Light Commercial Air Conditioner

R410A ON/OFF

Service Manual

Content

Part 1 General Information
1. Model Names of Indoor/Outdoor Units
1.1 Indoor Units

R410A (capacity multiplied by 1000Btu/h)

Type	Function	18	24	36	48	60
Four-way cassette (compact)	Cooling and heating	√	×	×	×	×
Eight-way cassette	Cooling and heating	√	√	√	√	√
Ceiling & floor	Cooling and heating	√	√	√	√	√
MSP Duct	Cooling and heating	√	√	√	√	√

1.2 Outdoor Units

Model of outdoor unit and corresponding indoor unit.

Universal Outdoor unit Model	Compressor type	Compressor Brand	Matched indoor units
TCC-18HA/UO(01)	Rotary	HIGHLY	TCC-18CHRA/UI(Q4)(01) TCC-18CHRA/UI(01) TCC-18D2HRA/UI(01) TCC-18ZHRA/UI(01)
TCC-24HA/UO(01)	Rotary	HIGHLY	TCC-24CHRA/UI(01) TCC-24D2HRA/UI(01) TCC-24ZHRA/UI(01)
TCC-36HA/UO(01)	Scroll	HIGHLY	TCC-36CHRA/UI TCC-36D2HRA/UI TCC-36ZHRA/UI
TCC-36HA/U3O(04)	Rotary	HIGHLY	TCC-36CHRA/UI(04) TCC-36D2HRA/UI(04) TCC-36ZHRA/UI(04)
TCC-48HA/U3O(04)	Rotary	HIGHLY	TCC-48CHRA/UI(04) TCC-48D2HRA/UI（04） TCC-48ZHRA/UI（04）
TCC-60HA/U3O(04)	Rotary	HIGHLY	TCC-60CHRA/UI(04) TCC-60D2HRA/UI(04) TCC-60ZHRA/UI(04)

2.External Appearnce

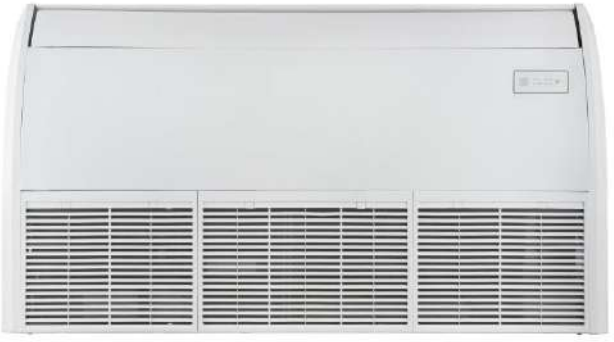
2.1 Indoor Units

Four-way Cassette (Compact)

Eight-way Cassette

Duct

Ceiling & floor



2.2 Outdoor Units

18K

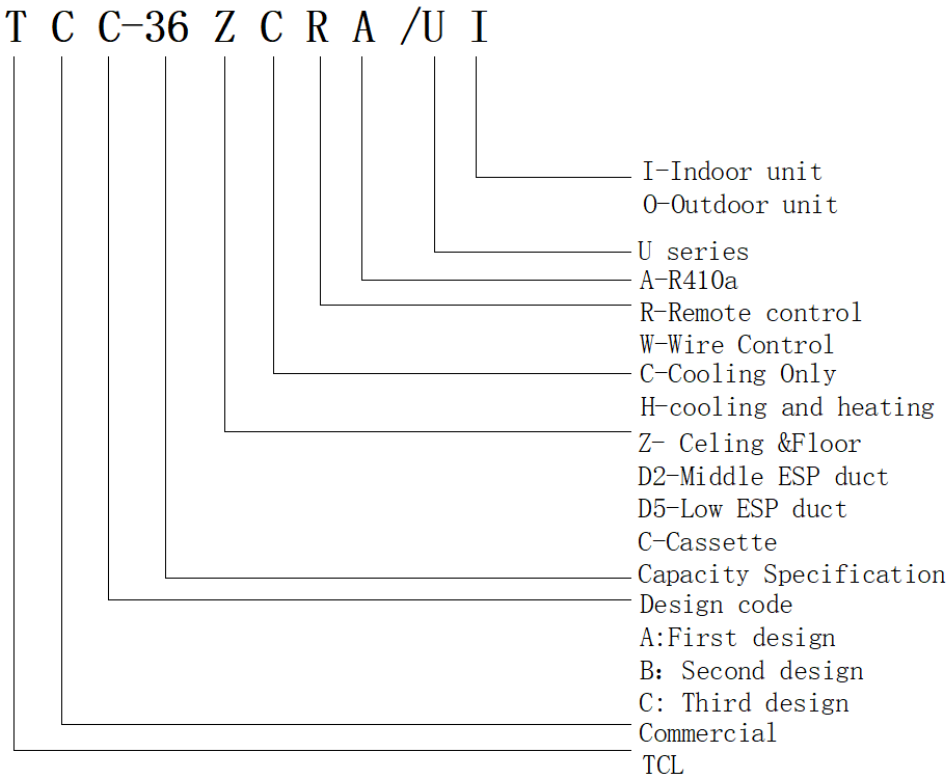
24K

36K

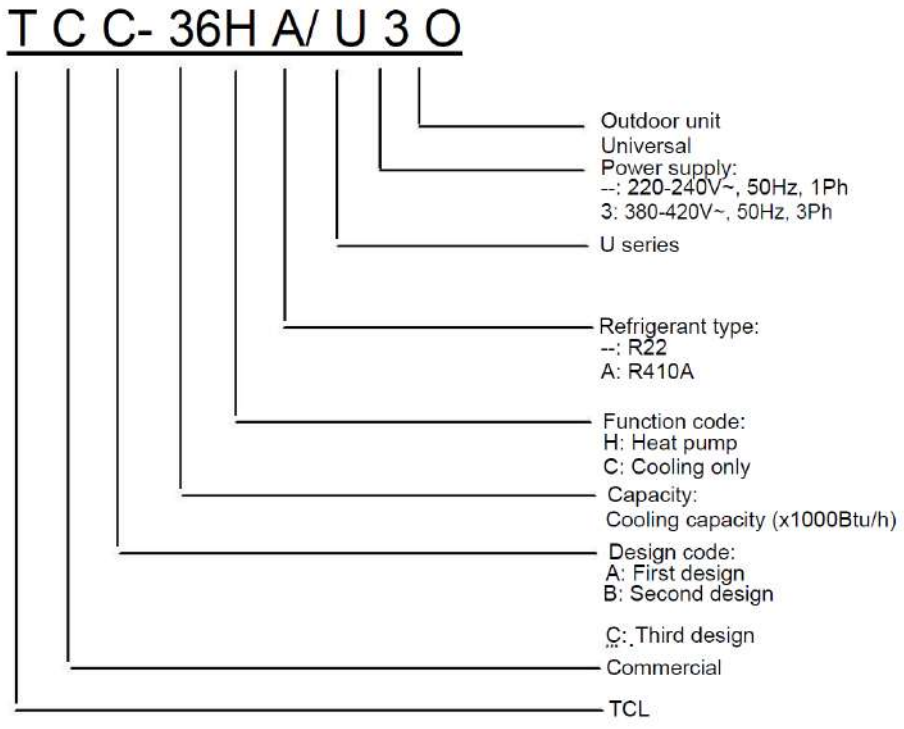
48K 60K

3. Nomenclature

3.1 Indoor Unit



3.2 Outdoor Unit



Part 2 Indoor Units

Cassette Type

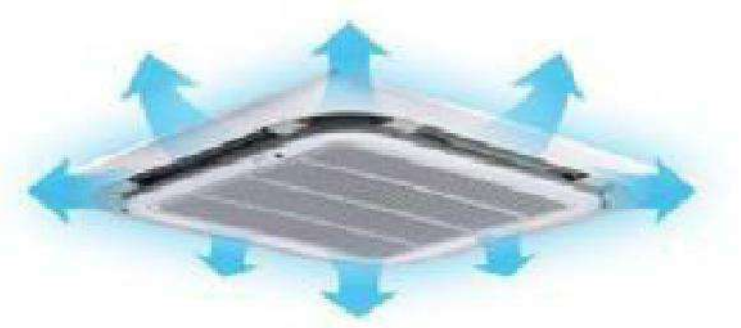
1. Features

(1) Compact design

Adopts compact design, easy installation by taking off ceiling panel of 650 × 650 or 950×950 size.

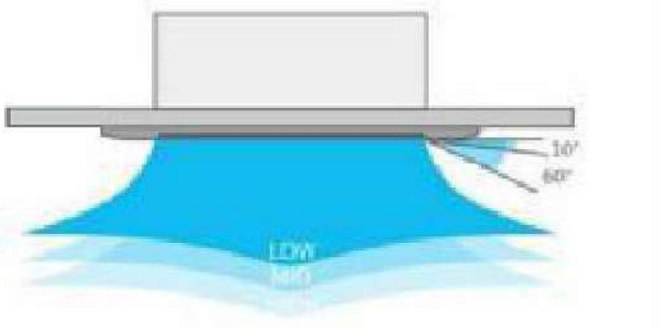
(2) New model design

The newly designed cassette type, featured with 8-way air-out directions, deliver you more comfortable feeling of air.



(3) Different swing angel design

Differential swing angels for cooling mode, heating mode and auto swing mode, to ensure comfortable feeling in anytime and anywhere.



(4) Push-open grill easy cleaning of filter

The air intake grill ca n be easily disassembled by just push-open action, and can be still attached to be the unit by 90 degree rotate angle, designed for easy maintenance and filter cleaning.

(5) Quiet operation

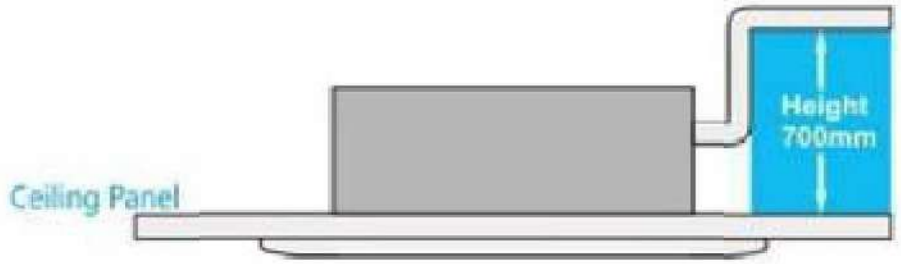
Adopting of advanced 3D centrifugal fan, the units can run more quietly.

(6) Detachable corner panel

Four detachable grille corners enable easy adjustment of hanger positions after installation.

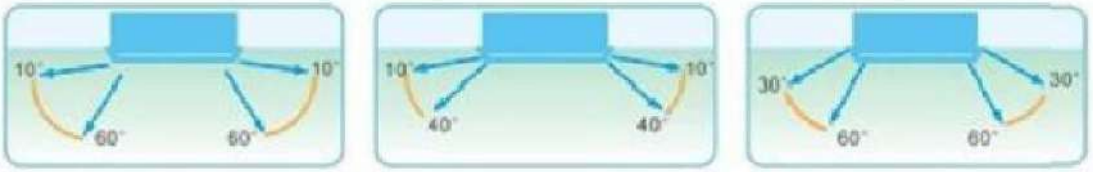
(7) Built-in head drain pump

Standard built-in drain pumps with head height up to 750m m, creating an ideal solution for water drainage.



(8) Anti-cold blowing function

When cooling in winter time, the indoor blower only starts when the indoor coil reaching a coil reaching a certain temp. In order to make sure the blowing air is warm.



(9) Standard for wireless controller; option for wired controller

2. Specifications

Model name	Cassette Indoor		TCC-18CHRA/UI(Q4)	TCC-18CHRA/UI(SX)	TCC-24CHRA/UI(01)	TCC-36CHRA/UI
Power supply		V//Hz/Ph	220-240V~/50Hz/1P	220-240V~/50Hz/1P	220-240V~/50Hz/1P	220-240V~/50Hz/1P
Cooling	Capacity	Btu/h	18000	18000	24000	36000
	Capacity	W	5175	5200	7000	10500
	Input	W	1683	1732	2050	3850
	Rated current	A	7.65	7.87	8.70	17.00
	EER	W/W	3.07	3.00	3.41	2.73
Heating	Capacity	Btu/h	18000	18000	24000	40000
	Capacity	W	5200	5200	7000	12000
	Input	W	1761	1671	1850	3650
	Rated current	A	8.00	8.60	8.0	16.50
	COP	W/W	3.18	3.53	3.78	3.29
Indoor coil	Number of row		2	2	2	2
	Fin spacing	mm	1.6	1.4	1.4	1.4
	Fin material		Hydrophilic & Louver Fin	Hydrophilic & Louver Fin	Hydrophilic & Louver Fin	Hydrophilic & Louver Fin
	Tube outside diameter	mm	φ7	φ7	φ7	φ7
	Tube material		Innergroover tube type	Innergroover tube type	Innergroover tube type	Innergroover tube type
	Coil length x height x width	mm	1370×210×25.4	1899×168×25.4	1899×168×25.4	2040×210×25.4
	Number of circuit		5	6	6	9
Indoor fan motor	Brand		lifeng	lifeng	lifeng	lifeng
	Model		YDK30-6C	YDK54-6-1	YDK55-6-3	YDK56-6-4
	Input	W	36/30/25	84/62/38	130/108/43	148/123/54
	Running current	A	0.19/0.15/0.12	0.38/0.29/0.18	0.60/0.49/0.21	0.68/0.58/0.28
	Capacitor	mF	2.0	2..5	3.5	3.5
	Speed (Hi/Me/Lo)	rpm	810/740/655	500/420/315	700/615/330	700/600/340
Indoor air flow (Hi/Me/Lo)		m^3/h	720/680/600	1100/950/880	1250/1100/950	1600/1500/1400
Indoor noise level (Hi/Me/Lo)		dB(A)	41/38/34	42/39/35	43/41/37	45/43/41
Indoor	Unit (WxHxD)	mm	575×260×575	830x230x830	830x230x830	840x245x840

dimension	Packing (WxHxD)	mm	725×300×725	925x290x925	925x290x925	935x305x935
Indoor weight	Net	kg	19	22	22	26
	Gross	kg	22	27	27	30
Panel	Unit (WxHxD)	mm	650×30×650	950x45x950	950x45x950	950x45x950
	Packing (WxHxD)	mm	700×80×700	1035×90×1035	1035×90×1035	1035×90×1035
	Net/Gross	kg	2.5/4.5	6/9	6/9	6/9
Refrigerant	Type		R410A	R410A	R410A	R410A
Refrigerant pipe	Liquid side	mm	6.35	6.35	9.52	9.52
	Gas side	mm	12.70	12.70	15.88	15.88
Drainage water pipe diameter		mm	OD32	OD32	OD32	OD32
Ambient temperature range	Cooling	℃	-5 ~ 43	-5 ~ 43	-5 ~ 43	-5 ~ 43
	Heating	℃	-15 ~ 24	-15 ~ 24	-15 ~ 24	-15 ~ 24
Operation Control			Remote control	Remote control	Remote control	Remote control

Model name	**Cassette Indoor**		**TCC-36CHRA/UI(04)**	**TCC-48CHRA/UI（04）**	**TCC-60CHRA/UI（04）**
Power supply		V//Hz/Ph	220-240V~/50Hz/1P	220-240V~/50Hz/1P	220-240V~/50Hz/1P
Cooling	Capacity	Btu/h	36000	48000	55000
	Capacity	W	10500	14000	16119
	Input	W	3723	4636	5694
	Rated current	A	7.80	9.30	11.00
	EER	W/W	2.82	3.02	2.83
Heating	Capacity	Btu/h	40000	50000	60500
	Capacity	W	12000	14650	17731
	Input	W	3409	5079	5700
	Rated current	A	7.20	9.50	11.30
	COP	W/W	3.52	2.88	3.11
Indoor coil	Number of row		2	2	2
	Fin spacing	mm	1.4	1.5	1.5
	Fin material		Hydrophilic & Louver Fin	Hydrophilic & Louver Fin	Hydrophilic & Louver Fin
	Tube outside diameter	mm	φ7	φ7	φ7
	Tube material		Innergroover tube type	Innergroover tube type	Innergroover tube type

	Coil length x height x width	mm	2040×210×25.4	1899×252×25.4	1899×252×25.4
	Number of circuit		9	12	12
Indoor fan motor	Brand		lifeng	lifeng	lifeng
	Model		YDK56-6-4	YDK56-6-4	YDK-75N-6
	Input	W	148/123/54	148/123/54	180/150/129
	Running current	A	0.68/0.58/0.28	0.68/0.58/0.28	0.844/0.684/0.586
	Capacitor	mF	3.5	3.5	3.5
	Speed (Hi/Me/Lo)	rpm	700/600/340	700/600/340	760/660/560
Indoor air flow (Hi/Me/Lo)		m^3/h	1600/1500/1400	1700/1500/1400	1900/1700/1500
Indoor noise level (Hi/Me/Lo)		dB(A)	45/43/41	45/43/41	47/44/43
Indoor dimension	Unit (WxHxD)	mm	840x245x840	830x290x830	830x290x830
	Packing (WxHxD)	mm	935x305x935	925x360x925	925x360x925
Indoor weight	Net	kg	26	28	28
	Gross	kg	30	33	33
Panel	Unit (WxHxD)	mm	950x45x950	950x45x950	950x45x950
	Packing (WxHxD)	mm	1035×80×1035	1035×80×1035	1035×80×1035
	Net/Gross	kg	6/9	6/9	6/9
Refrigerant	Type		R410A	R410A	R410A
Refrigerant pipe	Liquid side	mm	9.52	9.52	9.52
	Gas side	mm	15.88	19.05	19.05
Drainage water pipe diameter		mm	OD32	OD32	OD32
Ambient temperature range	Cooling	℃	-5 ~ 43	-5 ~ 43	-5 ~ 43
	Heating	℃	-15 ~ 24	-15 ~ 24	-15 ~ 24
Operation Control			Remote control	Remote control	Remote control

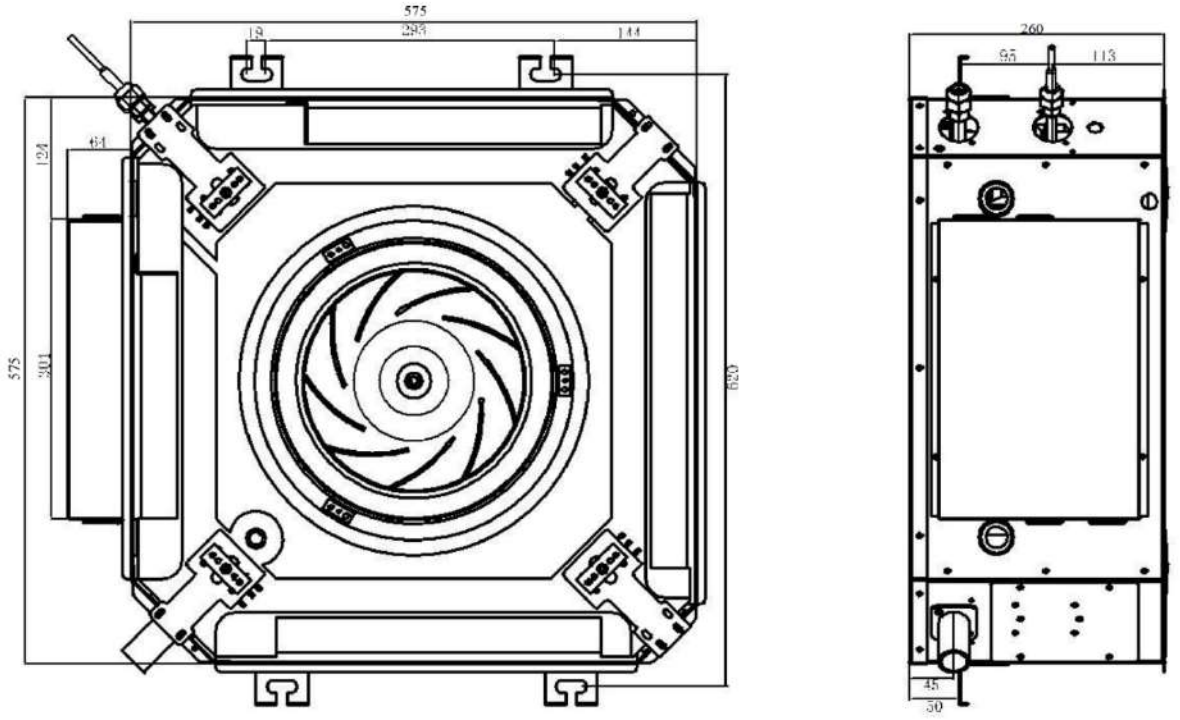
Notes:

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

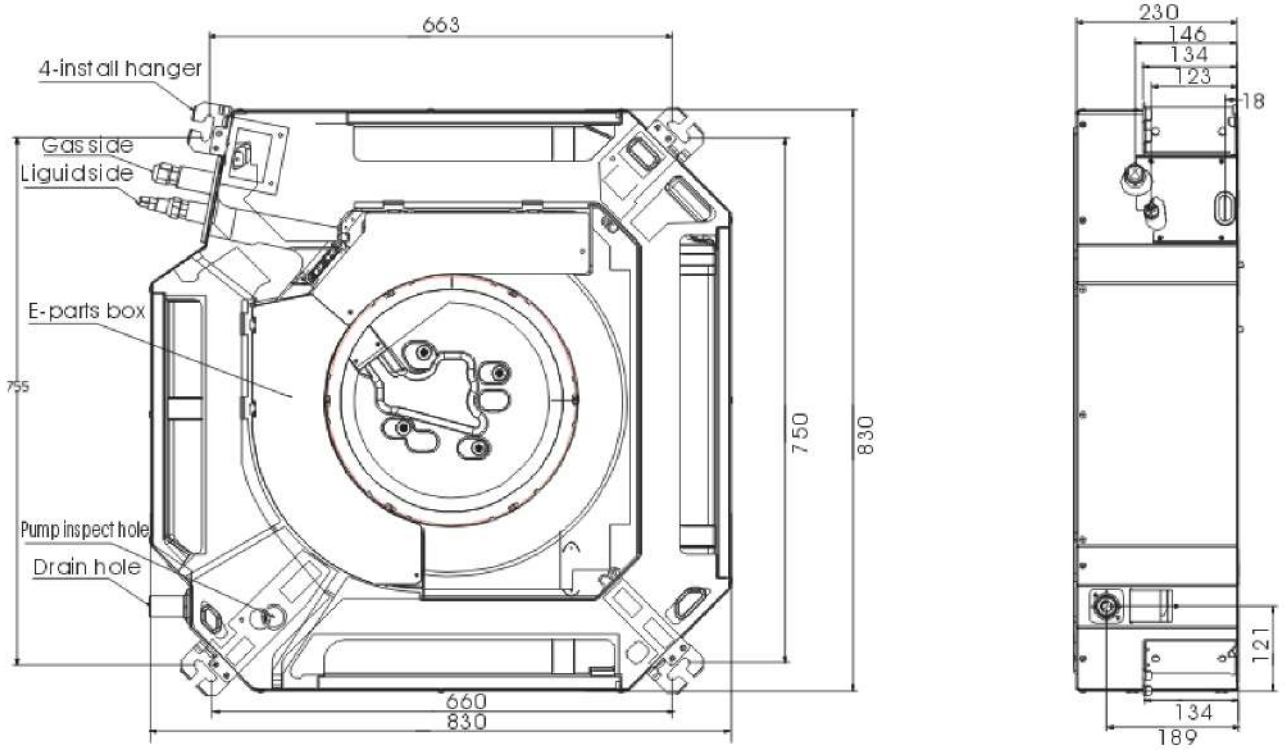
Remark: The above design and specification are subject to change without prior notice for product improvement.

3. Dimensions

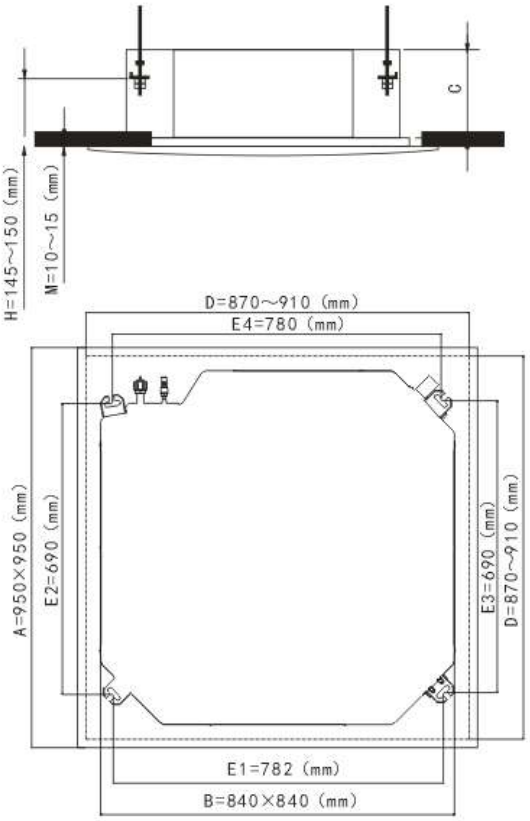
TCC-18CHRA/U(Q4)(01)



TCC-18CHRA/UI(01) & TCC-24CHRA/UI(01)



TCC-36CHRA/UI & TCC-36CHRA/UI(04)



Graphical representation:

A: Panel size

B: Dimensions of indoor machine

C: Height of indoor unit
(36k is 255mm, 48/60k300mm)

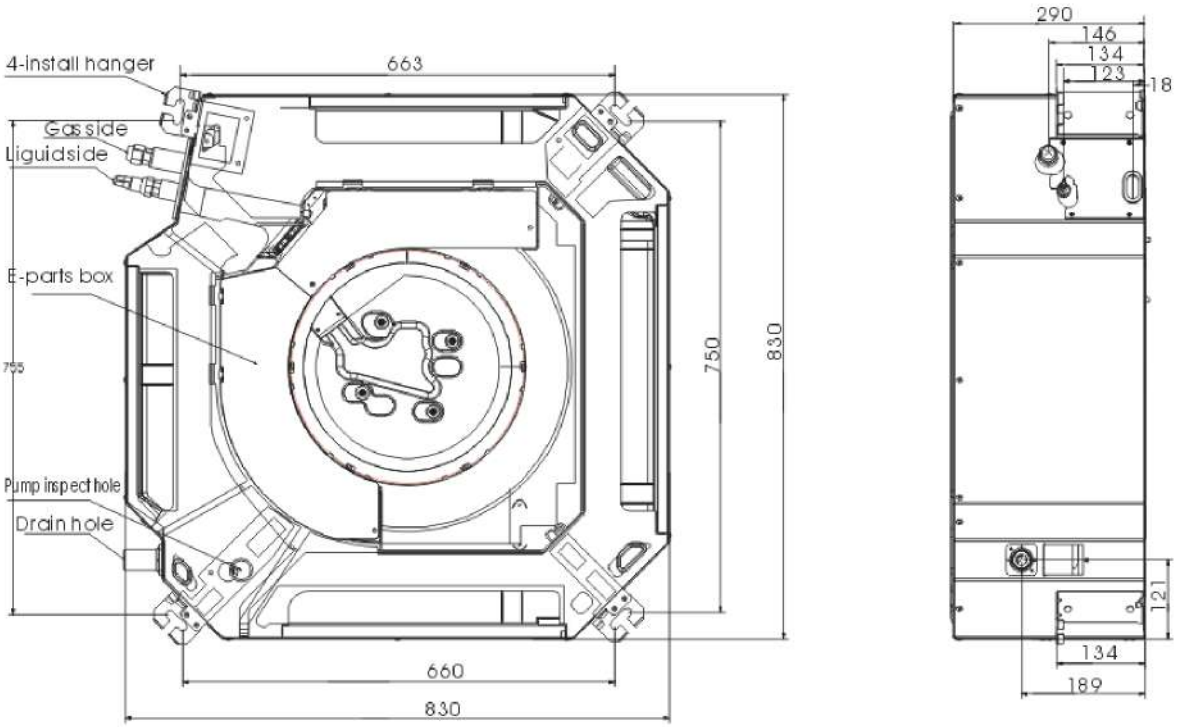
D: Ceiling opening size

E: Indoor machine hook spacing

H: Distance from hook to bottom of ceiling

M: Panel seal sponge thickness

TCC-48CHRA/UI(04) & TCC-60CHRA/UI(04)



4. Service Space

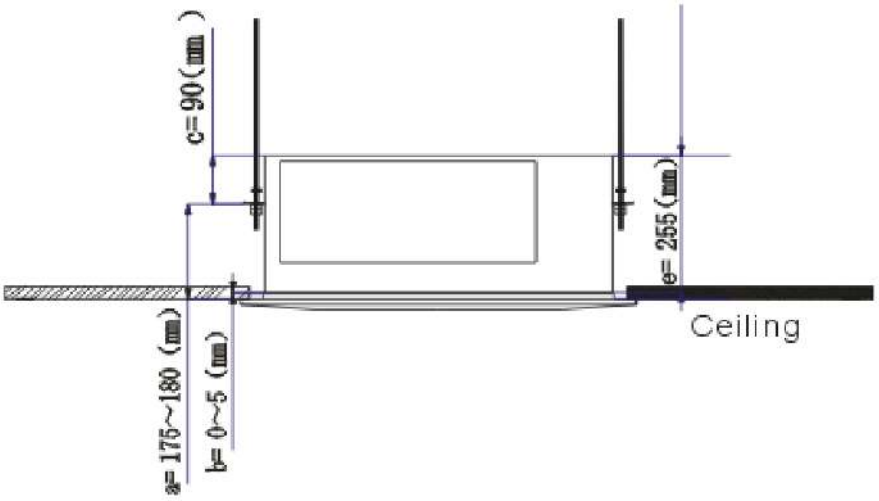
1. Location in the following places may cause malfunction of the machine. (If unavoidable, please consult your local dealer)

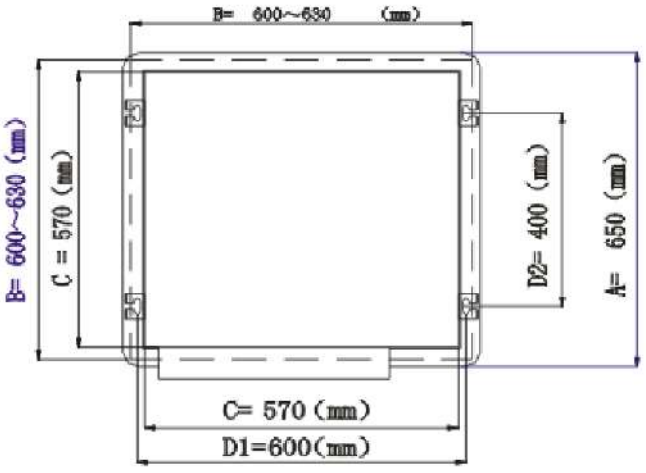
a. A place where there is flammable gas leakage.
b. There is salty air surrounding (near the coast).
c. There is caustic gas (the sulfide, for example) existing in the air (near a hot spring).
d. A place where can not bear the weight of the machine.
e. In kitchen where it is full of oil gas
f. There is strong electromagnetic wave existing.
g. There is acid or alkaline liquid evaporating.
h. A place where air circulation is not enough.
I. The appliance shall not be installed in the laundry

2. Electrical Insulation must be done on the air conditioner and the building complying to National Regulations.

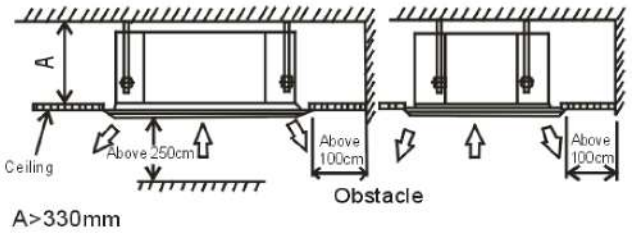
3. The installation height between ceiling and floor must be 2.7m~3.2m.

Four-way cassette





Eight-way cassette

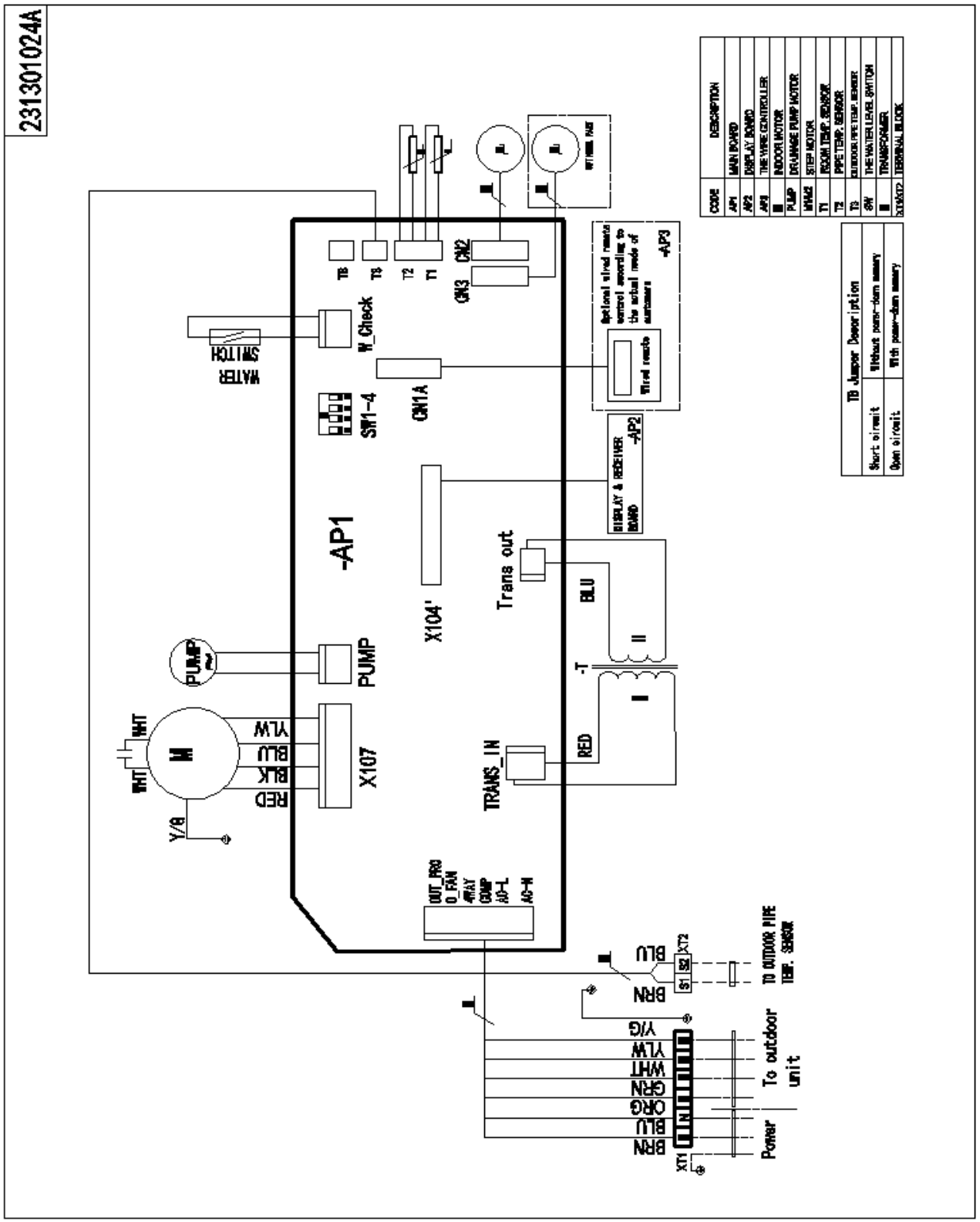


A>330mm

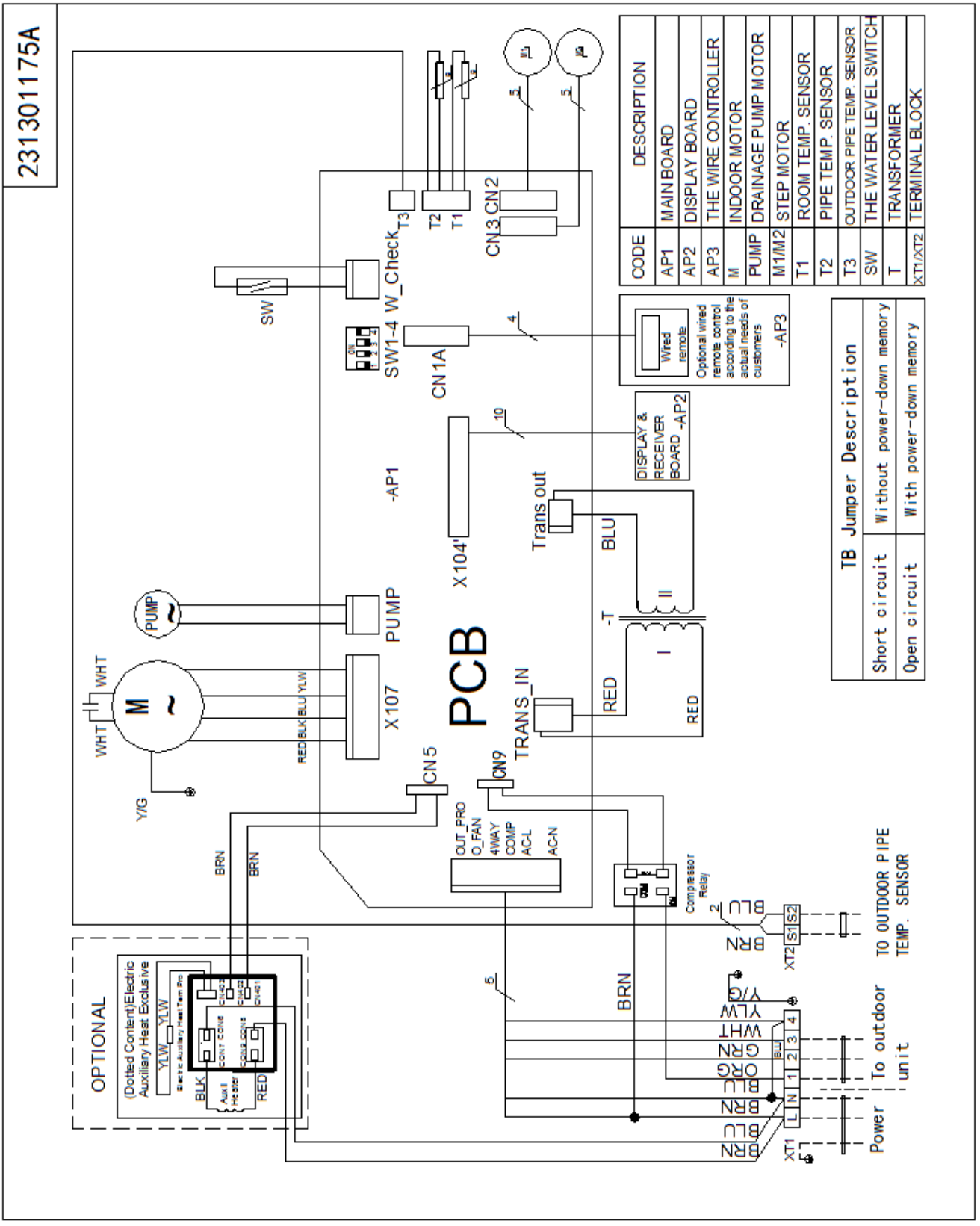
Wall material	Flammable material	Fire-proof material or other nonflammable materials other than metal	Fire-proof structure
Up(B)	Above 5cm	Above 5cm	Above 5cm
Sides(C)	Above 100cm	Above 100cm	———

5. Wiring Diagram

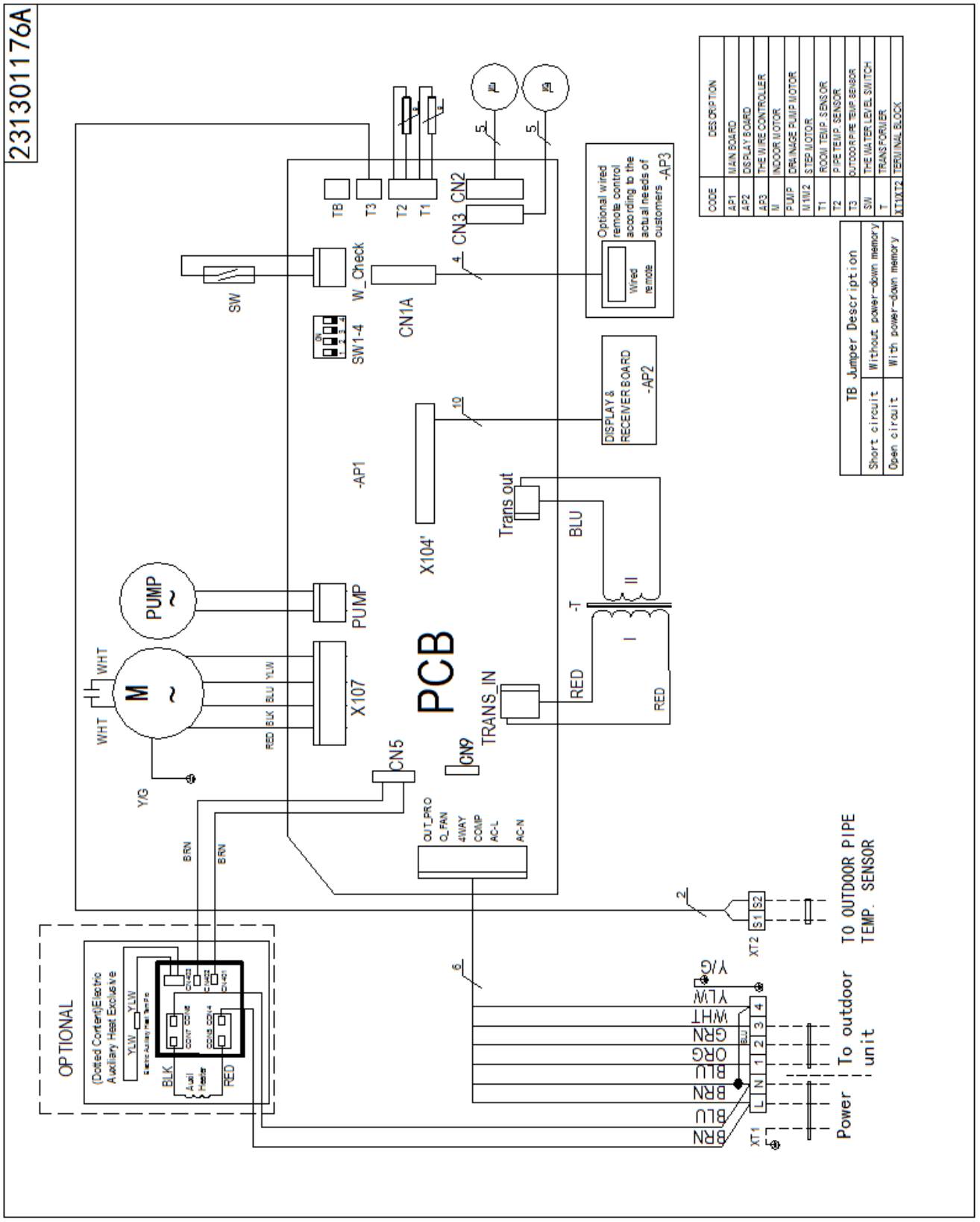
5.1 TCC-18CHRA/UI(Q4)(01) & TCC-36CHRA/UI & TCC-36CHRA/UI(04) & TCC-48CHRA/UI(04) & TCC-60CHRA/UI(04)



5.2 TCC-18CHRA/UI(01)

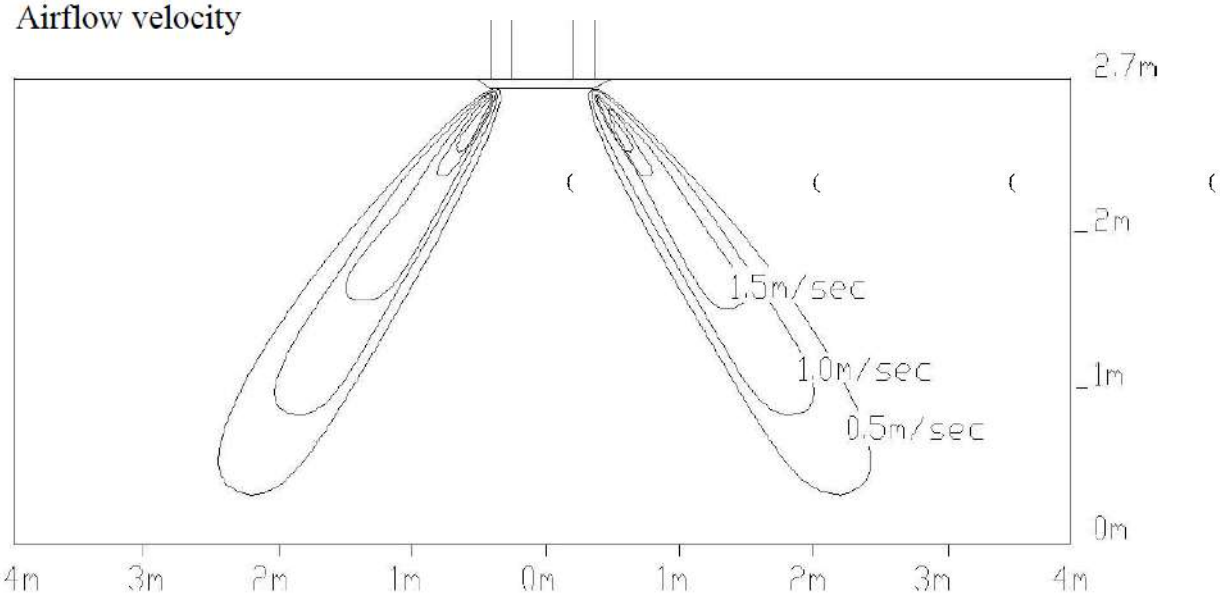


5.3 TCC-24CHRA/UI(01)

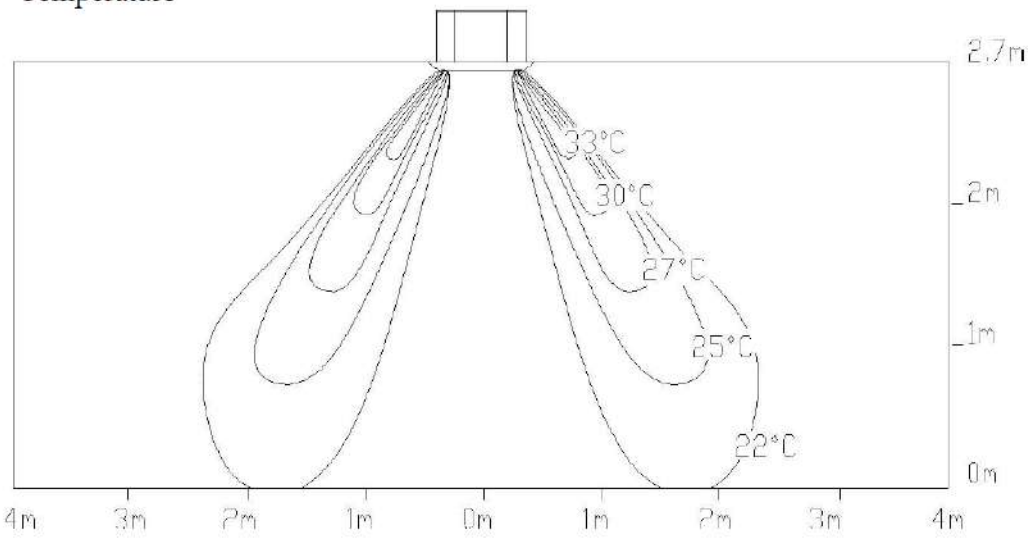


6. Air Velocity and Temperature Distributions

Airflow velocity



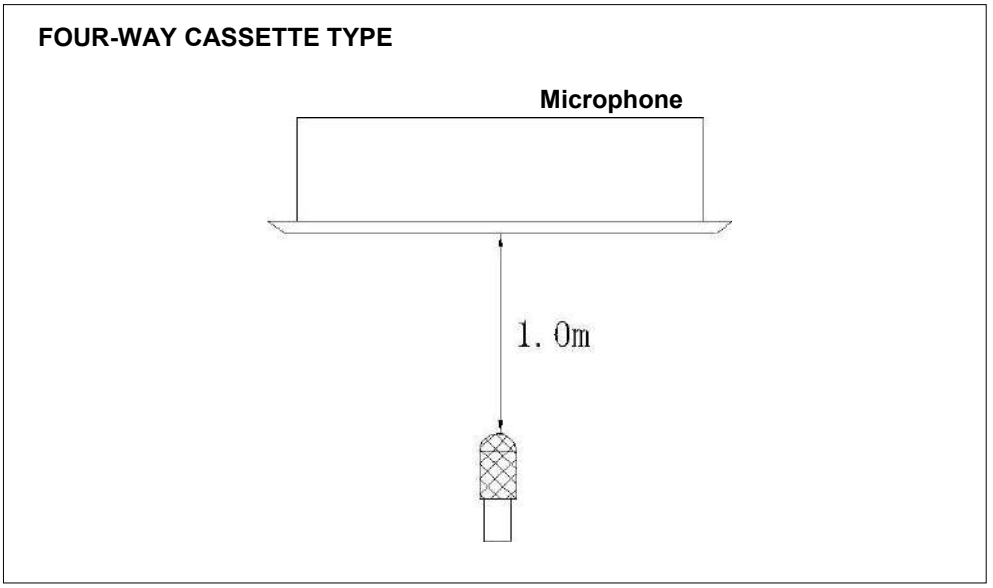
Temperature



7. Electric Characteristics

Model	Indoor units				Indoor Fan Motor
	Hz	Voltage (V)	Min(V)	Max (V)	Kw
TCC-18CHRA/UI(Q4)(01)	50	220-240V	198	254	0.036
TCC-18CHRA/UI(01)	50	220-240V	198	254	0.084
TCC-24CHRA/UI(01)	50	220-240V	198	254	0.130
TCC-36CHRA/UI	50	220-240V	198	254	0.148
TCC-36CHRA/UI(04)	50	220-240V	198	254	0.148
TCC-48CHRA/UI(04)	50	220-240V	198	254	0.148
TCC-60CHRA/UI(04)	50	220-240V	198	254	0.180

8. Sound Levels



Model	Noise level （dB）		
	H	M	L
TCC-18CHRA/UI(Q4)(01)	41	38	34
TCC-18CHRA/UI(01)	42	39	35
TCC-24CHRA/UI(01)	43	41	37
TCC-36CHRA/UI	45	43	41
TCC-36CHRA/UI(04)	45	43	41
TCC-48CHRA/UI(04)	45	43	41
TCC-60CHRA/UI(04)	47	44	43

9. The Specification of Wiring

Model			TCC-18CHRA/UI(Q4)(01)	TCC-18CHRA/UI(01)	TCC-24CHRA/UI(01)	TCC-36CHRA/UI(04)
Indoor power supply		V/Ph/Hz	220~240/1/50			
Outdoor power supply		V/Ph/Hz	220~240/1/50			
Connection wiring	Outdoor Power Supply		From indoor unit		Power supply individually for indoor and outdoor	
	Power wiring for indoor unit	mm^2	3×2.5	3×2.5	3×2.5	3×2.5
	Power wiring for outdoor unit	mm^2	/	/	3×2.5	3×2.5
	Strong Electric Signal	mm^2	5×2.5	5×2.5	3×2.5	4×2.5
	Weak Electric Signal	mm^2	2×0.75	2×0.75	2×0.75	2×0.75

Model			TCC-36CHRA/UI(04)	TCC-48CHRA/UI(04)	TCC-60CHRA/UI(04)
Indoor power supply		V/Ph/Hz	220~240/1/50		
Outdoor power supply		V/Ph/Hz	380~415/3/50		
Connection wiring	Outdoor Power Supply		Power supply individually for indoor and outdoor		
	Power wiring for indoor unit	mm^2	3×2.5	3×2.5	3×2.5
	Power wiring for outdoor unit	mm^2	5×2.5	5×2.5	5×2.5
	Strong Electric Signal	mm^2	4×2.5	4×2.5	4×2.5
	Weak Electric Signal	mm^2	2×0.75	2×0.75	2×0.75

MSP Duct Type

1. Features

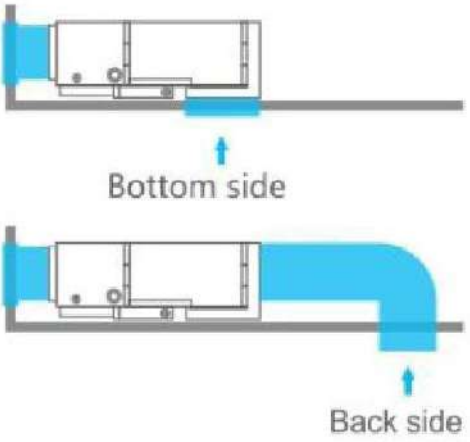
(1) Economic and convenient installation

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

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

(2) Way of air intake and inserting air filter

---Air intake can be positioned either at the back or below the unit. Similarly, the air filter also can be inserted either from the back or from the bottom of the unit.

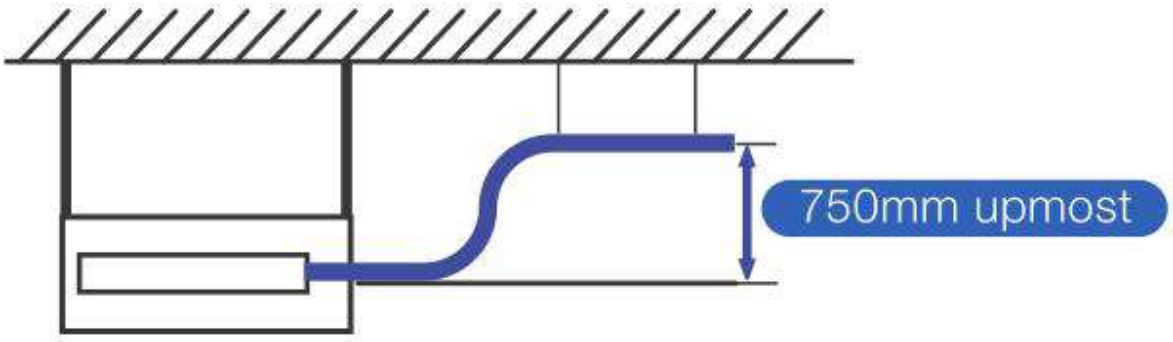


(3) Easy for maintenance

Detachable plastic air blowers, make the maintenance of fan motor more easily.

(4) Built-in head drain pump (optional)

Built-in drain pumps with head height up to 750mm, creating an ideal solution for water drainage.



(5) Dual-direction drainage pipe design

The condensing water can be drained from either right or left

(6) Standard for wireless controller; option for wired controller

2. Specifications

Model name	**MESP Duct Indoor**		**TCC-18D2HRA/UI(01)**	**TCC-24D2HRA/UI（01）**	**TCC-36D2HRA/UI**
Power supply		V//Hz/Ph	220-240V~/50Hz/1P	220-240V~/50Hz/1P	220-240V~/50Hz/1P
Cooling	Capacity	Btu/h	18000	24000	36000
	Capacity	W	5200	7000	10500
	Input	W	1761	2050	3850
	Rated current	A	8.00	8.70	17.00
	EER	W/W	2.95	3.41	2.73
Heating	Capacity	Btu/h	18000	24000	40000
	Capacity	W	5200	7000	12000
	Input	W	1513	1850	3650
	Rated current	A	6.87	8.0	16.50
	COP	W/W	3.90	3.78	3.29
Indoor coil	Number of row		3	3	3
	Fin spacing	mm	1.4	1.4	1.4
	Fin material		Hydrophilic & Louver Fin	Hydrophilic & Louver Fin	Hydrophilic & Louver Fin
	Tube outside diameter	mm	φ7	φ7	φ7
	Tube material		Innergroover tube type	Innergroover tube type	Innergroover tube type
	Coil length x height x width	mm	734×252×38.1	734×252×38.1	977×336×38.1
	Number of circuit		6	6	8

Indoor fan motor	Brand		Match-well	Match-well	Match-well
	Model		YSK68-4P-5	YSK74-4P-5	YSK140-4P-5
	Input	W	98/86/72/66	190/136/104/82	268/218/156/128
	Running current	A	0.45/0.48/0.37/0.30	0.88/0.63/0.49/0.39	1.25/1.00/1.08/0.582
	Capacitor	uF	4	5	10
	Speed (Hi/Me/Lo)	rpm	1140/1000/775/660	990/830/720/640	1055/920/750/665
Indoor air flow (Hi/Me/Lo)		m^3/h	1170/770/650	1400/950/800	1800/1500/1350
Indoor external static pressure (Hi)		Pa	70	70	80
Indoor noise level (Hi/Me/Lo)		dB(A)	43/35/32	46/43/41	46/44/42
Indoor dimension（with filter）	Unit (WxHxD)	mm	920x210x605	920x270x605	1140x270x745
	Packing (WxHxD)	mm	1120x281x690	1120×341×690	1341x341x830
Indoor weight	Net	kg	22	28	35
	Gross	kg	27	32	42
Refrigerant	Type		R410A	R410A	R410A
Refrigerant pipe	Liquid side	mm	6.35	9.52	9.52
	Gas side	mm	12.70	15.88	15.88
Drainage water pipe diameter		mm	OD25	OD25	OD25
Ambient temperature range	Cooling	℃	-5 ~ 43	-5 ~ 43	-5 ~ 43
	Heating	℃	-15 ~ 24	-15 ~ 24	-15 ~ 24
Operation Control			Remote controller	Remote controller	Remote controller

Model name	**MESP Duct Indoor**		**TCC-36D2HRA/UI(04)**	**TCC-48D2HRA/UI（04）**	**TCC-60D2HRA/UI（04）**
Power supply		V//Hz/Ph	220-240V~/50Hz/1P	220-240V~/50Hz/1P	220-240V~/50Hz/1P
Cooling	Capacity	Btu/h	36000	48000	55000
	Capacity	W	10550	14000	16119
	Input	W	3584	4560	5694
	Rated current	A	7.8	9.30	12.00
	EER	W/W	2.94	3.07	2.83
Heating	Capacity	Btu/h	40000	50000	60500
	Capacity	W	12000	14650	17731
	Input	W	3468	4446	4845
	Rated current	A	7.2	9.50	12.40
	COP	W/W	3.46	3.30	3.66
Indoor coil	Number of row		3	3	3
	Fin spacing	mm	1.4	1.4	1.4
	Fin material		Hydrophilic & Louver Fin	Hydrophilic & Louver Fin	Hydrophilic & Louver Fin
	Tube outside diameter	mm	φ7	φ7	φ7
	Tube material		Innergroover tube type	Innergroover tube type	Innergroover tube type
	Coil length x height x width	mm	977×336×38.1	1030×378×38.1	1030×378×38.1
	Number of circuit		8	9	9
Indoor fan motor	Brand		Match-well	Match-well	Match-well

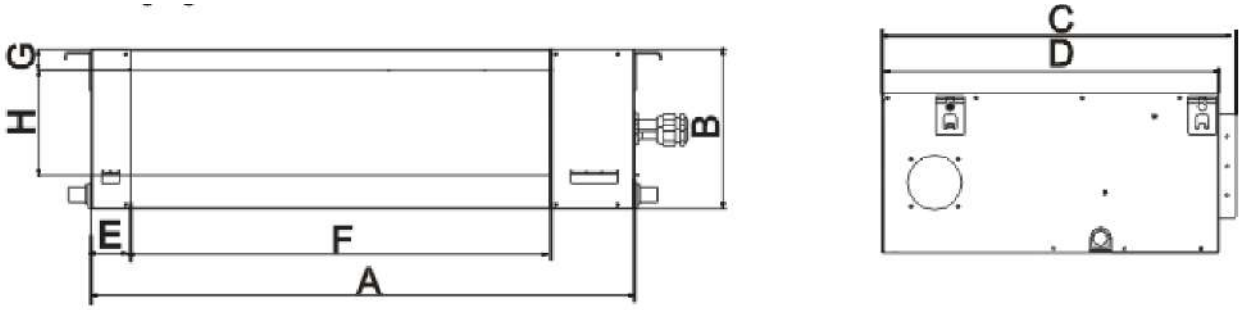
	Model		YSK140-4P-5	YSK170-4P-2	YSK170-4P-2
	Input	W	268/218/156/128	326/248/182/138	326/248/182/138
	Running current	A	1.25/1.00/1.08/0.582	1.49/1.21/108/0.63	1.49/1.21/108/0.63
	Capacitor	uF	10	10	10
	Speed (Hi/Me/Lo)	rpm	1055/920/750/665	1060/890/740/630	1060/890/740/630
Indoor air flow (Hi/Me/Lo)		m^3/h	1800/1500/1350	2100/1750/1550	2200/1800/1600
Indoor external static pressure (Hi)		Pa	80	100	100
Indoor noise level (Hi/Me/Lo)		dB(A)	46/44/42	47/44/42	47/45/43
Indoor dimension（with filter）	Unit (WxHxD)	mm	1140x270x745	1200x300x835	1200x300x835
	Packing (WxHxD)	mm	1341x341x830	1405x371x920	1405x371x920
Indoor weight	Net	kg	35	43	43
	Gross	kg	42	50	50
Refrigerant	Type		R410A	R410A	R410A
Refrigerant pipe	Liquid side	mm	9.52	9.52	9.52
	Gas side	mm	15.88	19.05	19.05
Drainage water pipe diameter		mm	OD25	OD25	OD25
Ambient temperature range	Cooling	℃	-5 ~ 43	-5 ~ 43	-5 ~ 43
	Heating	℃	-15 ~ 24	-15 ~ 24	-15 ~ 24
Operation Control			Remote controller	Remote controller	Remote controller

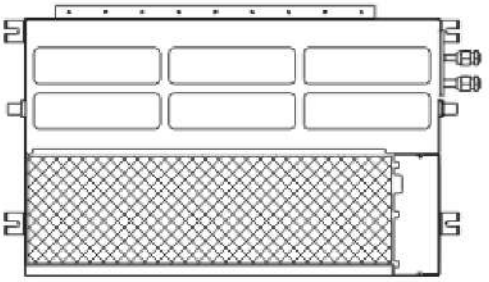
Notes:

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

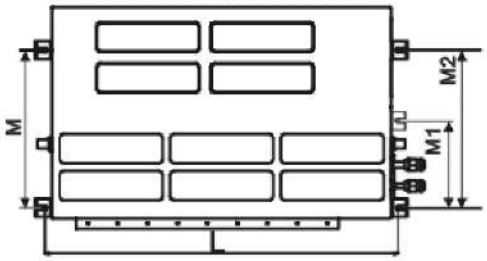
   Remark: The above design and specification are subject to change without prior notice for product improvement.

3. Dimensions

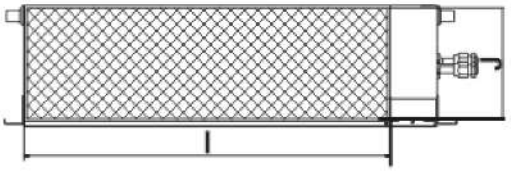




Size of mounted hook



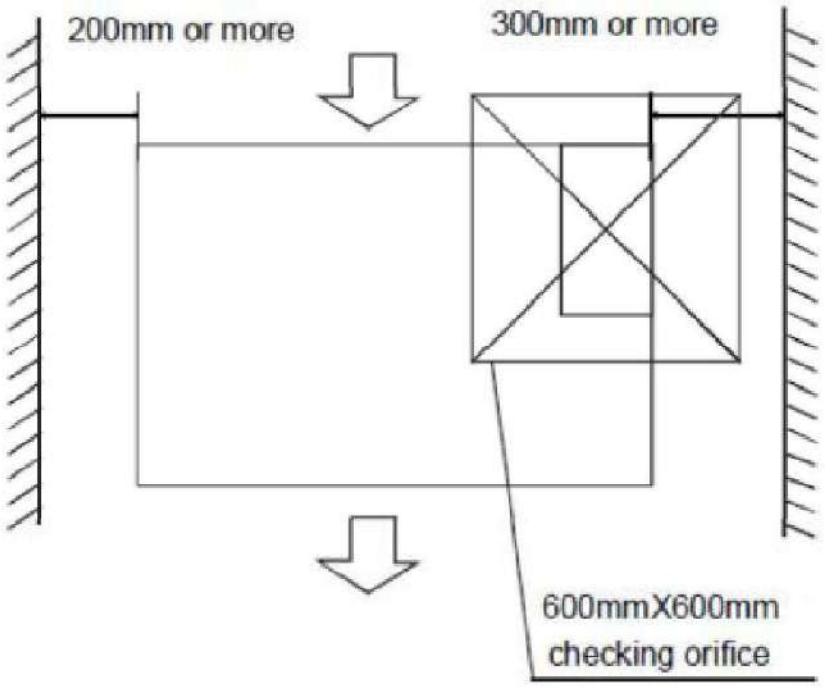
Air inlet size



	Outline dimension				Air outlet opening size				Air return opening size		Size of mounted lug			
	A	B	C	D	E	F	G	H	I	J	L	M	M1	M2
12/18D2	920	210	635	570	65	713	35	119	**808**	**197**	958	427	**248**	/
24D2	920	270	635	570	65	713	35	179	815	260	958	427	/	427
36D2	1140	270	775	710	65	933	**37**	**175**	1035	260	**1178**	541	/	541
48/60D2	1200	300	865	800	80	968	40	204	1094	**288**	1238	585	/	585

4. Service Space

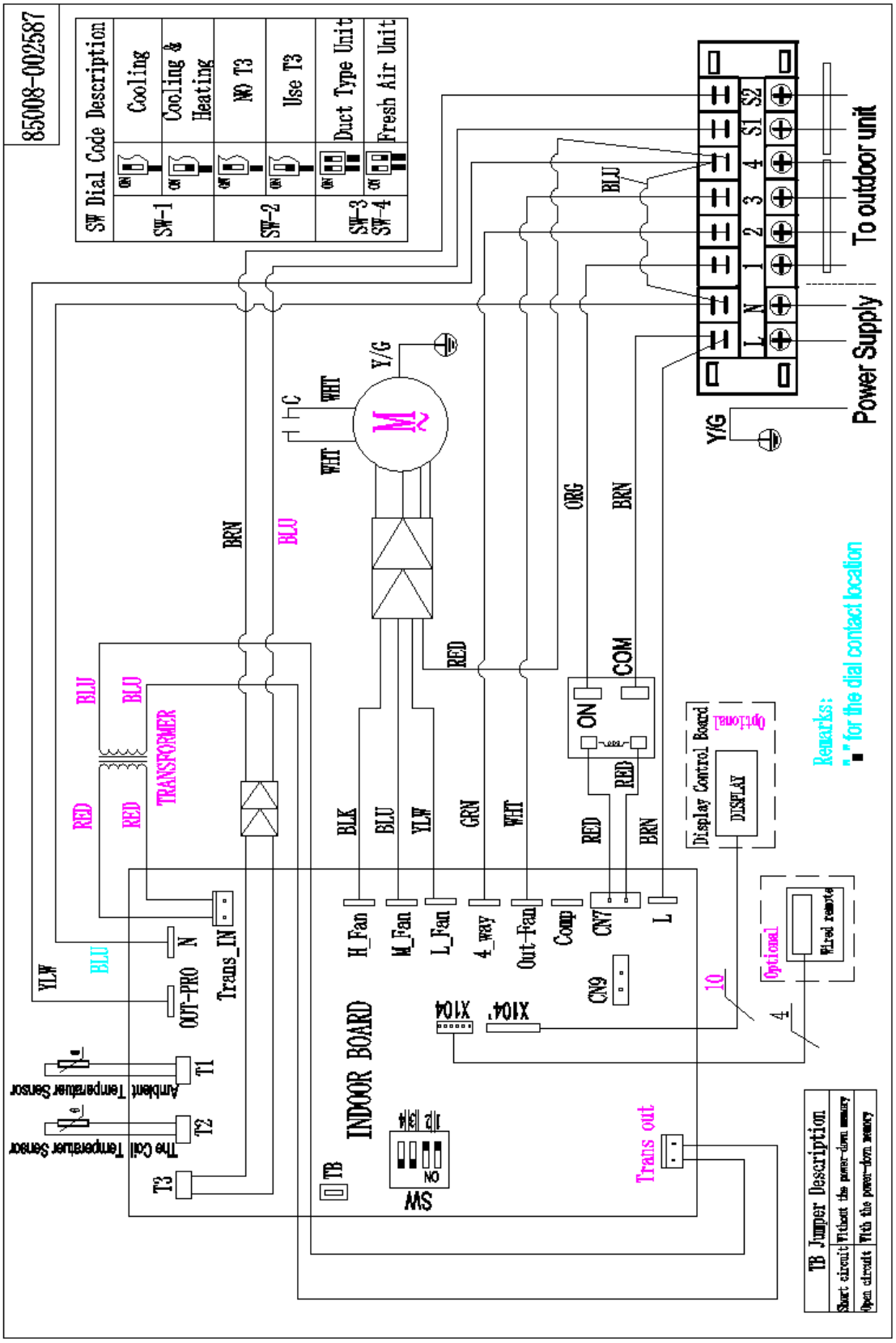
Ensure enough space required for installation and maintenance.



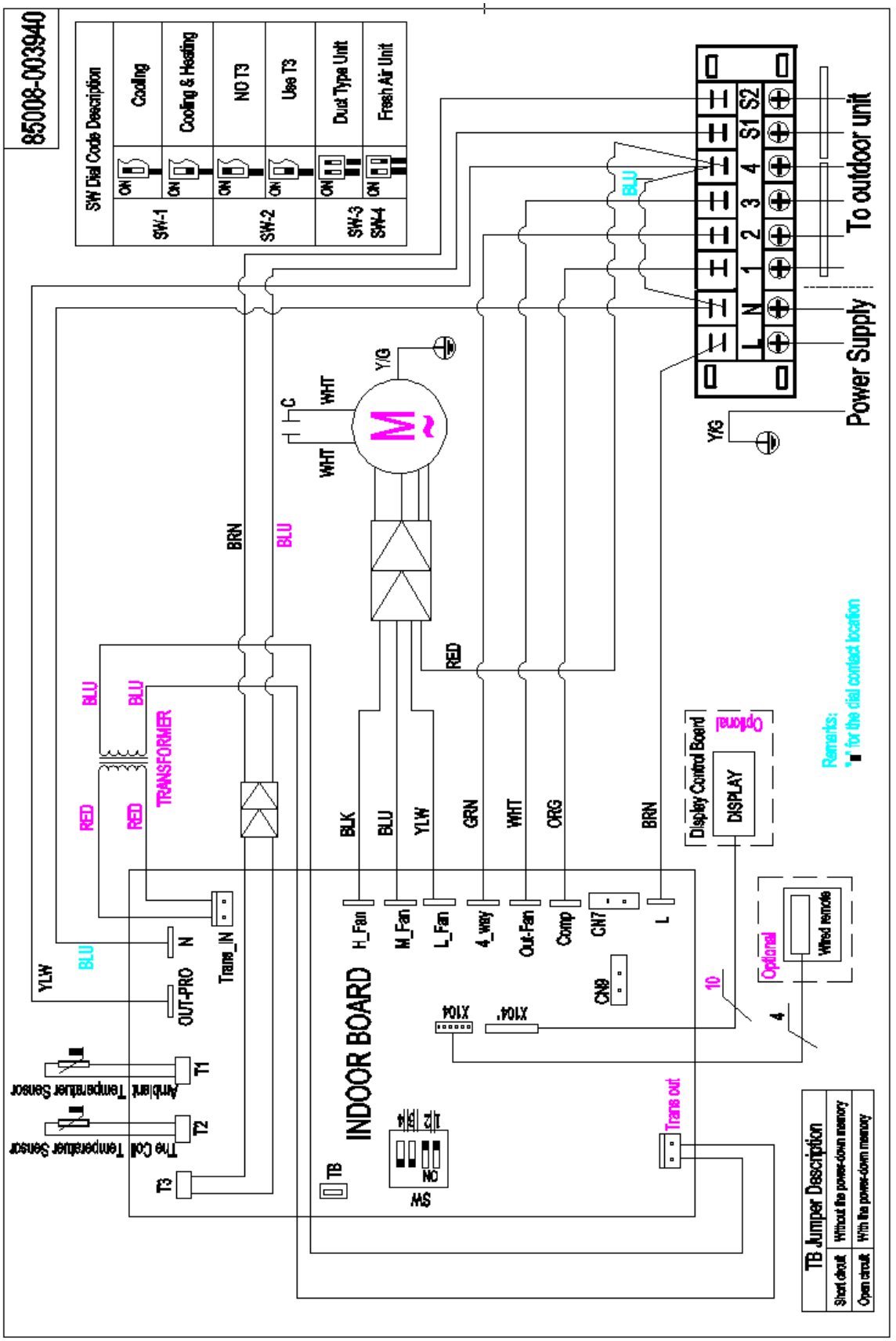
There is enough space for installation and maintenance. The ceiling is horizontal, and its structure can endure the weight of the indoor unit. The outlet and the inlet are not impeded, and the influence of external air is the least. The air flow can reach throughout the room. The connecting pipe and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

5. Wiring Diagrams

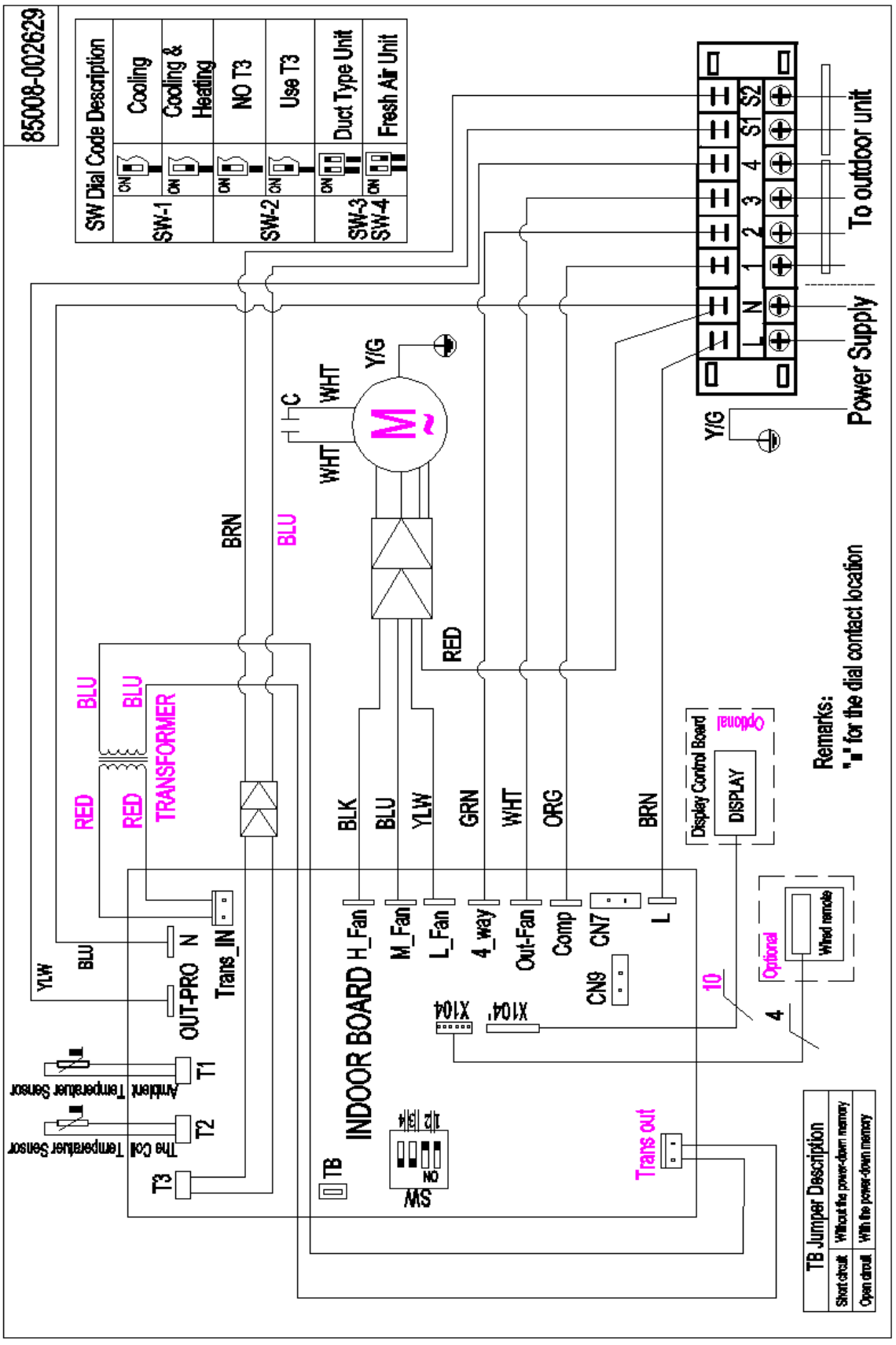
5.1 TCC-18D2HRA/U(01)



5.2 TCC-24D2HRA/UI(01)


85008-003940
SW Dial Code Description
Cooling
Cooling & Heating
NO T3
Use T3
Duct Type Unit
Fresh Air Unit
ON
SW-1
SW-2
SW-3
SW-4
To outdoor unit
Power Supply
L
N
1
2
3
4
S1
S2
Y/G
WHT
C
BLU
BRN
RED
TRANSFORMER
BLK
YLW
GRN
ORG
INDOOR BOARD
H_Fan
M_Fan
L_Fan
4_way
Out-Fan
Comp
CN7
CN8
Trans_IN
OUT-PRO
Ambient Temperature Sensor
Tube Coil Temperature Sensor
T1
T2
T3
TB
SW
Trans out
Display Control Board
DISPLAY
Optional
Wired remote
X104
10
4
Remarks:
"■" for the dial contact location
TB Jumper Description
Short circuit
Without the power-down memory
Open circuit
With the power-down memory

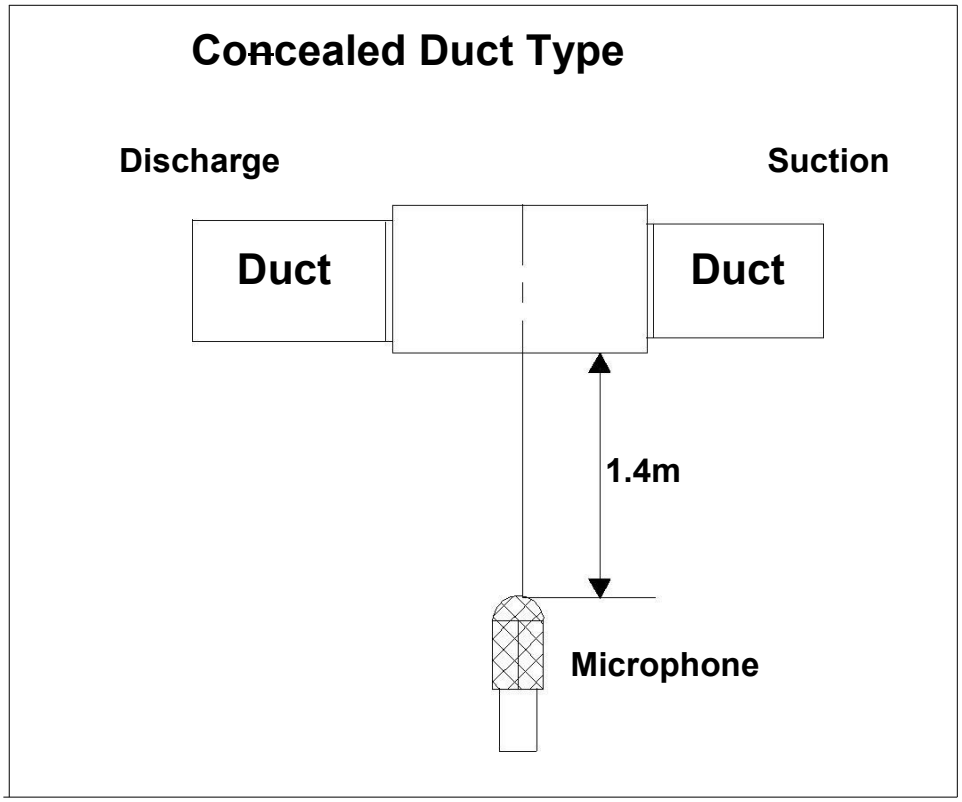
5.3 TCC-36D2HRA/UI & TCC-36D2HRA/UI(04) & TCC-48D2HRA/UI（04）& TCC-60D2HRA/UI(04)



6. Electric Characteristics

Model	Indoor units				Indoor Fan Motor
	Hz	Voltage (V)	Min (V)	Max(V)	kW
TCC-18D2HRA/UI(01)	50	220-240	198	254	0.098
TCC-24D2HRA/UI(01)	50	220-240	198	254	0.190
TCC-36D2HRA/UI	50	220-240	198	254	0.268
TCC-36D2HRA/UI(04)	50	220-240	198	254	0.268
TCC-48D2HRA/UI（04）	50	220-240	198	254	0.326
TCC-60D2HRA/UI(04)	50	220-240	198	254	0.326

7. Sound levels



Model	Noise level		
	H	M	L
TCC-18D2HRA/UI(01)	43	35	33
TCC-24D2HRA/UI(01)	46	43	41
TCC-36D2HRA/UI	46	44	42
TCC-36D2HRA/UI(04)	46	44	42
TCC-48D2HRA/UI (	47	44	42
TCC-60D2HRA/UI(04)	47	45	43

8. The Specification of Wiring

Model			TCC-18D2HRA/UI(01)	TCC-24D2HRA/UI(01)	TCC-36D2HRA/UI
Indoor power supply		V/Ph/Hz	220~240/1/50		
Outdoor power supply		V/Ph/Hz	220~240/1/50		
Connection wiring	Outdoor Power Supply		From indoor unit	Power supply individually for indoor and outdoor	
	Power wiring for indoor unit	mm^2	3×2.5	3×2.5	3×2.5
	Power wiring for outdoor unit	mm^2	/	3×2.5	3×2.5
	Strong Electric Signal	mm^2	5×2.5	3×0.75	4×0.75
	Weak Electric Signal	mm^2	2×0.75	2×0.75	2×0.75

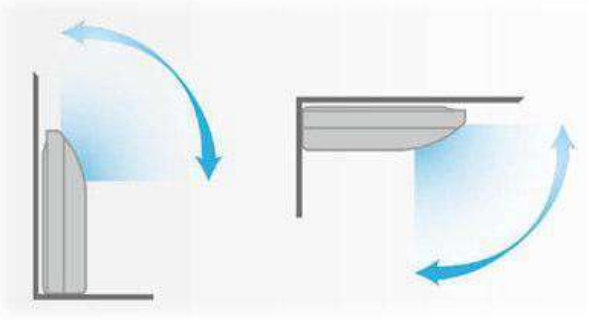
Model			TCC-36D2HRA/UI(04)	TCC-48D2HRA/UI（04）	TCC-60D2HRA/UI(04)
Indoor power supply		V/Ph/Hz	220~240/1/50		
Outdoor power supply		V/Ph/Hz	380~420/3/50		
Connection wiring	Outdoor Power Supply		Power supply individually for indoor and outdoor		
	Power wiring for indoor unit	mm^2	3×2.5	3×2.5	3×2.5
	Power wiring for outdoor unit	mm^2	5×2.5	5×2.5	5×2.5
	Strong Electric Signal	mm^2	4×0.75	4×0.75	4×0.75
	Weak Electric Signal	mm^2	2×0.75	2×0.75	2×0.75

Ceiling & Floor Type
1. Features

（1） **New design, more modern and elegant appearance.**

（2） **Convenient installation**

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



（3） **Two direction auto swing (vertical & horizontal) and wide angle air flow**

--Air flow directional control minimizes the air resistance and produces wilder air flow to vertical direction.

--The range of horizontal air discharge is widened which secures wider air flow distribution to provide more comfortable air circulation no matter where the unit is set up.

（4） **Condensing water can be drained either from left or from right.**

（5）Remote control and optional wired control method.

2. Specifications

Model name	Ceiling Floor Indoor		TCC-18ZHRA/UI(01)	TCC-24ZHRA/UI（01）	TCC-36ZHRA/UI
Power supply		V//Hz/Ph	220-240V~/50Hz/1P	220-240V~/50Hz/1P	220-240V~/50Hz/1P
Cooling	Capacity	Btu/h	18000	24000	36000
	Capacity	W	5200	7000	10500
	Input	W	1712	2050	3850
	Rated current	A	7.78	8.70	17.00
	EER	W/W	3.04	3.41	2.73
Heating	Capacity	Btu/h	18000	24000	40000
	Capacity	W	5200	7000	12000
	Input	W	1782	1850	3650
	Rated current	A	8.50	8.0	16.50
	COP	W/W	3.29	3.78	3.29
Indoor coil	Number of row		2	2	2
	Fin spacing	mm	1.5	1.5	1.5
	Fin material		Hydrophilic & Louver Fin	Hydrophilic & Louver Fin	Hydrophilic & Louver Fin
	Tube outside diameter	mm	φ7	φ7	φ7
	Tube material		Innergroover tube type	Innergroover tube type	Innergroover tube type
	Coil length x height x width	mm	795x294x25.4	795×294×25.4	940×294×25.4
	Number of circuit		5	6	6
Indoor fan motor	Brand		Broad-ocean	Broad-ocean	Broad-ocean
	Model		YSK36-4P	Y6S443B5136	YSK125-4C-1
	Input	W	86/82/74/64	136/122/112/90	166/156/144/128
	Running current	A	0.41/0.38/0.35/0.31	0.64/0.58/0.53/0.43	0.75/0.71/0.69/0.59
	Capacitor	uF	2.5	2.5	4.5
	Applied QTY.		1	1	1
	Speed (Hi/Me/Lo)	rpm	985/940/850/740	1230/1150/1045/860	1250/1170/1085/935
Indoor air flow (Hi/Me/Lo)		m^3/h	900/800/700	1200/1050/900	1700/1300/1100

Indoor noise level (Hi/Me/Lo)		dB(A)	43/41/38	45/43/40	45/43/40
Indoor dimension	Unit (WxHxD)	mm	1055×675×235	1055×675×235	1275×675×235
	Packing (WxHxD)	mm	1130x748x305	1130x748x305	1350x748x305
Indoor weight	Net	kg	23	23	29
	Gross	kg	29	29	35
Refrigerant	Type		R410A	R410A	R410A
Refrigerant pipe	Liquid side	mm	φ6.35	9.52	9.52
	Gas side	mm	φ12.7	φ15.88	φ15.88
Drainage water pipe diameter		mm	OD25	OD25	OD25
Ambient temperature range	Cooling	℃	-5 ~ 43	-5 ~ 43	-5 ~ 43
	Heating	℃	-15 ~ 24	-15 ~ 24	-15 ~ 24
Operation Control			Remote controller	Remote controller	Remote controller

Model name	**Ceiling Floor Indoor**		**TCC-36ZHRA/UI(04)**	**TCC-48ZHRA/UI（04）**	**TCC-60ZHRA/UI（04）**
Power supply		V//Hz/Ph	220-240V~/50Hz/1P	220-240V~/50Hz/1P	220-240V~/50Hz/1P
Cooling	Capacity	Btu/h	36000	48000	55000
	Capacity	W	10550	14000	16119
	Input	W	3578	4551	5594
	Rated current	A	7.8	9.30	12.00
	EER	W/W	2.95	3.08	2.88
Heating	Capacity	Btu/h	40000	50000	60500
	Capacity	W	12000	14650	17731
	Input	W	3468	4058	5147
	Rated current	A	7.2	9.50	12.40
	COP	W/W	3.46	3.61	3.44
Indoor coil	Number of row		2	3	2
	Fin spacing	mm	1.5	1.5	1.5
	Fin material		Hydrophilic & Louver Fin	Hydrophilic & Louver Fin	Hydrophilic & Louver Fin

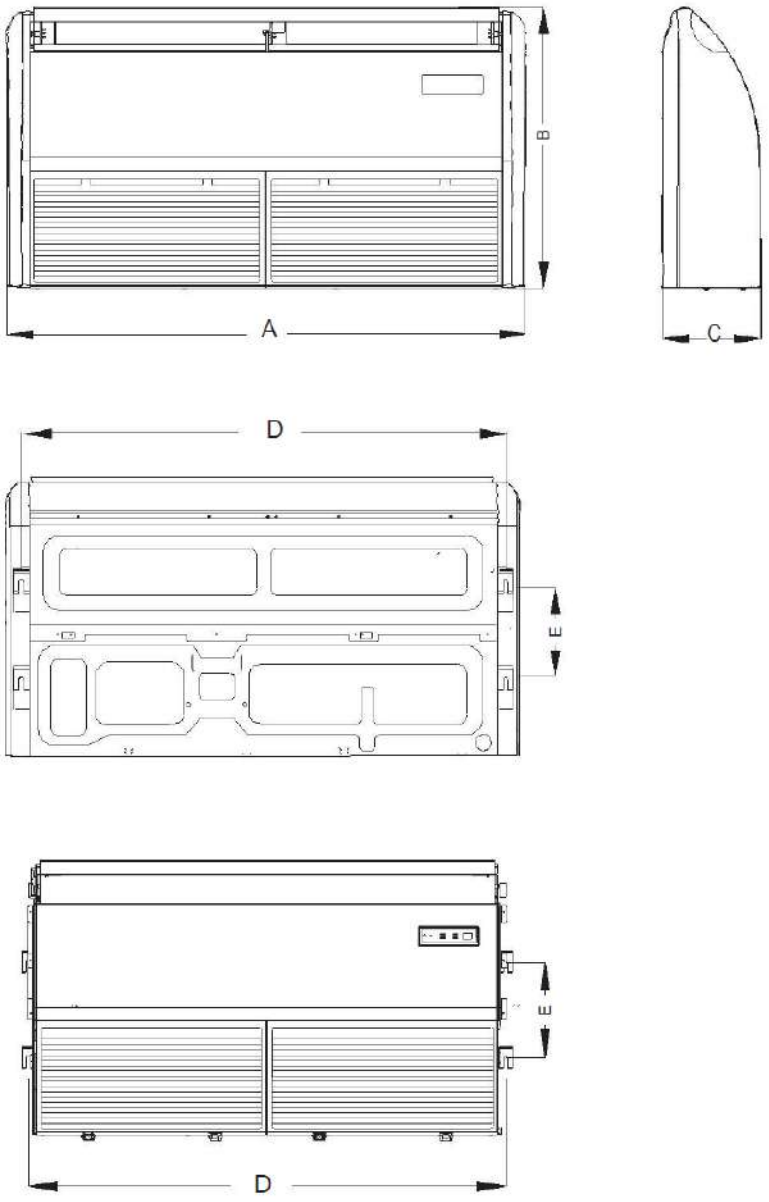
	Tube outside diameter	mm	φ7	φ7	φ7
	Tube material		Innergroover tube type	Innergroover tube type	Innergroover tube type
	Coil length x height x width	mm	940×294×25.4	1300×294×38.1	1300×294×25.4
	Number of circuit		6	10	6
Indoor fan motor	Brand		Broad-ocean	Broad-ocean	Broad-ocean
	Model		YSK125-4C-1	Y6S443B5137	Y6S443B8108
	Input	W	166/156/144/128	112/104/98/92	180/164/112/92
	Running current	A	0.75/0.71/0.69/0.59	0.51/0.48/0.45/0.44	0.81/0.78/0.55/0.44
	Capacitor	uF	4.5	3.5	6.0
	Applied QTY.		1	2	2
	Speed (Hi/Me/Lo)	rpm	1250/1170/1085/935	1220/1160/1010/930	1250/1160/1000/760
Indoor air flow (Hi/Me/Lo)		m^3/h	1700/1300/1100	2177/1689/1434	2177/1689/1434
Indoor noise level (Hi/Me/Lo)		dB(A)	45/43/40	52/49/46	52/49/46
Indoor dimension	Unit (WxHxD)	mm	1275×675×235	1635x675x235	1635x675x235
	Packing (WxHxD)	mm	1350x748x305	1710x748x305	1710x748x305
Indoor weight	Net	kg	29	40	38
	Gross	kg	35	46	44
Refrigerant	Type		R410A	R410A	R410A
Refrigerant pipe	Liquid side	mm	9.52	9.52	9.52
	Gas side	mm	φ15.88	φ19.05	φ19.05
Drainage water pipe diameter		mm	OD25	OD25	OD25
Ambient temperature range	Cooling	℃	-5 ~ 43	-5 ~ 43	-5 ~ 43
	Heating	℃	-15 ~ 24	-15 ~ 24	-15 ~ 24
Operation Control			Remote controller	Remote controller	Remote controller

Notes:

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

anechoic room.
Remark: The above design and specification are subject to change without prior notice for product improvement.

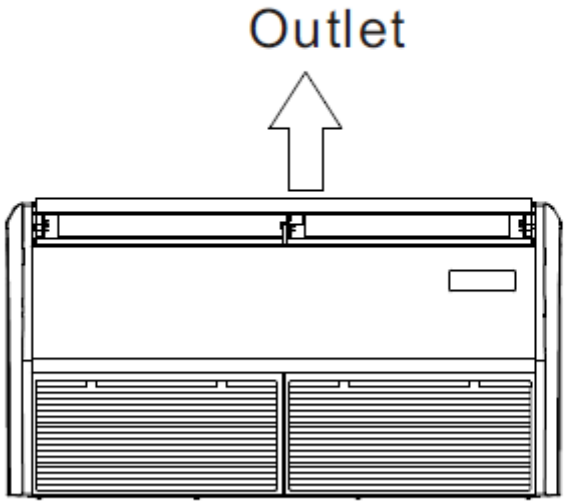
3. Dimensions



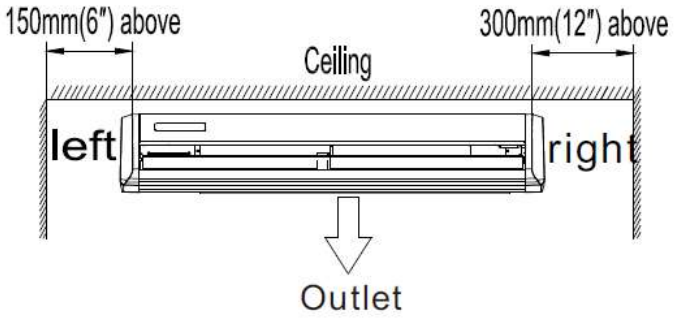
Capacity / Dimension	18000/24000Btu/h	36000Btu/h	48000/60000Btu/h
A	1055	1275	1635
B	675	675	675
C	235	235	235
D	980	1200	1560
E	240	240	240

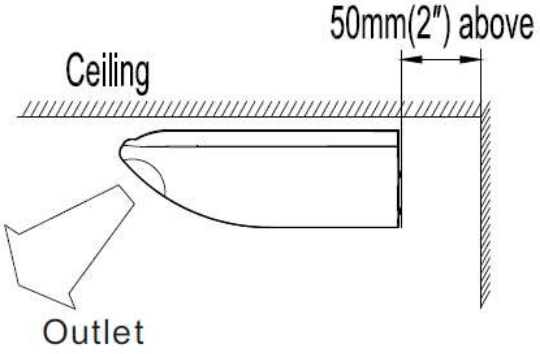
4. Service Space

● Floor console



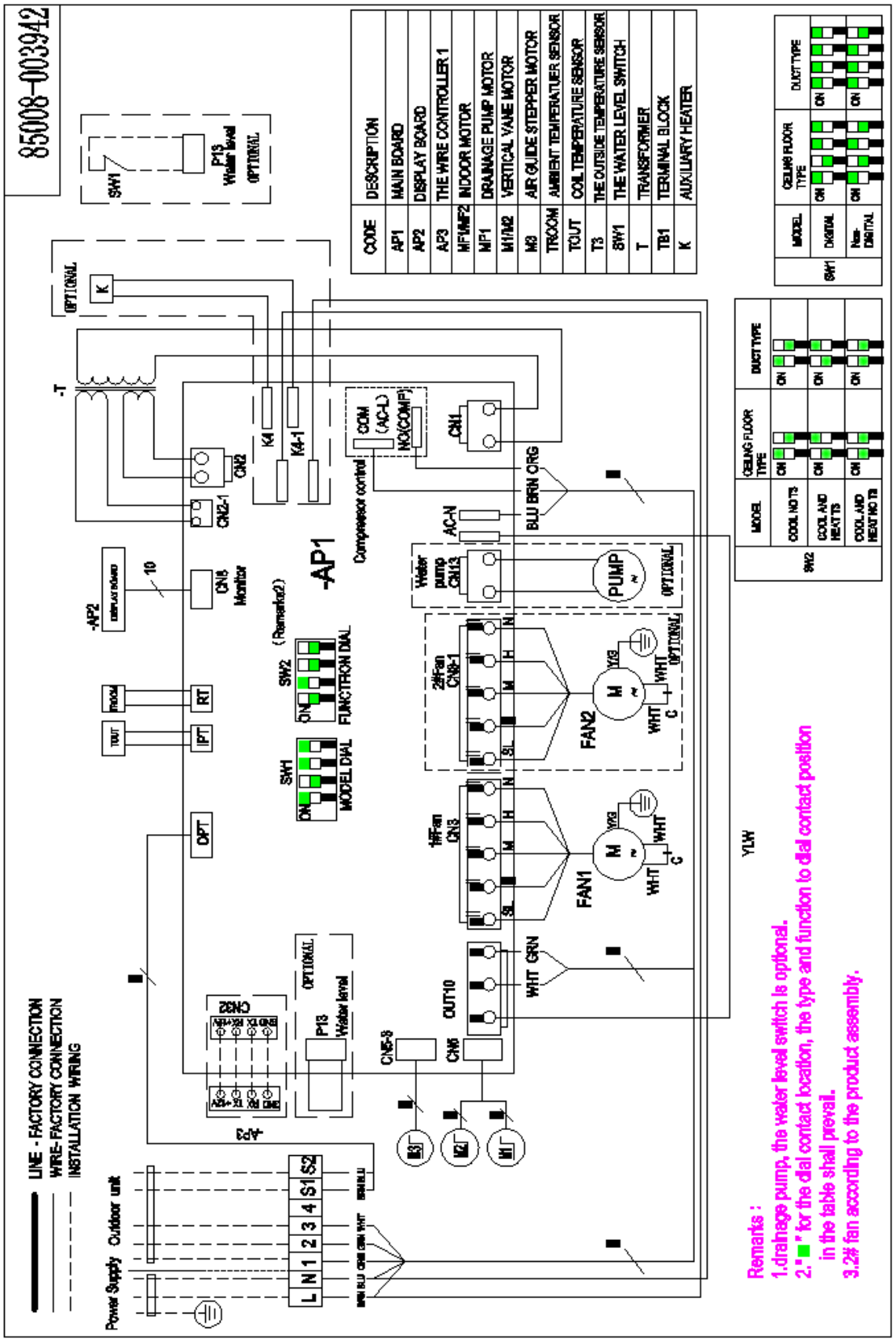
● Under ceiling



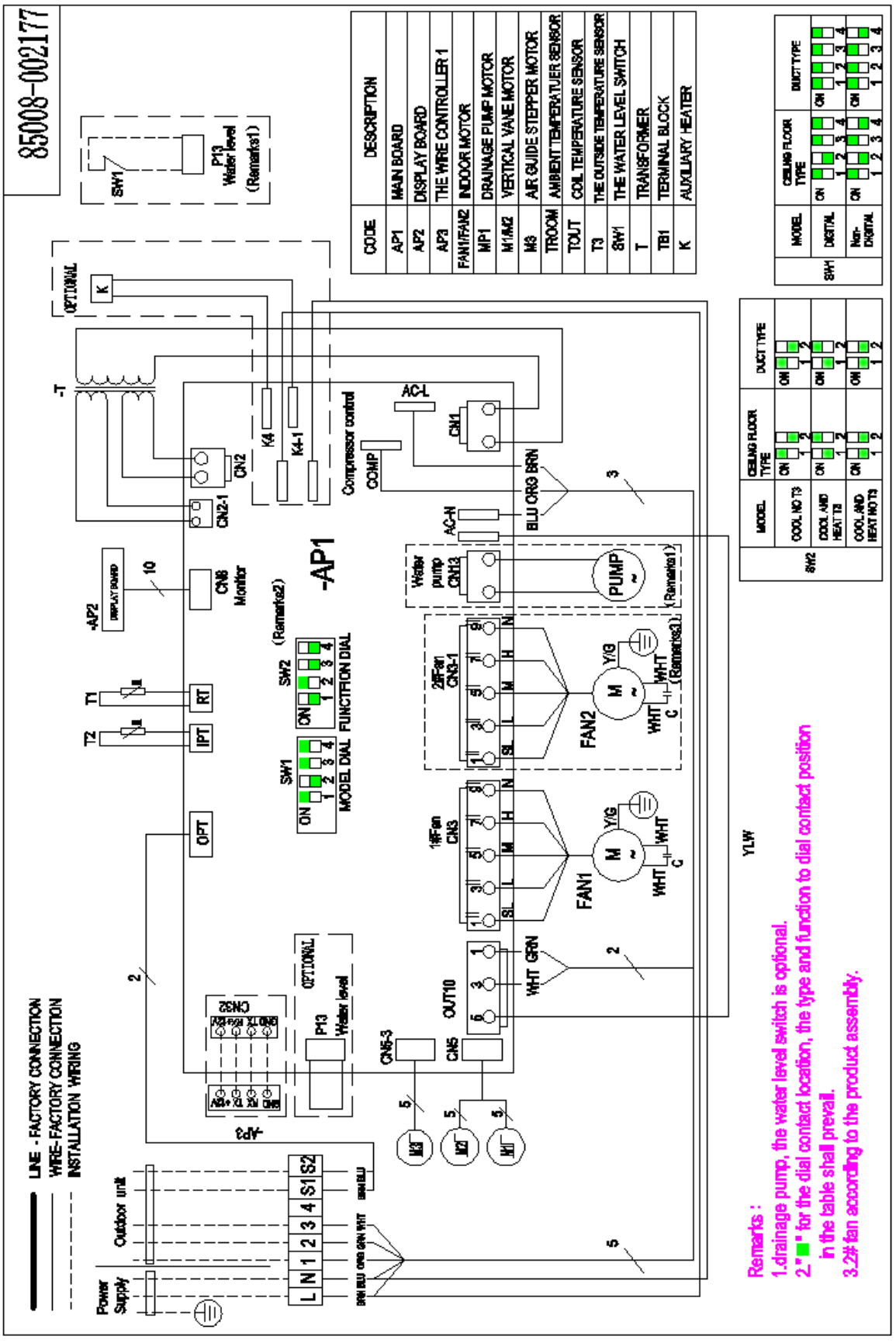


5. Wiring Diagrams

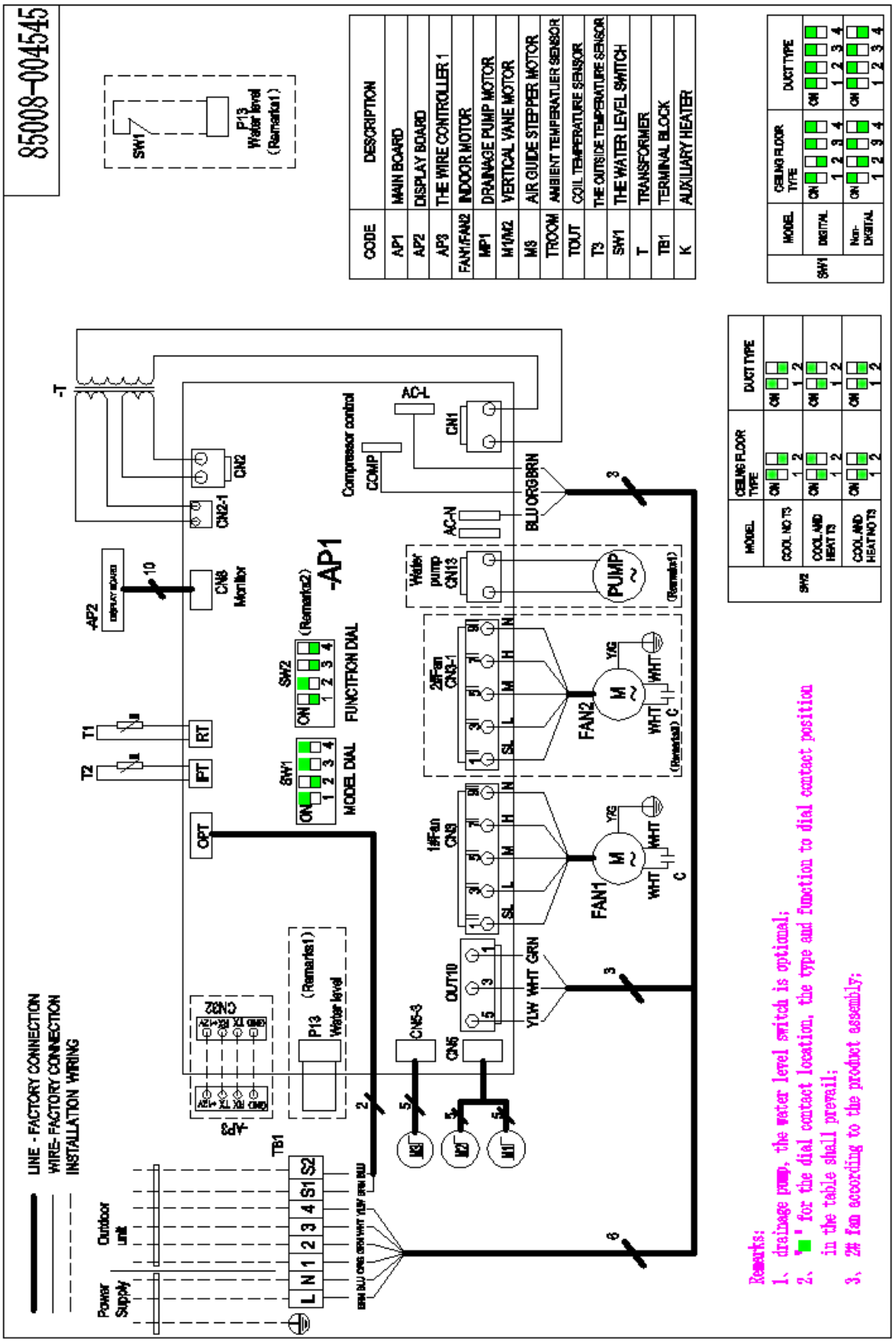
5.1 TCC-18ZHRA/UI(01)



5.2 TCC-24ZHRA/UI(01)



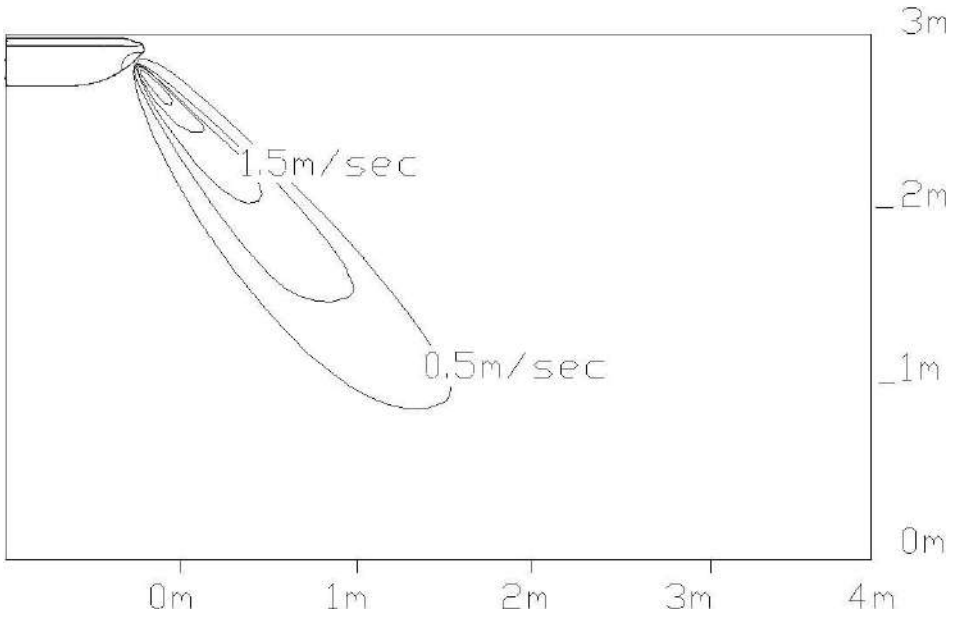
5.3 TCC-36D2HRA/UI(04) & TCC-48D2HRA/UI（04） & TCC-60D2HRA/UI(04)



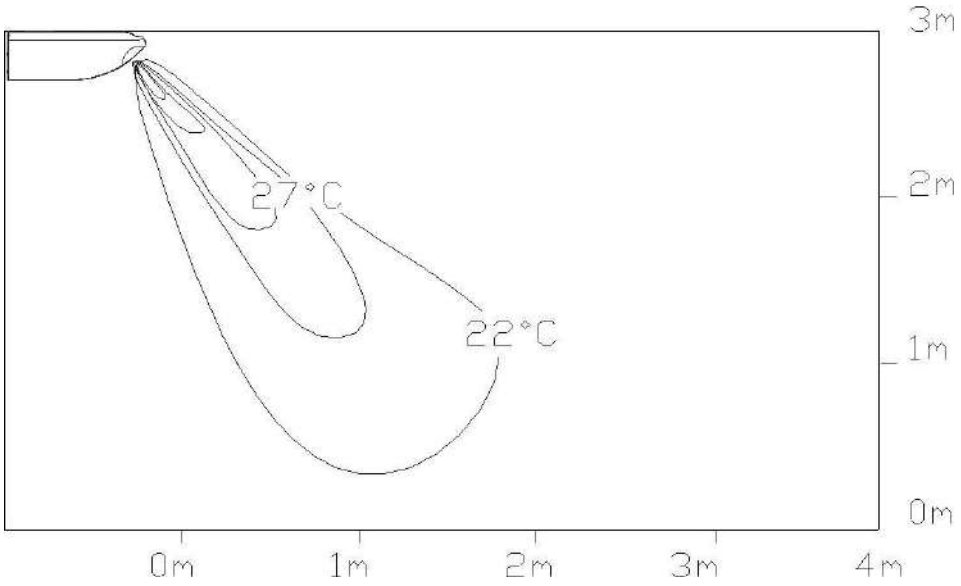
6. Air Velocity and Temperature Distributions

Discharge angle 60° (CEILING)

Airflow velocity

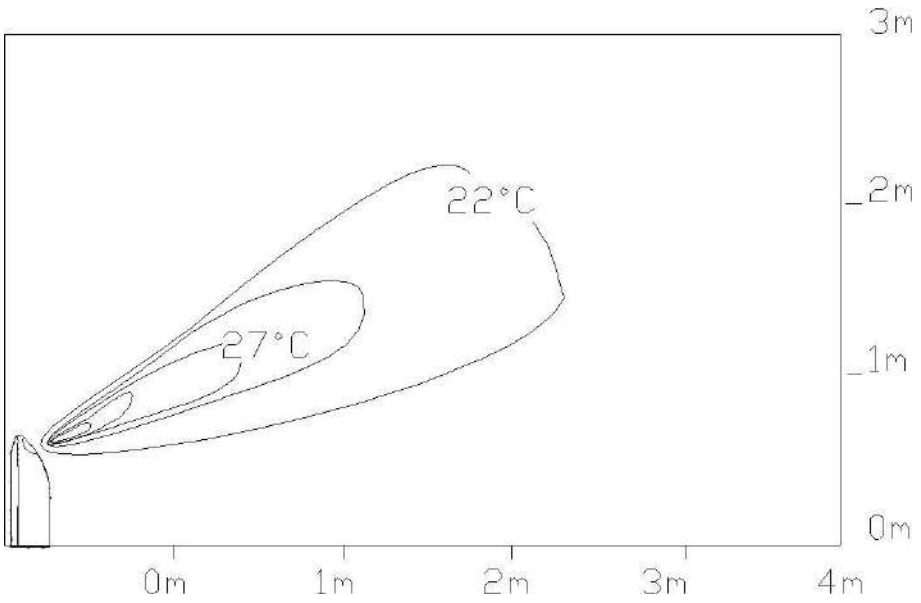


Temperature

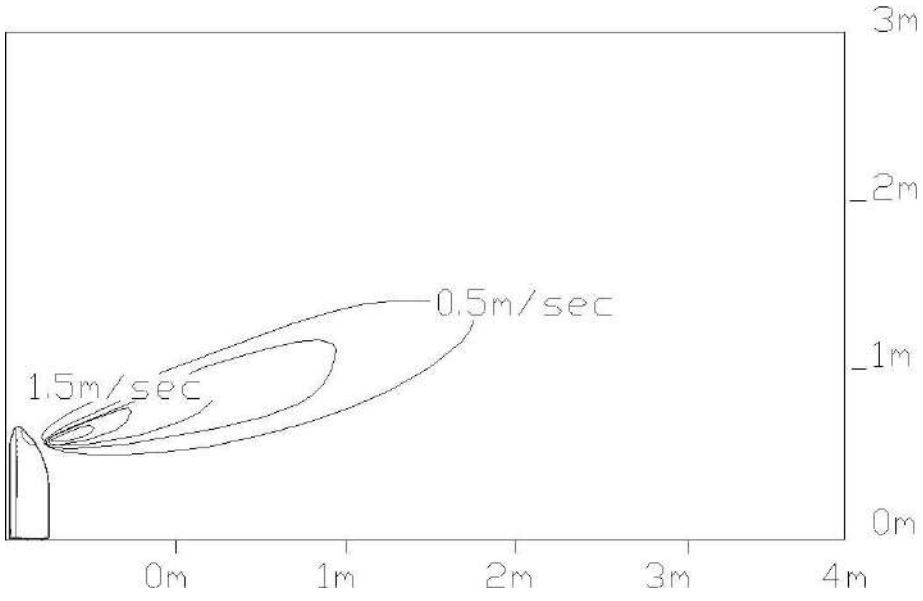


Discharge angle 60°(FLOOR)

Temperature



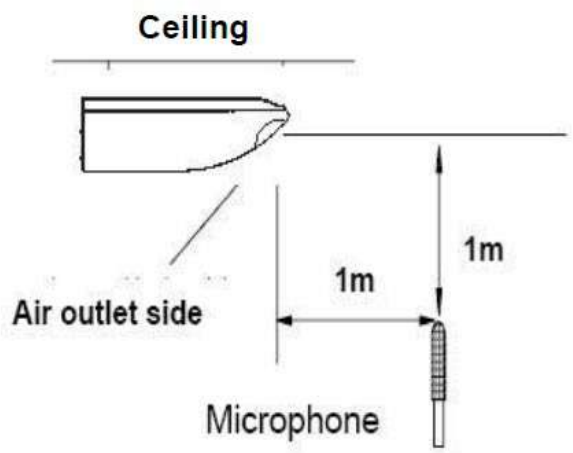
Airflow velocity

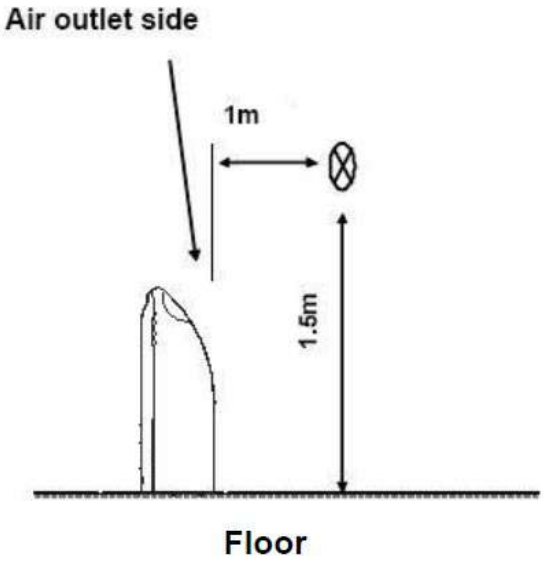


7. Electric Characteristics

Model	Indoor Units				Indoor Fan
	Hz	Voltage	Min.	Max.	kW
TCC-18ZHRA/UI(01)	50	220-240V	198V	254V	0.086
TCC-24ZHRA/UI(01)	50	220-240V	198V	254V	0.136
TCC-36ZHRA/UI	50	220-240V	198V	254V	0.166
TCC-36D2HRA/UI(04)	50	220-240V	198V	254V	0.166
TCC-48ZHRA/UI（04)	50	220-240V	198V	254V	0.112*2
TCC-60ZHRA/UI(04)	50	220-240V	198V	254V	0.180*2

8. Sound Levels





Model	Noise level		
	H	M	L
TCC-18ZHRA/UI(01)	43	41	38
TCC-24ZHRA/UI(01)	45	43	40
TCC-36ZHRA/UI	45	43	40
TCC-36D2HRA/UI(04)	45	43	40
TCC-48ZHRA/UI（04	52	49	46
TCC-60ZHRA/UI(04)	52	49	46

9. The Specification of Wiring

Model			TCC-18ZHRA/U(MZ)
Indoor power supply		V/Ph/Hz	220~240/1/50
Outdoor power supply		V/Ph/Hz	220~240/1/50
Connection wiring	Outdoor Power Supply		From indoor unit
	Power wiring for indoor unit	mm^2	3×2.5
	Strong Electric Signal	mm^2	5×2.5
	Weak Electric Signal	mm^2	2×0.75

Model			TCC-18ZHRA/U(01)	TCC-24ZHRA/U(01)	TCC-36ZHRA/U(01)
Indoor power supply		V/Ph/Hz	220~240/1/50		
Outdoor power supply		V/Ph/Hz	220~240/1/50		
Connection wiring	Outdoor Power Supply		From indoor unit	Power supply individually for indoor and outdoor	
	Power wiring for indoor unit	mm^2	3×2.5	3×2.5	3×2.5
	Power wiring for outdoor unit	mm^2	/	3×2.5	3×2.5
	Strong Electric Signal	mm^2	5×2.5	3×0.75	4×0.75
	Weak Electric Signal	mm^2	2×0.75	2×0.75	2×0.75

Model			TCC-36ZHRA/U3(04)	TCC-48ZHRA/U3(04)	TCC-60D2HRA/U3(04)
Indoor power supply		V/Ph/Hz	220~240/1/50		
Outdoor power supply		V/Ph/Hz	380~415/3/50		
Connection wiring	Outdoor Power Supply		Power supply individually for indoor and outdoor		
	Power wiring for indoor unit	mm^2	3×2.5	3×2.5	3×2.5
	Power wiring for outdoor unit	mm^2	5×2.5	5×2.5	5×2.5
	Strong Electric Signal	mm^2	4×0.75	4×0.75	4×0.75
	Weak Electric Signal	mm^2	2×0.75	2×0.75	2×0.75

Part 3 Outdoor Units
1. Specifications

Model name	**Universal Outdoor Unit**		**TCC-18HA/UO（01）**	**TCC-24HA/UO（01）**	**TCC-36HA/U3O(01)**
Power supply		V//Hz/Ph	220-240V~/50Hz/1P	220-240V~/50Hz/1P	220-240V~/50Hz/1P
Max. input consumption		W	2200	2800	5500
Max. current		A	11.5	15.0	25.0
Starting current		A	36.8	50.0	82
Max Operating Pressure(MPa)	Discharge	MPa	4.2	4.5	4.2
	Suction	MPa	1.5	1.5	1.5
Compressor	Brand		HIGHLY	HIGHLY	HIGHLY
	Model		ASL180MV-C7EUT	ASH232MV-C7EU1	ATH420MV-C9EU
	Type		Rotary	Rotary	Rotary
	Capacity	W	4870	5615	10060
	Input	W	1227	1855	3470
	Rated current(RLA)	A	5.7	8.7	16.6
	Locked rotor Amp(LRA)	A	36	48	80
	Thermal protector		internal	internal	internal
	Capacitor	uF	50	55	90
	Refrigerant oil	ml	390	485	840
Outdoor coil	Number of row		2	2	2
	Fin spacing	mm	1.5	1.4	1.5
	Fin material		Louver or Corrugated Fin	Louver or Corrugated Fin	Louver or Corrugated Fin
	Tube outside diameter	mm	φ7	φ7	φ7
	Tube material		Innergroover tube type	Innergroover tube type	Innergroover tube type

	Coil length x height x width	mm	766×510×25.4	820×651×36.4	1023X756X25.4
	Number of circuit		2	4	6
Outdoor fan motor	Brand		Weiling/Broad-ocean	Dayang	Lifeng
	Model		GZSDJ-33	Y6S688C008L	210900509
	Input	W	96	136	160
	Output	W	45	65	96
	Running current	A	0.44	0.64	0.72
	Capacitor	uF	3.0	3	6
	Speed	rpm	850	890	860
Outdoor air flow		m^3/h	2400	4000	4900
Outdoor noise level		dB(A)	56	54	58
Outdoor dimension	Unit (WxHxD)	mm	760x550x250	845×700×330	910×805×360
	Packing (WxHxD)	mm	863×605×361	960×755×430	1022×860×480
Outdoor weight	Net	kg	34	47	59
	Gross	kg	37	50	63
Refrigerant	Type		R410A	R410A	R410A
	Charge	g	1050	1900	1900
Throttle type			Capillary	Capillary	Capillary
Refrigerant pipe	Liquid side	mm	6.35	9.52	9.52
	Gas side	mm	12.70	15.88	15.88
	Max. refrigerant pipe length	m	25	30	30
	Max. difference in level	m	15	15	20
Ambient temperature	Cooling	℃	21 ~ 43	21 ~ 43	21 ~ 43

range	Heating	℃	-7 ~ 24	-7 ~ 24	-7 ~ 24

Model name	**Universal Outdoor Unit**		**TCC-36HA/U3O(04)**	**TCC-48HRA/U3O(04)**	**TCC-60HRA/U3O(04）**
Power supply		V//Hz/Ph	380-415V~/50Hz/3P	380-415V~/50Hz/3P	380-415V~/50Hz/3P
Max. input consumption		W	6100	6600	9200
Max. current		A	11.5	12.8	16.0
Starting current		A	66	66.0	80.0
Max Operating Pressure(MPa)	Discharge	MPa	4.2	4.2	4.2
	Suction	MPa	1.5	1.5	1.5
Compressor	Brand		HIGHLY	HIGHLY	HIGHLY
	Model		ATH420UC-C9EU1	ATH490UC3C9EQC	ATE650SC3Q9JK
	Type		Rotary	Rotary	Rotary
	Capacity	W	9880	13200	16350
	Input	W	3280	3370	5630
	Rated current(RLA)	A	5.9	6.8	9.5
	Locked rotor Amp(LRA)	A	36	62	65
	Thermal protector		internal	internal	internal
	Capacitor	uF	/	/	/
	Refrigerant oil	ml	1200	1200	1850
Outdoor coil	Number of row		2	’1.5	2
	Fin spacing	mm	1.5	1.6	1.6
	Fin material		Louver or Corrugated Fin	Louver or Corrugated Fin	Louver or Corrugated Fin
	Tube outside diameter	mm	φ7	φ7	φ7
	Tube material		Innergroover tube type	Innergroover tube type	Innergroover tube type

	Coil length x height x width	mm	1023X756X25.4	910×1218×25.4	910×1218×25.4
	Number of circuit		6	6	6
Outdoor fan motor	Brand		Lifeng	Lifeng/Match-well	Lifeng/Match-well
	Model		210900509	YDK120-88-6P-AL-1	YDK120-88-6P-AL-1
	Input	W	160	158×2	158×2
	Output	W	96	80×2	80×2
	Running current	A	0.72	0.74×2	0.74×2
	Capacitor	uF	6	4×2	4×2
	Speed	rpm	860	800	800
Outdoor air flow		m^3/h	4900	6300	6300
Outdoor noise level		dB(A)	58	60	60
Outdoor dimension	Unit (WxHxD)	mm	910×805×360	940x1250x340	940x1250x340
	Packing (WxHxD)	mm	1022×860×480	1030x1365x430	1030x1365x430
Outdoor weight	Net	kg	60	81	91
	Gross	kg	64	90	102
Refrigerant	Type		R410A	R410A	R410A
	Charge	g	1900	2900	3000
Throttle type			Capillary	Capillary	Capillary
Refrigerant pipe	Liquid side	mm	9.52	9.52	9.52
	Gas side	mm	15.88	19.05	19.05
	Max. refrigerant pipe length	m	30	50	50
	Max. difference in level	m	20	30	30
Ambient temperature range	Cooling	℃	-5 ~ 43	-5 ~ 43	-5 ~ 43

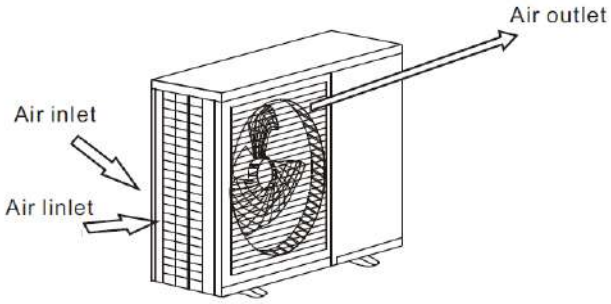
	Heating	℃	-15 ~ 24	-15 ~ 24	-15 ~ 24

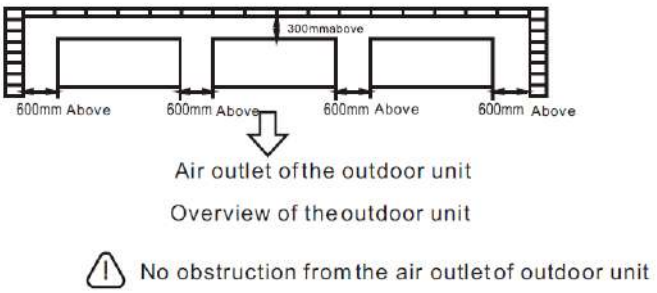
Notes:

1. Nominal cooling capacities are based on the following conditions:indoor temp: 27°CDB, 19°CWB; Outdoor temp: 35°CDB; Equivalent ref. piping: 7.5m (horizontal)
2. Nominal heating capacities are based on the following conditions: Indoor temp: 20°CDB; Outdoor temp: 7°CDB, 6°CWB; Equivalent ref. piping: 7.5m (horizontal)
3. Actual noise level may differ, depending on the room structure, etc, since these noise values are from an anechoic room.
   Remark: The above design and specification are subject to change without prior notice for product improvement.

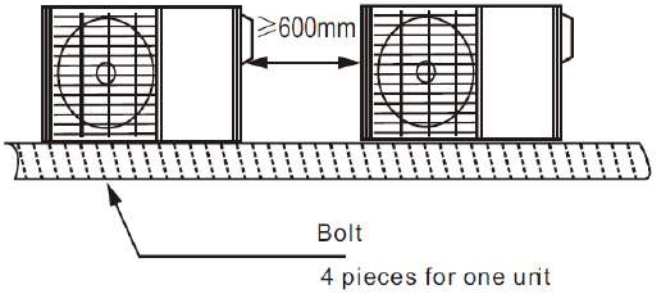
2. Service Space

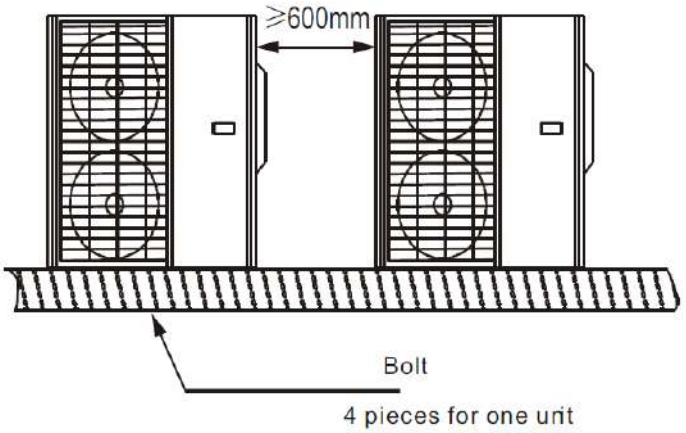
Please make sure necessary space for installation and repair





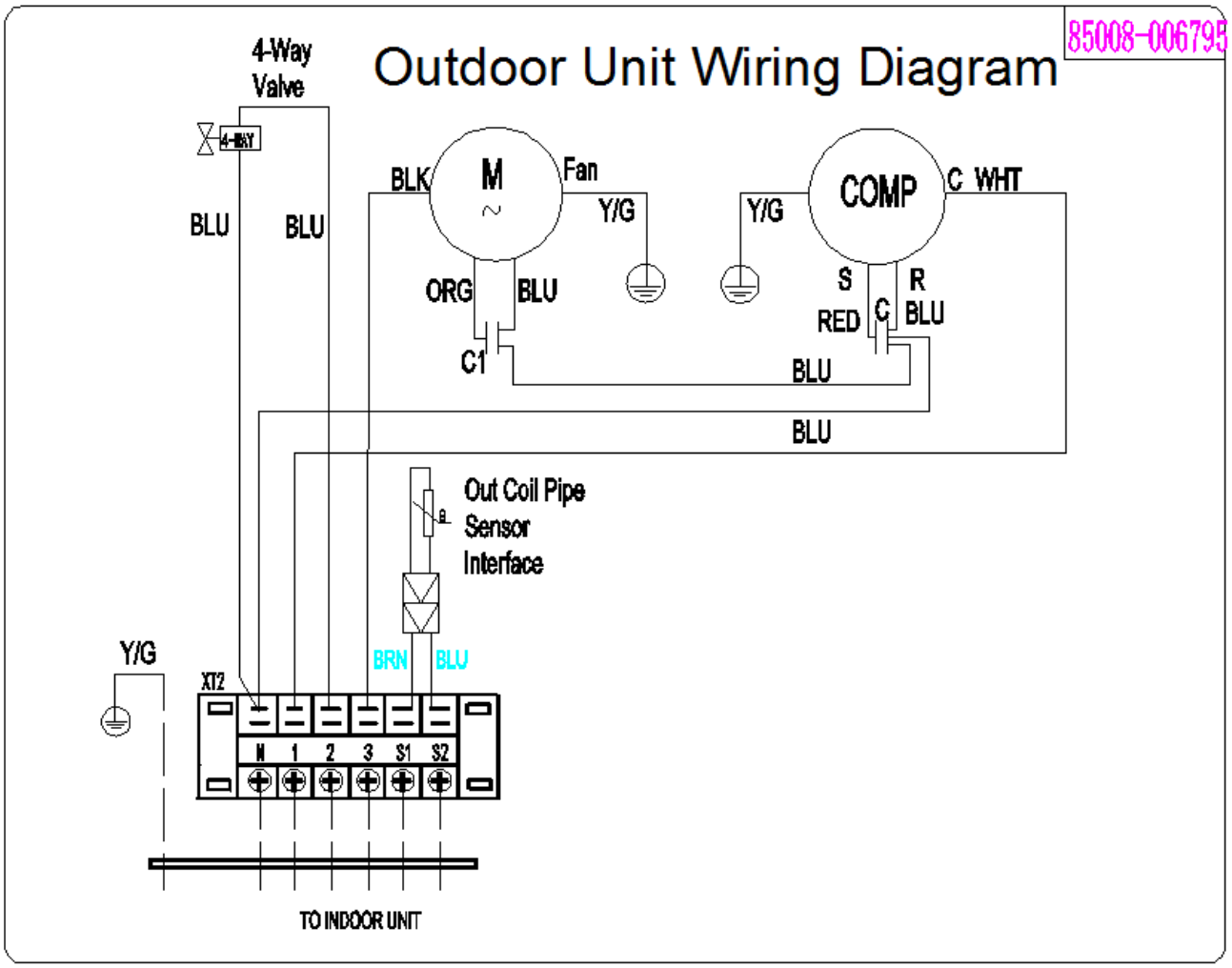
At least 600mm space must be left between outdoor units as the sketch indicated.



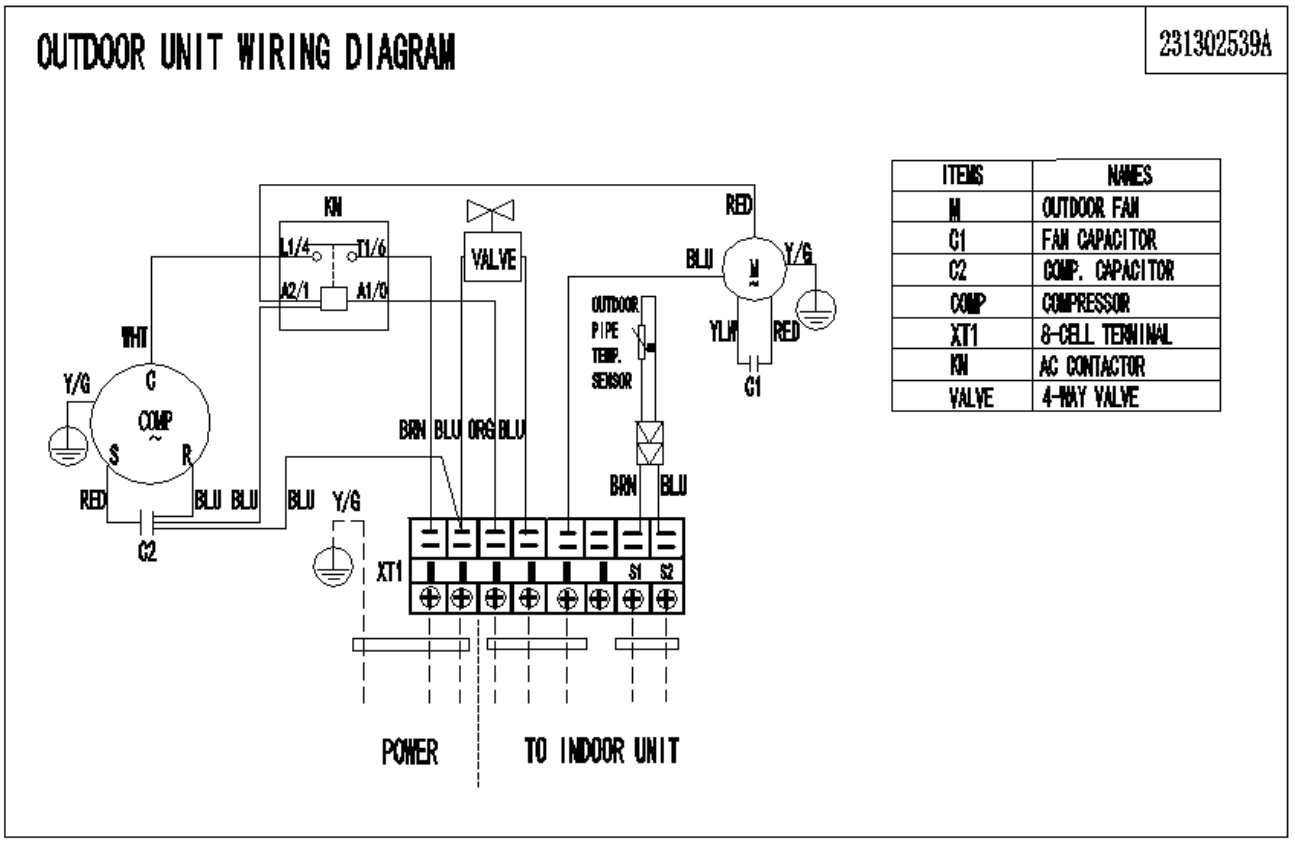


3. Wiring Diagrams

3.1 TCC-18HA/UO(01)

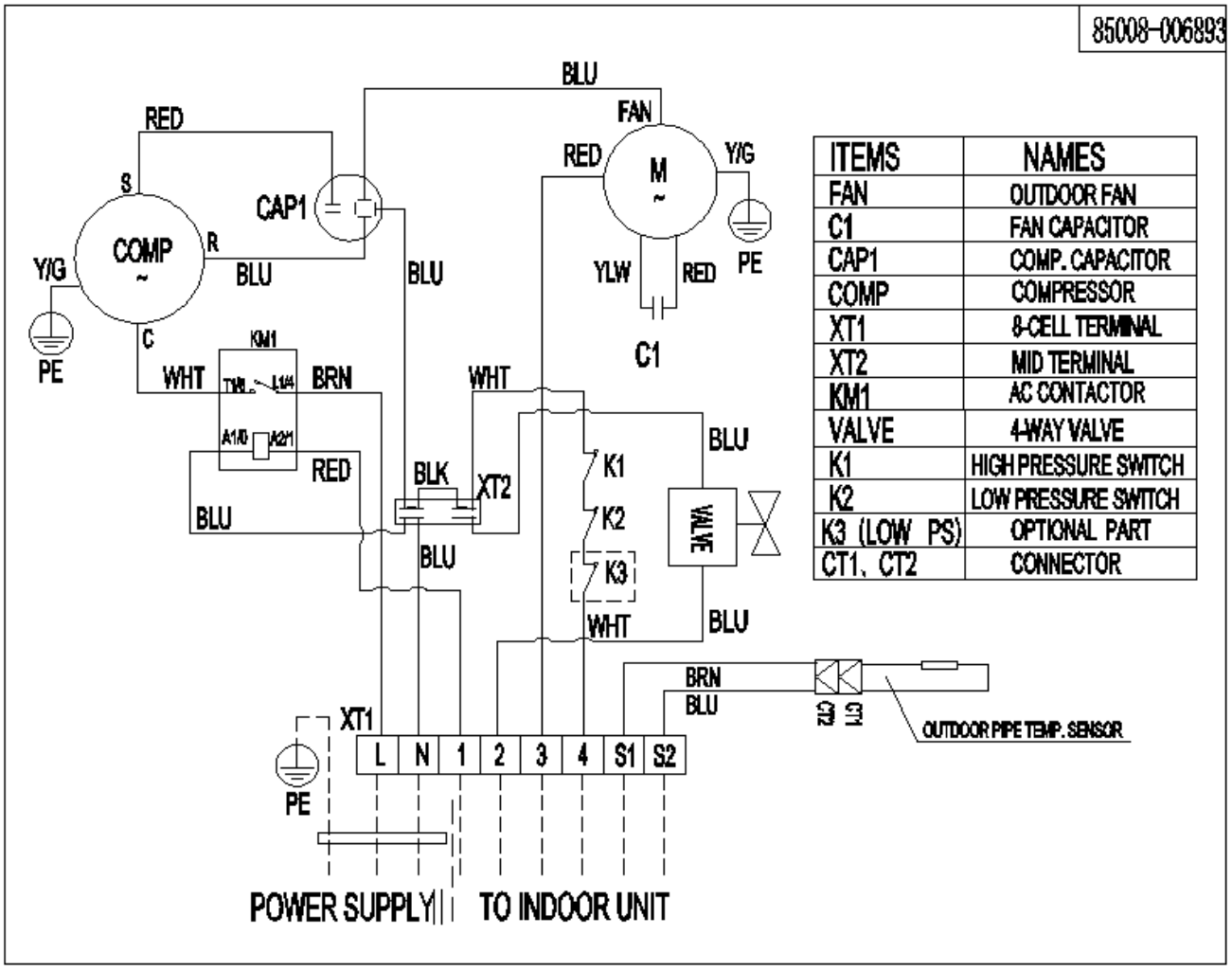


3.2 TCC-24HA/UO(01)



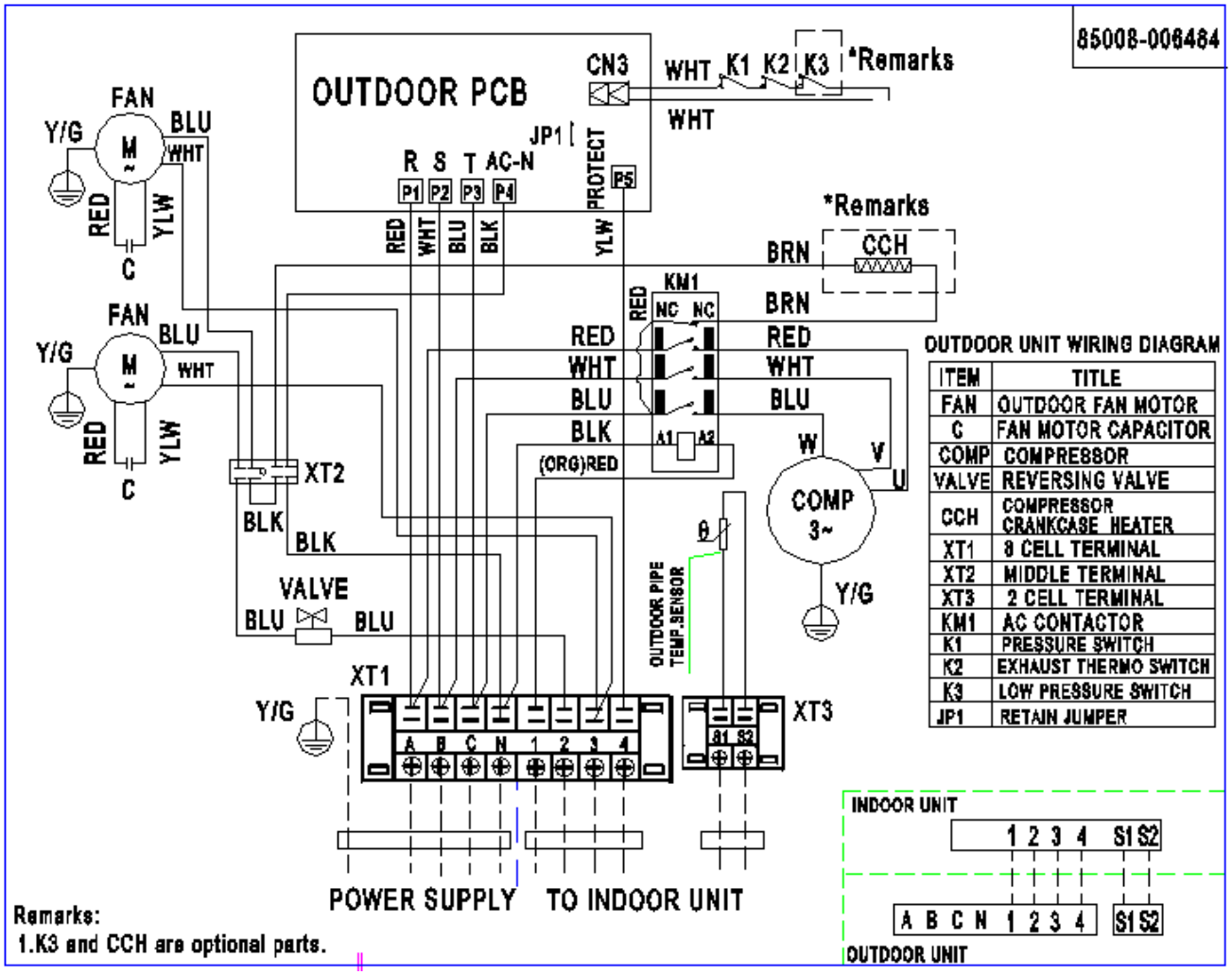
ITEMS	NAMES
M	OUTDOOR FAN
C1	FAN CAPACITOR
C2	COMP. CAPACITOR
COMP	COMPRESSOR
XT1	8-CELL TERMINAL
KM	AC CONTACTOR
VALVE	4-WAY VALVE

3.3 TCC-36HA/UO(01)



ITEMS	NAMES
FAN	OUTDOOR FAN
C1	FAN CAPACITOR
CAP1	COMP. CAPACITOR
COMP	COMPRESSOR
XT1	8-CELL TERMINAL
XT2	MID TERMINAL
KM1	AC CONTACTOR
VALVE	4-WAY VALVE
K1	HIGH PRESSURE SWITCH
K2	LOW PRESSURE SWITCH
K3 (LOW PS)	OPTIONAL PART
CT1、CT2	CONNECTOR

3.4 TCC-36HA/U3O(04)& TCC-48HA/U3O(04)& TCC-60HA/U3O(04)



OUTDOOR UNIT WIRING DIAGRAM

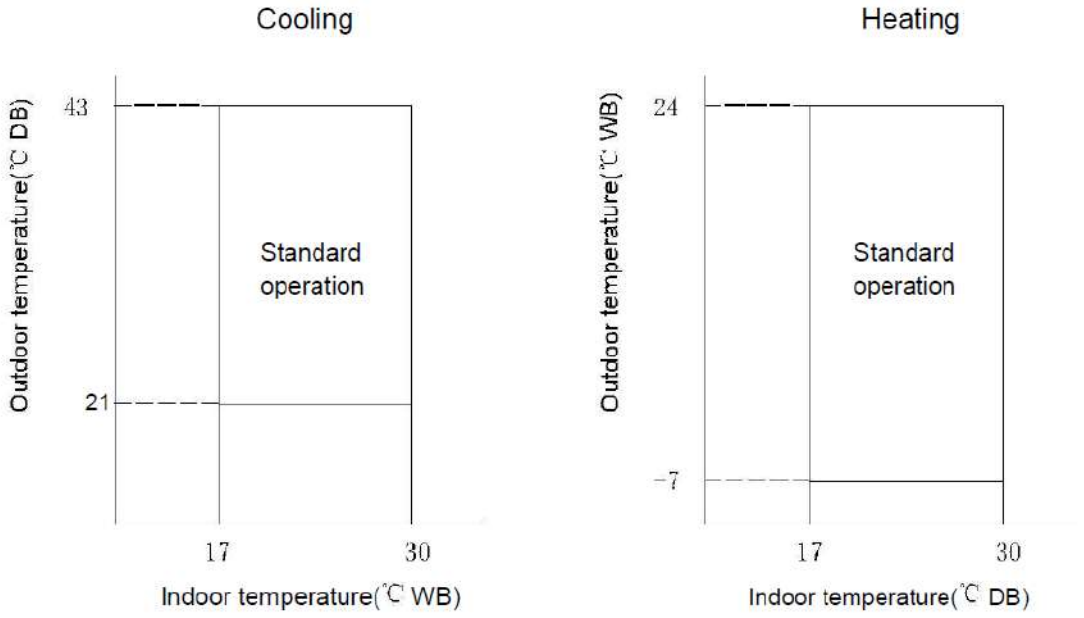
ITEM	TITLE
FAN	OUTDOOR FAN MOTOR
C	FAN MOTOR CAPACITOR
COMP	COMPRESSOR
VALVE	REVERSING VALVE
CCH	COMPRESSOR CRANKCASE HEATER
XT1	8 CELL TERMINAL
XT2	MIDDLE TERMINAL
XT3	2 CELL TERMINAL
KM1	AC CONTACTOR
K1	PRESSURE SWITCH
K2	EXHAUST THERMO SWITCH
K3	LOW PRESSURE SWITCH
JP1	RETAIN JUMPER

4. Electric Characteristics

Model	Hz	Outdoor Unit			Outdoor unit fan motor
		Voltage(V)	Min.(V)	Max.(V)	kW
TCC-18HA/UO(01)	50	220~240	198	254	0.096
TCC-24HA/UO(01)	50	220~240	198	254	0.136
TCC-36HA/UO(01)	50	220~240	198	254	0.160
TCC-36HA/U3O(04)	50	380~415	342	450	0.160
TCC-48HA/U3O(04)	50	380~415	342	450	0.158*2
TCC-60HA/U3O(04)	50	380~415	342	450	0.158*2

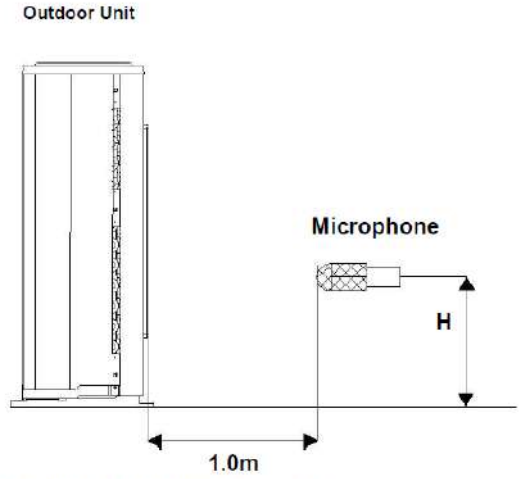
5. Operation Limits

Operation mode	Outdoor temperature(℃)	Room temperature(℃)
Cooling operation	21~43	17~30
Heating operation	-7~24	17~30

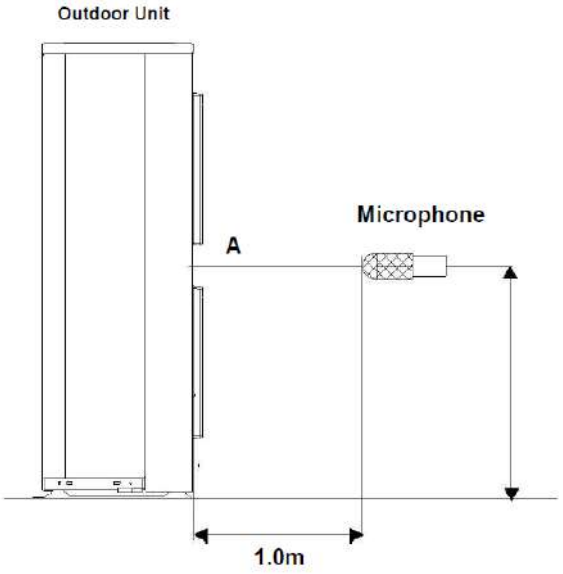


Note: Above chart is for low ambient model

6. Sound Levels



Note: H= 0.5 × height of outdoor unit



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

Model	Noise level dB(A)
TCC-18HA/UO(01)	56
TCC-24HA/UO(01)	54
TCC-36HA/UO(01)	58
TCC-36HA/U3O(04)	58
TCC-48HA/U3O(04)	60
TCC-60HA/U3O(04)	60

7. Troubleshooting

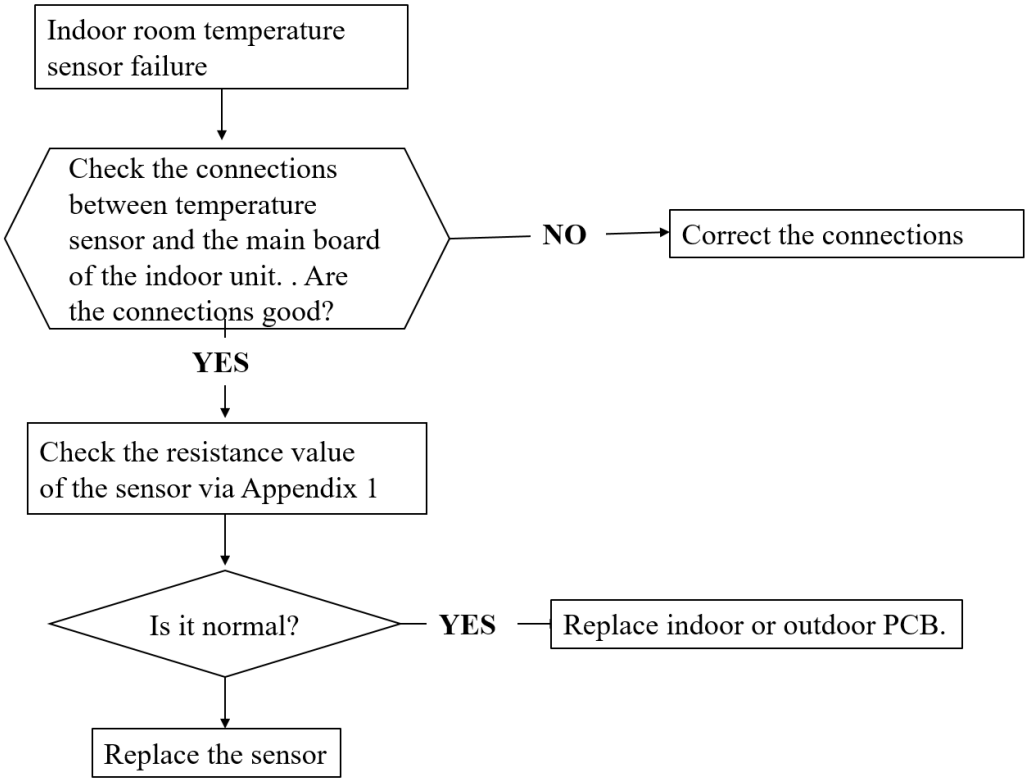
7.1 Self-diagnosis

Troubleshooting Ceiling\Duct\Ceiling & Floor

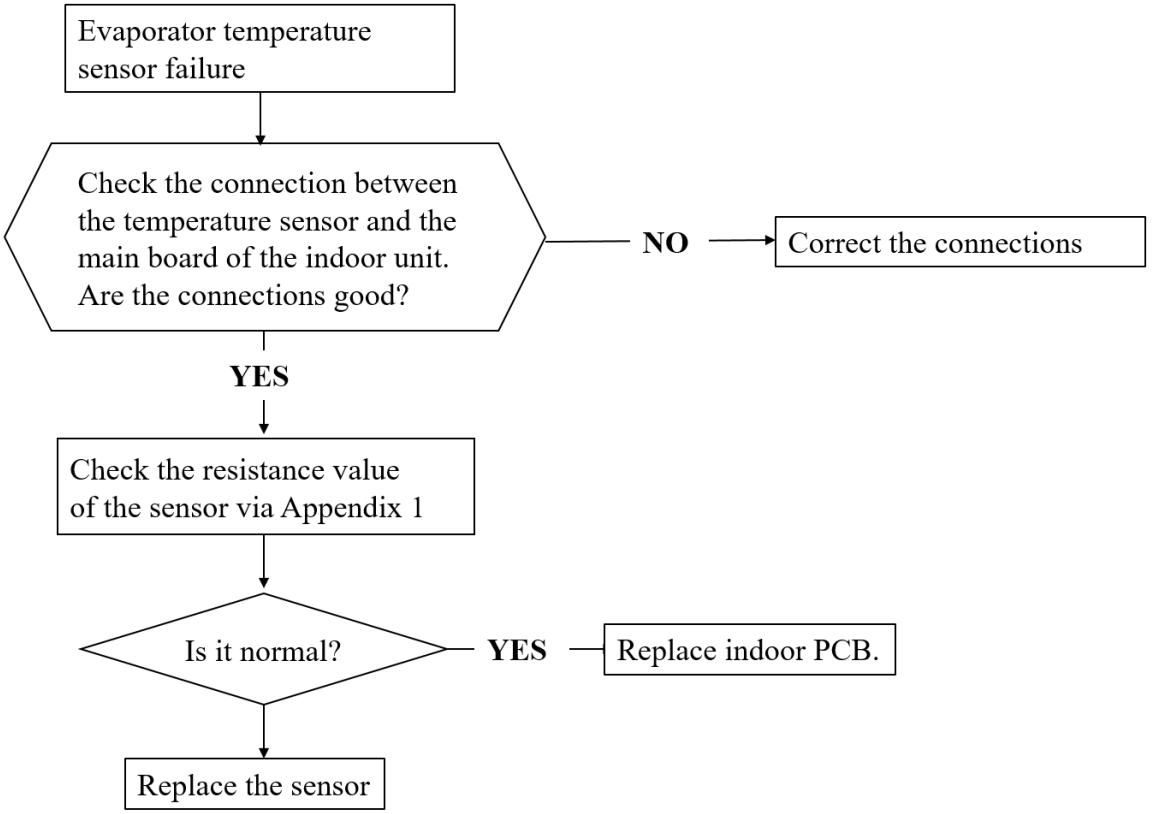
Display	Explanation
E1	Indoor temperature sensor failure
E2	Evaporator temperature sensor failure
E3	Condenser temperature sensor failure
E4	Outdoor unit protection（High pressure protection、Low pressure protection、Compressor discharge temperature protection、Power supply faults）
Ed	EEPROM malfunction of indoor main control board
d3/EL	Full-loading water alarm
C5	Bad communication between indoor PCB & wire controller（Wire controller display）

7.2 Solving steps for typical malfunction

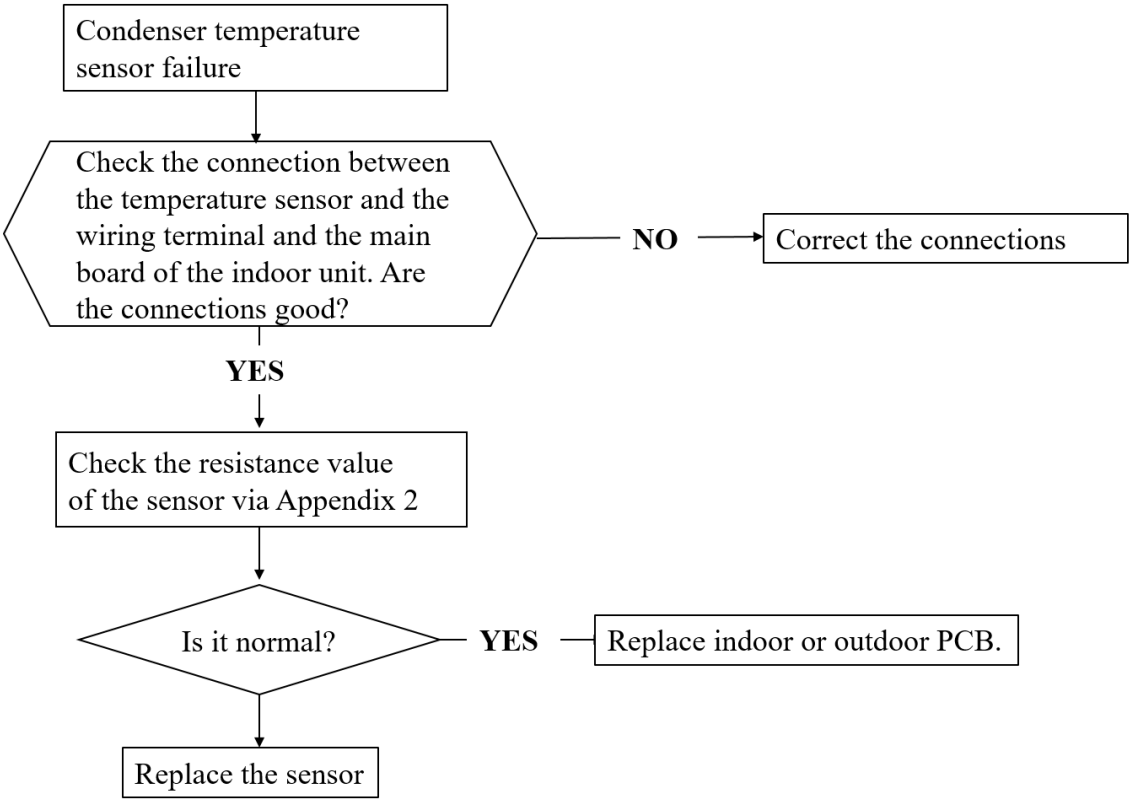
a. E1 —Indoor room temperature sensor failure



b. E2—Evaporator sensor failure

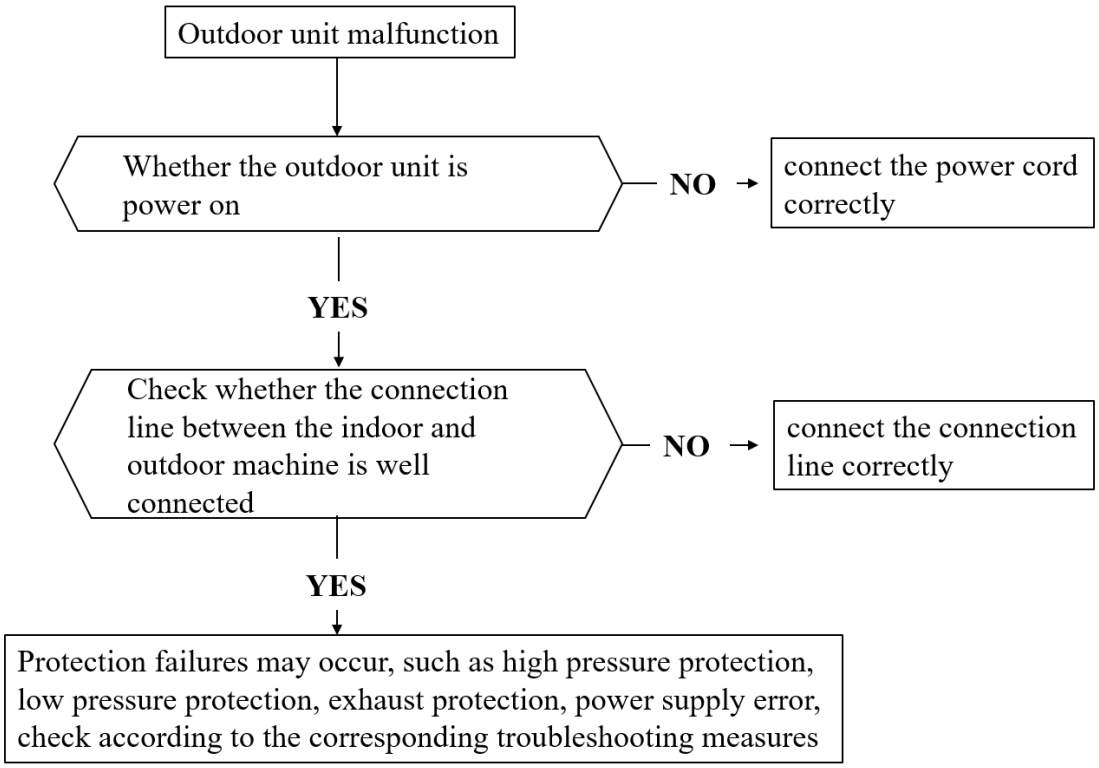


c. E3—Condenser temperature sensor failure

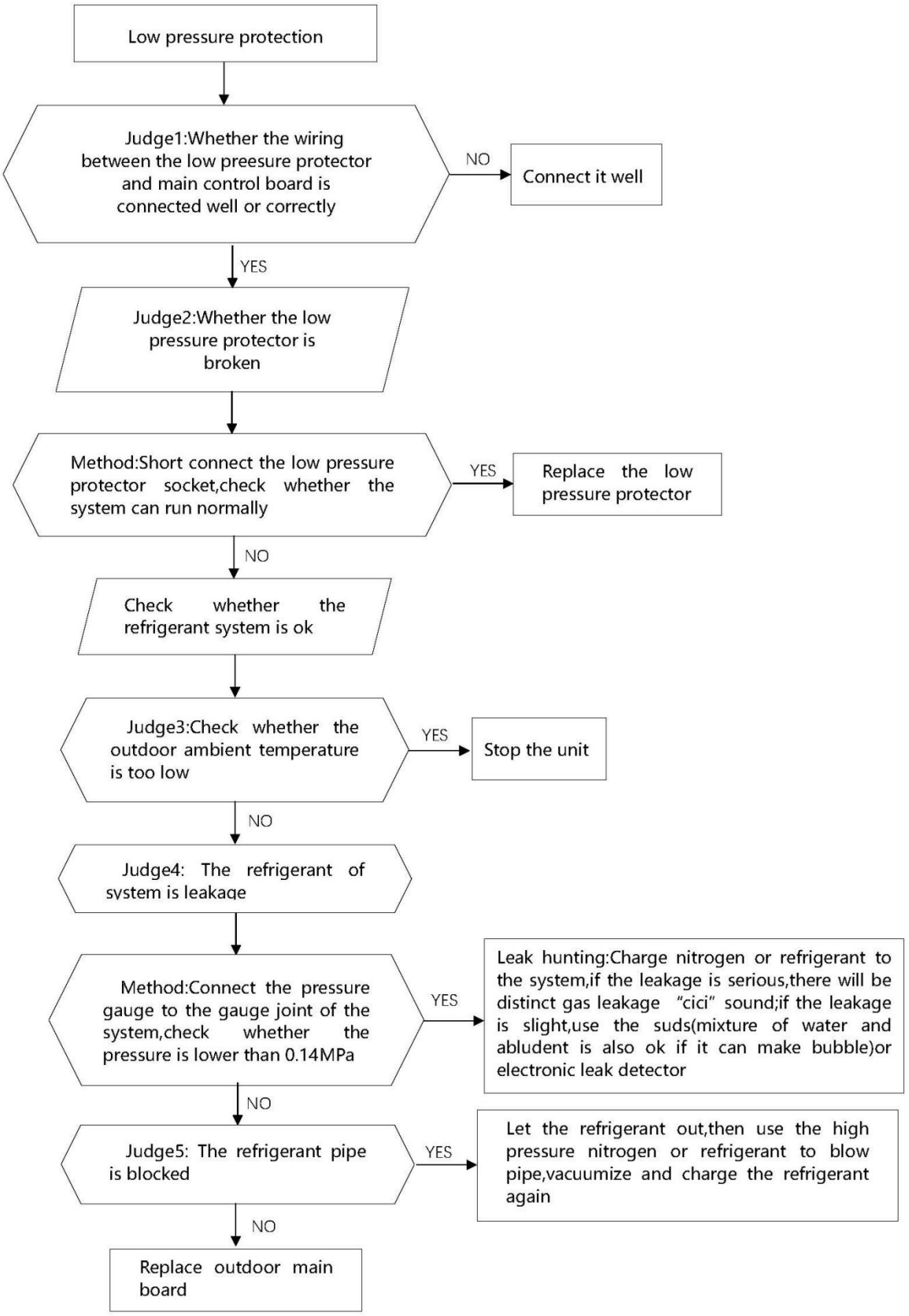


d. E4—Outdoor unit malfunction

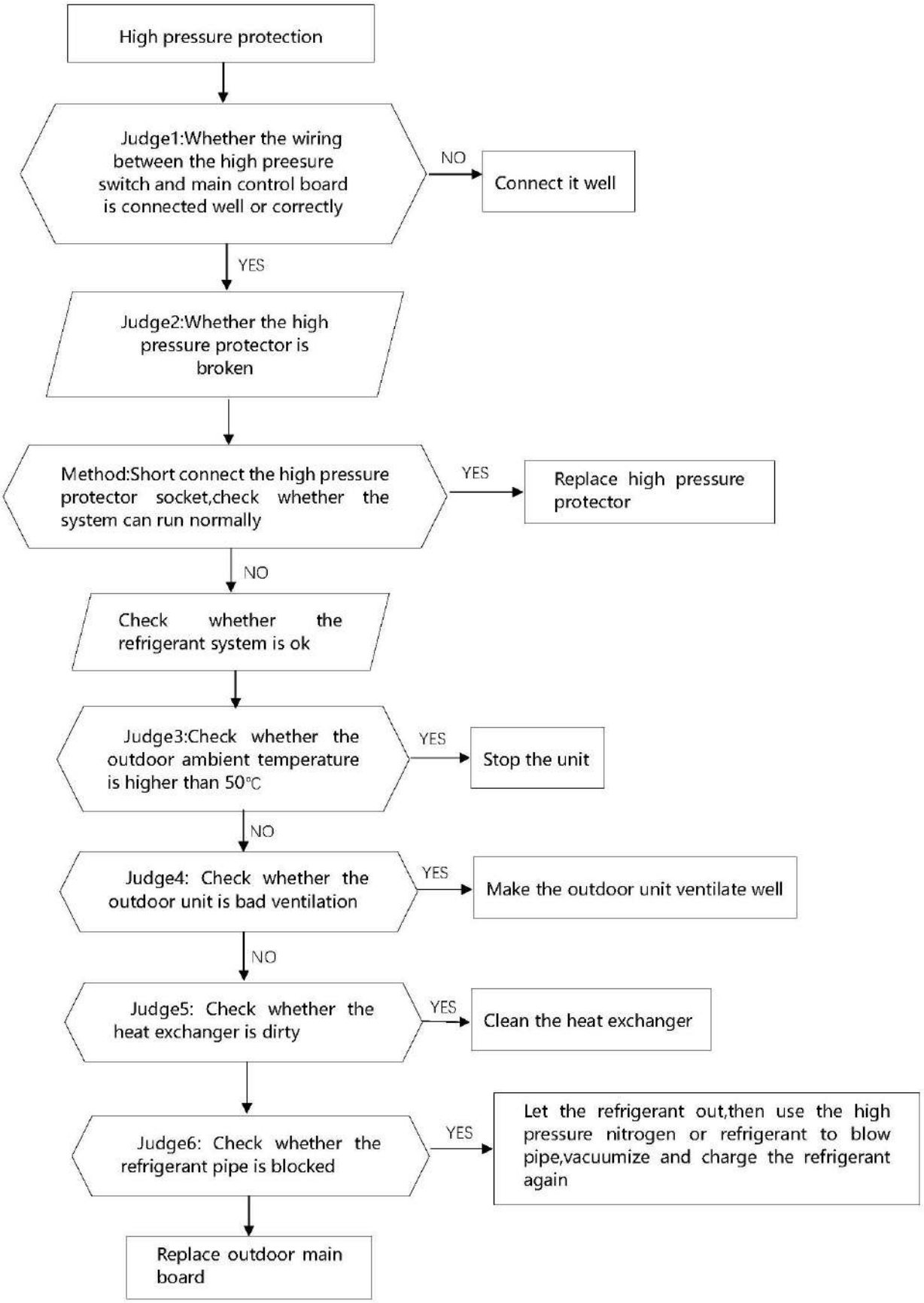
1) Check the wiring


Outdoor unit malfunction
Whether the outdoor unit is power on
NO
connect the power cord correctly
YES
Check whether the connection line between the indoor and outdoor machine is well connected
NO
connect the connection line correctly
YES
Protection failures may occur, such as high pressure protection, low pressure protection, exhaust protection, power supply error, check according to the corresponding troubleshooting measures

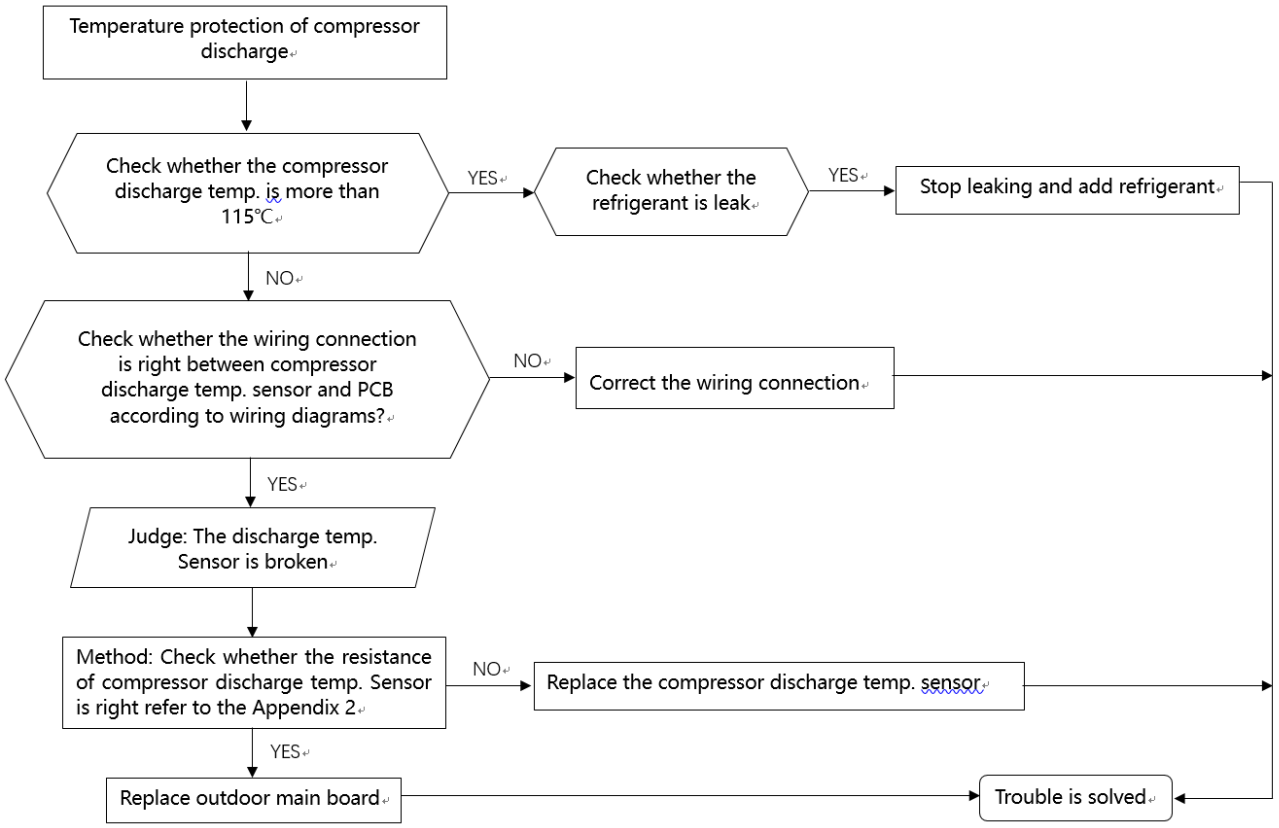
2) Low pressure protection



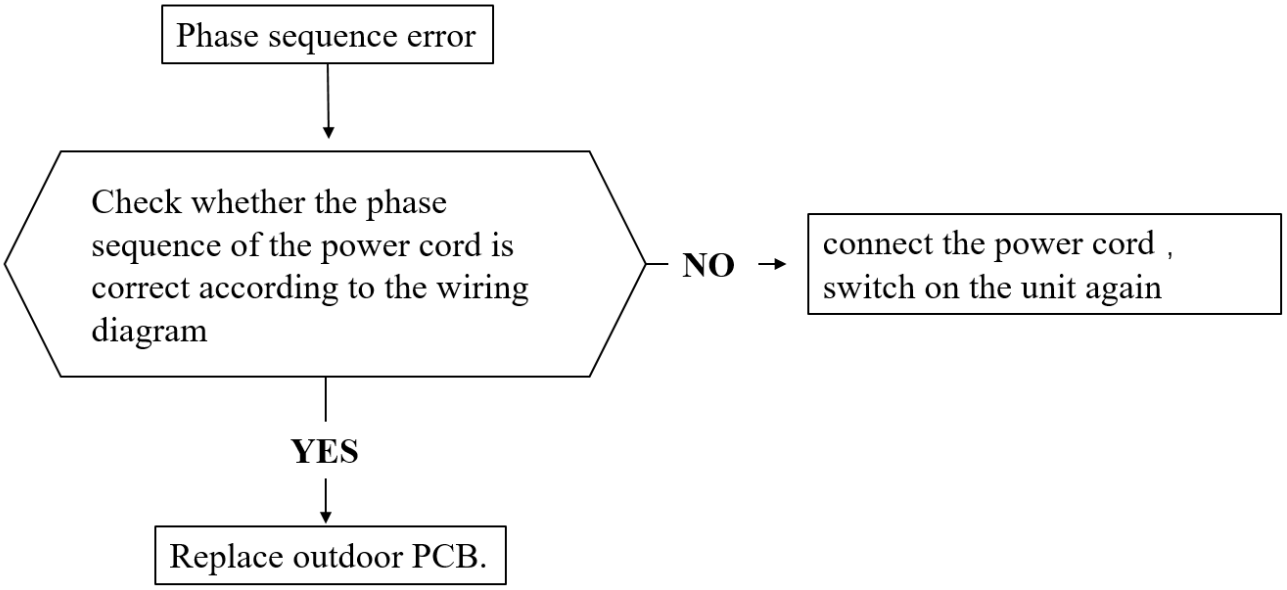
3) High pressure protection



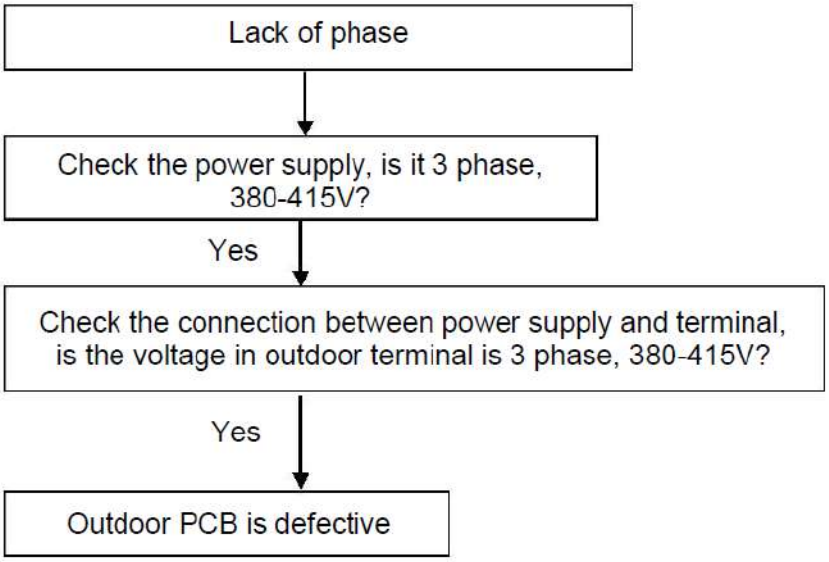
4) Temperature protection of compressor discharge



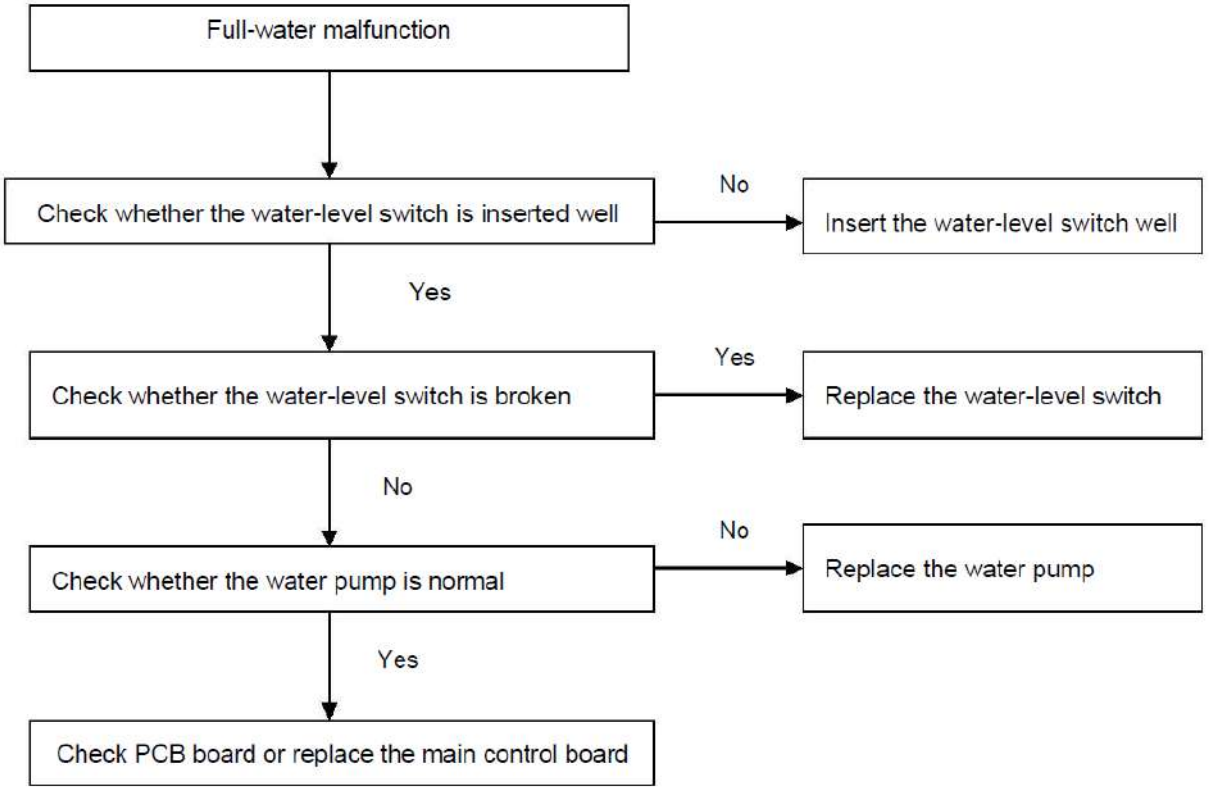
5) Phase sequence error:



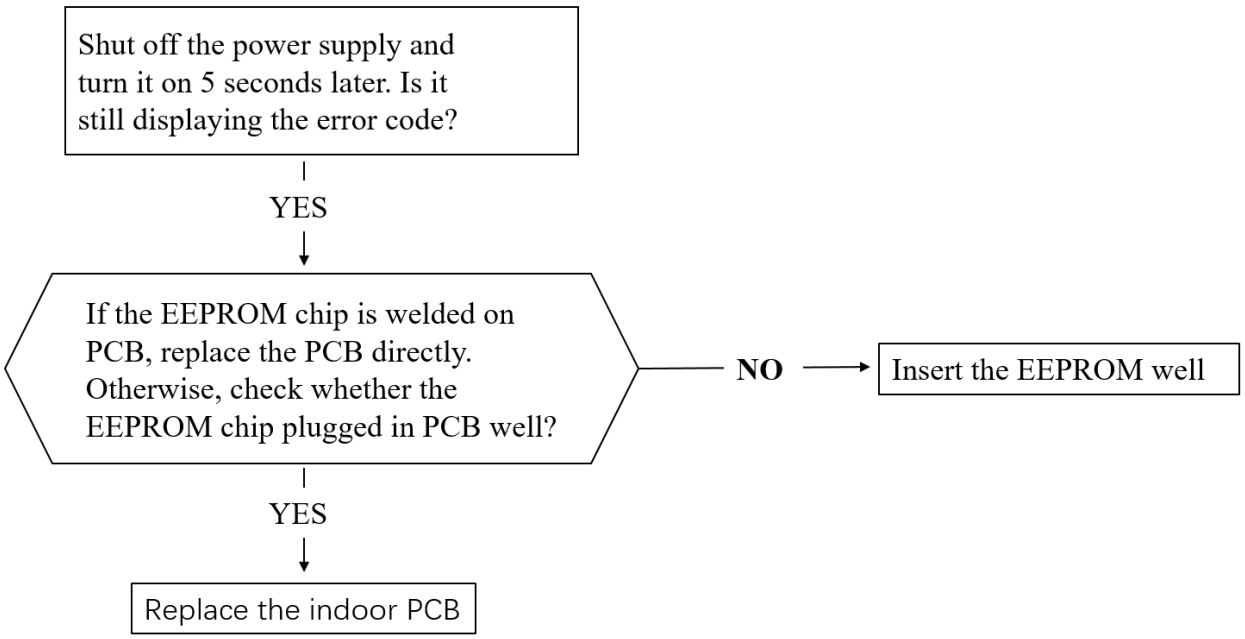
6) Lack of phase:



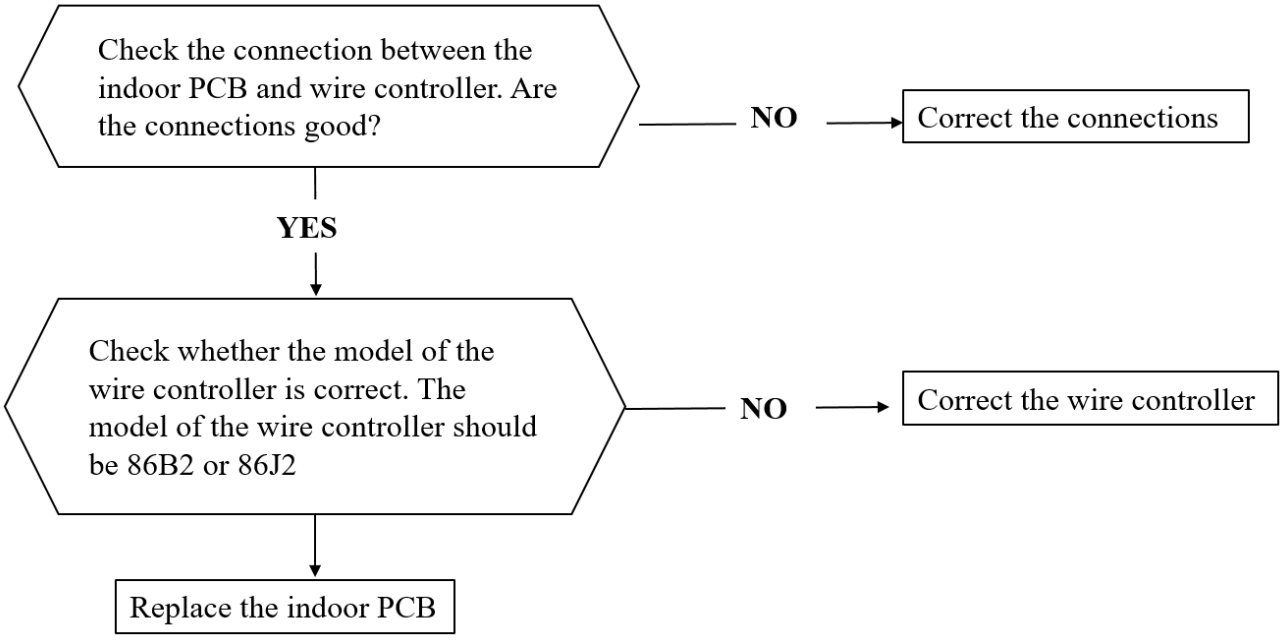
e. d3—Full-water malfunction



f. Ed—EEPROM malfunction



g. C5—Bad communication between indoor PCB & wire controller



Part 4 Installation

1. Precaution on Installation

1). Measure the necessary length of the connecting pipe, and make it by the following way.

a. Connect the indoor unit at first, then the outdoor unit. Bend the tubing in proper way. Do not harm them.

Specially Notice the pipe length/height/dimension of each capacity.

Maximum pipe length

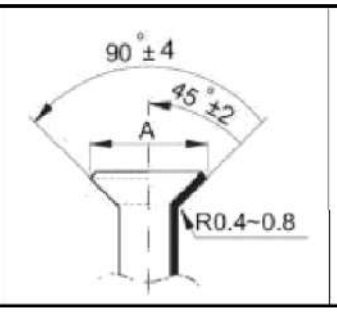
Model	Max. Length	Max. Elevation
12000 Btu/h	25m	15m
18,000Btu/h	25m	15m
24,000Btu/h	30m	15m
36,000Btu/h	30m	20m
48,000Btu/h~60,000Btu/h	50m	30m

Piping sizes

Model	Liquid(mm)	Gas(mm)
12000 Btu/h	6.35	12.70
18,000Btu/h	6.35	12.70
24,000Btu/h	9.52	15.88
36,000Btu/h~60,000Btu/h	9.52	19.05

CAUTIONS

- Daub the surfaces of the flare pipe and the joint nuts with frozen oil, and wrench it for 3~4 rounds
- With hands before fasten the flare nuts.
- Be sure to use two wrenches simultaneously when you connect or disconnect the pipes.

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

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

c. Expel the air after connecting the refrigerant pipe with the indoor unit and the outdoor unit. Then fasten the nuts at the repair-points.

2) Locate The Pipe

a. Drill a hole in the wall (suitable just for the size of the wall conduit), then set on the fittings such as the wall conduit and its cover.

b. Bind the connecting pipe and the cables together tightly with binding tapes. Do not let air in, which will cause water leakage by condensation.

c. Pass the bound connecting pipe through the wall conduit from outside. Be careful of the pipe allocation to do no damage to the tubing.

3) Connect the pipes.

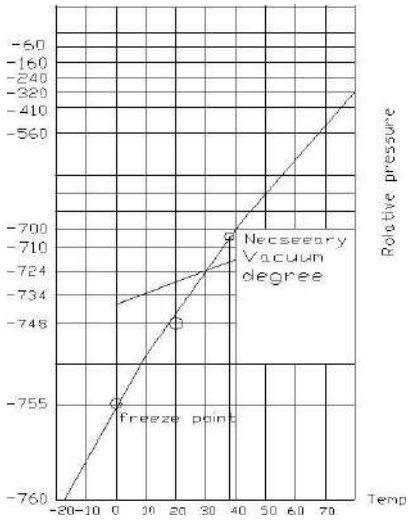
4) Then, open the stem of stop values of the outdoor unit to make the refrigerant pipe connecting the indoor unit with the outdoor unit in fluent flow.

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

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

2. Vacuum Dry and Leakage Checking

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

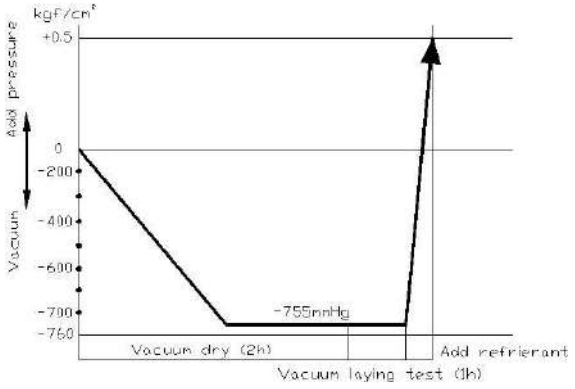


2.2 Vacuum dry procedure

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

①. Common vacuum dry procedure

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



②. Special vacuum dry procedure

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

③. Vacuum destroy for the second time …… Fill nitrogen to 0.5Kgf/cm2

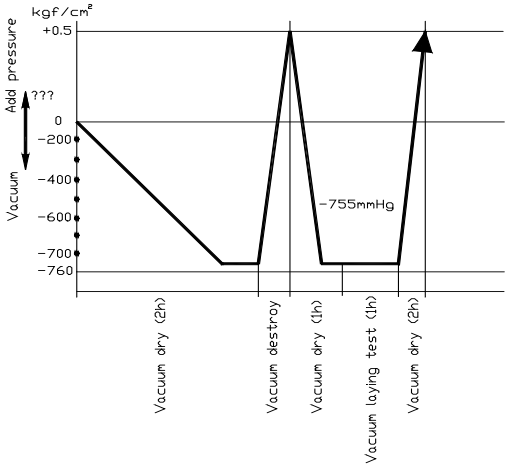
Because nitrogen is for drying gas, it has vacuum drying effect during vacuum destroy. But if the moisture is too much, this method can’t dry thoroughly. So, please pay more attention to prevent water entering and forming condensation water.

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

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

⑤. Vacuum placing test …… 1h

⑥. Sketch map of special vacuum dry procedure



3. Additional Refrigerant Charge

Caution

- Refrigerant cannot be charged until field wiring has been completed.
- Refrigerant may only be charged after performing the leak test and the vacuum pumping.
- When charging a system, care shall be taken that its maximum permissible charge is never exceeded, in view of the danger of liquid hammer.
- Charging with an unsuitable substance may cause explosions and accidents, so always ensure that the appropriate refrigerant is charged.
- Refrigerant containers shall be opened slowly.
- Always use protective gloves and protect your eyes when charging refrigerant.

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

R(g) D(mm) / L(m)	φ6.4	Φ9.5	Φ12.7
Less than 5m (One-way)	—	—	—
Added Refrigerant(R410A) When Over 5m(One-way)	22g/m*(L-5)	54g/m*(L-5)	110g/m*(L-5)

Remark:

R (g): Additional refrigerant to be charged

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

D (mm): Liquid side piping diameter

4. Water Drainage

4.1 Gradient and Supporting

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

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

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

4.1.3. Precautions

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

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

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

④ All connection should be firm.

⑤ Wipe color on PVC pipe to note connection.

⑥ Climbing, horizontal and bending conditions are prohibited.

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

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

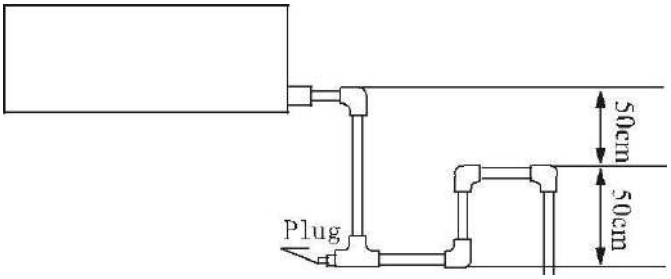
⑨ Indoor units with different drainage type can't share one convergent drainpipe.

4.2 Drainpipe Trap

4.2.1 If the pressure at the connection of the drainpipe is negative, it needs to design drainpipe trap.

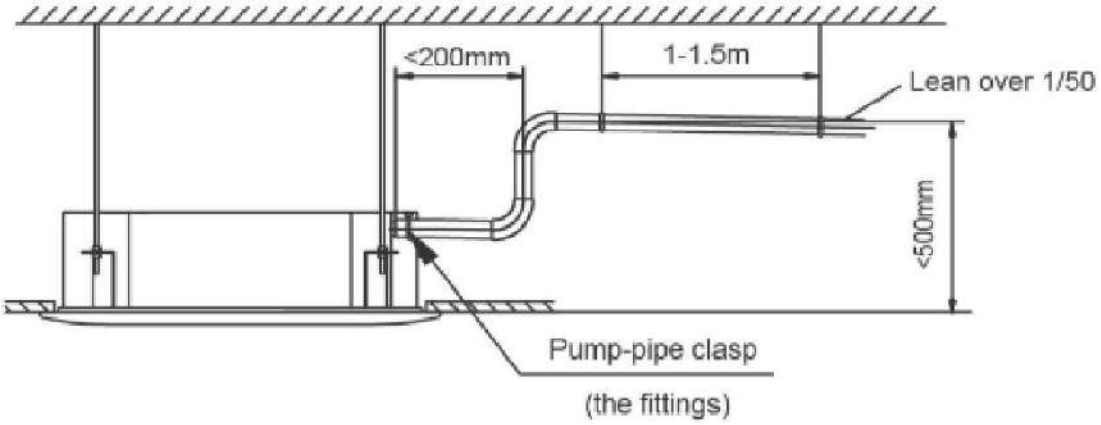
4.2.2 Every indoor unit needs one drainpipe trap.

4.2.3 A plug should be designed to do cleaning.

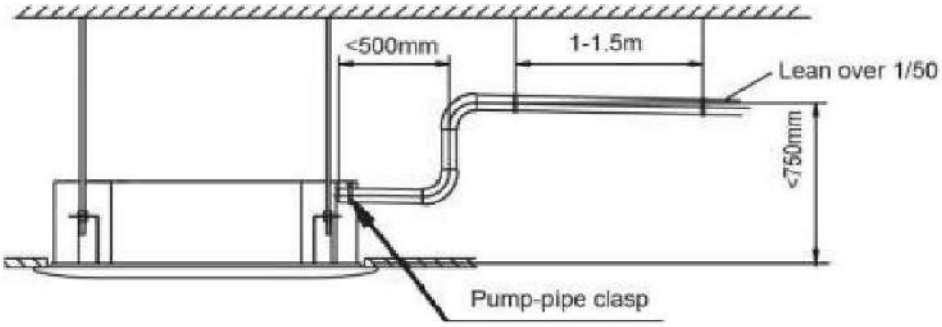


4.3 Upwards drainage (drain pump)

For Four-way cassette(compact)



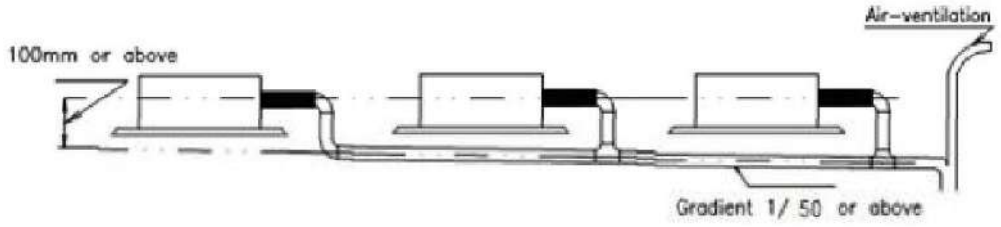
For Four-way cassette



4.4 Convergent drainage

4.4.1 The number of indoor units should be as small as possible to prevent the traverse main pipe overlong.

4.4.2 Indoor unit with drain pump and indoor unit without drain pump should be in different drainage system.



4.4.3 Selecting the diameter

Number of connecting indoor units → Calculate drainage volume → Select the diameter

Calculate allowed volume =Total cooling capacity of indoor units(HP)×2 (l/ hr)

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

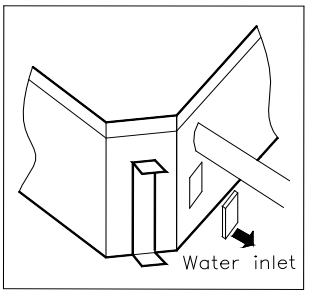
4.5 drainage test

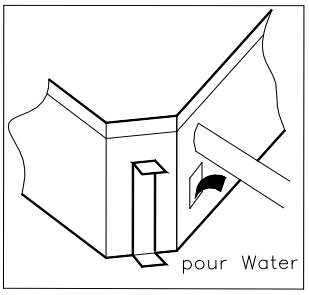
4.5.1Drainage without drain pump

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

4.5.2 Drainage with drain pump

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





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

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

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

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

5. Insulation Work

5.1 Insulation material and thickness

5.1.1. Insulation material

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

◆ Example: Heat pump type----Heat-resistant Polyethylene foam (withstand above 120℃)

Cooling only type----Polyethylene foam (withstand above 100℃)

5.1.2. Thickness choice for insulation material

Insulation material thickness is as follows:

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

5.2 Refrigerant pipe insulation

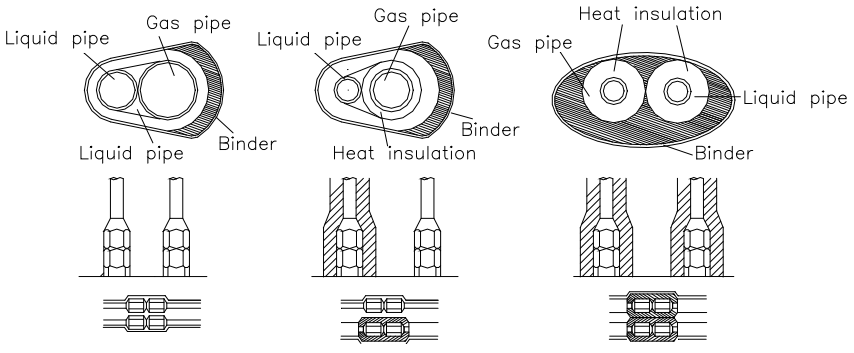
5.2.1. Work Procedure

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

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

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

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

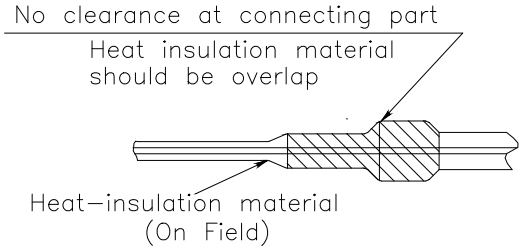


For construction convenience, before laying pipes, use insulation material to insulate the pipes to be deal with, at the same time, at two ends of the pipe, remain some length not to be insulated, in order to be welded and check the leakage after laying the pipes.

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

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

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



5.3 Drainage pipe insulation

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

5.4 Note

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

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

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

6. Test Operation

(1) The test operation must be carried out after the entire installation has been completed.

(2) Please confirm the following points before the test operation.

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

(3) According to the user's requirement, install the remote controller when the remote controller's signal can reach the indoor unit smoothly.

(4) Test operation

Set the air conditioner under the mode of "COOLING" with the remote controller, and check the following points.

Indoor unit

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

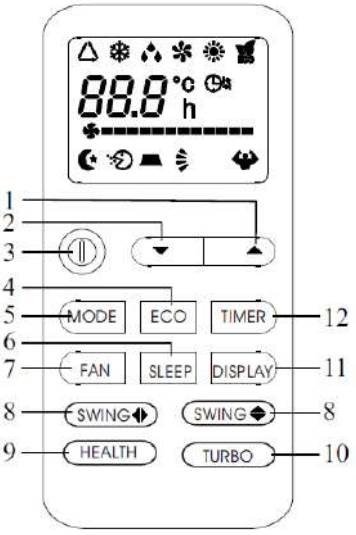
Outdoor unit

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

Part 5 Control

1. Wireless remote controller

No.	Button	Function
1	▲ (TEMP UP)	Increase the temperature or time by 1 unit
2	▼ (TEMP DN)	Decrease the temperature or time by 1 unit
3	ON/OFF	To switch the conditioner on and off.
4	ECO	In cooling mode,press this button ,the temperature will increase 2℃ on the base of setting temperature In heating mode, press this button, the temperature will decrease 2℃ on the base of setting temperature
5	MODE	To select the mode of operation
6	SLEEP	To activate the function "SLEEP"
7	FAN	To select the fan speed of auto/low/mid/high
8	SWING	To activate or deactivate of the movement of the "DEFLECTORS".
9	HEALTHY	To switch - on /off HEALTHY funtion.It is a button which controls the ionizer or plasma generator only for inverter type.
10	TURBO	In cooling mode, press this button, the unit will give the maximum cooling temperature with 16℃ In heating mode, press this button, the unit will give the maximum heating temperature with 31℃
11	DISPLAY	To switch on/off the LED display (if present)
12	TIMER	To set automatic switching-on/off
13	SUPER	In cooling mode, press this button, the unit will give the maximum cooling temperature with 16℃ In heating mode, press this button, the unit will give the maximum heating temperature with 31℃



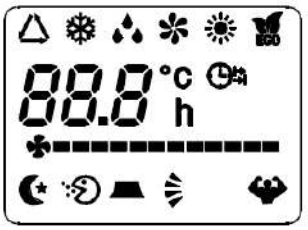
a. The outlooking and some function of remote control may vary according to the model.

b. The shape and position of buttons and indicators may vary according to the model, but their function is the same.

c. The unit confirms the correct reception of each press button with a beep.

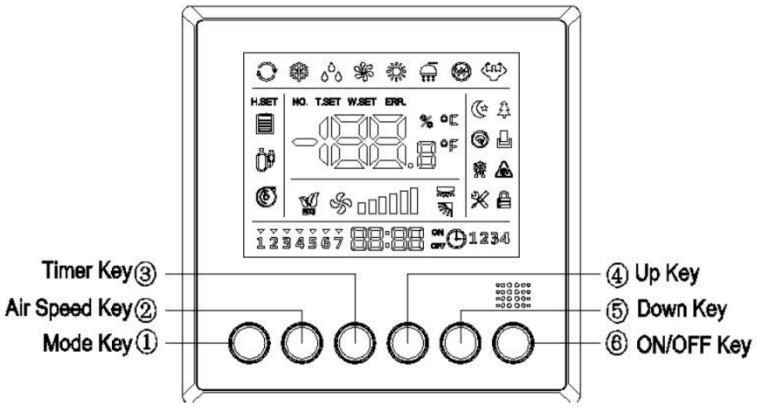
Remote control DISPLAY Meaning of symbols on the liquid crystal display

No.	Symbols	Meaning
1		FEEL mode indicator
2		COOLING indicator
3		DEHUMIDIFYING indicator
4		FAN ONLY OPERATION indicator
5		HEATING indicator
6		TIMER OFF indicator
7		TIMER ON indicator
8		AUTO FAN indicator
9		LOW FAN SPEED indicator
10		MIDDLE FAN SPEED indicator
11		HIGH FAN SPEED indicator
12		SLEEP indicator
13		SUPER indicator
14		HEALTHY indicator
15	ECO	ECO indicator
16		BATTERY indicator
17		BATTERY indicator
18	88:8	CLOCK indicator



2. Wired remote controller

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	°C	Degree centigrade	°F	Fahrenheit
	Electric	ERR.	Error		Water Level		Water Pump Sign
W.	Current Water Temperature	T.	Ambient Temperature	SET	Set Temperature		Compressor Sign
ON	Timer ON	OFF	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	/

2.2 Initial Power-on

1.1. 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 ad remote controller operations are invalid.

1.2. The wire controller is without the power-down memory function by default. If a user needs to use the power-down memory function, such user can see the detailed parameters corresponding to “P1” in Section 7.2 --- Parameter Setting.

2.3 Key Description

2.3.1 [ON/OFF] Key

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.

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.

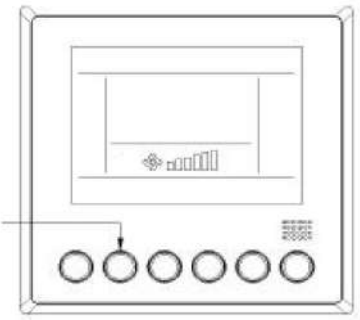
Notes: 1. The controller exits from the self-check status after it is powered off in the self-check status.

2. All the keys are invalid during the self-check.

2.3.2. [Mode] Key

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.

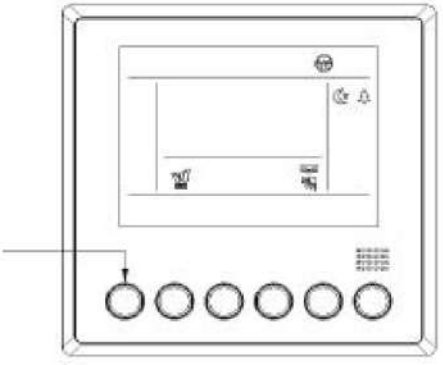


The refrigeration machine is without the “Heat” icon.

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.

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.)



2.3.3. [▲]/[▼] Key

2.3.3.1 On the startup interface, press the [▲]/[▼] key once to set the temperature increase or decrease by 0.5℃;

2.3.3.2 Forced Defrosting

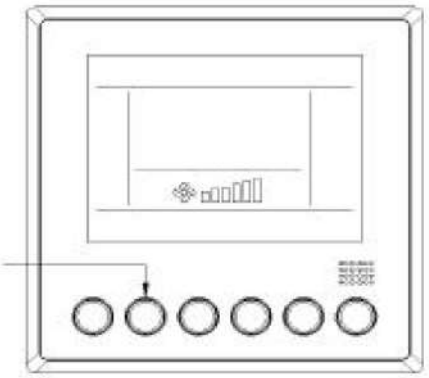
On the startup interface, set the wire controller to be in the heating mode and at the temperature of 16℃, and then finish the following 6 keys of operations within 5 seconds:

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

buzzer long beeps once.

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 being in the dehumidifying mode, the wire controller does not respond to any operation of the [Air Speed] key wherein the air speed cannot be adjusted, the default air speed is low and the icon of low air speed normally goes on.
- 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.
- 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.

2.3.5 [Timer] Key

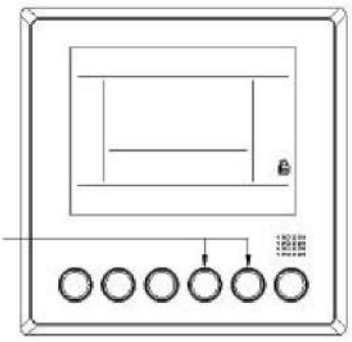
2.3.5.1 Continuously press the [Timer] key for over 5 seconds to enter the clock setting interface (See Chapter 5--- Clock Setting for details).

2.3.5.2 Press the [Timer] key once to enter the timer setting interface (See Chapter 6---Timer Setting for details).

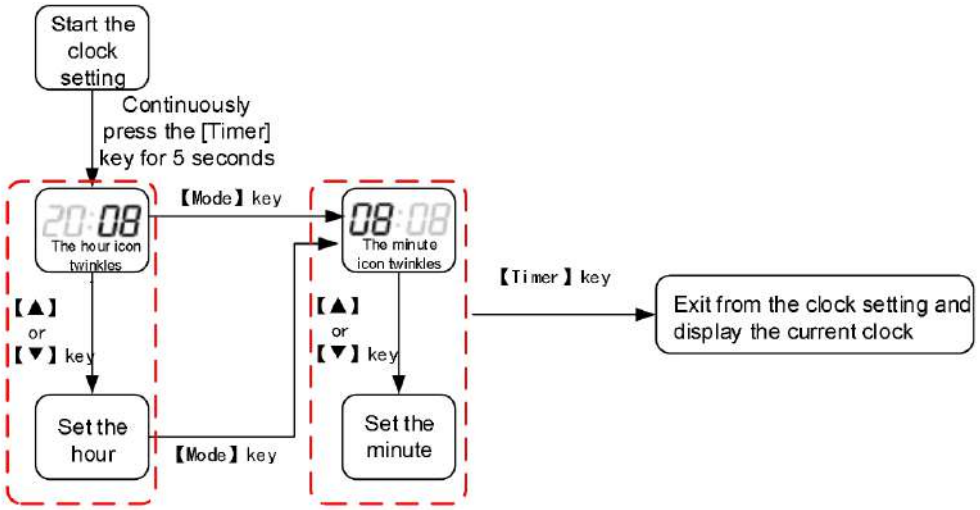
2.4. Auxiliary Functions

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.



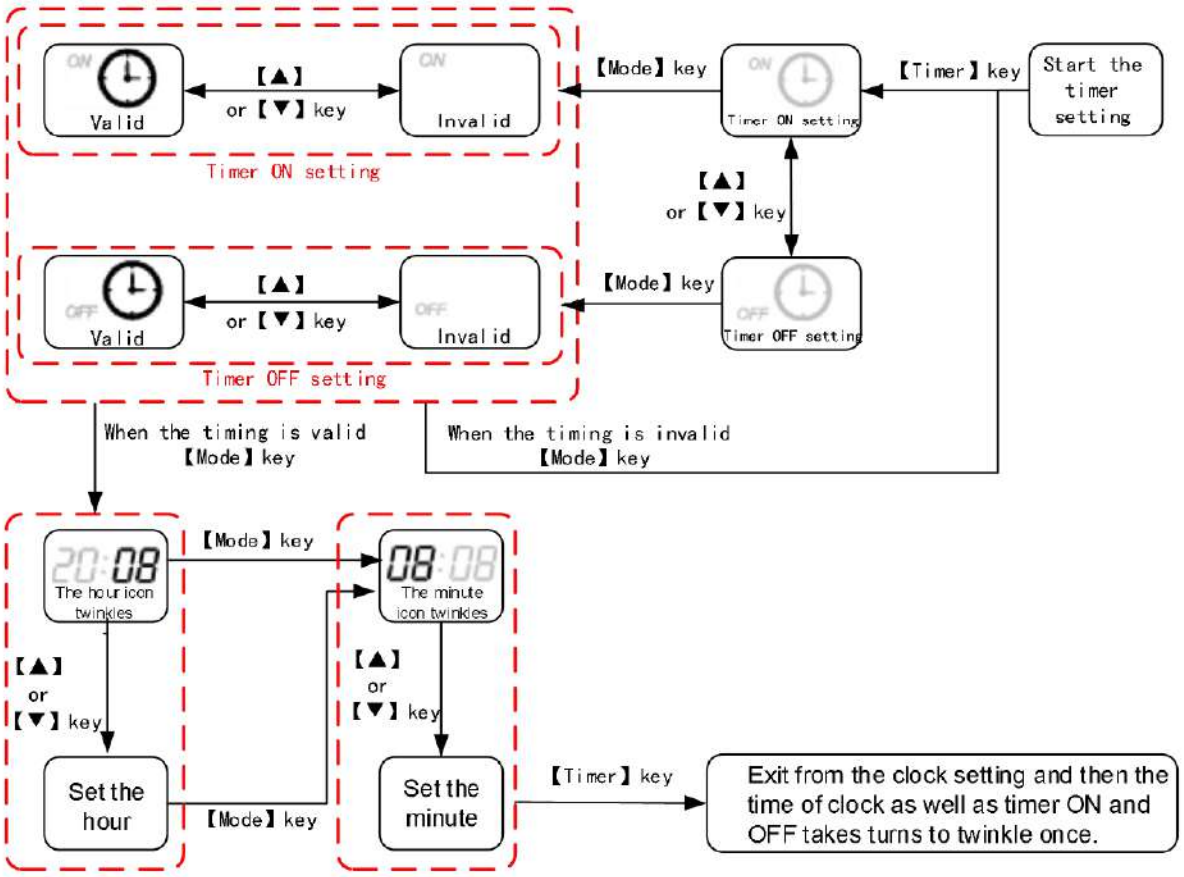
2.5. Clock Setting



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.

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.

2.7.Parameter Query/Setting

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	Current value	Temperature Area	-30~150
04	Time Area-Hour	Temperature in the middle of evaporator of	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	

2.7.2 Parameter Setting

- Continuously press the "[Mode]+[▼]" combination keys for 5 seconds to automatically enter the parameter setting 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 stopthe "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		
Parameter Code	Area Display	Parameter Name	Value to	Area Display	Query Range
P1	Time Area-Hour	The indoor unit corresponding to the wire controller is the indoor unit in the master mode	SL	Temperature Display Area	SL: From the indoor unit

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

Annex 1 Parameter Table of Indoor Temperature and Evaporator Temperature Sensor

T(℃)	Rmin(KΩ)	Rnom(KΩ)	Rmax(KΩ)	T(℃)	Rmin(KΩ)	Rnom(KΩ)	Rmax(KΩ)
-40	370.906	388.619	407.137	-3	39.418	40.376	41.352
-39	345.908	362.171	379.162	-2	37.371	38.259	39.163
-38	322.825	337.767	353.366	-1	35.442	36.264	37.102
-37	301.489	315.226	329.556	0	33.623	34.385	35.160
-36	281.749	294.386	307.558	1	31.907	32.613	33.330
-35	263.470	275.100	287.215	2	30.288	30.941	31.605
-34	246.528	257.238	268.386	3	28.759	29.364	29.979
-33	230.812	240.679	250.942	4	27.316	27.876	28.445
-32	216.222	225.317	234.770	5	25.953	26.471	26.998
-31	202.667	211.053	219.764	6	24.665	25.145	25.632
-30	190.063	197.799	205.830	7	23.448	23.892	24.342
-29	178.336	185.475	192.881	8	22.298	22.708	23.124
-28	167.416	174.007	180.840	9	21.210	21.590	21.974
-27	157.242	163.330	169.636	10	20.181	20.532	20.887
-26	147.757	153.381	159.202	11	19.207	19.532	19.859
-25	138.908	144.105	149.482	12	18.286	18.586	18.888
-24	130.648	135.452	140.419	13	17.414	17.690	17.969
-23	122.933	127.375	131.965	14	16.588	16.843	17.100
-22	115.724	119.832	124.074	15	15.806	16.041	16.278
-21	108.983	112.783	116.705	16	15.064	15.281	15.500
-20	102.676	106.193	109.819	17	14.362	14.562	14.763
-19	96.774	100.028	103.382	18	13.696	13.880	14.065
-18	91.246	94.259	97.361	19	13.065	13.234	13.404
-17	86.067	88.857	91.727	20	12.466	12.621	12.777
-16	81.213	83.796	86.453	21	11.898	12.041	12.184
-15	76.661	79.054	81.512	22	11.359	11.490	11.621
-14	72.391	74.607	76.882	23	10.847	10.967	11.087
-13	68.383	70.436	72.542	24	10.361	10.471	10.580
-12	64.620	66.521	68.472	25	9.900	10.000	10.100
-11	61.085	62.847	64.653	26	9.453	9.553	9.653
-10	57.763	59.396	61.068	27	9.029	9.128	9.228
-9	54.641	56.153	57.702	28	8.626	8.725	8.824
-8	51.704	53.106	54.540	29	8.243	8.342	8.440
-7	48.942	50.241	51.569	30	7.880	7.977	8.075
-6	46.342	47.546	48.776	31	7.534	7.631	7.728
-5	43.894	45.010	46.149	32	7.206	7.302	7.398
-4	41.589	42.623	43.678	33	6.894	6.988	7.084

R25=10KΩ±1% B25/50= 4100K 料号：M047-2 版本：A							
T(℃)	Rmin(KΩ)	Rnom(KΩ)	Rmax(KΩ)	T(℃)	Rmin(KΩ)	Rnom(KΩ)	Rmax(KΩ)
34	6.597	6.690	6.785	71	1.540	1.585	1.630
35	6.315	6.407	6.500	72	1.487	1.530	1.575
36	6.046	6.137	6.229	73	1.436	1.478	1.522
37	5.790	5.880	5.970	74	1.387	1.428	1.471
38	5.547	5.635	5.724	75	1.340	1.380	1.422
39	5.315	5.402	5.489	76	1.294	1.334	1.375
40	5.094	5.179	5.266	77	1.251	1.289	1.329
41	4.884	4.968	5.053	78	1.209	1.247	1.286
42	4.683	4.766	4.849	79	1.169	1.206	1.244
43	4.492	4.573	4.655	80	1.130	1.166	1.203
44	4.310	4.390	4.470	81	1.093	1.128	1.164
45	4.136	4.215	4.294	82	1.057	1.091	1.127
46	3.971	4.047	4.125	83	1.022	1.056	1.091
47	3.813	3.888	3.964	84	0.989	1.022	1.056
48	3.662	3.736	3.810	85	0.957	0.990	1.023
49	3.518	3.590	3.663	86	0.926	0.958	0.991
50	3.381	3.451	3.523	87	0.897	0.928	0.960
51	3.249	3.318	3.389	88	0.868	0.899	0.930
52	3.124	3.192	3.260	89	0.841	0.870	0.901
53	3.004	3.070	3.138	90	0.814	0.843	0.873
54	2.889	2.954	3.020	91	0.789	0.817	0.846
55	2.779	2.843	2.908	92	0.764	0.792	0.820
56	2.674	2.737	2.800	93	0.741	0.768	0.796
57	2.574	2.635	2.697	94	0.718	0.744	0.772
58	2.478	2.538	2.598	95	0.696	0.722	0.748
59	2.386	2.444	2.504	96	0.675	0.700	0.726
60	2.298	2.355	2.413	97	0.654	0.679	0.704
61	2.214	2.269	2.326	98	0.635	0.659	0.684
62	2.133	2.187	2.243	99	0.615	0.639	0.663
63	2.055	2.109	2.163	100	0.597	0.620	0.644
64	1.981	2.033	2.087	101	0.579	0.602	0.625
65	1.910	1.961	2.013	102	0.562	0.584	0.607
66	1.842	1.892	1.943	103	0.546	0.567	0.590
67	1.776	1.825	1.875	104	0.530	0.551	0.573
68	1.714	1.761	1.810	105	0.514	0.535	0.556
69	1.653	1.700	1.748				
70	1.596	1.641	1.688				

Annex 2 Parameter Table of Condenser Temperature Sensor

MF58(DO-41) R25=10KΩ±1%				B25/50=4100±1%		M323-7	版本：A
T(℃)	Rmin(KΩ)	Rnom(KΩ)	Rmax(KΩ)	T(℃)	Rmin(KΩ)	Rnom(KΩ)	Rmax(KΩ)
-40	311.5143	325.8161	340.7404	-3	38.4325	39.3562	40.2981
-39	291.9141	305.1157	318.8824	-2	36.5114	37.3696	38.2441
-38	273.7720	285.9677	298.6768	-1	34.6933	35.4905	36.3023
-37	256.9550	268.2298	279.9713	0	32.9725	33.7128	34.4663
-36	241.3453	251.7757	262.6306	1	31.3434	32.0307	32.7298
-35	226.8376	236.4929	246.5345	2	29.8007	30.4387	31.0872
-34	213.3378	222.2806	231.5751	3	28.3398	28.9318	29.5332
-33	200.7613	209.0486	217.6562	4	26.9560	27.5052	28.0628
-32	189.0326	196.7161	204.6914	5	25.6450	26.1543	26.6710
-31	178.0833	185.2101	192.6028	6	24.4029	24.8750	25.3537
-30	167.8519	174.4649	181.3203	7	23.2257	23.6632	24.1066
-29	158.2829	164.4214	170.7809	8	22.1098	22.5151	22.9256
-28	149.3258	155.0257	160.9271	9	21.0520	21.4273	21.8071
-27	140.9347	146.2288	151.7067	10	20.0490	20.3964	20.7477
-26	133.0681	137.9867	143.0728	11	19.0979	19.4193	19.7441
-25	125.6881	130.2588	134.9822	12	18.1958	18.4929	18.7930
-24	118.7600	123.0083	127.3958	13	17.3401	17.6147	17.8919
-23	112.2521	116.2014	120.2776	14	16.5282	16.7818	17.0376
-22	106.1354	109.8073	113.5949	15	15.7578	15.9919	16.2278
-21	100.3832	103.7977	107.3176	16	15.0267	15.2426	15.4601
-20	94.9711	98.1465	101.4180	17	14.3326	14.5316	14.7319
-19	89.8764	92.8298	95.8706	18	13.6738	13.8570	14.0413
-18	85.0785	87.8255	90.6522	19	13.0481	13.2167	13.3861
-17	80.5581	83.1133	85.7410	20	12.4540	12.6090	12.7646
-16	76.2974	78.6743	81.1171	21	11.8897	12.0320	12.1748
-15	72.2800	74.4910	76.7620	22	11.3535	11.4841	11.6150
-14	68.4907	70.5474	72.6586	23	10.8442	10.9638	11.0836
-13	64.9152	66.8284	68.7911	24	10.3601	10.4695	10.5790
-12	61.5405	63.3201	65.1446	25	9.9000	10.0000	10.1000
-11	58.3543	60.0095	61.7055	26	9.4520	9.5538	9.6537
-10	55.3453	56.8847	58.4611	27	9.0303	9.1298	9.2295
-9	52.5028	53.9344	55.3995	28	8.6278	8.7268	8.8261
-8	49.8169	51.1481	52.5097	29	8.2452	8.3436	8.4423
-7	47.2782	48.5160	49.7812	30	7.8816	7.9792	8.0772
-6	44.8784	46.0291	47.2046	31	7.5360	7.6327	7.7299
-5	42.6091	43.6787	44.7707	32	7.2074	7.3031	7.3993
-4	40.4628	41.4569	42.4712	33	6.8949	6.9895	7.0847

MF58(DO-41) R25=10KΩ±1%				B25/50=4100±1%		M323-7	版本：A
T(℃)	Rmin(KΩ)	Rnom(KΩ)	Rmax(KΩ)	T(℃)	Rmin(KΩ)	Rnom(KΩ)	Rmax(KΩ)
34	6.5976	6.6911	6.7852	71	1.5177	1.5618	1.6070
35	6.3149	6.4071	6.5000	72	1.4644	1.5074	1.5516
36	6.0458	6.1368	6.2285	73	1.4130	1.4551	1.4983
37	5.7897	5.8793	5.9697	74	1.3639	1.4050	1.4472
38	5.5459	5.6342	5.7233	75	1.3168	1.3569	1.3981
39	5.3139	5.4007	5.4884	76	1.2715	1.3107	1.3510
40	5.0929	5.1783	5.2646	77	1.2280	1.2663	1.3057
41	4.8823	4.9663	5.0512	78	1.1862	1.2236	1.2621
42	4.6818	4.7643	4.8478	79	1.1460	1.1826	1.2202
43	4.4908	4.5718	4.6538	80	1.1075	1.1432	1.1799
44	4.3087	4.3882	4.4687	81	1.0704	1.1053	1.1412
45	4.1351	4.2131	4.2922	82	1.0348	1.0689	1.1040
46	3.9696	4.0461	4.1237	83	1.0005	1.0338	1.0681
47	3.8117	3.8868	3.9629	84	0.9676	1.0001	1.0336
48	3.6612	3.7348	3.8095	85	0.9359	0.9677	1.0005
49	3.5176	3.5897	3.6629	86	0.9054	0.9365	0.9685
50	3.3805	3.4512	3.5230	87	0.8760	0.9064	0.9377
51	3.2470	3.3162	3.3865	88	0.8478	0.8775	0.9081
52	3.1195	3.1872	3.2561	89	0.8207	0.8497	0.8796
53	2.9975	3.0638	3.1313	90	0.7945	0.8228	0.8520
54	2.8810	2.9459	3.0119	91	0.7693	0.7970	0.8256
55	2.7696	2.8331	2.8977	92	0.7451	0.7721	0.8001
56	2.6631	2.7252	2.7885	93	0.7217	0.7481	0.7754
57	2.5613	2.6220	2.6839	94	0.6992	0.7250	0.7517
58	2.4639	2.5233	2.5839	95	0.6774	0.7027	0.7288
59	2.3707	2.4288	2.4881	96	0.6565	0.6812	0.7067
60	2.2815	2.3383	2.3963	97	0.6363	0.6604	0.6854
61	2.1962	2.2517	2.3084	98	0.6168	0.6404	0.6648
62	2.1144	2.1687	2.2241	99	0.5980	0.6211	0.6450
63	2.0363	2.0893	2.1435	100	0.5800	0.6025	0.6259
64	1.9614	2.0132	2.0662	101	0.5625	0.5845	0.6073
65	1.8897	1.9403	1.9921	102	0.5456	0.5672	0.5895
66	1.8209	1.8704	1.9210	103	0.5293	0.5504	0.5723
67	1.7550	1.8034	1.8529	104	0.5136	0.5342	0.5556
68	1.6919	1.7391	1.7875	105	0.4984	0.5186	0.5395
69	1.6313	1.6775	1.7248				
70	1.5733	1.6184	1.6646				