

## SPLIT WALL MOUNTED 180000 and 24000 BTU/h.

### 1. Features

- 1.1 The evaporator employs a Multi-bend structure which enlarges the heat exchange surface.
- 1.2 The front panel is tightly fixed with the front frame by simply buckling the latter with a buckle mechanism on the panel.
- 1.3 The manual force switch employs comfortable switch push buttons.

## 2. Specification

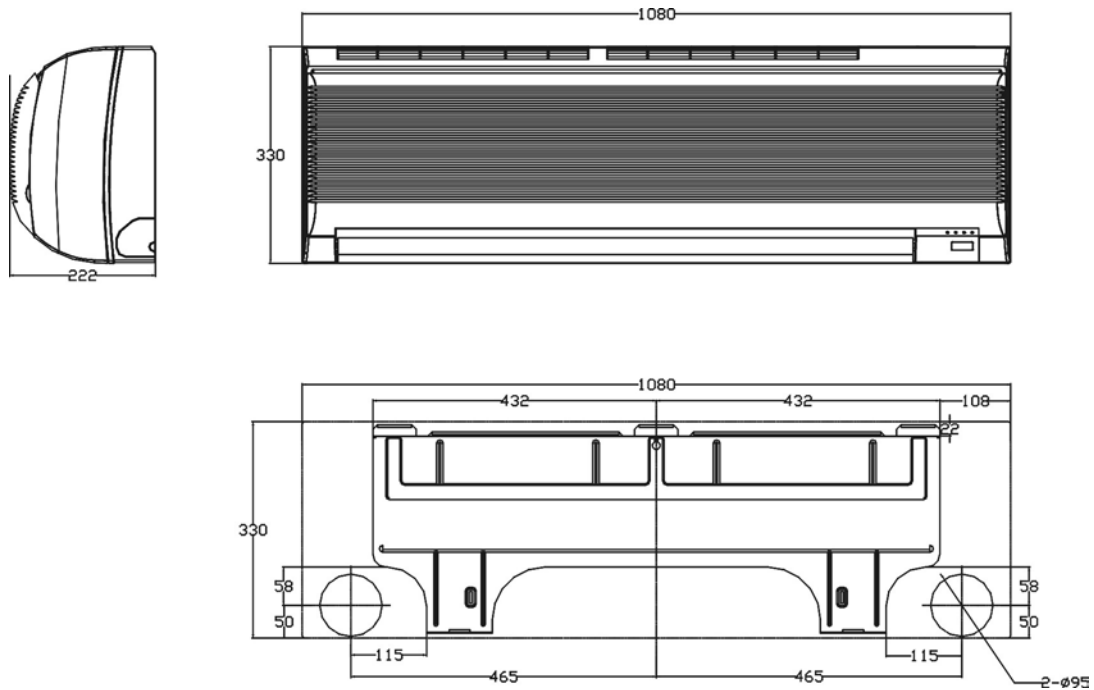
MODEL		DSG-18CRN2	DSG-18HRN2	DSG-24CRN2	DSG-24HRN2
POWER SUPPLY		220-240V~ 50Hz	220-240V~ 50Hz	220-240V~ 50Hz	220-240V~ 50Hz
RECEPTACLE SIZE      A		25	25	20	20
COOLING	CAPACITY    Btu/h	28000	28000	24000	24000
	RATED AMPS    A	15	15	12.5	12.5
	RATED WATTS   W	3200	3200	2800	2800
HEATING	CAPACITY    Btu/h	/	31000	/	27000
	RATED AMPS    A	/	15	/	12.5
	RATED WATTS    W	/	3200	/	2800
INDOOR UNIT	AIR FLOW      m <sup>3</sup> /h	1150	1150	1050	1050
	NOISE          ≤dB(A)	50	50	48	48
	NET WEIGHT    kg	17	17	17	17
	DIMENSION    mm	1080X330X222	1080X330X222	1080X330X222	1080X330X222
OUTDOOR UNIT	NOISE          ≤dB(A)	60	60	58	58
	NET WEIGHT    kg	63	64	61	62
	DIMENSION    mm	845X695X335	845X695X335	845X695X335	845X695X335
MAX. INPUT WATTS      W		3800	3800	3200	3200
MAX. INPUT AMPS      A		20	20	16	16
DESIGN PRESSURE      MPa		2.8	2.8	2.8	2.8
REFRIGERANT PIPE	GAS SIDE      mm	Φ16	Φ16	Φ16	Φ16
	LIQUID SIDE mm	Φ9.53	Φ9.53	Φ9.53	Φ9.53
REFRIGERANT              g		R407C/1800	R407C/1850	R407C/1850	R407C/1900

- In case of there is any divergence of interpretation of the data, the data of nameplate shall prevail.
- This SPECIFICATION list is subject to change without any prior notice due to product improvement.

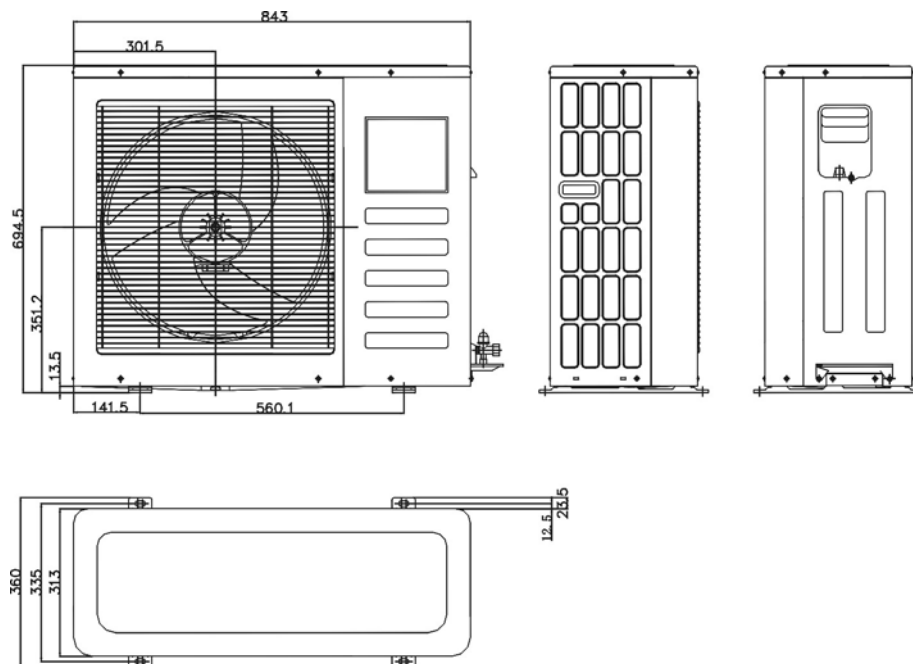
★1 The noise date is base on hemi-anechoic chamber, during actual operation, these values are normally somewhat different as a result of ambient condition.

## 3. Dimensions

### 3.1 Indoor unit



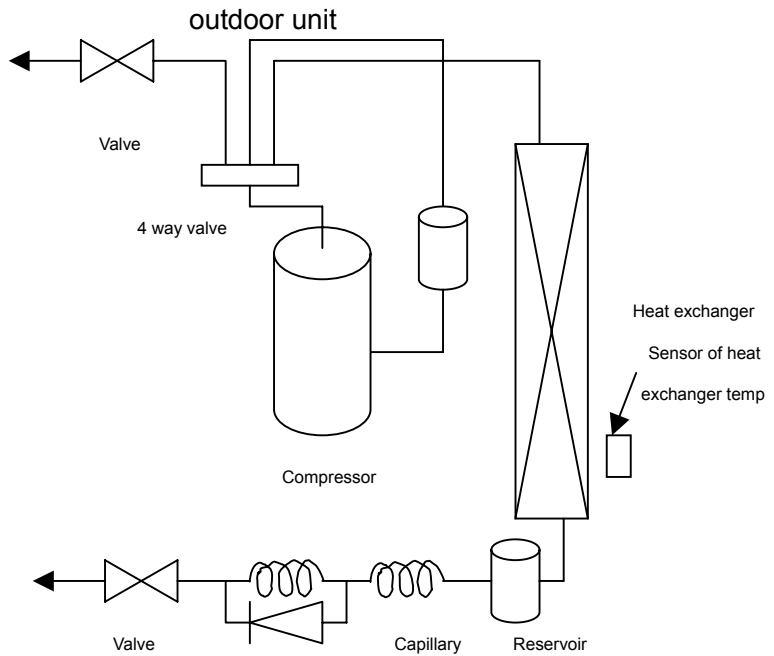
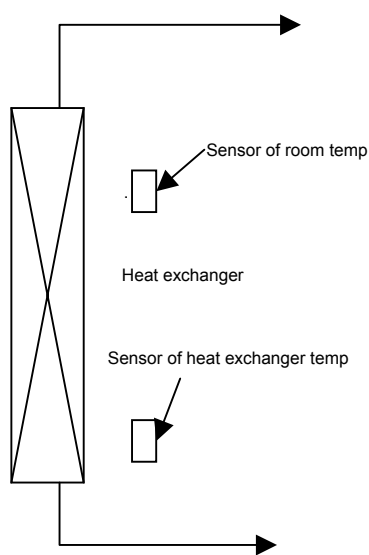
### 3.2 Outdoor unit



## 4. Refrigeration cycle diagram

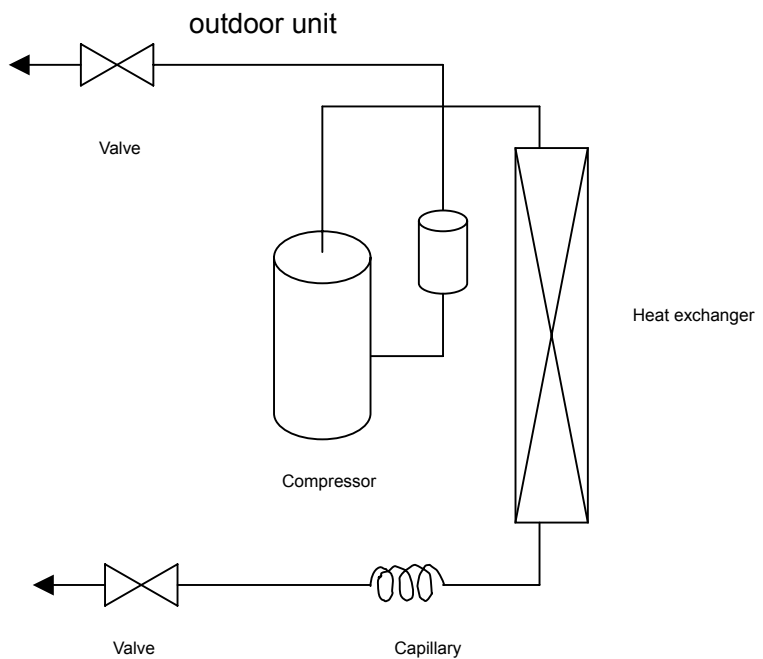
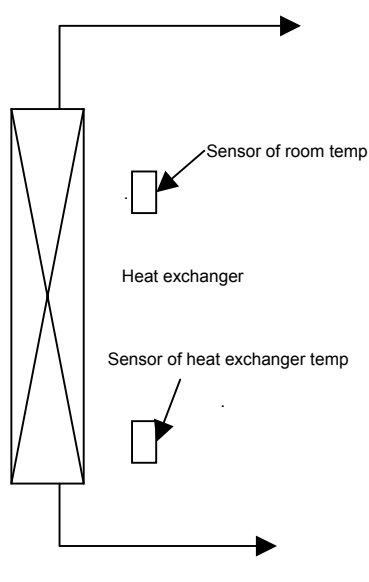
### 4.1 Heating and cooling

Indoor unit



### 4.2 Cooling only

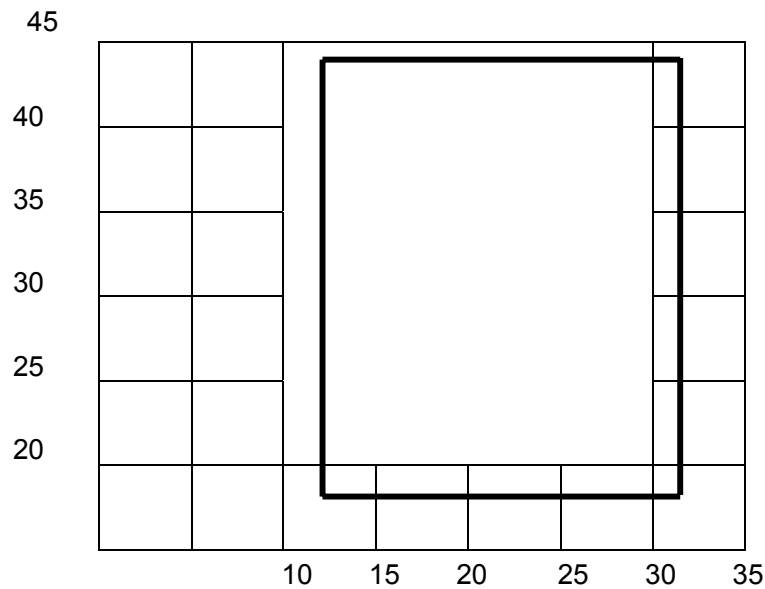
Indoor unit



## 5. Operation limits

### 5.1 Cooling operation

Outdoor unit air temp. °C DB

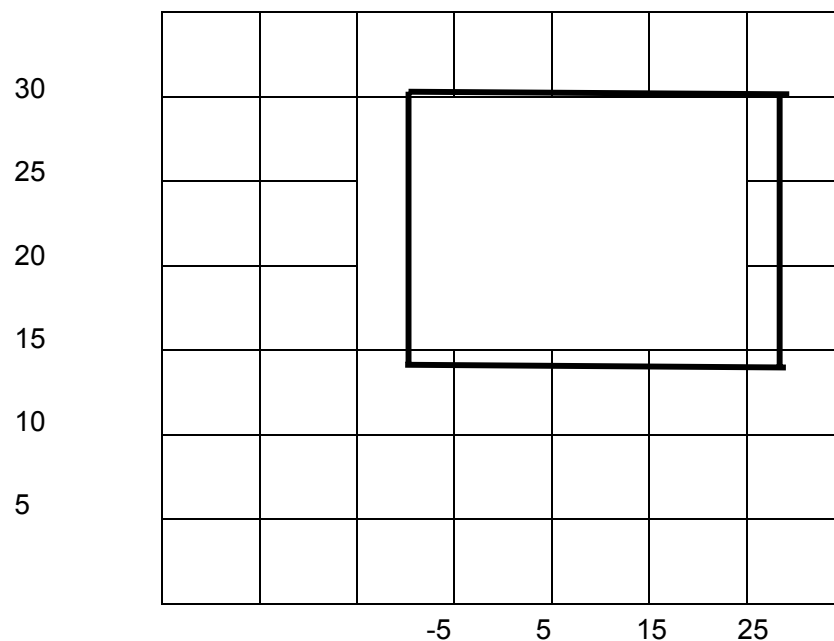


Indoor air temp. °C DB

Note :The chart is the result from the continuous operation under constant air temperature conditions. However, excludes the initial pull-down stage.

### 5.2 Heating operation

Indoor air temp. °C DB

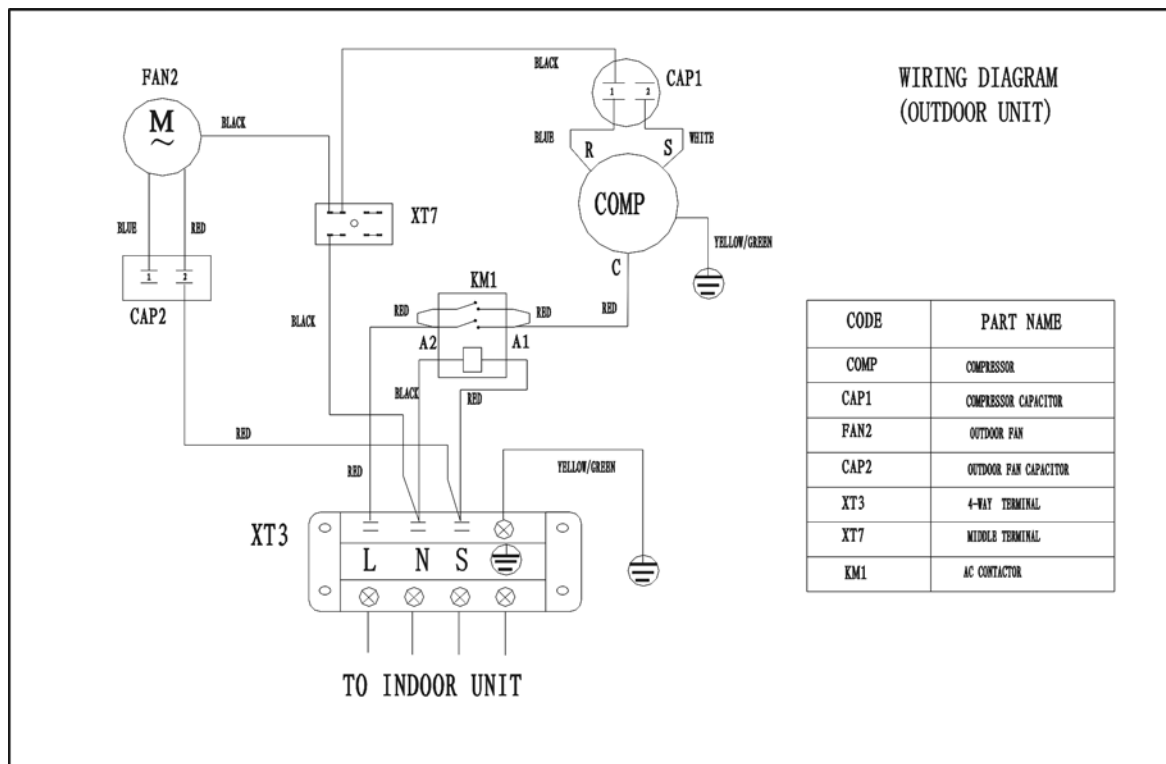
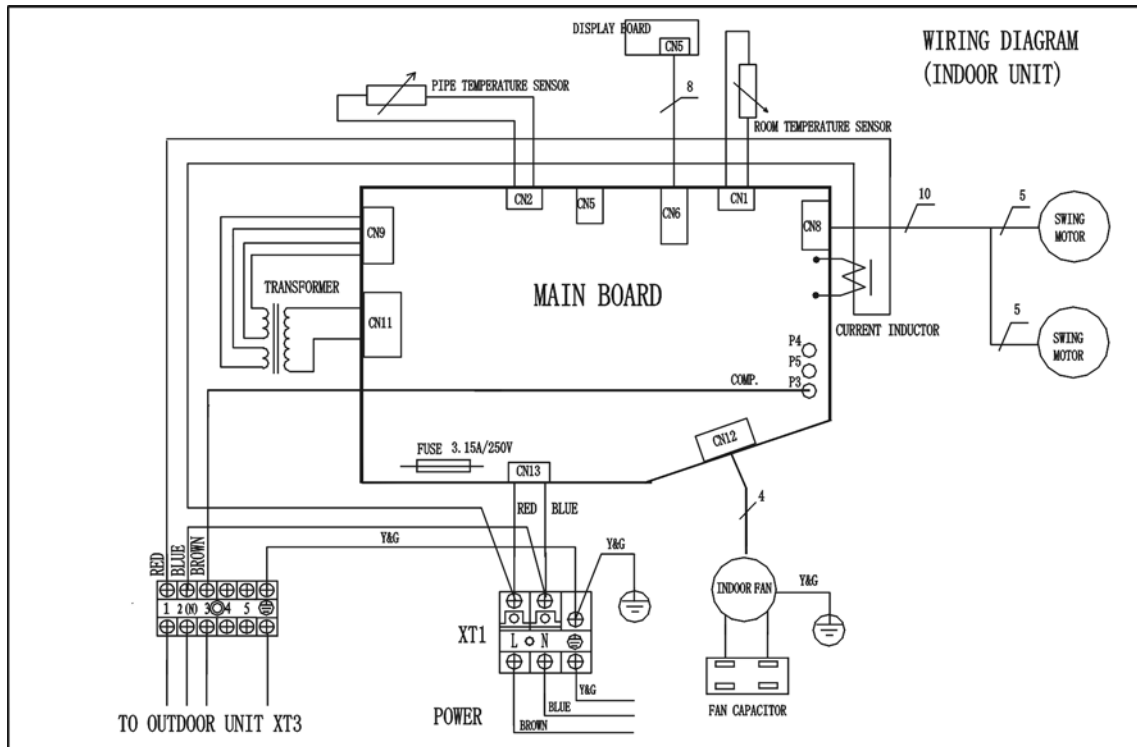


Outdoor unit air temp. °C DB

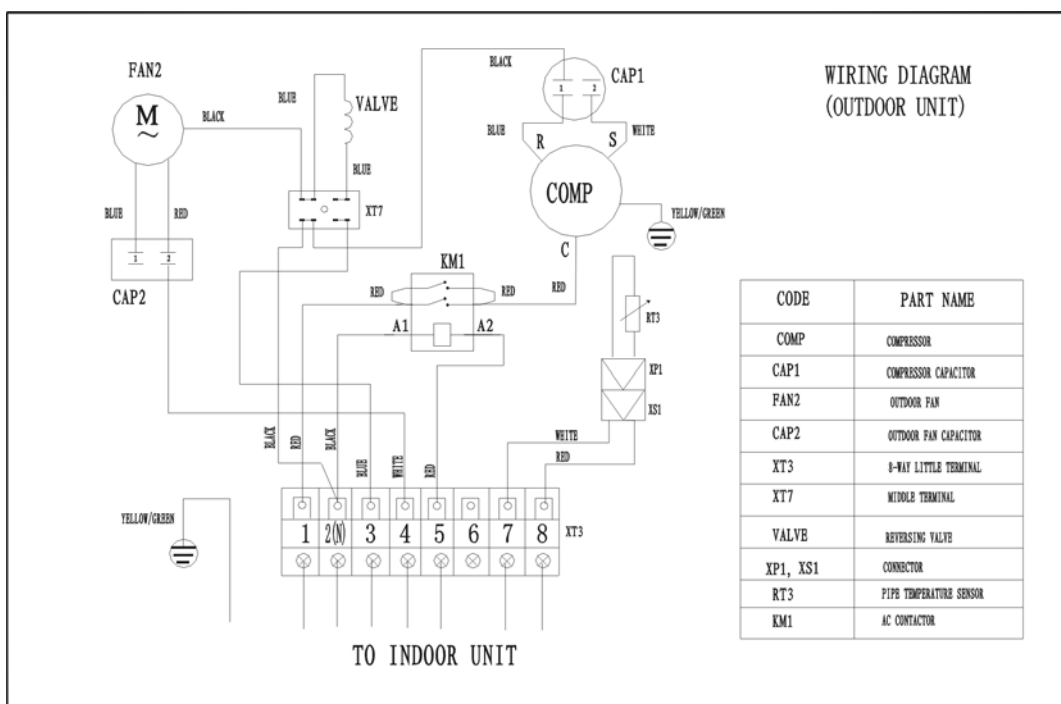
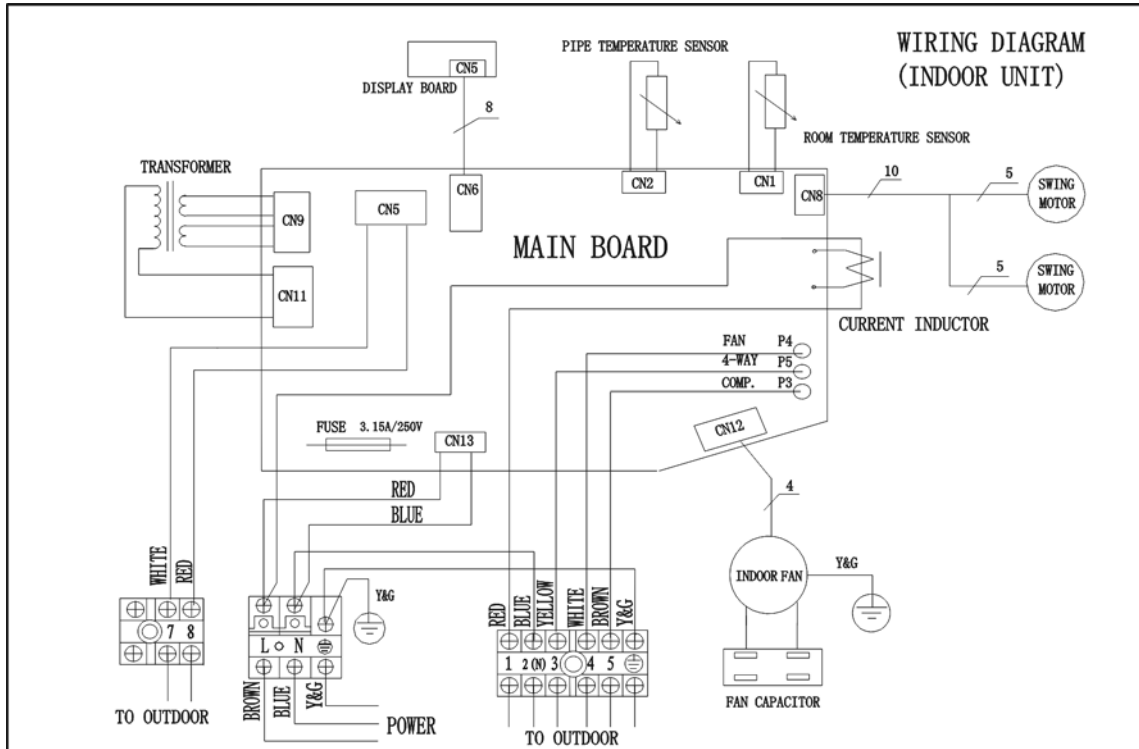
Note : The chart is the result from the continuous operation under constant air temperature conditions. However, excludes the initial pull-down stage.

## 6. Wiring diagram

### 6.1 DSG-18CRN2, DSG-24CRN2 220V, 1Ph.



## 6.2 DSG-18HRN2, DSG-24HRN2, 220V, 1Ph



## 7. Troubleshooting

LED status	
Operation indicator, time indicator, Defrosting indicator (fan indicator, for cooling only type) auto indicator flicker at 5Hz	Four times Current protection (PRCUR1) 5Hz
Time indicator flickers at 5Hz	the room temperature sensor is open or short
Operation indicator flickers at 5Hz	the evaporator temperature sensor is open or short
Defrosting indicator flickers at 5Hz	the condenser temperature sensor is open or short
Defrosting indicator, auto indicator flicker at 5Hz	Outdoor unit protects (Outdoor temp, sensor, phase order etc)
Auto indicator, indicator flicker at 5Hz	EEROM Communication error



## 8. Electronic Control Principle of Large Cooling Capacity Split Model A/C

### 8.1 Fan only mode

Fan speed is high/mid/low/ Auto

### 8.2 Cooling mode

The 4-way valve is closed at cooling mode.

The action of the compressor and the outdoor fan:

T: Room temp.

Ts: Setting temp.

	Condition	Compressor	Outdoor fan
Temp. up	$T > T_s + 1$	On	On
	$T < T_s + 1$	Off	Off
Temp. down	$T > T_s$	On	On
	$T < T_s$	Off	Off

### Auto fan

	Condition (T=Indoor Temp.-Setting Temp.)	Indoor fan speed
Temp. up	$T < 1^{\circ}\text{C}$	Low
	$1^{\circ}\text{C} < T < 4^{\circ}\text{C}$	Med.
	$T > 5^{\circ}\text{C}$	High
Temp. down	$T > 4^{\circ}\text{C}$	High
	$1^{\circ}\text{C} < T < 4^{\circ}\text{C}$	Med.
	$T < 1^{\circ}\text{C}$	Low

### Anti-freezing control to indoor evaporator

	Condition		Compressor	Outdoor fan
	Temp.	Time		
Temp. up	$T > TE6$		On	On
	$T < TE6$	>4 Minutes	Off	Off
Temp. down	$T > TE5$		On	On
	$T < TE5$	>4 Minutes	Off	Off

### Condenser high temp. protection( only for heat pump)

	Temp. Condition	Compressor
Temp. up	$T > TE10$	Off
	$T < TE10$	On
Temp. down	$T > TE11$	Off
	$T < TE11$	On

### 8.3 Dehumidifying mode

8.3.1 Indoor fan speed at low speed.

8.3.2 Protection is same as cooling mode.

### 8.4 Heating mode

8.4.1 Generally, the 4-way valve is open in heating mode, but it is closed in defrosting mode.

8.4.2 Generally, the outdoor fan is turned off with the on-off action of compressor in heating mode, except for the defrosting mode or the end of defrost.

8.4.3 Action conditions of compressor at heating mode: compressor must run for 4 minutes after starting and then judge temperature. Meanwhile other protections are still valid.

	Condition	Compressor	Outdoor fan
Room temp. up	$T > T_s + 4$	Off	Off
	$T < T_s + 4$	On	On
Room temp. down	$T < T_s + 3$	On	On
	$T > T_s + 3$	Off	Off

#### 8.4.4 Indoor Fan actions at heating mode

Indoor Fan can be set at HIGH/MID/LOW/AUTO by using a remote controller, Anti-cold wind function 1.

	Condition T= Indoor exchanger temp.	Indoor fan speed
Indoor exchanger temp. up	$T < TE1$	Off
	$TE1 < T < TE2$	Low speed
	$T > TE2$	Setting fan speed
Indoor exchanger temp. down	$T > TE3$	Setting fan speed
	$TE4 < T < TE3$	Low speed
	$T > TE4$	Off

#### Anti- cold air protection 2 ( when the room temp. satisfy the setting temp.)

	T=evaporator pipe sensor temp.	Indoor fan speed
Room temp. up	$T < TE14 + 2^{\circ}\text{C}$	Low speed or stop
	$T > TE14 + 2^{\circ}\text{C}$	Setting speed.
Room temp. down	$T > TE14$	Setting speed.
	$T < TE14$	Stop after 15 seconds Low speed

#### Auto wind

	Condition T=Indoor Temp.-Setting Temp.	Indoor fan speed
Room temp. up	$T < 2^{\circ}\text{C}$	Med. speed
	$T > 2^{\circ}\text{C}$	Low speed.
Room temp. down	$T > 0^{\circ}\text{C}$	Low speed.
	$T < 0^{\circ}\text{C}$	Med. speed

#### Indoor evaporator high-temperature protection

	Condition T= Indoor exchanger temp.	Compressor	Outdoor fan
Indoor exchanger temp. up	$T < TE8$	On	On
	$TE8 < T < TE7$	On	Off
	$T > TE7$	Off	Off
Indoor exchanger temp. down	$T > TE9$	Off	Off
	$T < TE9$	On	On

## 8.5 Defrosting mode

### 8.5.1 Conditions of defrost:

Defrosting starts when either of the following :

T3 lower than 0°C, lasts for more than 40 minutes, provided that the time period when the temperature is lower than -3°C consecutively reaches 3 minutes.

Calculate from the end of latest defrost, evaporator high temp. protection only closes outdoor fan with the compressor still running. Add up to 90 minutes

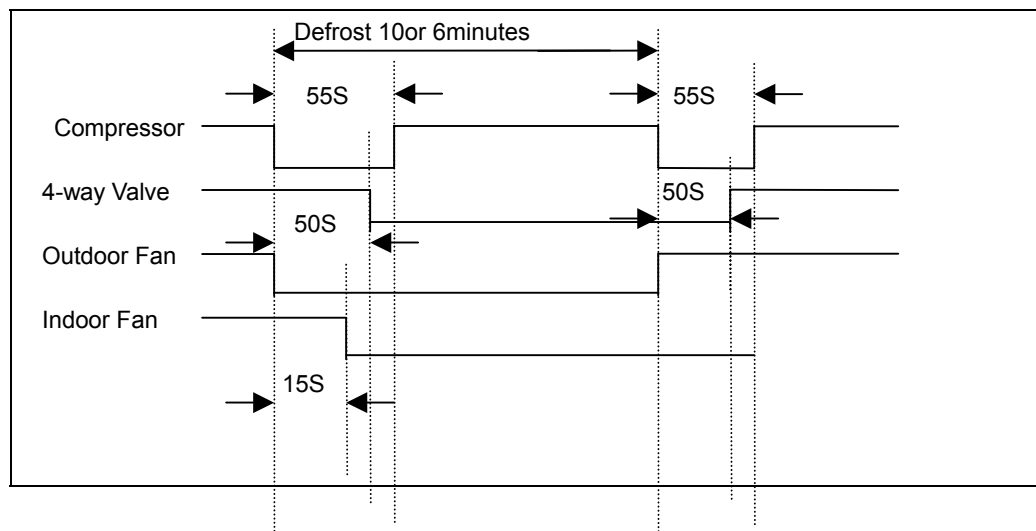
### 8.5.2 Conditions of defrost ending:

Defrosting ends when either of the following :

The time gets to 10 minutes;

T3>20°C

### 8.5.3 Time sequence of the whole defrosting procedure is as follows:



Remark: when the evaporator pipe sensor temp. more than TE16, The indoor fan start to run.

## 8.6 Auto mode

8.6.1 When running in automatic mode, the air conditioner automatically selects one of the following operation modes: cooling, heating or ventilation according to the difference between room temp. (TA) and set temp. (TS).

TA—TS	Operation mode
TA—TS>2°C	Cooling
-1°C≤TA—TS≤+2°C	Air-only
TA—TS<-1°C	Heating (air-only for cooling only type)

8.6.2 At auto mode, the indoor fan blows automatically in selected mode.

8.6.3 One mode should be carried out for at least 15 minutes once selected. If the compressor cannot start for 15 minutes, reselect the operation mode according to the room temp. and set temp., or reselect when the setting temp. changed

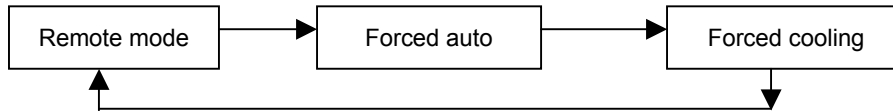
## 8.7 Economic mode

Cooling: The set temperature rise 1°C per hour. Two hours later, the set temperature will maintain as a constant and the air circulation is kept at low speed.

Heating: The set temperature decrease 1°C per hour. Two hours later, the set temperature will maintain as a constant and the air circulation is kept at low speed (Cold air proof function takes priority over all).

## 8.8 Manual operation

Manual operation is controlled by touching buttons and divided into force cooling and forced auto mode. It transfers between these two modes by pressing the buttons, the cycling order of the button press is:



### 8.8.1 Forced Cooling

8.8.1.1 In forced cooling mode, the remote signal is not accepted.

8.8.1.2 The compressor is unconditionally turned on, after 30 minutes cooling operation whose fan mode is set as low, the A/C operates in the forced auto mode under the requirements of the forced auto mode.

8.8.1.3 During the start-up and operation, all of the following protecting functions work:

3minutes start-up delay protection, overload protection, outdoor protection, evaporator

Protection against low temperature. If any of the protection functions, the comparative protecting action is executed.

The forced cooling mode is closed by one touch on the button, meanwhile the operation light is off, the buzzer buzzes lasts for 1 seconds, then A/C turns to be closedown status.

### 8.8.2. Forced Auto

8.8.2.1 Remote control signal can be received in forced auto mode. When receiving the signals, the forced auto mode will be canceled and the A/C changes to remote control status and performs operation as the signals indicates.

8.8.2.2 The system performs control according to the remote control auto mode with a set temperature of 24°C.

## 8.9 Timer

24 hours timer on or off.

## 8.10 Protecting Function

8.10.1 Compress with a delay of 3 minutes.

8.10.2 Sensor open and break protection

8.10.3 EEROM error protection.

8.10.4 Current protection function.

	Condition	Indoor fan	Compressor	Outdoor fan	Remark
Current up	$I < I_{RESTORE}$	On	On	On	
	$I_{RESTORE} < I < I_{FAN}$	On	On	Off	Heating mode
		Low speed	On	On	Cooling mode
	$I_{FAN} < I < I_{5MIN}$		Off	Off	After 5 Minutes
	$I_{5MIN} < I < I_{3SEC}$		Off	Off	After 3 Seconds
Current down	$I_{5MIN} < I < I_{3SEC}$		Off	Off	After 3 Seconds
	$I_{FAN} < I < I_{5MIN}$		Off	Off	After 5 Minutes
	$I_{RESTORE} < I < I_{FAN}$	On	On	Off	Heating mode
		Low speed	On	On	Cooling mode
	$I < I_{RESTORE}$	On	On	On	

## 8.11 Auto restart Function

In case of a sudden power failure, this function automatically sets the unit to previous settings before the power failure when power returns.

## 8.12 Models and Parameters

Model	DSG-18CR	DSG-18HR	DSG-24CR	DSG-24HR
I3SEC	22A	22A	26A	26A
I5MIN	20A	20A	24A	24A
IFAN	16A	16A	20A	20A
IRESTORE	14A	14A	18A	18A
TE1		25°C	25°C	25°C
TE2		32°C	32°C	32°C
TE3		30°C	30°C	30°C
TE4		20°C	20°C	20°C
TE5	2°C	2°C	2°C	2°C
TE6	12°C	12°C	12°C	12°C
TE7		63°C		63°C
TE8		54°C		54°C
TE9		50°C		50°C
TE10		65°C		65°C
TE11		55°C		55°C
TE14		32°C		32°C
TE16		42°C		42°C