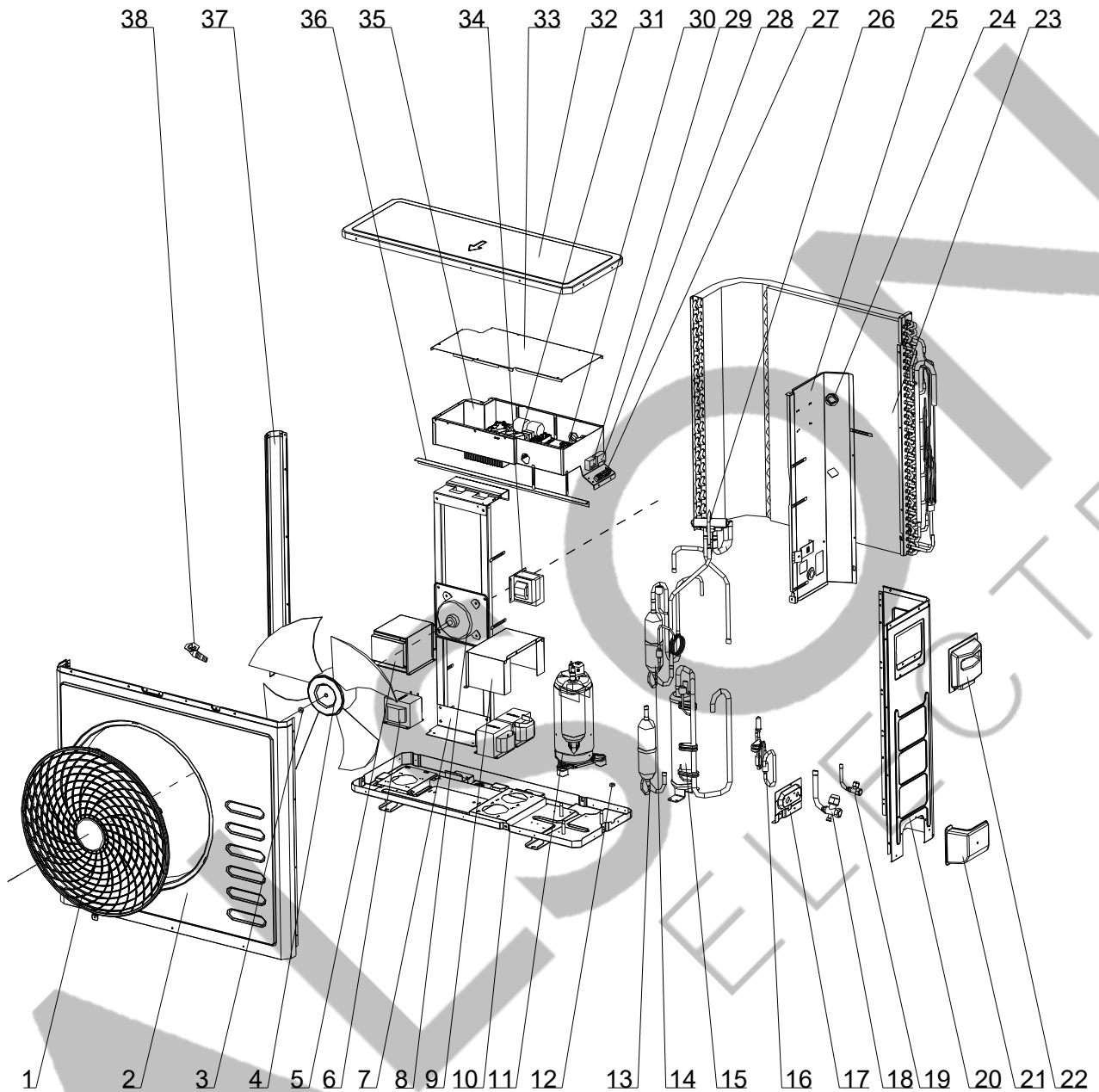
- Model: TCC-36HRH/DV7O (Z4U30307001190)



No.	Part No.	Part Name	Q'ty	Remark
1	42011-000103	Air Outlet Grille	1	
2	45013-000087	Front Side Plate	1	
3	50612-100008	Flange Face Lock Nut	1	
4	42004-000095	Axial Flow Fan	1	
5	45006-000455	Electric Reactor Cover Sub- Assy A	1	
6	25009-000156	Electric Reactor 13A/25mH	3	
7	45005-000471	Motor Support Assy	1	
8	25001-000245	Axial Flow Fan Motor	1	
9	45006-000456	Electric Reactor Cover Sub- Assy B	1	
10	45004-000375	Chassis Sub-assy	1	
11	95017-000028	Compressor	1	
12	50610-100020	Compressor Nut	3	
13	95007-000337	Oil Separator	1	
14	95015-001210	Discharge Pipe Sub-assy	1	

15	95015-001219	Suction Pipe Sub-assy	1	
16	95002-001098	Electronic Expansion Valve Sub-assy	1	
17	45014-002373	Valve Support	1	
18	92008-000119	Three-way Valve	1	
19	92008-000025	Two-way Valve	1	
20	45003-000135	Right Side Plate	1	
21	45003-000106	Valve Cover	1	
22	41201-000021	Handle Sub-Assy	1	
23	95003-002838	Condenser Assy	1	
24	45014-004306	Rubber Ring	2	
25	45014-004335	Clapboard Sub-Assy	1	
26	95002-001095	4-way Valve Assy	1	
27	42001-000106	Wire Clamp	2	
28	35005-000051	Terminal Block	1	
29	35005-000123	485 Communication Terminal	1	
30	35004-000894	Outdoor Control Board	1	
31	35004-001422	36K three-phase Outdoor Control Board	1	
32	46402-000004	Top Cover Sub-Assy	1	
33	45006-000013	Electric Control Box Cover	1	
34	25009-000157	Electric Reactor 20A/5.2mH	1	
35	45006-000457	Electric Control Box Sub-Assy	1	
36	45014-004345	Rear Protective Net Fixing Strip	1	
37	46801-000246	Left Brace	1	
38	42009-000029	Outdoor Drainage Connector	1	

- Model: TCC-42HRH/DV7O (Z4U30307001180)



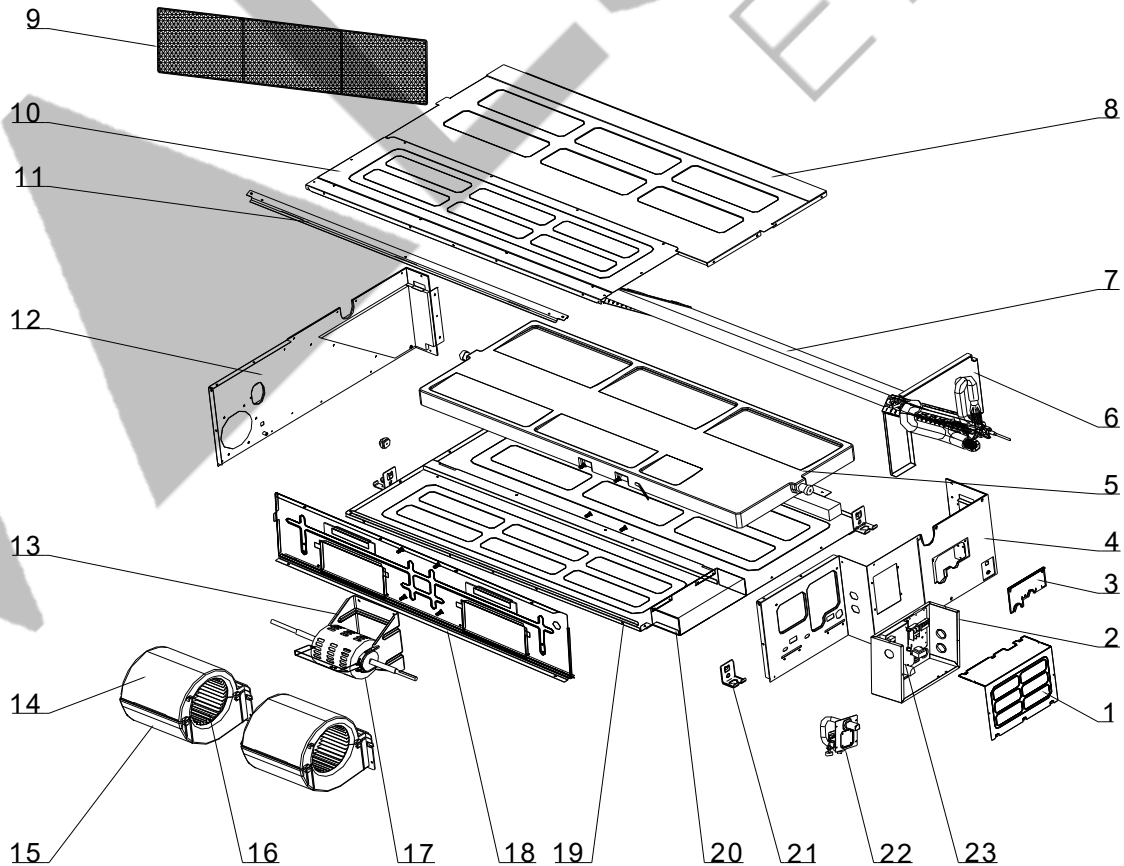
No.	Part No.	Part Name	Q'ty	Remark
1	42011-000103	Air Outlet Grille	1	
2	45013-000087	Front Side Plate	1	
3	50612-100008	Flange Face Lock Nut	1	
4	42004-000095	Axial Flow Fan	1	
5	45006-000455	Electric Reactor Cover Sub-Assy A	1	
6	25009-000154	Electric Reactor 15A/25mH	3	
7	45005-000367	Motor Support Assy	1	
8	25001-000247	Axial Flow Fan Motor	1	
9	45006-000456	Electric Reactor Cover Sub-Assy B	1	
10	45004-000381	Chassis Sub-assy	1	
11	95017-000028	Compressor	1	
12	50610-100020	Compressor Nut	3	
13	95007-000337	Oil Separator	1	
14	95015-001210	Discharge Pipe Sub-assy	1	
15	95015-001219	Suction Pipe Sub-assy	1	

16	95002-001102	Electronic Expansion Valve Sub-assy	1
17	45014-002373	Valve Support	1
18	92008-000119	Three-way Valve	1
19	92008-000025	Two-way Valve	1
20	45003-000135	Right Side Plate	1
21	45003-000106	Valve Cover	1
22	41201-000021	Handle Sub-Assy	1
23	95003-002810	Condenser Assy	1
24	45014-004306	Rubber Ring	2
25	45014-004297	Clapboard Sub-Assy	1
26	95002-001101	4-way Valve Assy	1
27	42001-000106	Wire Clamp	2
28	35005-000051	Terminal Block	1
29	35005-000123	485 Communication Terminal	1
30	35004-000894	Outdoor Control Board	1
31	25009-000126	DC Inverter PFC Board	1
32	46402-000004	Top Cover Sub-Assy	1
33	45006-000013	Electric Control Box Cover	1
34	25009-000155	Electric Reactor 25A/5mH	1
35	45006-000325	Electric Control Box Sub-Assy	1
36	45014-004345	Rear Protective Net Fixing Strip	1
37	46801-000246	Left Brace	1
38	42009-000029	Outdoor Drainage Connector	1

4.2 Indoor Unit

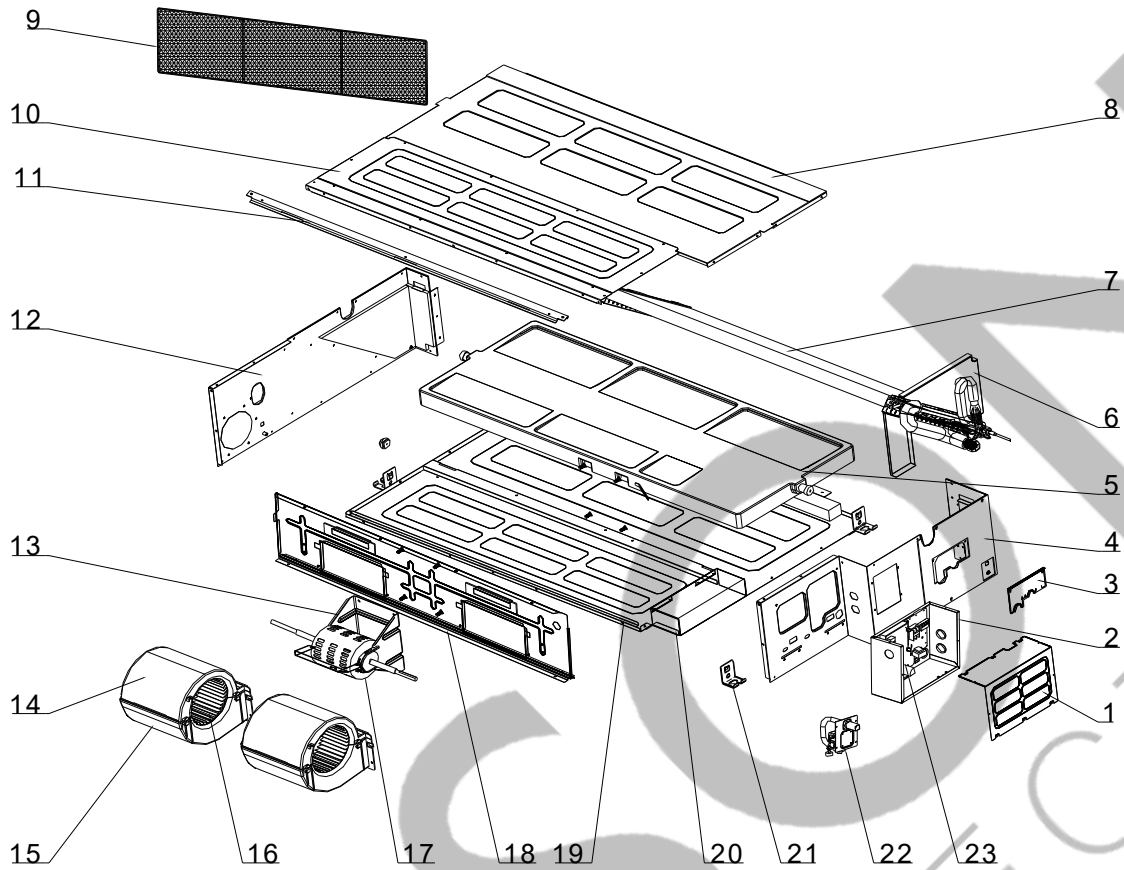
4.2.1 Duct Type

■ Model: TCC-24D2HRH/DVI (Z2U30304000267)



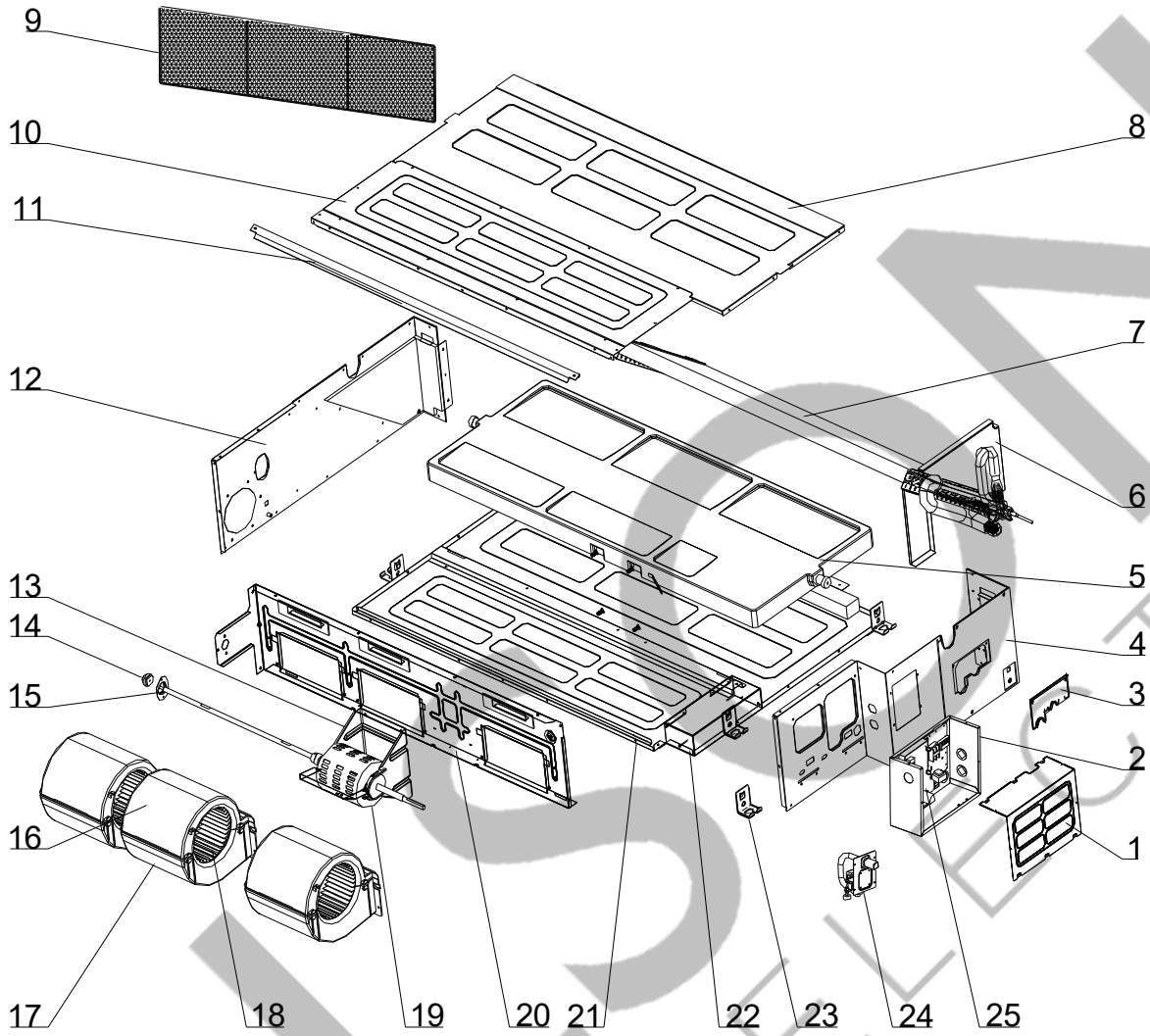
No.	Part No.	Part Name	Q'ty	Remark
1	45006-000064	Electric Box Cover	1	
2	45006-000182	Electric Box Assy	1	
3	46101-000149	Input and Output Pipe Sealing Plate Assy	1	
4	45003-000096	Right Side Plate Assy	1	
5	45011-000010	Foam Water Tray Assy	1	
6	45014-002438	Evaporator Sealing Plate Assy	1	
7	95003-002244	Evaporator Assy	1	
8	46101-000040	Bottom Cover Plate Assy	1	
9	45014-002790	Filter	1	
10	45008-000128	Return Air Outlet Sealing Plate	1	
11	45008-000242	Return Air Outlet Horizontal Bar	1	
12	45003-000147	Left Side Plate Assy	1	
13	45005-000172	Motor Support	1	
14	45008-000299	Fan Upper Volute Casing	2	
15	45008-000300	Fan Lower Volute Casing	2	
16	45009-000005	Centrifugal Fan	2	
17	25001-000246	Double Shaft Motor	1	
18	46101-000122	Middle Beam Partition Assy	1	
19	46101-000219	Top Cover Board Sub-assy	1	
20	45014-002883	Hook Supporter	1	
21	45014-002175	Hook	4	
22	45014-003475	Water Pump Assy	1	Optional
23	35004-001310	Indoor Unit Control Board	1	

- Model: TCC-30D2HRH/DVI (Z2U30304000270)



No.	Part No.	Part Name	Q'ty	Remark
1	45006-000064	Electric Box Cover	1	
2	45006-000182	Electric Box Assy	1	
3	46101-000149	Input and Output Pipe Sealing Plate Assy	1	
4	45003-000114	Right Side Plate Assy	1	
5	45011-000082	Water Tray Assy	1	
6	45014-002547	Evaporator Sealing Plate Assy	1	
7	95003-001613	Evaporator Assy	1	
8	46101-000114	Bottom Cover Plate Assy	1	
9	45014-003248	Filter	1	
10	45008-000164	Return Air Outlet Sealing Plate	1	
11	45008-000142	Return Air Outlet Horizontal Bar	1	
12	45003-000146	Left Side Plate Assy	1	
13	45005-000256	Motor Support	1	
14	45008-000299	Fan Upper Volute Casing	2	
15	45008-000300	Fan Lower Volute Casing	2	
16	45009-000005	Centrifugal Fan	2	
17	25001-000022	Double Shaft Motor	1	
18	46101-000118	Middle Beam Partition Assy	1	
19	46101-000046	Top Cover Board Sub-assy	1	
20	45014-002883	Hook Supporter	1	
21	45014-002175	Hook	4	
22	45014-002152	Water Pump Assy	1	Optional
23	35004-001310	Indoor Unit Control Board	1	

■ Model: TCC-36D2HRH/DVI (Z1U30304000115)

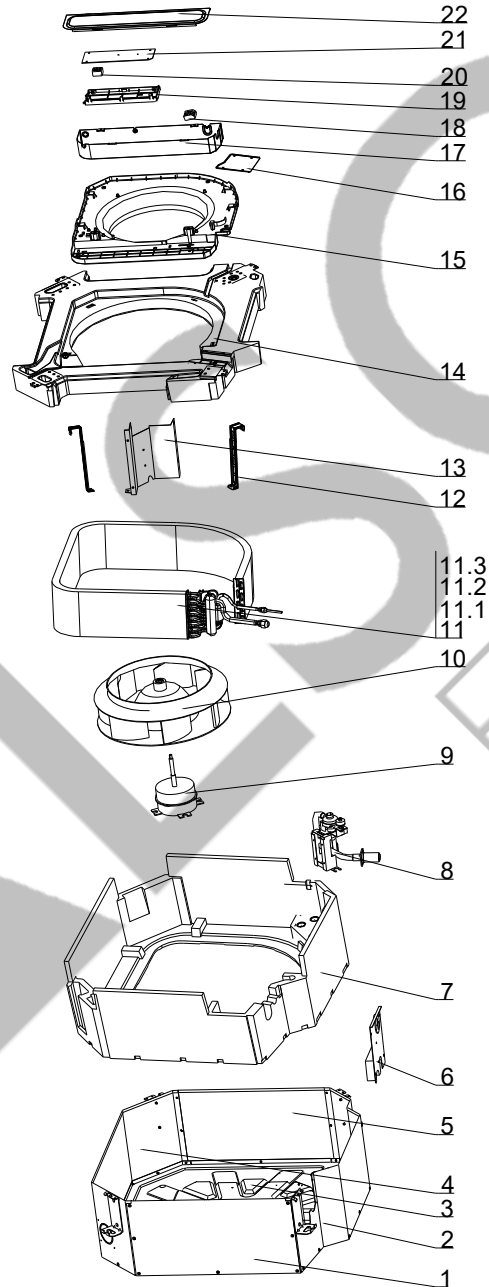


No.	Part No.	Part Name	Q'ty	Remark
1	45006-000064	Electric Box Cover	1	
2	45006-000182	Electric Box Assy	1	
3	46101-000149	Input and Output Pipe Sealing Plate Assy	1	
4	45003-000184	Right Side Plate Assy	1	
5	45011-000028	Water Tray Assy	1	
6	45014-002180	Evaporator Sealing Plate Assy	1	
7	95003-002865	Evaporator Assy	1	
8	46101-000209	Bottom Cover Plate Assy	1	
9	45014-003129	Filter	1	
10	45008-000254	Return Air Outlet Sealing Plate	1	
11	45008-000171	Return Air Outlet Horizontal Bar	1	
12	45003-000095	Left Side Plate Assy	1	
13	45005-000256	Motor Support	1	
14	45002-000089	Bearing Assy	1	
15	45002-000071	Bearing Cover	1	
16	45008-000299	Fan Upper Volute Casing	3	
17	45008-000300	Fan Lower Volute Casing	3	
18	45009-000005	Centrifugal Fan	3	

19	25001-000189	Double Shaft Motor	1	
20	46101-000167	Middle Beam Partition Assy	1	
21	46101-000205	Top Cover Board Sub-assy	1	
22	45014-002883	Hook Supporter	1	
23	45014-002175	Hook	4	
24	45014-002152	Water Pump Assy	1	Optional
25	35004-001310	Indoor Unit Control Board	1	

4.2.2 Cassette Type

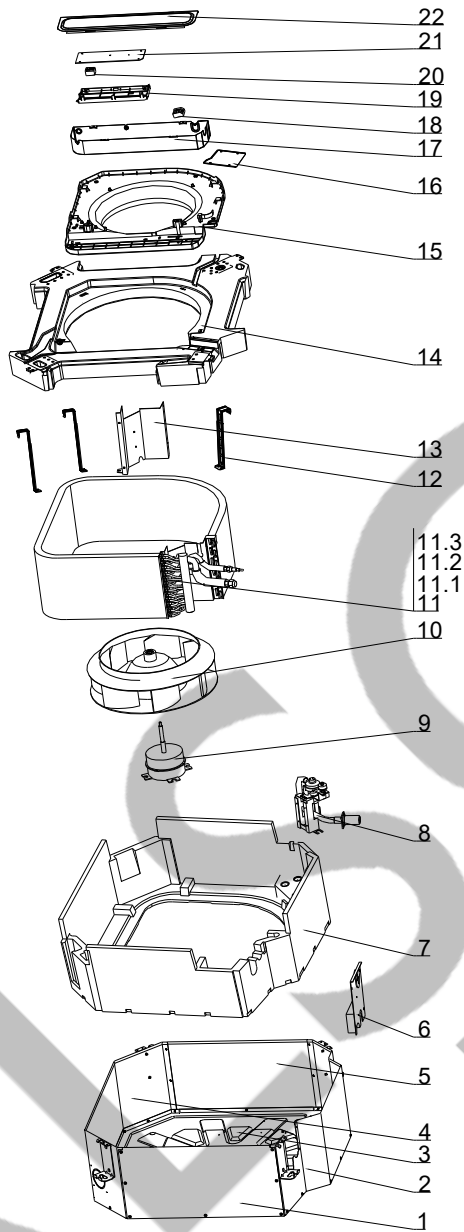
Model: TCC-24CHR/DVI (Z2U30303000614)



No.	Part No.	Part Name	Q'ty	Remark
1	45901-000084	3P Left Side Plate Assy	1	
2	45901-000085	3P Front Side Plate Assy	1	
3	45004-000076	3P Base Plate Assy	1	
4	45901-000058	3P Rear Side Plate Assy	1	
5	45901-000012	3P Right Side Plate Assy	1	

6	45901-000016	Tube Exit Plate Assy	1	
7	45004-000072	Base Foam Assy	1	
8	45014-004308	Pump Drainpipe Assy	1	
9	25001-000081	Centrifugal Fan Motor	1	
10	45009-000016	Centrifugal Fan	1	
11	95003-002805	Evaporator Assy	1	
11.1	95003-002806	Evaporator Sub-assy	1	
11.2	95003-002115	Evaporator Strainer Sub-assy	1	
11.3	95016-000800	Evaporator Output Tube Sub-assy	1	
12	45014-002715	Evaporator Short Fixing Hook	2	
13	45010-000098	Evaporator Fixing Plate Assy	1	
14	45011-000138	Water Tray Assy	1	
15	45008-000122	Diversion Circle 2	1	
16	45014-003338	Cover Plate	1	
17	45006-000399	Electric Box	1	
18	35005-000114	Terminal Board	1	
19	45901-000098	Electric Main Board Fixing Box	1	
20	35005-000074	Terminal Board	1	
21	35004-001177	Indoor Unit Control Board	1	
22	35001-000374	Electric Box Cover	1	

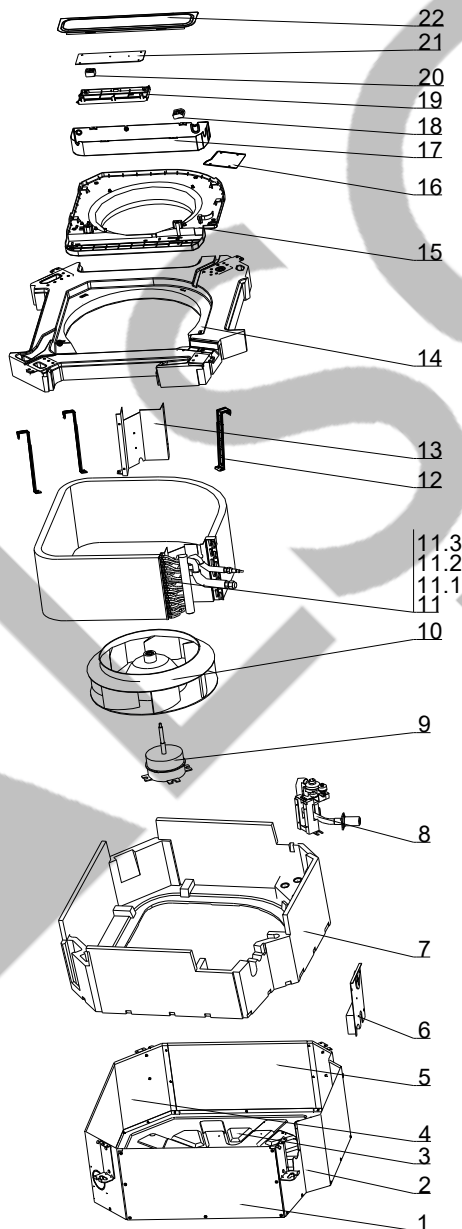
Model: TCC-36CHRH/DVI (Z1U30303000096)



No.	Part No.	Part Name	Q'ty	Remark
1	45901-000019	5P Left Side Plate Assy	1	
2	45901-000044	5P Front Side Plate Assy	1	
3	45004-000290	5P Base Plate Assy	1	
4	45901-000062	5P Rear Side Plate Assy	1	
5	45901-000037	5P Right Side Plate Assy	1	
6	45901-000016	Tube Exit Plate Assy	1	
7	45004-000071	Base Foam Assy	1	
8	45014-004316	Pump Drainpipe Assy	1	
9	25001-000056	Centrifugal Fan Motor	1	
10	45009-000053	Centrifugal Fan	1	
11	95003-002808	Evaporator Assy	1	
11.1	95003-001724	Evaporator Sub-assy	1	
11.2	95016-001020	Evaporator Input Tube Sub-assy	1	
11.3	95016-001023	Evaporator Output Tube Sub-assy	1	
12	45014-002789	Evaporator Fixing Hook	3	

13	45010-000013	Evaporator Fixing Plate	1	
14	45011-000147	Water Tray Assy	1	
15	45008-000130	Diversion Circle 1	1	
16	45014-003338	Cover Plate	1	
17	45006-000399	Electric Box	1	
18	35005-000114	Terminal Board	1	
19	45901-000098	Electric Main Board Fixing Box	1	
20	35005-000074	Terminal Board	1	
21	35004-001177	Indoor Unit Control Board	1	
22	35001-000374	Electric Box Cover	1	

Model: TCC-42CHRH/DVI (Z2U30303000615)



No.	Part No.	Part Name	Q'ty	Remark
1	45901-000019	5P Left Side Plate Assy	1	
2	45901-000044	5P Front Side Plate Assy	1	
3	45004-000290	5P Base Plate Assy	1	
4	45901-000062	5P Rear Side Plate Assy	1	

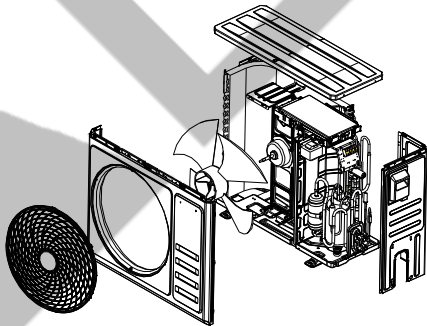
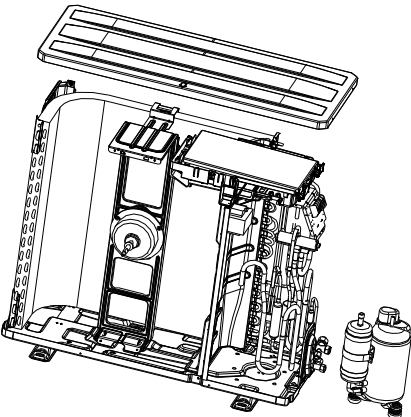
5	45901-000037	5P Right Side Plate Assy	1
6	45901-000016	Tube Exit Plate Assy	1
7	45004-000071	Base Foam Assy	1
8	45014-004316	Pump Drainpipe Assy	1
9	25001-000056	Centrifugal Fan Motor	1
10	45009-000053	Centrifugal Fan	1
11	95003-002808	Evaporator Assy	1
11.1	95003-001724	Evaporator Sub-assy	1
11.2	95016-001020	Evaporator Input Tube Sub-assy	1
11.3	95016-001023	Evaporator Output Tube Sub-assy	1
12	45014-002789	Evaporator Fixing Hook	3
13	45010-000013	Evaporator Fixing Plate	1
14	45011-000147	Water Tray Assy	1
15	45008-000130	Diversion Circle 1	1
16	45014-003338	Cover Plate	1
17	45006-000399	Electric Box	1
18	35005-000114	Terminal Board	1
19	45901-000098	Electric Main Board Fixing Box	1
20	35005-000074	Terminal Board	1
21	35004-001177	Indoor Unit Control Board	1
22	35001-000374	Electric Box Cover	1

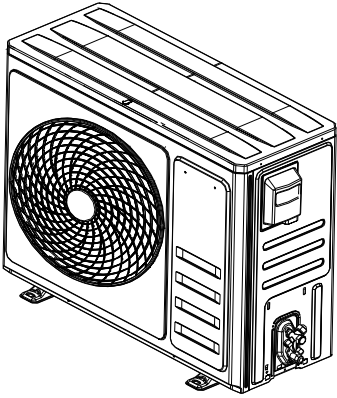
5. Disassembly IDU & ODU

5.1. ODU Disassembly

24K:

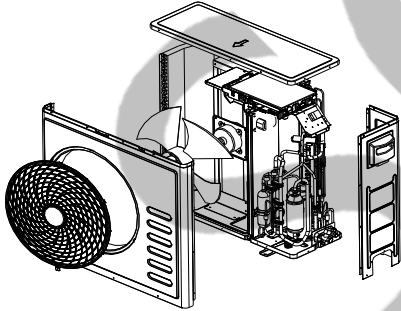
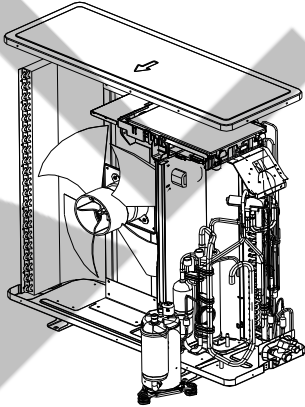
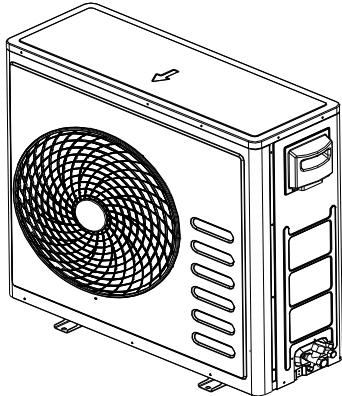
Remark: Before disassembly and assembly, make sure that the unit has been cut off from the power supply.

Step	Illustration	Handling Instruction
1. Remove external casing and motor		<ol style="list-style-type: none"> 1. Remove the top cover and handle; 2. Remove the grille, outer case, front side plate and right side plate. 3. Remove the blade nut and then remove the blade; 4. Remove the motor from motor support.
2. Remove compressor		<ol style="list-style-type: none"> 1. Discharge the refrigerant inside the pipeline and recycle the refrigerant during discharging; 2. Unsolder the 4-way valve assy from compressor; 3. Remove the nut fixing compressor; 4. Take away the compressor from chassis.

<p>3. Assemble unit</p>		<p>Assemble the unit in the reverse procedures of disassembly.</p>
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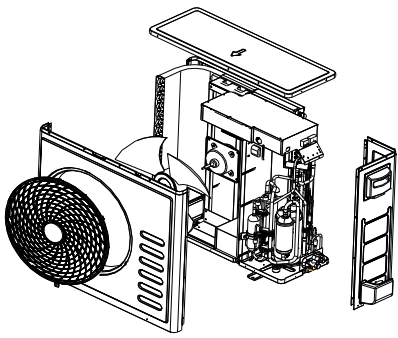
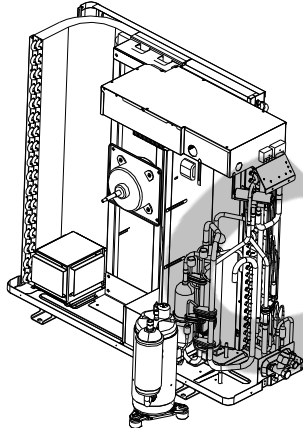
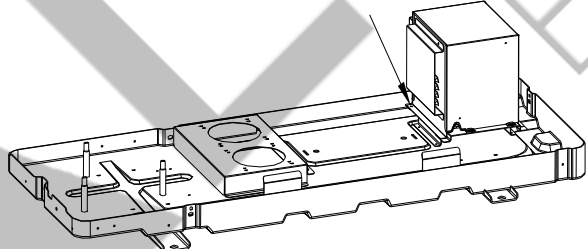
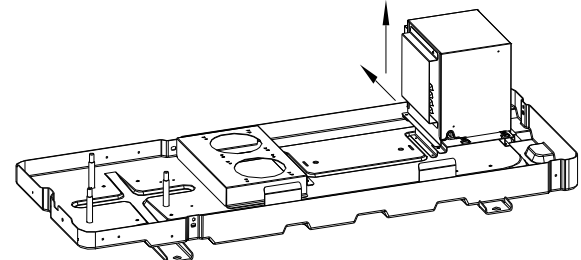
30K/36K(1ph):

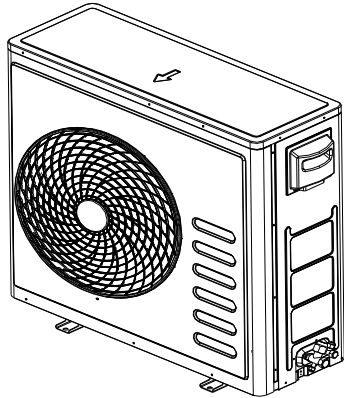
Remark: Before disassembly and assembly, make sure that the unit has been cut off from the power supply.

Step	Illustration	Handling Instruction
<p>1. Remove external casing and motor</p>		<ol style="list-style-type: none"> 1. Remove the top cover and handle; 2. Remove the grille, outer case, front side plate and right side plate. 3. Remove the blade nut and then remove the blade; 4. Remove the motor from motor support.
<p>2. Remove compressor</p>		<ol style="list-style-type: none"> 1. Discharge the refrigerant inside the pipeline and recycle the refrigerant during discharging; 2. Unsolder the 4-way valve assy from compressor; 3. Remove the nut fixing compressor; 4. Take away the compressor from chassis.
<p>3. Assemble unit</p>		<p>Assemble the unit in the reverse procedures of disassembly.</p>

36K(3ph)/42K:

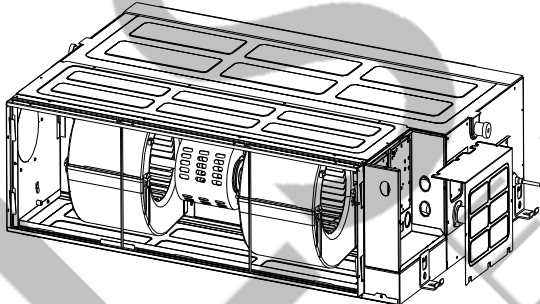
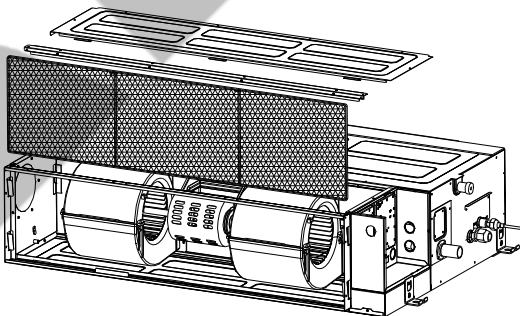
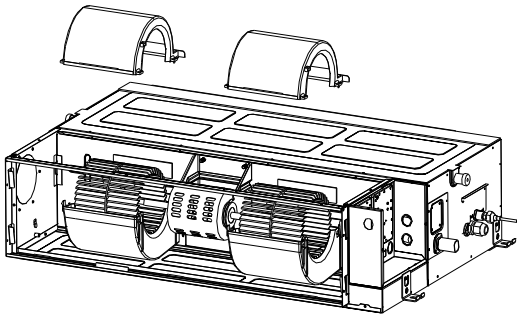
Remark: Before disassembly and assembly, make sure that the unit has been cut off from the power supply.

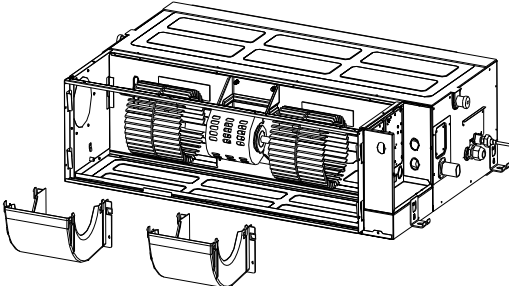
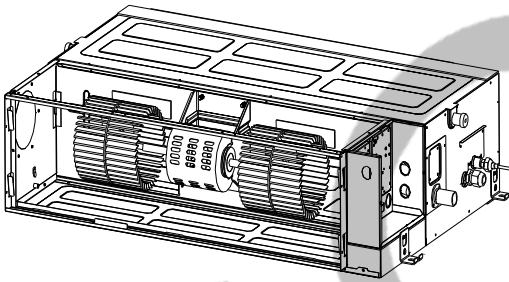
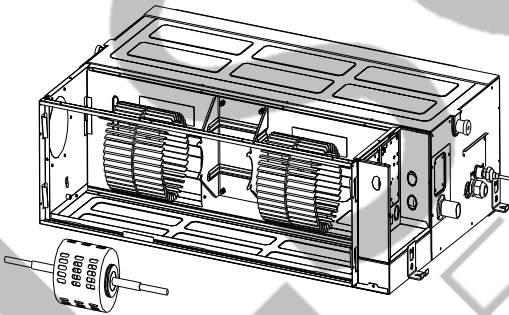
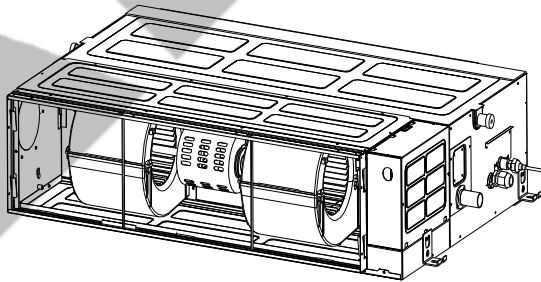
Step	Illustration	Handling Instruction
<p>1. Remove external casing and motor</p>		<ol style="list-style-type: none"> 1. Remove the top cover and handle; 2. Remove the grille, outer case, front side plate and right side plate. 3. Remove the blade nut and then remove the blade; 4. Remove the motor from motor support.
<p>2. Remove compressor</p>		<ol style="list-style-type: none"> 1. Discharge the refrigerant inside the pipeline and recycle the refrigerant during discharging; 2. Unsolder the 4-way valve assy from compressor; 3. Remove the nut fixing compressor; 4. Take away the compressor from chassis.
<p>3. Remove Electric Reactor Cover Sub-Assy A</p>		<p>Remove the two screws on the two sides of electric reactor cover sub-assy A.</p>
<p>3. Remove Electric Reactor Cover Sub-Assy A</p>		<p>Pull the electric reactor cover sub-assy A horizontally until the two clasps are divorced from the slots. Pull the Electric Reactor Cover Sub-Assy A upward according to the direction shown by the arrow.</p>

<p>4. Assemble unit</p>		<p>Assemble the unit in the reverse procedures of disassembly.</p>
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5.2. IDU Disassembly

5.2.1 Duct-type Unit

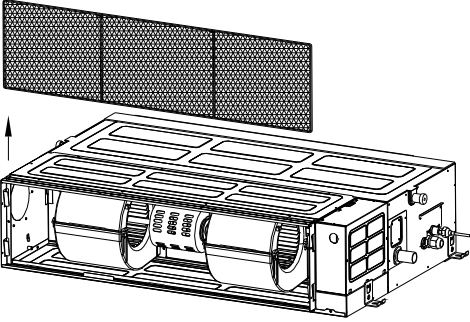
Removal and Assembly of Fan Motor		
Remarks: Before removing the fan, make sure to cut off the power firstly.		
Step	Illustration	Handling Instruction
<p>1. Unplug the motor cables</p>		<p>Cut off the power supply of indoor unit. Use screwdriver to remove the electric box cover and unplug the motor cables in electric box.</p>
<p>2. Remove the filter sub-assembly and return air outlet sealing board.</p>		<p>Remove the filter sub-assembly from the air inlet frame and use screwdriver to remove the return air outlet sealing board.</p>
<p>3. Remove the upper fan volute.</p>		<p>Remove the upper fan volute.</p>

<p>4. Remove the screws on lower fan volute.</p>		<p>Remove the screws on lower fan volute.</p>
<p>5. Loosen the fan and motor.</p>		<p>Use inner hexagonal spanner to loosen the screws on fan and remove the clamp fixing the motor.</p>
<p>6. Replace the motor.</p>		<p>Firstly, disengage the motor from motor support. Then, sequentially disengage the fan sub-assembly from the motor shaft. Remove the motor from the air inlet and replace with new motor.</p>
<p>7. Assemble the unit in reverse to the disassembly procedures.</p>		<p>Assemble the unit in reverse to the disassembly procedures and energize it for testing.</p>

Disassembly of filter screen for return air

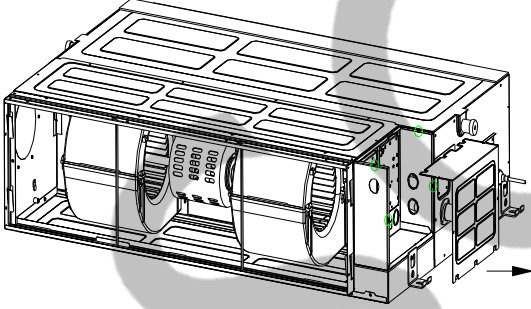
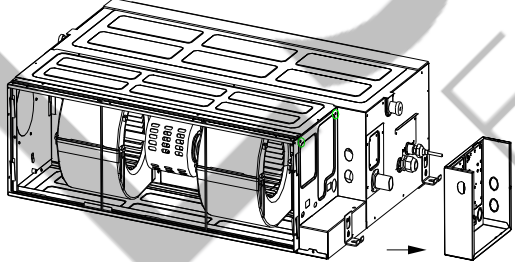
Remark: Make sure that the power supply is cut off before disassembling and protect all the parts during disassembly. Do not put filter screen near the high temperature heat source.

Step	Illustration	Handling Instruction
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<p>Disassembly of filter screen for return air.</p>		<p>Remove the two screws on the filter screen and remove according to the direction shown by the arrow.</p>
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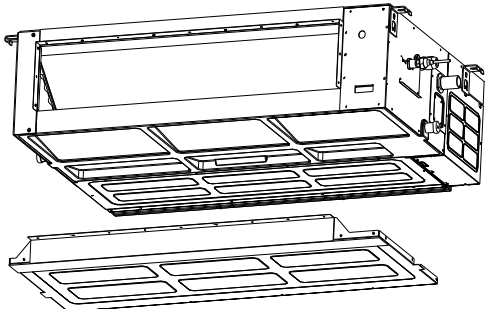
Disassembly of electrical parts box cover panel and electrical parts box

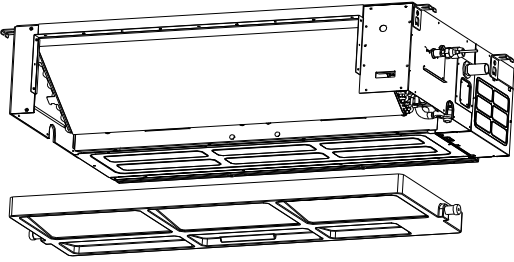
Remark: Make sure that the power supply is cut off before disassembling and protect all the parts during disassembly, especially the electrical components. Do not dampen or hit them.

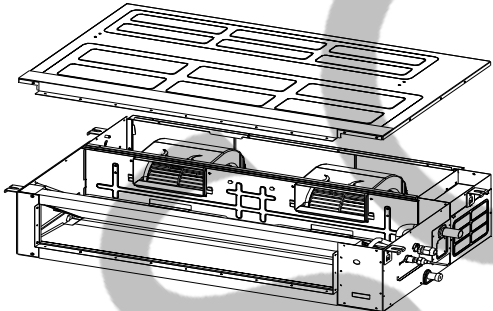
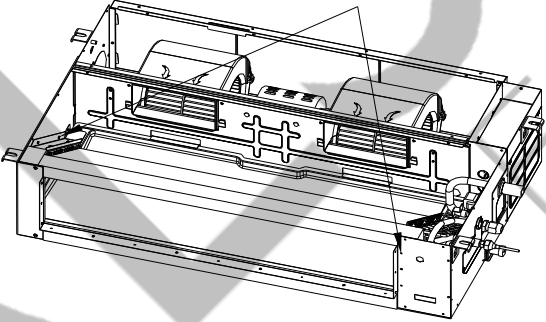
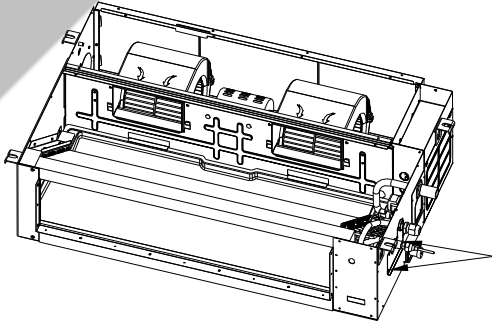
Step	Illustration	Handling Instruction
<p>1. Disassembly of electric box cover</p>		<p>Disassemble the screw according to the position shown in the circle and the box and remove the electric box in the direction of the arrow.</p>
<p>2. Disassembly of electric parts box</p>		<p>Disassemble the fastening screw and remove the electrical parts box. (As is shown in the graph, there are 2 fastening screws in the circle and the screws in the direction of arrow shall be disassembled too.)</p>

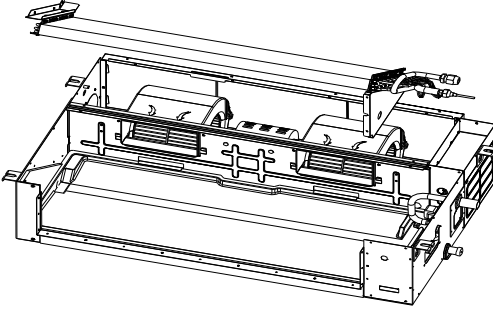
Disassembly of water-containing plate

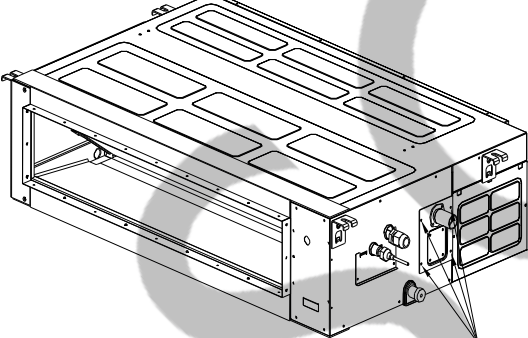
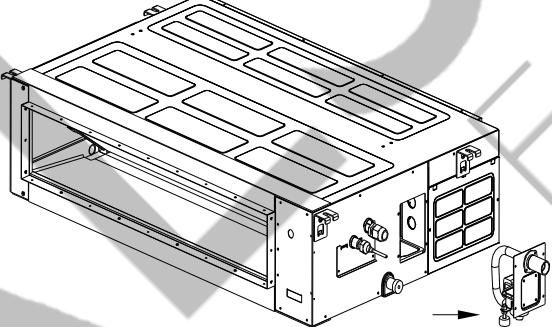
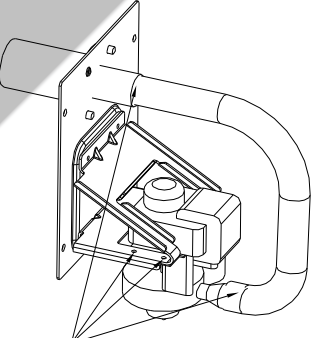
Remark: Make sure that the power supply is cut off before disassembling and protect all the parts during disassembly.

Step	Illustration	Handling Instruction
<p>1. Disassembly of cover plate</p>		<p>Disassemble the fastening screws on the cover plate and remove the cover plate.</p>

<p>2. Disassembly of water-containing plate</p>		<p>Pull upward and remove the water-containing plate. Disassembled water-containing plate is shown in the graph.</p>
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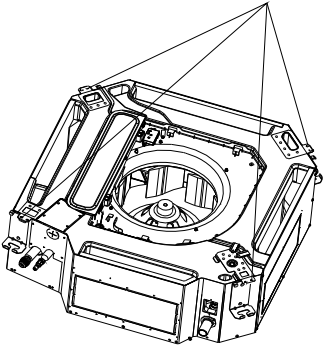
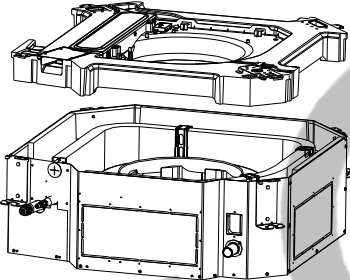
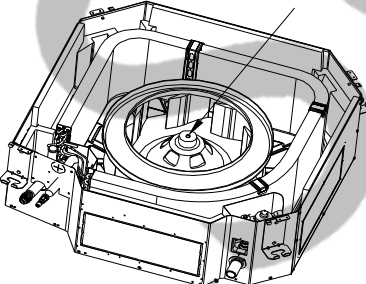
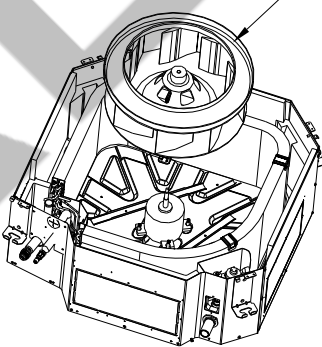
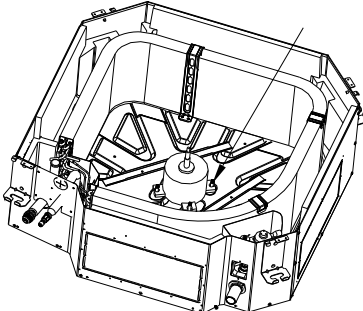
Disassembly of evaporator		
Remark: Make sure that the power supply is cut off and protect the copper tube and aluminum fin. If the time for disassembly shall be long, put the copper tube under pressurized condition.		
Step	Illustration	Handling Instruction
<p>1. Disassembly of upper cover plate</p>		<p>Disassemble the fastening screws on the upper cover plate and remove the upper cover plate.</p>
<p>2. Disassembly of fixing screws on the side panels of evaporator.</p>		<p>Disassemble the fastening screw connecting left and right side panels on the evaporator.</p>
<p>3. Disassemble fastening screws connecting evaporator valve seal-plate and joint flange</p>		<p>Disassemble the fastening screws on the valve seal-plate and remove the valve seal-plate. Disassemble the fastening screws on the evaporators' joint flange.</p>

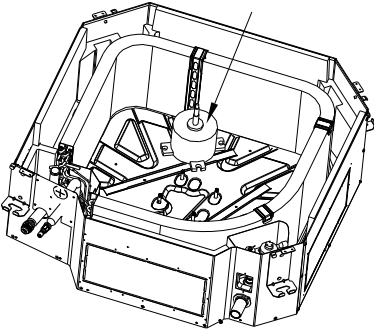
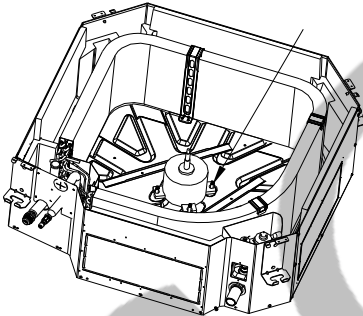
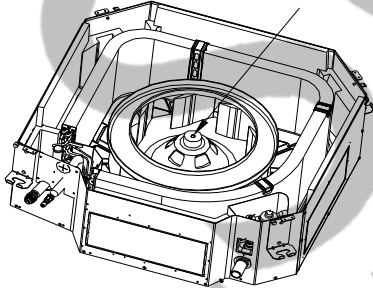
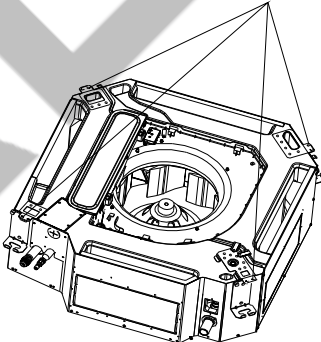
<p>4. Removal of evaporator</p>		<p>Remove the evaporator. Removed evaporator is shown in the graph.</p>
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Disassembly of Drainage Pump		
Remark: Make sure that the power supply is cut off before disassembling and protect all the parts during disassembly.		
Step	Illustration	Handling Instruction
<p>1. Loosen the screws fixing the drainage pump Bracket mounting plate.</p>		<p>Use screwdriver to loosen the screws fixing the drainage pump Bracket mounting plate.</p>
<p>2. Pull out the drainage pump sub-assembly.</p>		<p>Pull out the drainage pump sub-assembly.</p>
<p>3. Pull out the water outlet pipe and loosen the screws fixing the water pump.</p>		<p>Pull out the water outlet pipe and use screwdriver to loosen the screws fixing the water pump.</p>

5.2.2 Cassette-type Unit

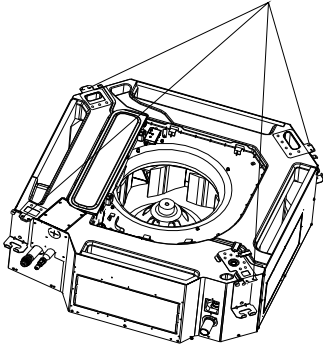
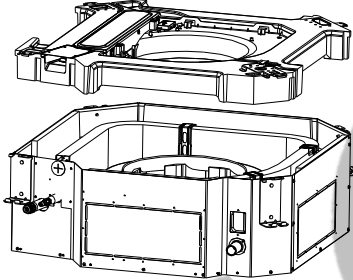
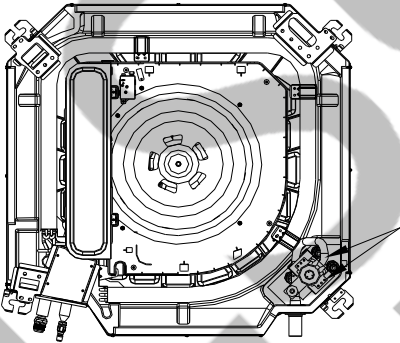
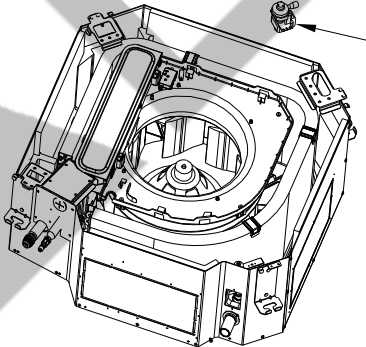
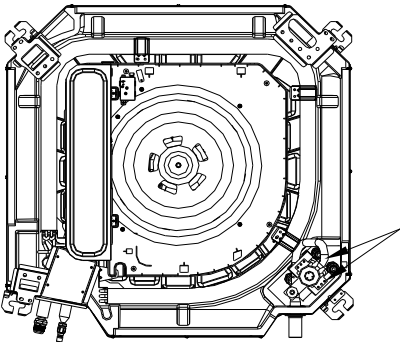
Removal and Assembly of Fan Motor		
Step	Illustration	Handling Instruction

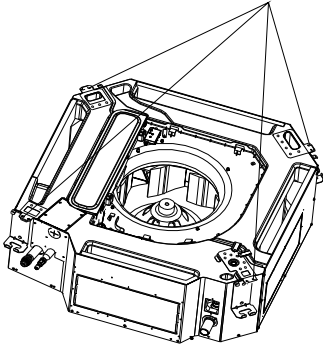
<p>1. Loosen the screws fixing the water tray</p>		<p>Use screwdriver to loosen the screws fixing the water tray.</p>
<p>2. Remove the water tray</p>		<p>Remove the water tray.</p>
<p>3. Loosen the bolts fixing the fan</p>		<p>Use spanner to loosen the bolts fixing the fan.</p>
<p>4. Remove the fan</p>		<p>Remove the fan.</p>
<p>5. Loosen the screws fixing the motor</p>		<p>Use screwdriver to loosen the screws fixing the motor.</p>

<p>6. Remove the motor and replace it</p>		<p>Remove the motor and replace it.</p>
<p>7. Tighten the screws fixing the motor</p>		<p>Use screwdriver to tighten the screws fixing the motor.</p>
<p>8. Mount the fan and tighten the fixing bolts</p>		<p>Mount the fan and use spanner to tighten the bolts fixing the fan</p>
<p>9. Mount the water tray and tighten the screws</p>		<p>Use screwdriver to loosen the screws fixing the water tray.</p>

Removal and Installation of Drainage Pump

Step	Illustration	Handling Instruction
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<p>1. Loosen the screws fixing the water tray</p>		<p>Use screwdriver to loosen the screws fixing the water tray.</p>
<p>2. Remove the water tray</p>		<p>Remove the water tray.</p>
<p>3. Pull out the water outlet pipe and loosen the screws fixing the water pump.</p>		<p>Pull out the water outlet pipe and use screwdriver to loosen the screws fixing the water pump.</p>
<p>4. Take out the pump and replace it.</p>		<p>Take out the pump and replace it.</p>
<p>5. Connect the drainage pipe and tighten the screws fixing the water pump.</p>		<p>Connect the drainage pipe and use screwdriver to tighten the screws fixing the water pump.</p>

<p>6. Mount the water tray and tighten the screws.</p>		<p>Use screwdriver to loosen the screws fixing the water tray.</p>
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APPENDIX

Appendix 1 The Comparison Table of Celsius-Fahrenheit Temperature

Fahrenheit display temperature (°F)	Fahrenheit(°F)	Celsius (°C)	Fahrenheit display temperature (°F)	Fahrenheit (°F)	Celsius (°C)	Fahrenheit display temperature (°F)	Fahrenheit(°F)	Celsius (°C)
61	60.8	16	69/70	69.8	21	78/79	78.8	26
62/63	62.6	17	71/72	71.6	22	80/81	80.6	27
64/65	64.4	18	73/74	73.4	23	82/83	82.4	28
66/67	66.2	19	75/76	75.2	24	84/85	84.2	29
68	68	20	77	77	25	86	86	30

Appendix 2 Temperature Sensor Resistance Value Table (°C--K)

°C	K Ohm	°C	K Ohm	°C	K Ohm	°C	K Ohm
-20	115.266	20	12.6431	60	2.35774	100	0.62973
-19	108.146	21	12.0561	61	2.27249	101	0.61148
-18	101.517	22	11.5000	62	2.19073	102	0.59386
-17	96.3423	23	10.9731	63	2.11241	103	0.57683
-16	89.5865	24	10.4736	64	2.03732	104	0.56038
-15	84.2190	25	10.0000	65	1.96532	105	0.54448
-14	79.3110	26	9.55074	66	1.89627	106	0.52912
-13	74.5360	27	9.12445	67	1.83003	107	0.51426
-12	70.1698	28	8.71983	68	1.76647	108	0.49989
-11	66.0898	29	8.33566	69	1.70547	109	0.48600
-10	62.2756	30	7.97078	70	1.64691	110	0.47256
-9	58.7079	31	7.62411	71	1.59068	111	0.45957
-8	56.3694	32	7.29464	72	1.53668	112	0.44699
-7	52.2438	33	6.98142	73	1.48481	113	0.43482
-6	49.3161	34	6.68355	74	1.43498	114	0.42304
-5	46.5725	35	6.40021	75	1.38703	115	0.41164
-4	44.0000	36	6.13059	76	1.34105	116	0.40060
-3	41.5878	37	5.87359	77	1.29078	117	0.38991
-2	39.8239	38	5.62961	78	1.25423	118	0.37956
-1	37.1988	39	5.39689	79	1.21330	119	0.36954
0	35.2024	40	5.17519	80	1.17393	120	0.35982
1	33.3269	41	4.96392	81	1.13604	121	0.35042
2	31.5635	42	4.76253	82	1.09958	122	0.3413

3	29.9058	43	4.57050	83	1.06448	123	0.33246
4	28.3459	44	4.38736	84	1.03069	124	0.32390
5	26.8778	45	4.21263	85	0.99815	125	0.31559
6	25.4954	46	4.04589	86	0.96681	126	0.30754
7	24.1932	47	3.88673	87	0.93662	127	0.29974
8	22.5662	48	3.73476	88	0.90753	128	0.29216
9	21.8094	49	3.58962	89	0.87950	129	0.28482
10	20.7184	50	3.45097	90	0.85248	130	0.27770
11	19.6891	51	3.31847	91	0.82643	131	0.27078
12	18.7177	52	3.19183	92	0.80132	132	0.26408
13	17.8005	53	3.07075	93	0.77709	133	0.25757
14	16.9341	54	2.95896	94	0.75373	134	0.25125
15	16.1156	55	2.84421	95	0.73119	135	0.24512
16	15.3418	56	2.73823	96	0.70944	136	0.23916
17	14.6181	57	2.63682	97	0.68844	137	0.23338
18	13.9180	58	2.53973	98	0.66818	138	0.22776
19	13.2631	59	2.44677	99	0.64862	139	0.22231

Appendix 3

Unit: °C---K		Discharge temperature sensor table					
-20	542.7	20	68.66	60	13.59	100	3.702
-19	511.9	21	65.62	61	13.11	101	3.595
-18	483	22	62.73	62	12.65	102	3.492
-17	455.9	23	59.98	63	12.21	103	3.392
-16	430.5	24	57.37	64	11.79	104	3.296
-15	406.7	25	54.89	65	11.38	105	3.203
-14	384.3	26	52.53	66	10.99	106	3.113
-13	363.3	27	50.28	67	10.61	107	3.025
-12	343.6	28	48.14	68	10.25	108	2.941
-11	325.1	29	46.11	69	9.902	109	2.86
-10	307.7	30	44.17	70	9.569	110	2.781
-9	291.3	31	42.33	71	9.248	111	2.704
-8	275.9	32	40.57	72	8.94	112	2.63
-7	261.4	33	38.89	73	8.643	113	2.559
-6	247.8	34	37.3	74	8.358	114	2.489
-5	234.9	35	35.78	75	8.084	115	2.422
-4	222.8	36	34.32	76	7.82	116	2.357
-3	211.4	37	32.94	77	7.566	117	2.294
-2	200.7	38	31.62	78	7.321	118	2.233
-1	190.5	39	30.36	79	7.086	119	2.174
0	180.9	40	29.15	80	6.859	120	2.117
1	171.9	41	28	81	6.641	121	2.061
2	163.3	42	26.9	82	6.43	122	2.007
3	155.2	43	25.86	83	6.228	123	1.955
4	147.6	44	24.85	84	6.033	124	1.905
5	140.4	45	23.89	85	5.844	125	1.856
6	133.5	46	22.89	86	5.663	126	1.808
7	127.1	47	22.1	87	5.488	127	1.762
8	121	48	21.26	88	5.32	128	1.717

9	115.2	49	20.46	89	5.157	129	1.674
10	109.8	50	19.69	90	5	130	1.632
11	104.6	51	18.96	91	4.849		
12	99.69	52	18.26	92	4.703		
13	95.05	53	17.58	93	4.562		
14	90.66	54	16.94	94	4.426		
15	86.49	55	16.32	95	4.294	B(25/50)=3950K	
16	82.54	56	15.73	96	4.167		
17	78.79	57	15.16	97	4.045	R(90°C)=5KΩ±3%	
18	75.24	58	14.62	98	3.927		
19	71.86	59	14.09	99	3.812		

Appendix 4

Normal voltage of P and N			
208-240V(1-phase,3-phase)		380-415V(3-phase)	
In standby			
around 310VDC		around 530VDC	
In operation			
With passive PFC module	With partial active PFC module	With fully active PFC module	/
>200VDC	>310VDC	>370VDC	>450VDC