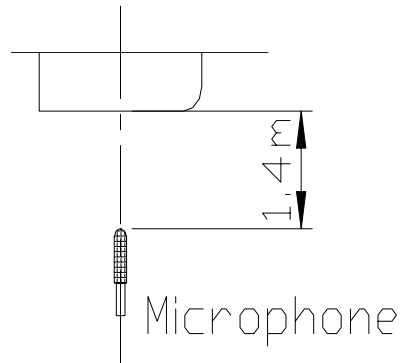
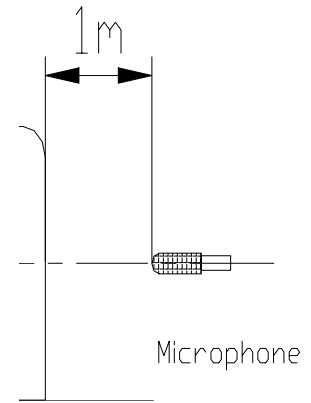


Part 3 Noise Level



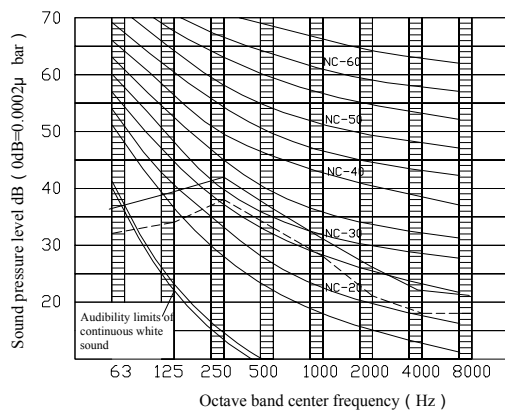
Ceiling



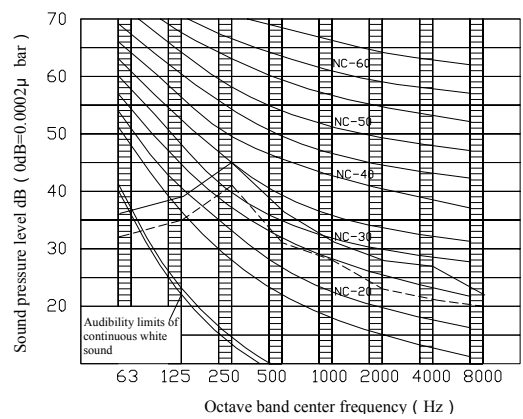
Floor



1.18000btu/h

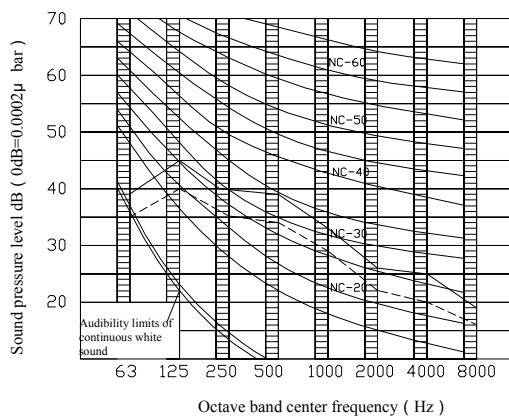


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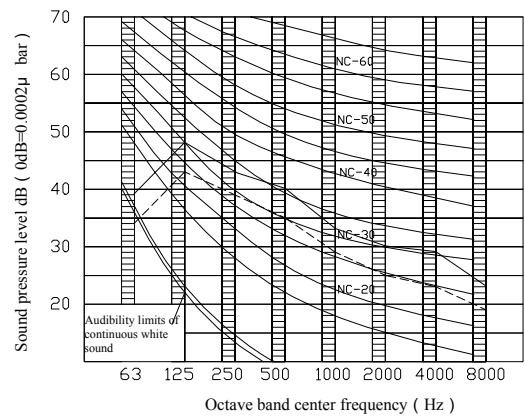


Floor

2.24000btu/h

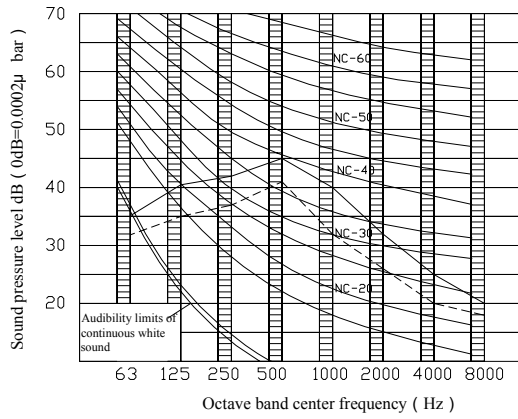


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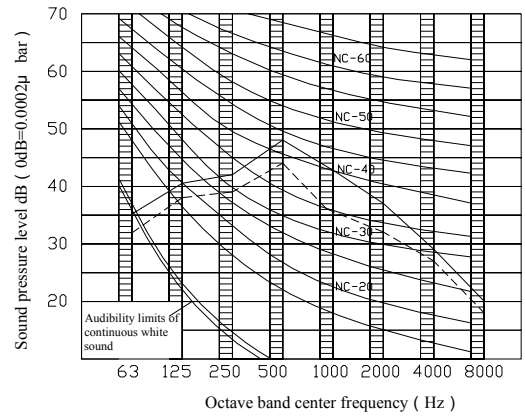


Floor

3.30000btu/h 36000btu/h

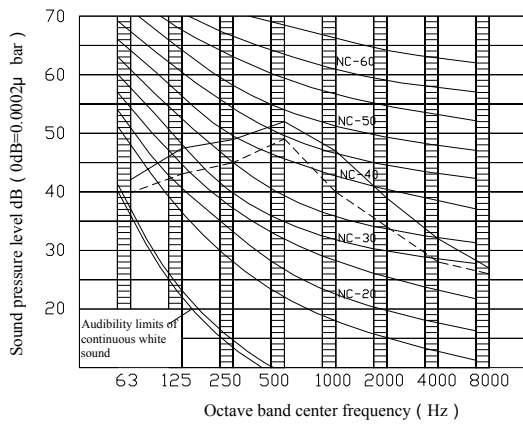


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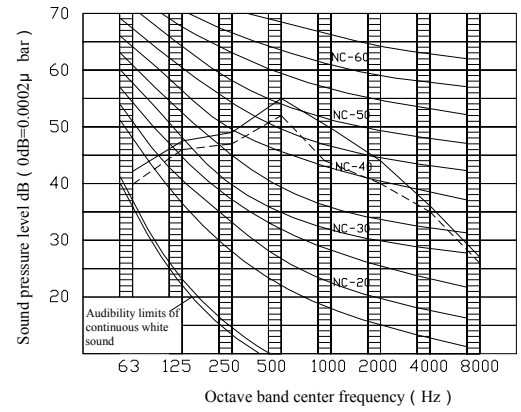


Floor

4.48000btu/h

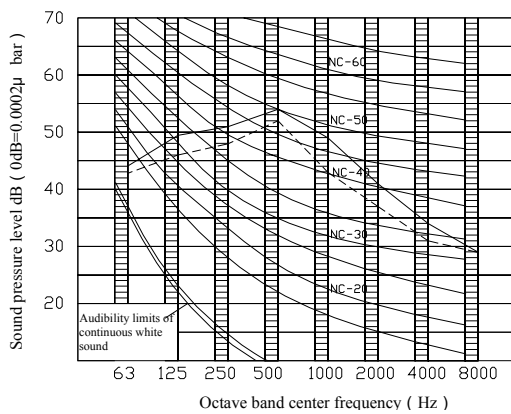


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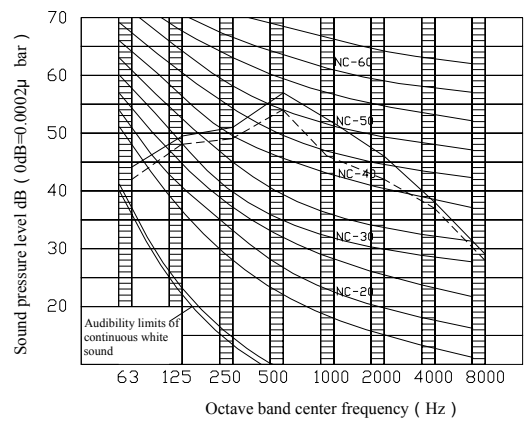


Floor

5.60000btu/h



Ceiling

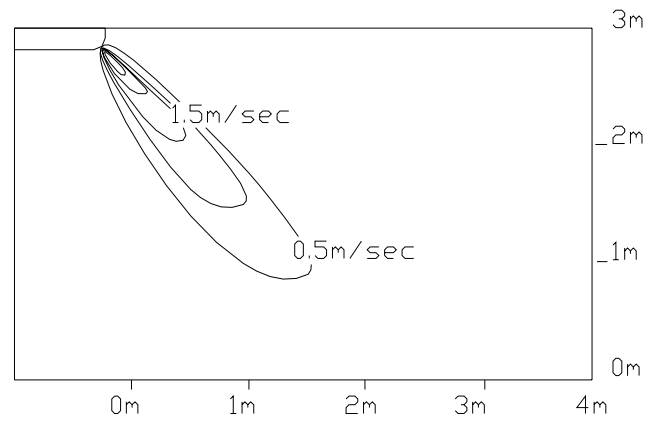


Floor

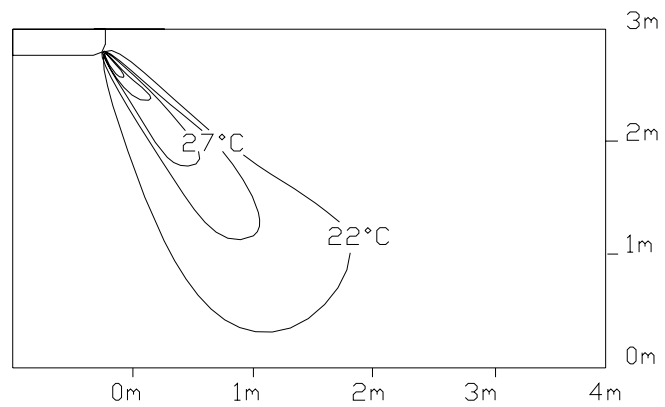
Part 4 Velocity & temperature distribution

Discharge angle 60° (CEILING)

Airflow velocity

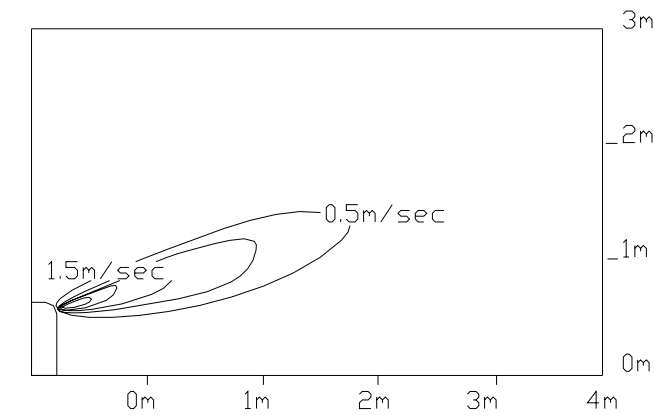


Temperature

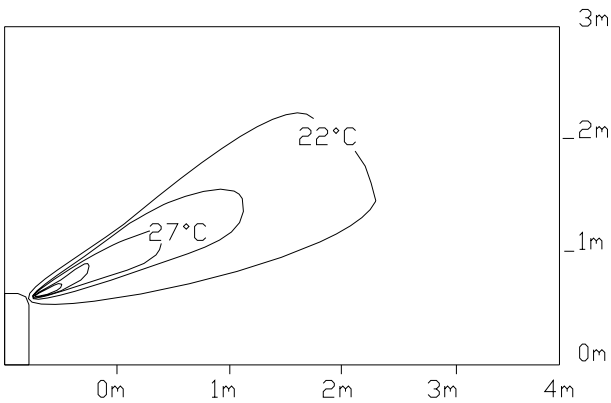


Discharge angle 60°(FLOOR)

Airflow velocity



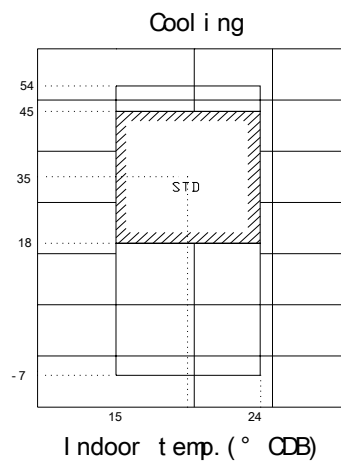
Temperature



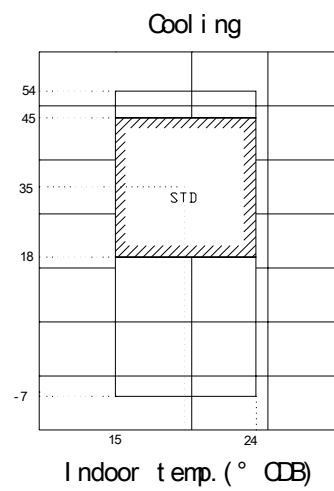
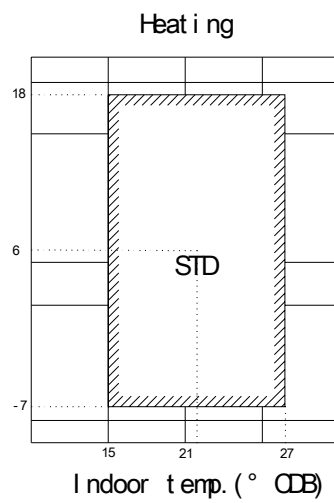
Part 5 Operation Range

Ensure the operating temperature is in allowable range.

Cooling only



Heat pump



Part 6 Capacity Table

Model: DUA-18HRN2 DUA-18CRN2

COOLING		OUTDOOR TEMPERATURE DRY						
Indoor Conditions		21°C	25°C	30°C	35°C	40°C	45°C	50°C
21°C D 15°C W	Total capacity kW	5.10	4.88	4.70	4.44	4.26	4.12	3.99
	Sensitive capacity kW	4.08	3.90	3.76	3.55	3.41	3.30	3.19
	Input kW.	1.32	1.50	1.69	1.88	2.07	2.26	2.45
24°C D 17°C W	Total capacity kW	5.59	5.34	5.15	4.86	4.66	4.52	4.37
	Sensitive capacity kW	4.47	4.27	4.12	3.89	3.73	3.61	3.50
	Input kW.	1.39	1.59	1.79	1.99	2.18	2.38	2.58
27°C D 19°C W	Total capacity kW	6.07	5.81	5.60	5.28	5.07	4.91	4.75
	Sensitive capacity kW	4.86	4.65	4.48	4.22	4.06	3.93	3.80
	Input kW.	1.46	1.67	1.88	2.09	2.30	2.51	2.72
32°C D 23°C W	Total capacity kW	6.98	6.68	6.44	6.07	5.83	5.65	5.46
	Sensitive capacity kW	5.59	5.34	5.15	4.86	4.66	4.52	4.37
	Input kW.	1.68	1.92	2.16	2.40	2.64	2.88	3.12

Model: DUA-18HRN2

HEATING		OUTDOOR TEMPERATURE							
Indoor Conditions		24°C D 18°C W	12°C D 11°C W	7°C D 6°C W	4°C D 3°C W	0°C D -1°C W	-5°C D -6°C W	-7°C D -8°C W	-15°C D -16°C W
15°C	Capacity kW	6.68	5.35	4.46	4.01	3.79	3.38	3.12	2.90
	Input kW.	2.52	2.02	1.68	1.60	1.51	1.43	1.34	1.18
18°C	Capacity kW	7.52	6.02	5.01	4.51	4.26	3.76	3.51	3.26
	Input kW.	2.84	2.27	1.89	1.80	1.70	1.61	1.51	1.32
20°C	Capacity kW	8.36	6.68	5.57	5.01	4.73	4.18	3.90	3.62
	Input kW.	3.15	2.52	2.10	2.00	1.89	1.79	1.68	1.47
22°C	Capacity kW	9.19	7.35	6.13	5.51	5.21	4.60	4.29	3.98
	Input kW.	3.47	2.77	2.31	2.19	2.08	1.96	1.85	1.62
27°C	Capacity kW	10.86	8.69	7.24	6.52	6.15	5.43	5.07	4.71
	Input kW.	4.10	3.28	2.73	2.59	2.46	2.32	2.18	1.91

Model: DUA-24HRN2 DUA-24CRN2

COOLING		OUTDOOR TEMPERATURE DRY						
Indoor Conditions		21°C	25°C	30°C	35°C	40°C	45°C	50°C
21°C D 15°C W	Total capacity kW	7.19	6.87	6.62	6.25	6.00	5.81	5.62
	Sensitive capacity kW	5.75	5.50	5.30	5.00	4.80	4.65	4.50
	Input kW.	1.95	2.23	2.51	2.79	3.07	3.35	3.63
24°C D 17°C W	Total capacity kW	7.87	7.53	7.26	6.84	6.57	6.37	6.16
	Sensitive capacity kW	6.30	6.02	5.80	5.48	5.26	5.09	4.93
	Input kW.	2.06	2.36	2.65	2.95	3.24	3.53	3.83
27°C D 19°C W	Total capacity kW	8.56	8.18	7.89	7.44	7.14	6.92	6.70
	Sensitive capacity kW	6.84	6.55	6.31	5.95	5.71	5.54	5.36
	Input kW.	2.17	2.48	2.79	3.10	3.41	3.72	4.03
32°C D 23°C W	Total capacity kW	9.84	9.41	9.07	8.56	8.21	7.96	7.70
	Sensitive capacity kW	7.87	7.53	7.26	6.84	6.57	6.37	6.16
	Input kW.	2.50	2.85	3.21	3.57	3.92	4.28	4.63

Model: DUA-24HRN2

HEATING		OUTDOOR TEMPERATURE							
Indoor Conditions		24°C D 18°C W	12°C D 11°C W	7°C D 6°C W	4°C D 3°C W	0°C D -1°C W	-5°C D -6°C W	-7°C D -8°C W	-15°C D -16°C W
15°C	Capacity kW	10.56	8.45	7.04	6.34	5.98	5.35	4.93	4.58
	Input kW.	3.66	2.93	2.44	2.32	2.20	2.07	1.95	1.71
18°C	Capacity kW	11.88	9.50	7.92	7.13	6.73	5.94	5.54	5.15
	Input kW.	4.12	3.29	2.75	2.61	2.47	2.33	2.20	1.92
20°C	Capacity kW	13.20	10.56	8.80	7.92	7.48	6.60	6.16	5.72
	Input kW.	4.58	3.66	3.05	2.90	2.75	2.59	2.44	2.14
22°C	Capacity kW	14.52	11.62	9.68	8.71	8.23	7.26	6.78	6.29
	Input kW.	5.03	4.03	3.36	3.19	3.02	2.85	2.68	2.35
27°C	Capacity kW	17.16	13.73	11.44	10.30	9.72	8.58	8.01	7.44
	Input kW.	5.95	4.76	3.97	3.77	3.57	3.37	3.17	2.78

Model: DUA-30HRN2 DUA30CRN2

COOLING		OUTDOOR TEMPERATURE DRY						
Indoor Conditions		21°C	25°C	30°C	35°C	40°C	45°C	50°C
21°C D 15°C W	Total capacity kW	8.69	8.32	8.01	7.56	7.26	7.03	6.80
	Sensitive capacity kW	6.96	6.65	6.41	6.05	5.81	5.62	5.44
	Input kW.	2.36	2.70	3.04	3.38	3.71	4.05	4.39
24°C D 17°C W	Total capacity kW	9.52	9.11	8.78	8.28	7.95	7.70	7.45
	Sensitive capacity kW	7.62	7.29	7.02	6.62	6.36	6.16	5.96
	Input kW.	2.49	2.85	3.21	3.56	3.92	4.28	4.63
27°C D 19°C W	Total capacity kW	10.35	9.90	9.54	9.00	8.64	8.37	8.10
	Sensitive capacity kW	8.28	7.92	7.63	7.20	6.91	6.70	6.48
	Input kW.	2.63	3.00	3.38	3.75	4.13	4.50	4.88
32°C D 23°C W	Total capacity kW	11.90	11.39	10.97	10.35	9.94	9.63	9.32
	Sensitive capacity kW	9.52	9.11	8.78	8.28	7.95	7.70	7.45
	Input kW.	3.02	3.45	3.88	4.31	4.74	5.18	5.61

Model: DUA-30HRN2

HEATING		OUTDOOR TEMPERATURE							
Indoor Conditions		24°C D 18°C W	12°C D 11°C W	7°C D 6°C W	4°C D 3°C W	0°C D -1°C W	-5°C D -6°C W	-7°C D -8°C W	-15°C D -16°C W
15°C	Capacity kW	12.66	10.13	8.44	7.60	7.17	6.41	5.91	5.49
	Input kW.	5.28	4.22	3.52	3.34	3.17	2.99	2.82	2.46
18°C	Capacity kW	14.24	11.39	9.50	8.55	8.07	7.12	6.65	6.17
	Input kW.	5.94	4.75	3.96	3.76	3.56	3.37	3.17	2.77
20°C	Capacity kW	15.83	12.66	10.55	9.50	8.97	7.91	7.39	6.86
	Input kW.	6.60	5.28	4.40	4.18	3.96	3.74	3.52	3.08
22°C	Capacity kW	17.41	13.93	11.61	10.44	9.86	8.70	8.12	7.54
	Input kW.	7.26	5.81	4.84	4.60	4.36	4.11	3.87	3.39
27°C	Capacity kW	20.57	16.46	13.72	12.34	11.66	10.29	9.60	8.91
	Input kW.	8.58	6.86	5.72	5.43	5.15	4.86	4.58	4.00

Model: DUA-36HRN2 DUA-36CRN2

COOLING		OUTDOOR TEMPERATURE DRY						
Indoor Conditions		21°C	25°C	30°C	35°C	40°C	45°C	50°C
21°C D 15°C W	Total capacity kW	10.14	9.70	9.35	8.82	8.47	8.20	7.94
	Sensitive capacity kW	8.11	7.76	7.48	7.06	6.77	6.56	6.35
	Input kW.	2.55	2.92	3.28	3.65	4.01	4.37	4.74
24°C D 17°C W	Total capacity kW	11.11	10.63	10.24	9.66	9.27	8.98	8.69
	Sensitive capacity kW	8.89	8.50	8.19	7.73	7.42	7.19	6.96
	Input kW.	2.69	3.08	3.46	3.85	4.23	4.62	5.00
27°C D 19°C W	Total capacity kW	12.08	11.55	11.13	10.50	10.08	9.77	9.45
	Sensitive capacity kW	9.66	9.24	8.90	8.40	8.06	7.81	7.56
	Input kW.	2.84	3.24	3.65	4.05	4.46	4.86	5.27
32°C D 23°C W	Total capacity kW	13.89	13.28	12.80	12.08	11.59	11.23	10.87
	Sensitive capacity kW	11.11	10.63	10.24	9.66	9.27	8.98	8.69
	Input kW.	3.26	3.73	4.19	4.66	5.12	5.59	6.05

Model: DUA-36HRN2

HEATING		OUTDOOR TEMPERATURE							
Indoor Conditions		24°C D 18°C W	12°C D 11°C W	7°C D 6°C W	4°C D 3°C W	0°C D -1°C W	-5°C D -6°C W	-7°C D -8°C W	-15°C D -16°C W
15°C	Capacity kW	14.40	11.52	9.60	8.64	8.16	7.29	6.72	6.24
	Input kW.	6.00	4.80	4.00	3.80	3.60	3.40	3.20	2.80
18°C	Capacity kW	16.20	12.96	10.80	9.72	9.18	8.10	7.56	7.02
	Input kW.	6.75	5.40	4.50	4.28	4.05	3.83	3.60	3.15
20°C	Capacity kW	18.00	14.40	12.00	10.80	10.20	9.00	8.40	7.80
	Input kW.	7.50	6.00	5.00	4.75	4.50	4.25	4.00	3.50
22°C	Capacity kW	19.80	15.84	13.20	11.88	11.22	9.90	9.24	8.58
	Input kW.	8.25	6.60	5.50	5.23	4.95	4.68	4.40	3.85
27°C	Capacity kW	23.40	18.72	15.60	14.04	13.26	11.70	10.92	10.14
	Input kW.	9.75	7.80	6.50	6.18	5.85	5.53	5.20	4.55

Model: DUA-48HRN2 DUA-48CRN2

COOLING		OUTDOOR TEMPERATURE DRY						
Indoor Conditions		21°C	25°C	30°C	35°C	40°C	45°C	50°C
21°C D 15°C W	Total capacity kW	13.52	12.94	12.47	11.76	11.29	10.94	10.58
	Sensitive capacity kW	10.82	10.35	9.97	9.41	9.03	8.75	8.47
	Input kW.	3.47	3.96	4.46	4.95	5.45	5.94	6.44
24°C D 17°C W	Total capacity kW	14.81	14.17	13.65	12.88	12.36	11.98	11.59
	Sensitive capacity kW	11.85	11.33	10.92	10.30	9.89	9.58	9.27
	Input kW.	3.66	4.18	4.70	5.23	5.75	6.27	6.79
27°C D 19°C W	Total capacity kW	16.10	15.40	14.84	14.00	13.44	13.02	12.60
	Sensitive capacity kW	12.88	12.32	11.87	11.20	10.75	10.42	10.08
	Input kW.	3.85	4.40	4.95	5.50	6.05	6.60	7.15
32°C D 23°C W	Total capacity kW	18.52	17.71	17.07	16.10	15.46	14.97	14.49
	Sensitive capacity kW	14.81	14.17	13.65	12.88	12.36	11.98	11.59
	Input kW.	4.43	5.06	5.69	6.33	6.96	7.59	8.22

Model: DUA-48HRN2

HEATING		OUTDOOR TEMPERATURE							
Indoor Conditions		24°C D 18°C W	12°C D 11°C W	7°C D 6°C W	4°C D 3°C W	0°C D -1°C W	-5°C D -6°C W	-7°C D -8°C W	-15°C D -16°C W
15°C	Capacity kW	18.60	14.88	12.40	11.16	10.54	9.42	8.68	8.06
	Input kW.	6.84	5.47	4.56	4.33	4.10	3.88	3.65	3.19
18°C	Capacity kW	20.93	16.74	13.95	12.56	11.86	10.46	9.77	9.07
	Input kW.	7.70	6.16	5.13	4.87	4.62	4.36	4.10	3.59
20°C	Capacity kW	23.25	18.60	15.50	13.95	13.18	11.63	10.85	10.08
	Input kW.	8.55	6.84	5.70	5.42	5.13	4.85	4.56	3.99
22°C	Capacity kW	25.58	20.46	17.05	15.35	14.49	12.79	11.94	11.08
	Input kW.	9.41	7.52	6.27	5.96	5.64	5.33	5.02	4.39
27°C	Capacity kW	30.23	24.18	20.15	18.14	17.13	15.11	14.11	13.10
	Input kW.	11.12	8.89	7.41	7.04	6.67	6.30	5.93	5.19

Model: DUA-60HRN2 DUA-60CRN2

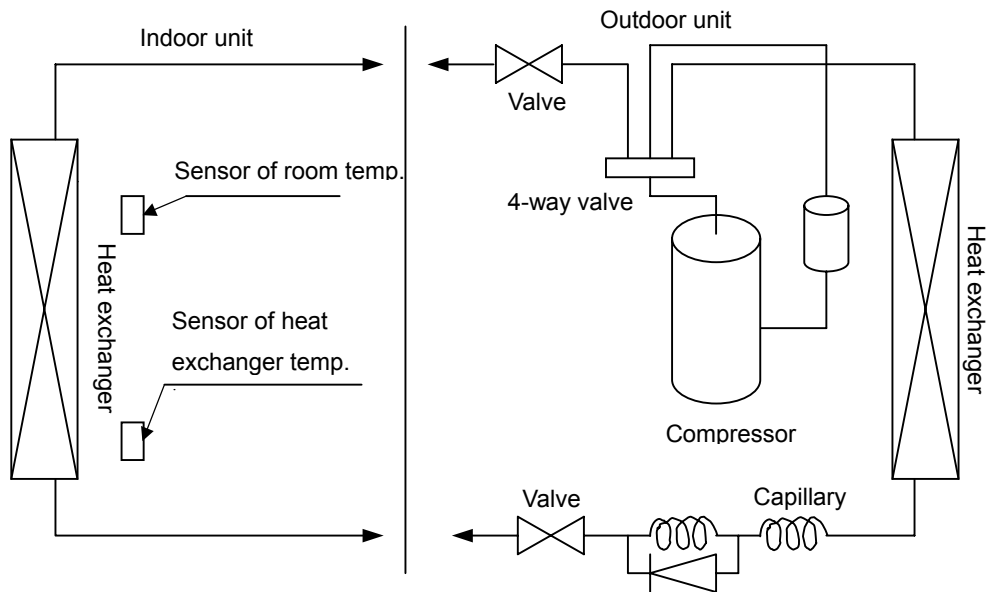
COOLING		OUTDOOR TEMPERATURE DRY						
Indoor Conditions		21°C	25°C	30°C	35°C	40°C	45°C	50°C
21°C D 15°C W	Total capacity kW	15.46	14.78	14.25	13.44	12.90	12.50	12.10
	Sensitive capacity kW	12.36	11.83	11.40	10.75	10.32	10.00	9.68
	Input kW.	4.16	4.75	5.35	5.94	6.53	7.13	7.72
24°C D 17°C W	Total capacity kW	16.93	16.19	15.60	14.72	14.13	13.69	13.25
	Sensitive capacity kW	13.54	12.95	12.48	11.78	11.30	10.95	10.60
	Input kW.	4.39	5.02	5.64	6.27	6.90	7.52	8.15
27°C D 19°C W	Total capacity kW	18.40	17.60	16.96	16.00	15.36	14.88	14.40
	Sensitive capacity kW	14.72	14.08	13.57	12.80	12.29	11.90	11.52
	Input kW.	4.62	5.28	5.94	6.60	7.26	7.92	8.58
32°C D 23°C W	Total capacity kW	21.16	20.24	19.50	18.40	17.66	17.11	16.56
	Sensitive capacity kW	16.93	16.19	15.60	14.72	14.13	13.69	13.25
	Input kW.	5.31	6.07	6.83	7.59	8.35	9.11	9.87

Model: DUA-60HRN2

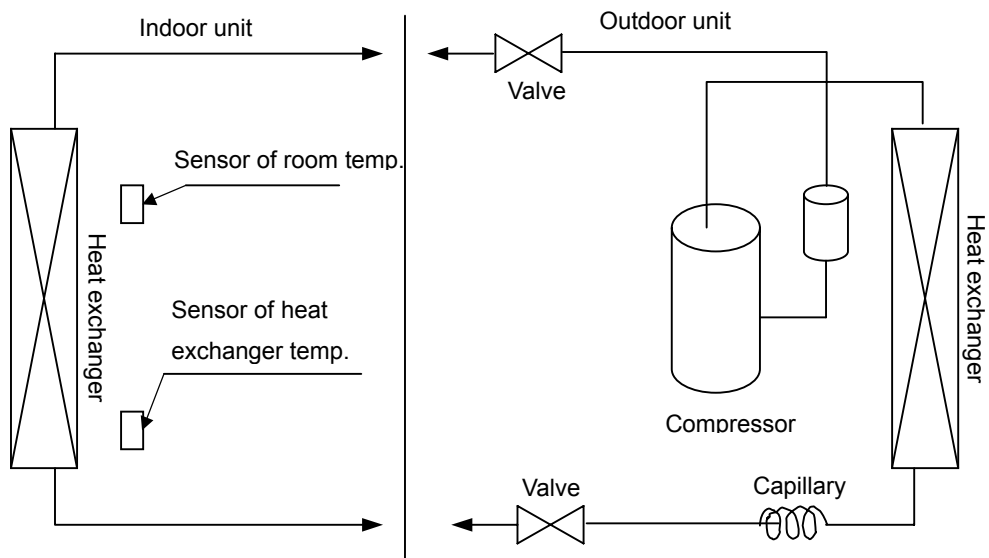
HEATING		OUTDOOR TEMPERATURE							
Indoor Conditions		24°C D 18°C W	12°C D 11°C W	7°C D 6°C W	4°C D 3°C W	0°C D -1°C W	-5°C D -6°C W	-7°C D -8°C W	-15°C D -16°C W
15°C	Capacity kW	21.00	16.80	14.00	12.60	11.90	10.63	9.80	9.10
	Input kW.	8.16	6.53	5.44	5.17	4.90	4.62	4.35	3.81
18°C	Capacity kW	23.63	18.90	15.75	14.18	13.39	11.81	11.03	10.24
	Input kW.	9.18	7.34	6.12	5.81	5.51	5.20	4.90	4.28
20°C	Capacity kW	26.25	21.00	17.50	15.75	14.88	13.13	12.25	11.38
	Input kW.	10.20	8.16	6.80	6.46	6.12	5.78	5.44	4.76
22°C	Capacity kW	28.88	23.10	19.25	17.33	16.36	14.44	13.48	12.51
	Input kW.	11.22	8.98	7.48	7.11	6.73	6.36	5.98	5.24
27°C	Capacity kW	34.13	27.30	22.75	20.48	19.34	17.06	15.93	14.79
	Input kW.	13.26	10.61	8.84	8.40	7.96	7.51	7.07	6.19

Part 7. Refrigeration cycle diagram

1. Cooling/heating



2. Cooling only



Part 8. Electric Control Functions

1. Performance Index

No.	Item	Index
1	Applicable Voltage Range	185-253V~, 342-418V~
2	A/C Frequency	50Hz
3	Working environment temperature	-5°C- +43°C

2. Main Parts Introduction

2.1 Indoor Fan

High speed and low speed.

Breeze speed for anti-cold air.

2.2 Outdoor Fan

High speed and low speed.

Remark : some model just have one speed.

2.3 Buzzer

2.3.1 It will buzz when its driving port in the main chip outputs high level.

2.3.2 It will buzz once when the main frame receives remote start-up signal.

2.3.3 It will buzz once for 1 second when receiving turn-off signal.

2.3.4 It will buzz for 0.5 second once receiving other signal.

2.4 Indicator

2.4.1 There are 4 indicators: operating indicator, timer indicator, water level warning indicator, defrosting indicator and pre-heating indicator (wind-delivery indicator for cooling-only A/C).

2.4.2 LED indicates errors when protection is in effective.

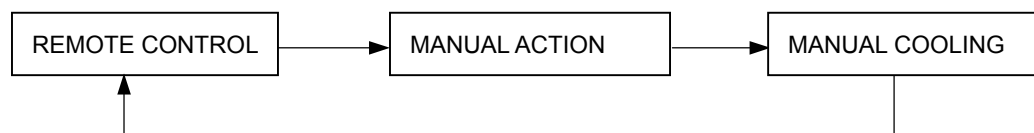
2.5 Four-way Valve

It is controlled by relays.

3. Operation Modes and Functions

3.1 Manual Operation

3.1.1 The manual operation mode is controlled through “manual” pad in the wind in-take grid, including such two modes as manual action and manual cooling. Push the manual pad for each switchover, the order for which is shown below:



3.1.2 Manual Cooling

3.1.2.1 Under this mode, no remote control signal will be received.

3.1.2.2 The compressor is started up unconditionally and the rotating speed of indoor and outdoor fans is set to be in high and forced cooling operation.

3.1.2.3 Under this mode, the buzzer will buzz twice with each lasting 0.5 second at 0.5 interval. During the first 30 minutes of unconditional forced cooling operation, the operation indicator will blink at 0.5Hz. In the

process of switchover to manual action mode, the buzzer buzzes for 0.5 second and the indicator is illuminated.

3.1.2.4 Under this mode, the corresponding protections are in effective (3- minute delayed start-up, over current, outdoor protection and evaporator low temperature protection.). Corresponding protection will act once any protection is in active.

Push “manual” pad once to end this mode and enter the remote control pending status. The buzzer will buzz for 1 second and the indicator turn off.

3.1.3 Manual Action

3.1.3.1 Under this mode, the remote signal will be received and corresponding actions will be taken accordingly upon the receipt of the remote signal.

3.1.3.2 On entering this mode, the buzzer will buzz for 0.5 second and the indicator on.

3.1.3.3 The system will operate under the auto mode whose temperature is set to be 24°C and at the same time, the wind grille will swing automatically.

3.1.3.4 Under this mode, corresponding protections are in effective.

3.1.3.5 Push “ manual” pad to end this mode and switch over to manual cooling mode.

3.2 Heating Mode

3.2.1 Four-way valve opens at once, while defrosting process closes.

3.2.2 Condition for the compressor action: (Ts = set temperature, Ta = room temperature)

	Condition	Compressor	Outdoor fan
Room temp. up	Ta> Ts+4°C	Off	Off
	Ta <Ts+4°C	On	On
Room temp. down	Ta < Ts+3°C	On	On
	Ta >Ts+3°C	Off	Off

3.2.3 Indoor Fan Action

3.2.3.1 Fan speed among high/low/auto,(anti-cold air function takes priority).

3.2.3.2 Anti-cold air:

Switchover between fan speed and fine tune can be set according to temperature of evaporator pipe .

	Condition (T= Indoor exchanger temp.)	Indoor fan speed
Indoor exchanger temp. up	T<25°C	Off
	25°C <T<32°C	Breeze
	T>32°C	Setting fan speed
Indoor exchanger temp.	T> 30°C	Setting fan speed
down	15°C <T<30°C	Breeze
	T<15°C	Off

During anti-cold air period, if indoor fan is shut down, then pre-heating/defrosting lamp is on. Once indoor fan starts, pre-heating/defrosting lamp will be off.

3.2.3.3 Auto fan of indoor fan under heating mode.

	Condition (T =Indoor Temp.-Setting Temp.)	Indoor fan speed
Room temp. up	T <3°C	High
	T >3°C	Low
Room temp. down	T > 1°C	Low
	T <1°C	High

3.3 Defrost (only available to heating mode)

3.3.1 The defrosting of 1~3HP, 4HP(1N) is processed by indoor control board.

3.3.1.1 Defrosting Conditions

3.3.1.1.1 Low temperature defrosting condition:

Accumulated operating time when temperature of outdoor heat exchanger coil T3 is below -2°C reaches up to over 40 minutes.

3.3.1.1.2 High temperature defrosting condition:

Under high temperature protection of evaporator, the time when outdoor fan is shut down but compressor is not has been accumulated for up to 90 minutes. It is considered that defrosting is performed when either 3.3.1.1 or 3.3.1.2 is met.

3.3.1.2 Defrosting Action

Four-way valve and outdoor fan are shut down. Indoor fan operates according to anti-cold air function. Compressor keeps on continuously.

3.3.1.3 Ending Of Defrosting Condition

It is considered that defrosting condition is ended when any of the conditions is met:

3.3.1.3.1 Operating current of compressor reaches 1.5Ie.

3.3.1.3.2 Time of defrosting reaches 10 minutes.

3.3.1.3.3 Temperature of outdoor coil T3 is up to 20°C.

3.3.1.4 Ending Action of Defrost

3.3.1.4.1 Outdoor fan and four-way valve are open.

3.3.1.4.2 Compressor keeps on continuously.

3.3.1.4.3 Indoor fan acts according to anti-cold air function.

3.3.1.4.4 Defrosting/pre-heating lamp continues to be on until indoor fan starts up.

3.3.2 The defrosting of 4~7HP(3N) is processed by outdoor control board.

3.3.2.1 Defrosting Conditions(any of the following conditions is met)

3.3.2.1.1 Under indoor pipe high temperature protection in heating mode, accumulated operating time is up to 90 minutes.(if outdoor fan is off and compressor are cut down, time again.)

3.3.2.1.2 When $T4 \geq -8^{\circ}\text{C}$, 1min, process the normal defrost mode: compressor operates continue 40 minute, the accumulated time up to 40 minutes when pipe temperature sensor $T3 \leq -2^{\circ}\text{C}$ (if compressor is off, time again); when defrosting ends, check T4 again.

3.3.2.2 Defrosting Action

When defrosting, the outdoor four-way valve is power off, defrosting valve is power on, outdoor fan is off, compressor operate continue, indoor fan operates according to anti-cold air condition in heating mode. If indoor fan is to be off, cut down the electric auxiliary heater and after 15 seconds cut down indoor fan.

3.3.2.3 Ending Action of Defrost(any of the following conditions is met)

3.3.2.3.1 Time of defrosting reaches 10 minutes.

3.3.2.3.2 Temperature of outdoor coil T3 is up to 20°C

3.3.2.4 Ending Action of Defrost

Operate in normal heating mode. After defrost stops, indoor fan starts to operate according to anti-cold air condition.

3.4 Cooling Mode

3.4.1 Four-way valve is closed.

3.4.2 Conditions for the compressor and outdoor fan action (T_s = set temperature, T_a =room temperature)

	Condition	Compressor	Outdoor fan
Room temp. up	$T_a > T_s + 1$	On	On
	$T_a < T_s + 1$	Off	Off
Room temp. down	$T_a > T_s$	On	On
	$T_a < T_s$	Off	Off

3.4.3 Action of Indoor Fan

3.4.3.1 HIGH/LOW/AUTO fan can be switched over for your comfort.

3.4.3.2 Auto fan under cooling mode.

	Condition (T =Indoor Temp.-Setting Temp.)	Indoor fan speed
Temp. up	$T < 4^{\circ}\text{C}$	Low
	$T > 4^{\circ}\text{C}$	High
Temp. down	$T > 1^{\circ}\text{C}$	High
	$T < 1^{\circ}\text{C}$	Low

3.5 Dehumidifying Mode

3.5.1 Dehumidifying mode is the cooling operation, under which the indoor fan is high and outdoor fan is low.

3.5.2 Protective condition is activated.

3.6 Auto Mode

3.6.1 Under auto mode, the indoor fan is set to be auto (refer to auto fan under cooling, heating).

3.6.2 When entering auto mode, the heating, fan only or cooling operation will be automatically chosen according to the room temperature T_a and the set temperature T_s .

3.6.2.1 When $T_a < T_s - 1^{\circ}\text{C}$, it performs the heating operation with a set temperature of $T_s - 1^{\circ}\text{C}$ (refer to the heating mode). However the cool only model will be in low fan.

3.6.2.2 When $T_s + 2^{\circ}\text{C} \geq T_a \geq T_s - 1^{\circ}\text{C}$, control according to cooling auto fan with a set temperature of 23°C .

3.6.2.3 When $T_a > T_s + 2^{\circ}\text{C}$, it performs the cooling operation with a set temperature of T_s (refer to the cooling mode).

3.6.3 After one mode is chosen, if the condition $T_a > T_s + 1^{\circ}\text{C}$ or $T_a < T_s - 1^{\circ}\text{C}$ lasts for 15 minutes, meanwhile the compressor doesn't start up within consecutive 15 minutes, the operation mode will be re-chosen according to the T_a and T_s .

3.6.4 Protective condition is activated.

3.7 Fan Only Mode

3.7.1 Under this mode, four-way valve, compressor and outdoor fan are shut down.

3.7.2 High/Low/Auto fan can be switched over through manual control. Auto fan will be controlled in line with cooling auto fan with temperature set to be 23°C .

3.7.3 After entering fan mode, the operating indicator is on. If the model is cooling only mode, fan indicator is on at the same time.

4. Other Functions

4.1 LED Display

Operation lamp, timer lamp, defrosting/pre-heating lamp, and water level alarm lamp.

4.1.1 Operation Lamp

When the operation is recovering, it will blink at 1 Hz.

After the unit is on, the lamp will keep on.

After the unit is off, the lamp will be off.

When the unit is switched over from manual cooling to remote control, the lamp will be off.

4.1.2 Timer Lamp

During timer operation, it will be on.

4.1.3 Defrosting/Pre-Heating Lamp

When heat pump model performs defrosting or anti-cold air, it will be on.

4.2 Timer

Refer to remote controller manual for detail operation.

Note: The timer is valid for one operation of the A/C.

5. Trouble Shooting

5.1 Protective Function

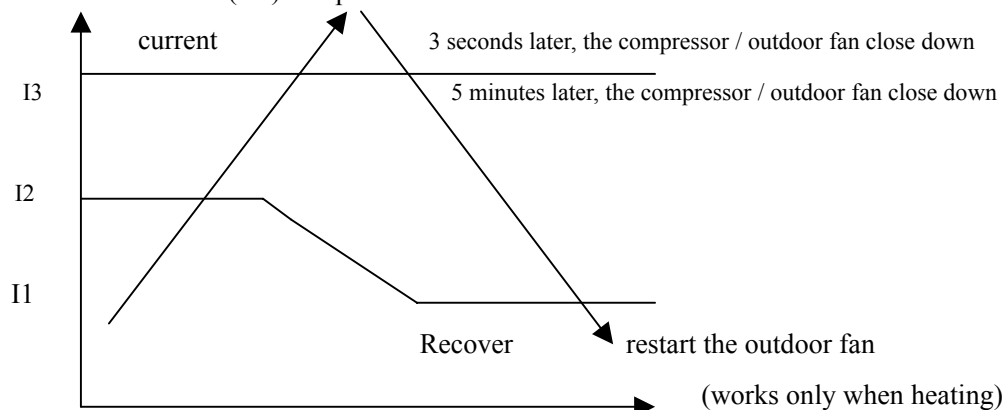
5.1.1 3-minute delay for the compressor start-up.

At the beginning of energizing or after the stop of the compressor, 3-minute delay will be needed to start the compressor.

When switchover between cooling/heating mode, the compressor stops automatically.

5.1.2 Compressor current overload protection

5.1.2.1 3HP and 4HP(1N) compressor current examination and action



Remark :Ie: rating current; I₁:1.3 time Ie; I₂:1.5 time Ie; I₃:2.0 time Ie.

- The compressor and outdoor fan closed for protection purpose will restart after 3 minutes.
- During the protection, the indoor fan continues working in a set speed, while the anti-cold air function when heating and the compressor will be 3 minutes delayed to shut down for protection.
- When there are 4 times compressor protection within one hour, the A/C will be shut down, meanwhile the operation light and timer light will be turned on, the defrosting light flashes in a frequency of 0.5Hz. This situation will be recovered only when power is switched off.

5.1.2.2 If AC don't check the compressor current through electric control system, then use compressor self current protection.

5.1.2.2 4HP(3N) and 5HP compressor current is checked by outdoor main board. The protection principle is as following:

In any case, after the compressor starts, if

- a. Only in heating mode, when current is higher than $1.5I_e$, then outdoor fan will shut off. When compressor current is less than $1.3I_e$, then restart outdoor fan and recover operation.
- b. when current is higher than $1.5I_e$ and time is up to 20seconds, compressor and outdoor fan will shut down. At the same time, cut down outdoor protection communication wiring, protection malfunction will be indicated by indoor unit and 3minutes later restart compressor.

5.1.3 Evaporator protection against high temperature(heating mode)

Only available to heating mode, including heating mode, heating operation under auto mode.

※ Note: During protection, the indoor fan continues operating at a setting speed, while the anti-cold air function of heating and the compressor will be 3 minute delayed to shut down for protection.

5.1.4 Evaporator Protection against low temperature(cooling mode)

5.1.4.1 When the evaporator pipe temperature $\leq 3^{\circ}\text{C}$ and this lasts for 3 minutes, the compressor and outdoor fan will be shut off.

5.1.4.2 When the evaporator pipe temperature $\geq 7^{\circ}\text{C}$, it recovers.

5.1.4.3 The restart of the compressor shall execute the delay protection.

5.1.5 Anti-cold air protection

Only available to heating mode, including heating mode, heating operation under auto mode.

5.1.6 Condenser high temperature protection

5.1.6.1 Only available to cooling (incl. cooling mode, cooling operation under auto mode) and dehumidifying mode.

5.1.6.2 Delay protection should be performed when the compressor restarts.

5.1.7 Outdoor protection

Only 3HP has outdoor protection function.

5.2 Self-diagnosis

5.2.1 Indoor unit

No.	Type	Contents	LED Flashing	Remark
1	Protection	Over current protection of the compressor occurs 4 times in 1h	Lamps of operation, timer, defrosting (only fan) flashing simultaneously at 5Hz.	Whole unit is shut down. It cannot recover unless power is cut off
2	Protection	Outdoor protection (absent phase, phase sequence and temperature protection)	All lamps flashing at 5Hz	Recover automatically after errors are eliminated(For T3 malfunction of 5HP, can't recover automatically)
3	Error	Room temperature sensor checking channel is abnormal	Timer lamp flashing at 5Hz	
4	Error	Evaporator sensor checking channel is abnormal	Operation lamp flashing at 5Hz	
5	Error	Condenser sensor checking channel is abnormal	Defrosting lamp flashing at 5Hz	
6	Error	Temperature fuse is melt(reserved)	Operation lamp and timer lamp flashing at 5Hz	

5.2.2 LEDs for the indication of outdoor trouble(3~3.5HP, 3phase)

Type	Contents	LED1	LED2	LED3
Normal	Ok	Off	Off	On
Protection	Phase sequence error	On	Off	On
Protection	Overload of current	Off	On	On
Protection	Lack of phase	On	On	On
Protection	Protection of pressure	On	On	On

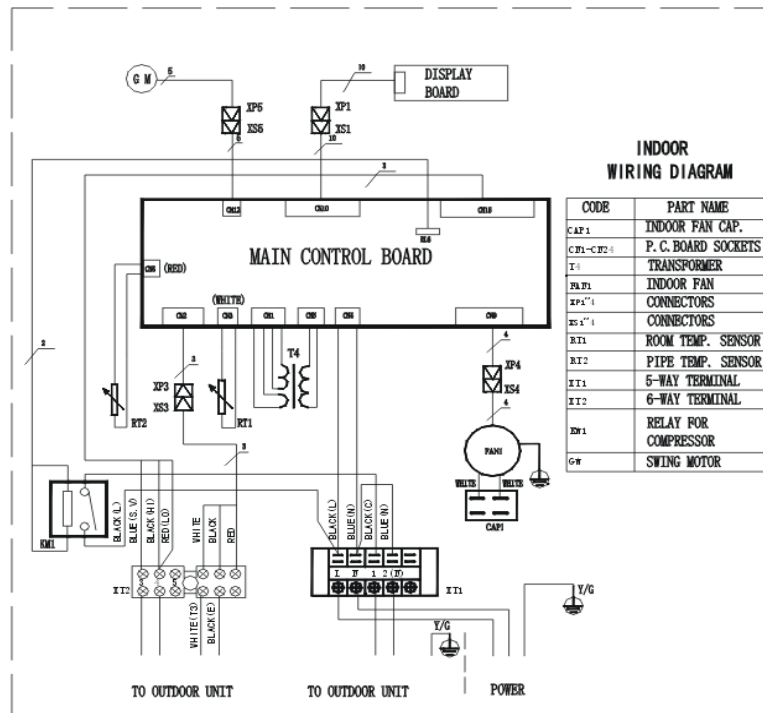
5.2.4 LEDs for the indication of outdoor trouble(4~7HP, 3phase)

Type	Contents	LED1	LED2	LED3
Protection	Phase sequence	Flash	Off	Off
Protection	Lack of phase	Flash	Off	Off
Protection	Protection of pressure	Flash	Flash	Off
Protection	Overload of current	Off	Off	Flash
Protection	Open-circuit and short-circuit trouble of T3	Off	Flash	Flash
Protection	Open-circuit and short-circuit trouble of T4	Off	Flash	Off
Protection	High temperature protection of condenser	Flash	Flash	Flash

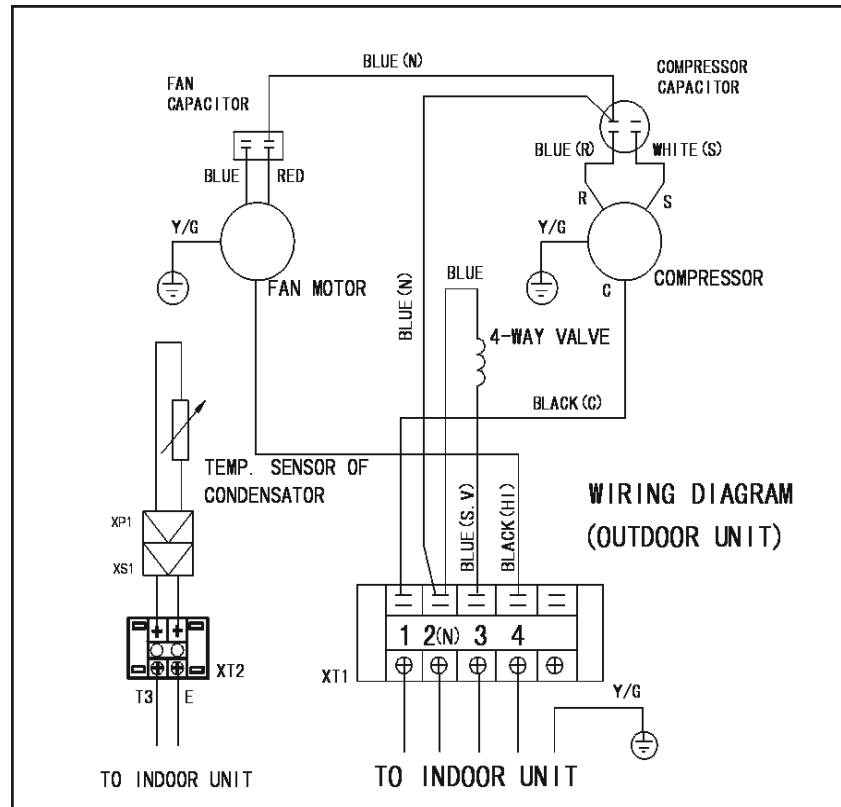
Part 9. Wiring Diagram

1. DUA-18HRN2

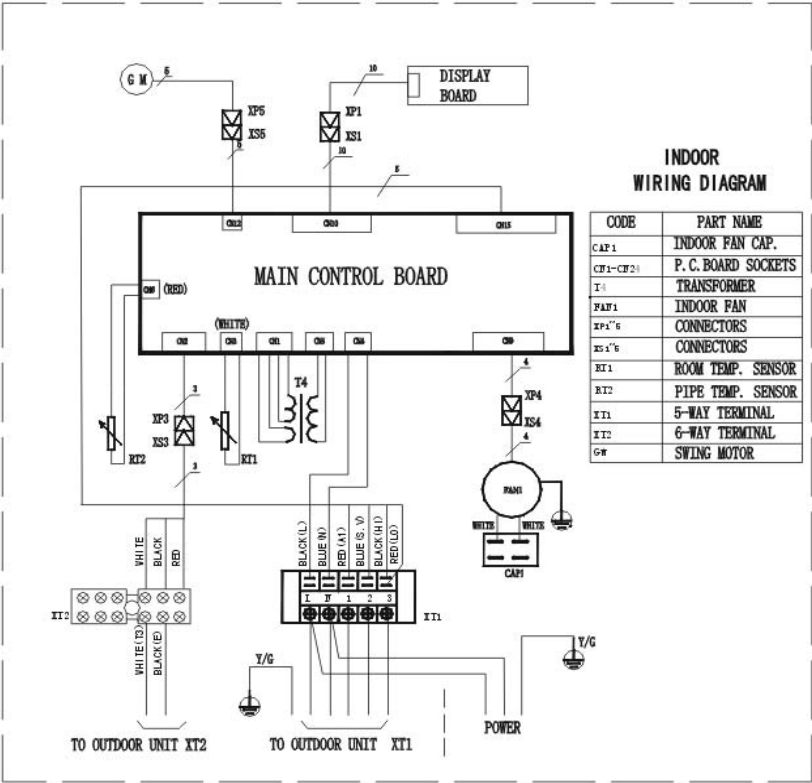
Indoor Unit:



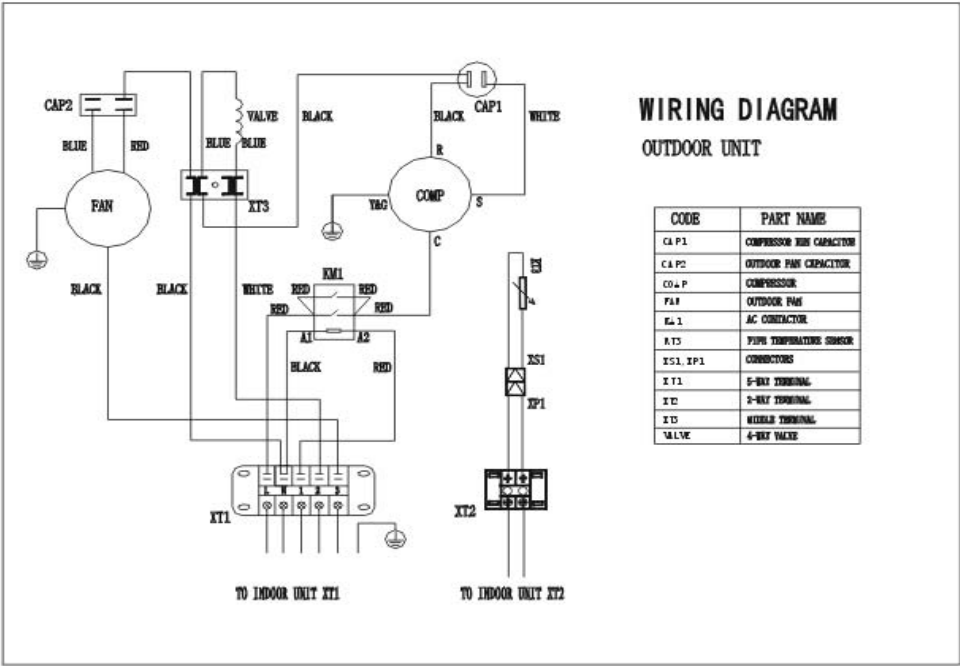
Outdoor unit



2. DUA-24HRN2
Indoor unit

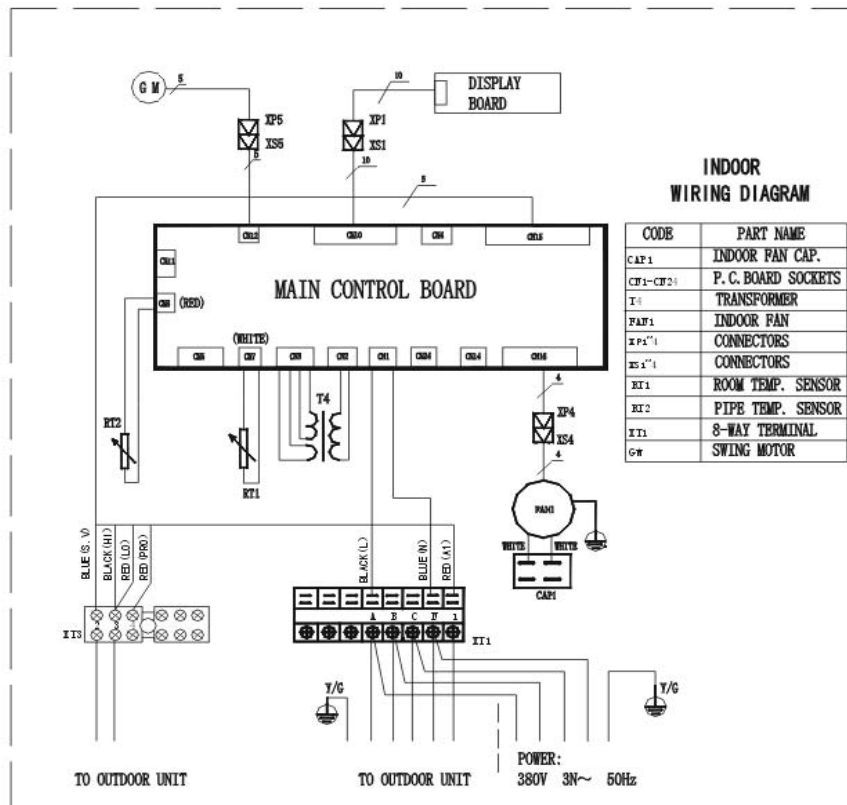


Outdoor unit

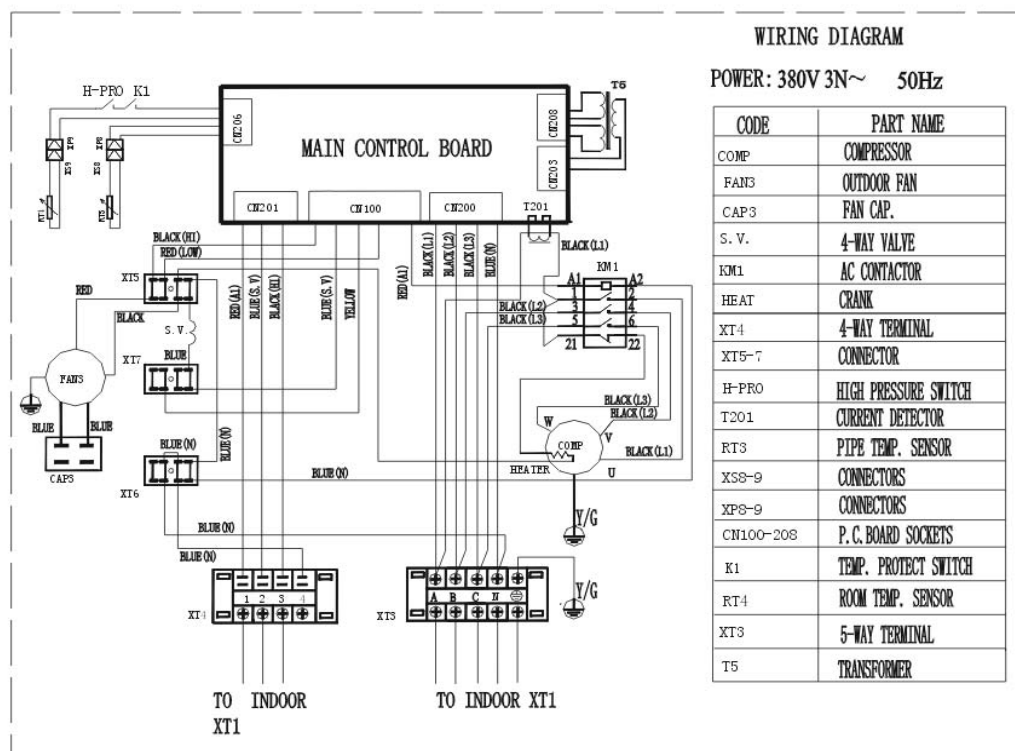


3. DUA-36HRN2

Indoor unit

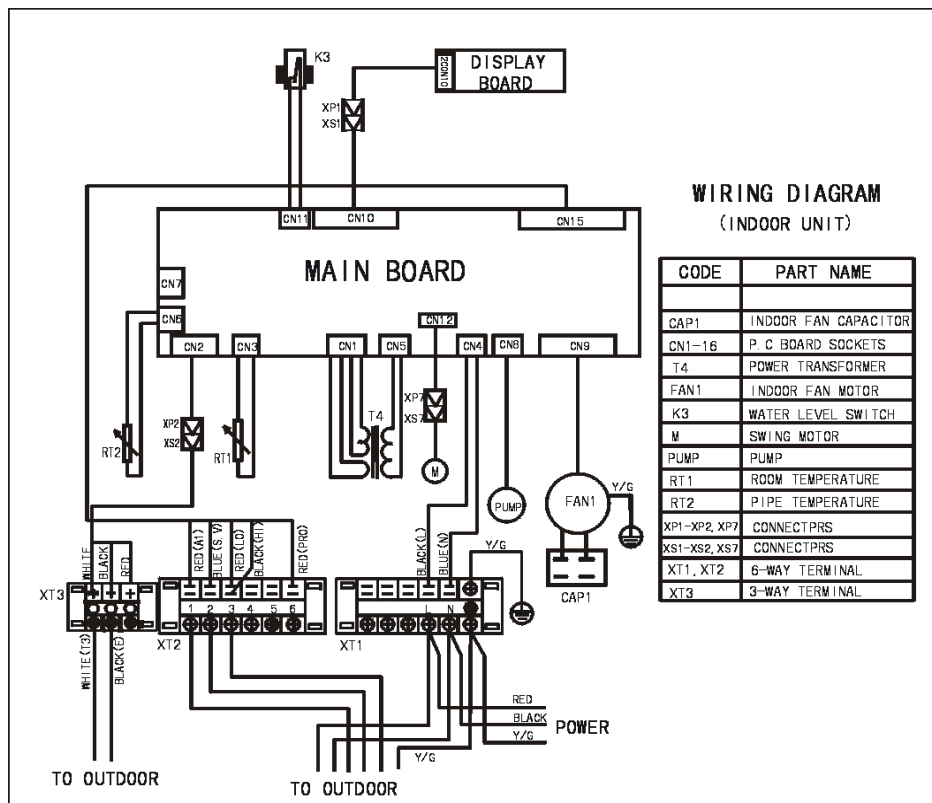


Outdoor unit

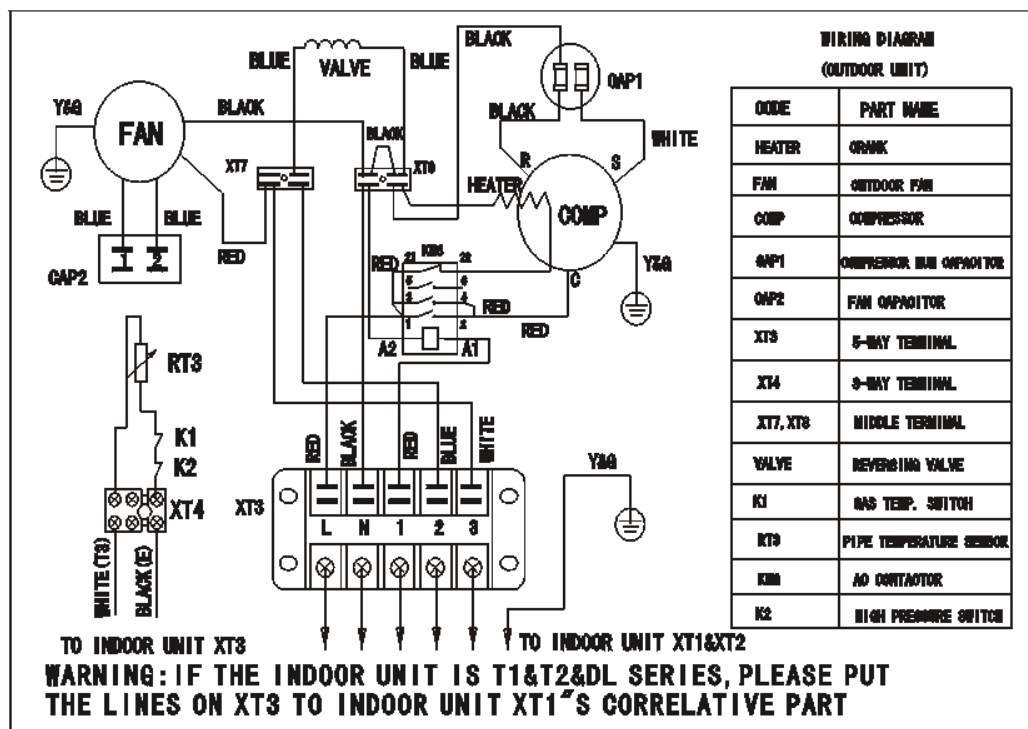


4. DUA-30HRN2

Indoor unit

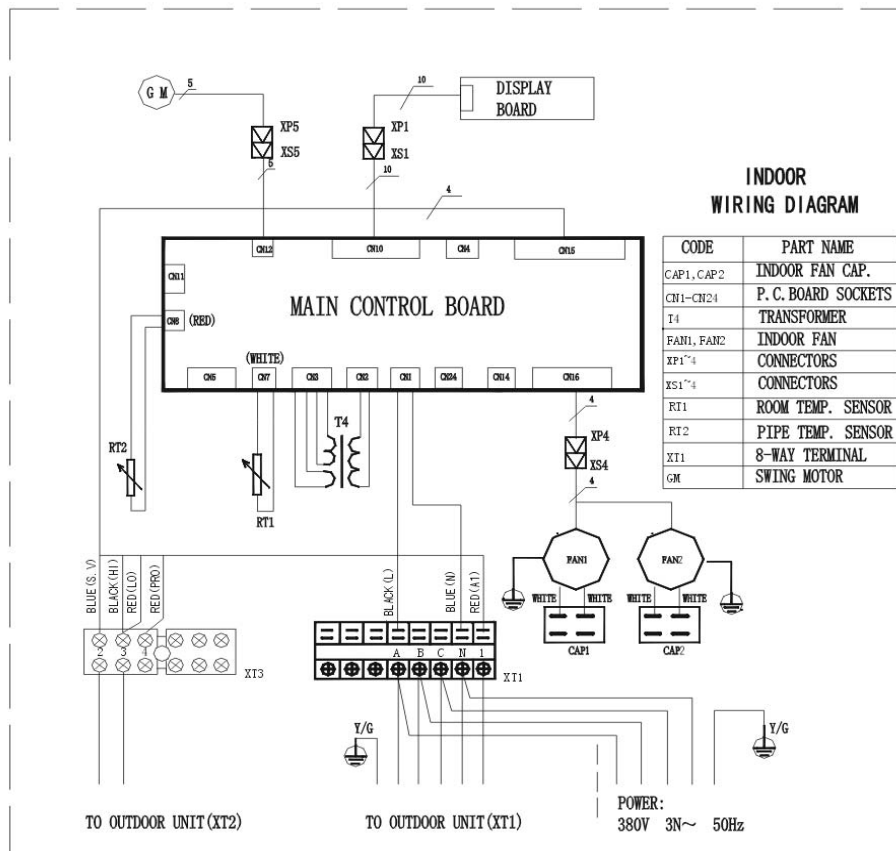


Outdoor unit

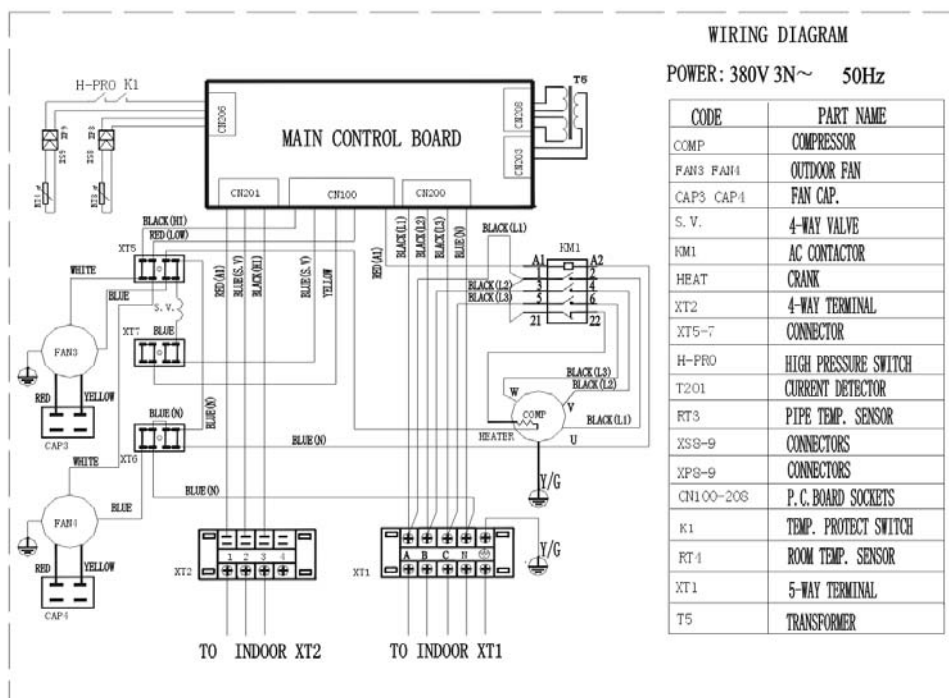


5. DUA-48HRN2, DUA-60HRN2

Indoor unit

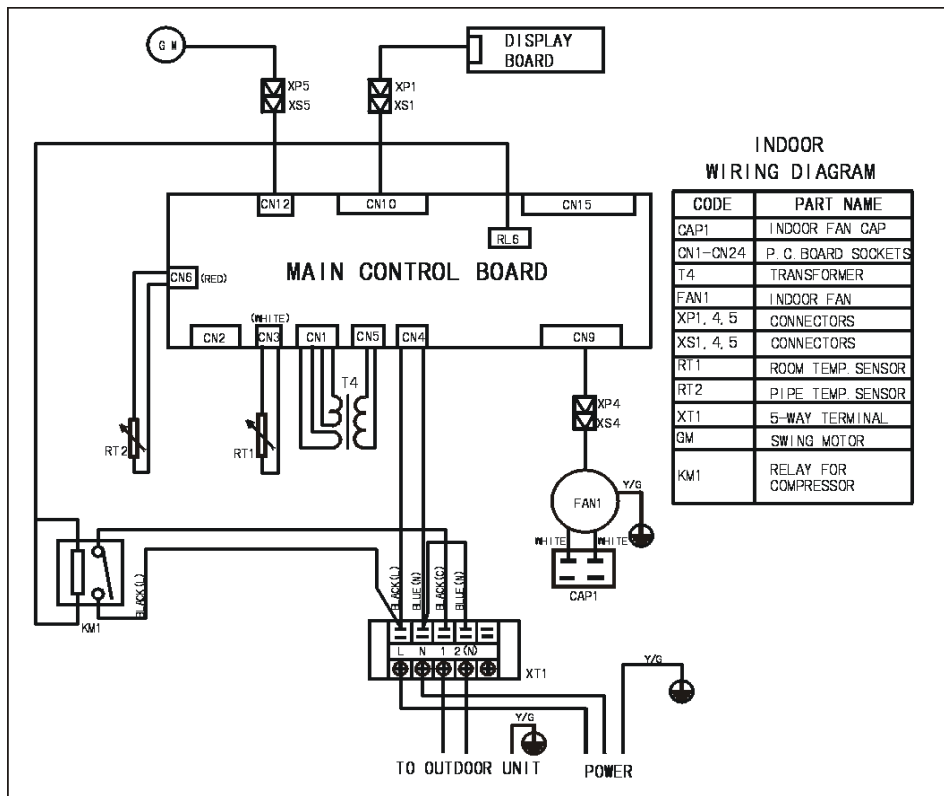


Outdoor unit

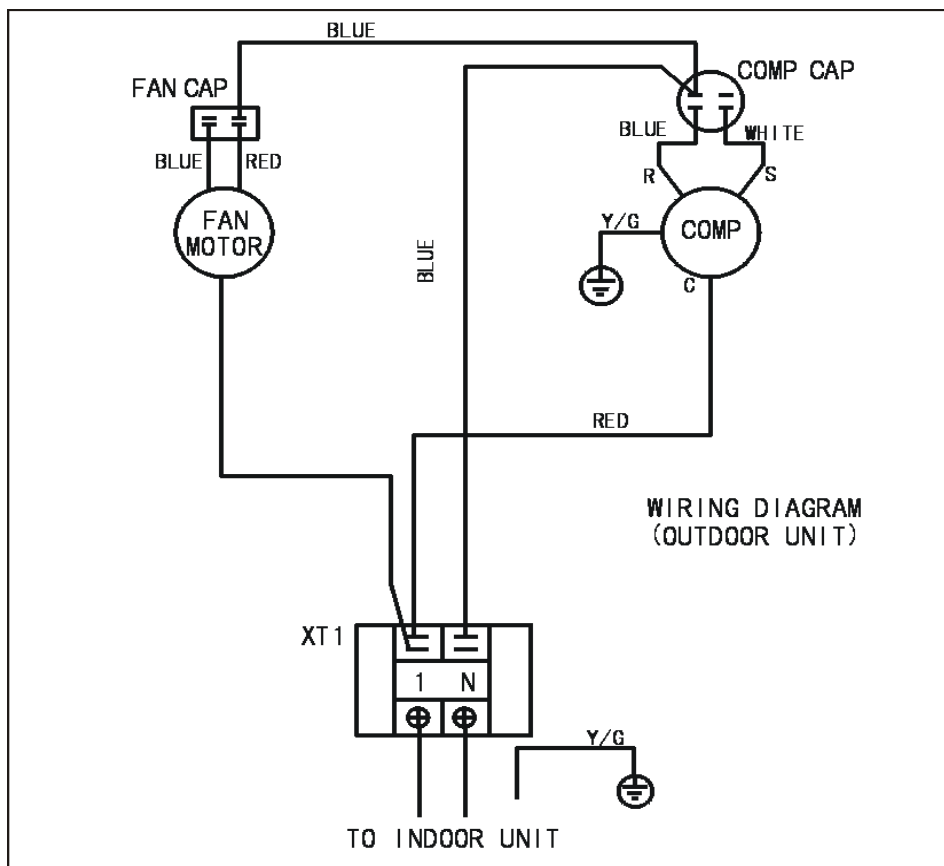


6. DUA-18CRN2

Indoor unit

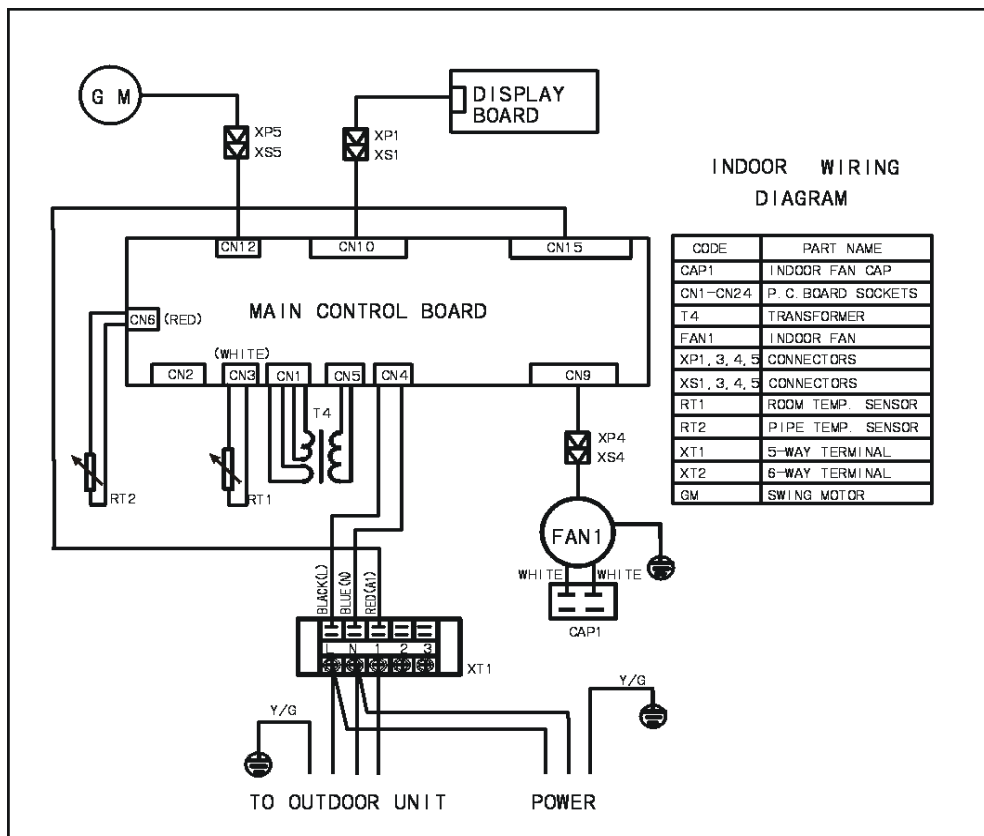


Outdoor unit

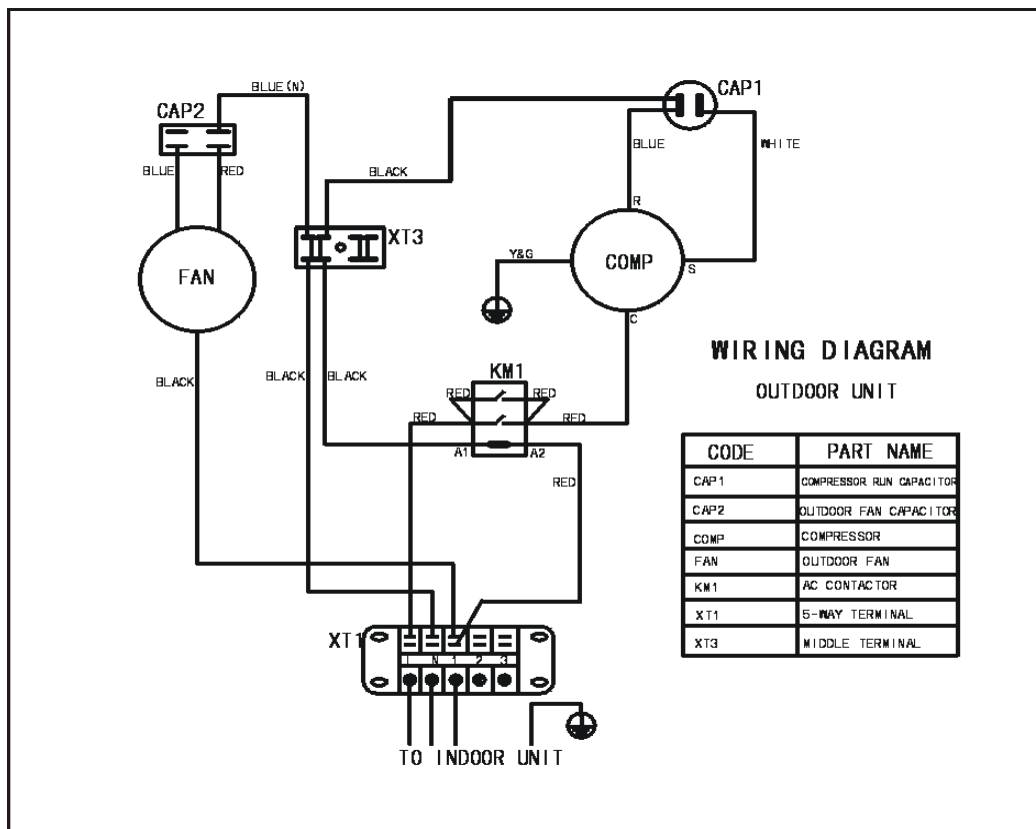


7. DUA-24CRN2

Indoor unit

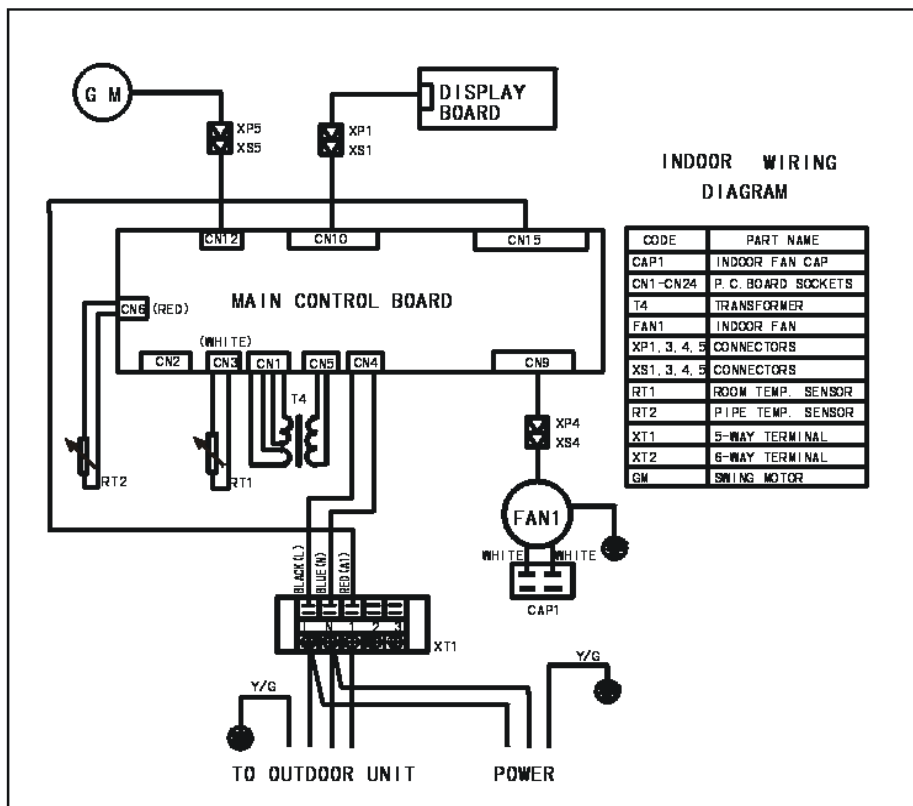


Outdoor unit

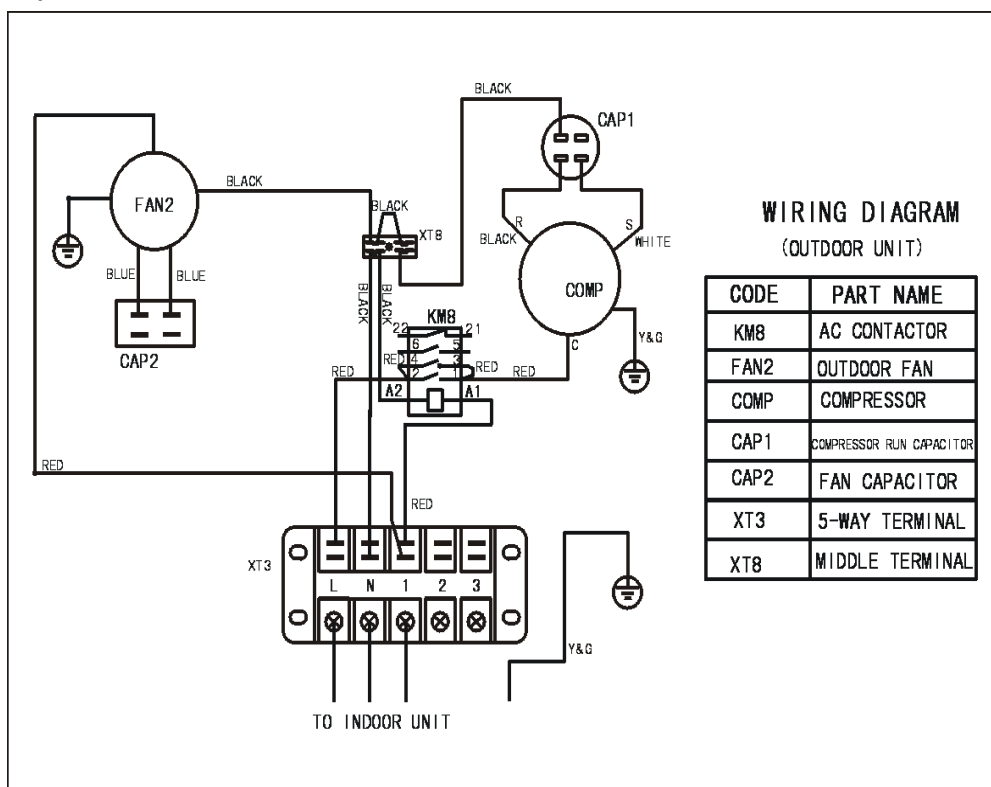


8. DUA-36CRN2(1phase) DUA-30CRN2(1phase)

Indoor unit

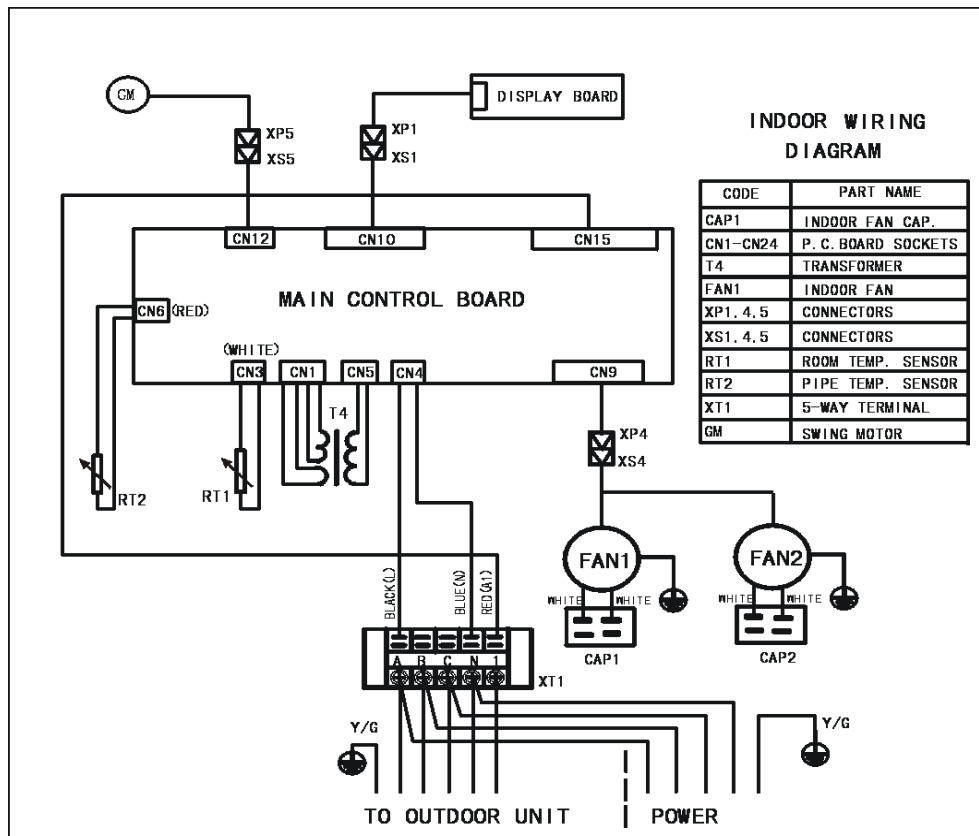


Outdoor unit

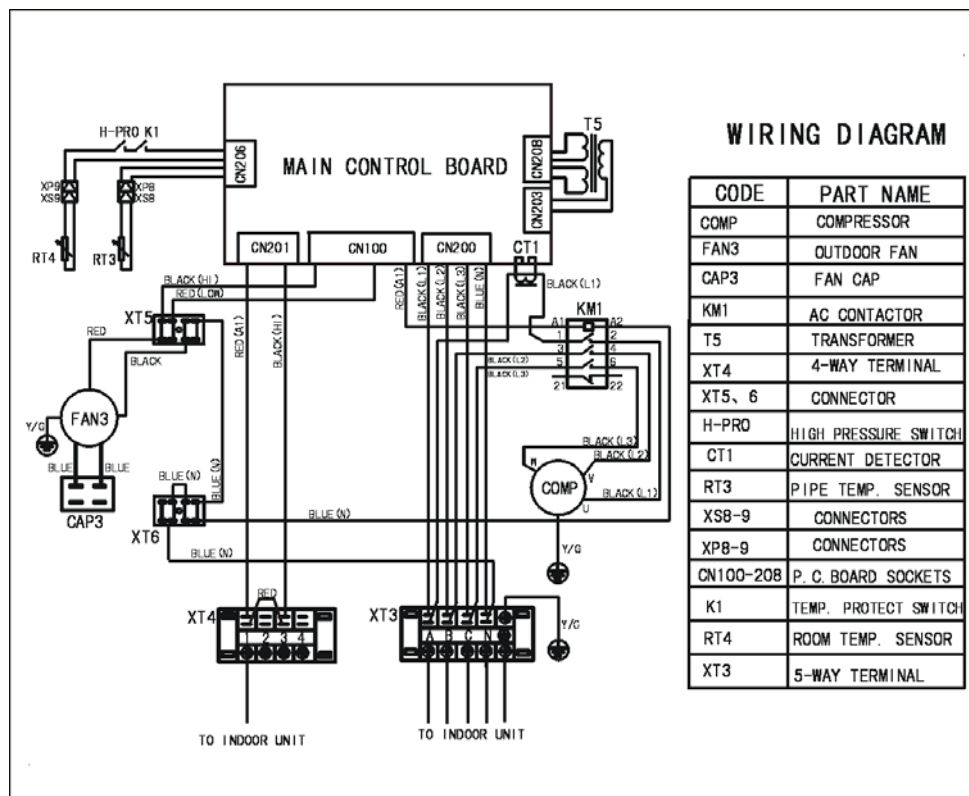


9. DUA-36CRN2

Indoor unit

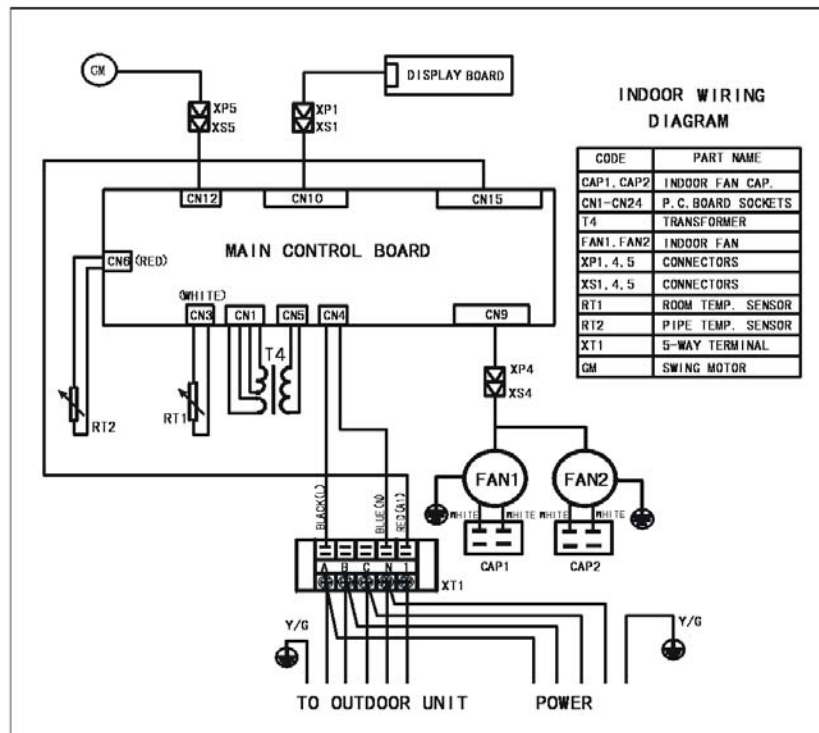


Outdoor unit



10. DUA-48CRN2 DUA-60CRN2

Indoor unit



Outdoor unit

