VENTING

R22

HP09FD
HP12FD

R410A

HP12RA
HP18RA
HP24RB

Standardne osobine

Karakteristike R22

Model			Venting HP09FD	Venting HP12FD
Kapacitet				
Rashladni kapacitet		W	2,500	3,200
Grejni kapacitet		W	2,750	3,520
Elektro				
Napajanje		(V/ Hz/ Ph)	220-240 V, 50Hz, 1Ph	220-240 V, 50Hz, 1Ph
Ulazna snaga	Hlađenje	W	980	1,250
	Grejanje	W	980	1,220
Radna jačina struje	Hlađenje	A	4.35	5.4
	Grejanje	A	4.35	5.3
Performanse				
EER		W/W	2.55	2.56
COP		W/W	2.81	2.89
Protok vazduha	Unutrašnja jed.	m^3/h	420	520
Nivo buke	Unutrašnja jed. (min/nom/max)	dB(A)±3	32/35/38	34/37/40
	Spoljna jed.	dB(A)±3	50	51
Dimenzije i mase				
Širina x Visina x Dubina	Unutrašnja jed.	mm	660x250x205	795x260x190
	Spoljna jed.	mm	600x490x250	760x540x260
Neto masa	Unutrašnja/ Spoljašnja jed.	kg	9,5/ 30	9,5/ 36
Rashladno sredstvo i instalacije				
Tip/ količina rashladnog sredstva		gr	R22/ 700	R22/ 720
Cevovod	tečnost/ gas	mm	6,35/ 9,52	6,35/ 9,52
Radni (operativni) opseg		°C	-7°C do 43°C	-7°C do 43°C

Karakteristike R410A

Model			Venting HP12RA	Venting HP18RA	Venting HP24RB
Kapacitet					
Rashladni kapacitet		W	3,200	5,300	7,000
Grejni kapacitet		W	3,350	5,620	7,300
Elektro					
Napajanje		(V/ Hz/ Ph)	220-240 V, 50Hz, 1Ph	220-240 V, 50Hz, 1Ph	220-240 V, 50Hz, 1Ph
Ulazna snaga	Hlađenje	W	1,000	1,656	2,190
	Grejanje	W	930	1,557	2,210
Radna jačina struje	Hlađenje	A	4.34	7.2	10.11
	Grejanje	A	4.05	6.77	9.89
Performanse					
EER		W/W	3.21	3.2	3.20
COP		W/W	3.61	3.61	3.60
Protok vazduha	Unutrašnja jed.	m^3/h	520	850	950
Nivo buke	Unutrašnja jed.	dB(A)±3	37	38	42
	Spoljna jed.	dB(A)±4	50	54	55
Dimenzije i mase					
Širina x Visina x Dubina	Unutrašnja jed.	mm	795x260x190	1080x310x215	1090x315x220
	Spoljna jed.	mm	760x540x260	800x590x300	800x690x300
Neto masa	Unutrašnja / Spoljašnja jed.	kg	09/29	15/44	15/45
Rashladno sredstvo i instalacije					
Tip/ količina rashladnog sredstva		gr	R410A/ 800	R410A/ 1250	R410A/ 1630
Cevovod	tečnost/ gas	mm	6,35/ 9,52	6,35/ 12,7	9,52/ 15,88
Radni (operativni) opseg		°C	-7°C do 43°C	-7°C do 43°C	-7°C do 43°C

Komentar: Tehnički podaci su preuzeti iz kataloga proizvođača.
Opisi i specifikacije dati u tabeli podložni su izmenama bez prethodne najave u cilju poboljšanja proizvoda

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steelsoft

VENTING

SERVICE MANUAL

HP18RA

HP24RB

Product Specifications

Model				
		VENTING	HP 18RA	HP24RB
Power supply		Ph-V-Hz	220-240V~ 50Hz, 1Ph	220-240V~ 50Hz, 1Ph
Cooling	Capacity	Btu/h	18000	24000
	Input	W	1656	2190
	Rated current	A	7.2	10.11
	EER	W/W	3.2	3.20
Heating	Capacity	Btu/h	19100	24900
	Input	W	1557	2.210
	Rated current	A	6.77	9.89
	COP	W/W	3.61	3.60
Indoor air flow (Hi/Mi/Lo)		m3/h	850	950
Indoor noise level (Hi/Mi/Lo)		dB(A)	38	42
Indoor unit	Dimension(W*D*H)	mm	1080X310X215	1090X315X220
	Packing (W*D*H)	mm	-	-
	Net/Gross weight	Kg	15/17	15/17
Outdoor noise level		dB(A)	54	55
Outdoor unit	Dimension(W*D*H)	mm	800X590X300	800X690X300
	Packing (W*D*H)	mm	-	-
	Net/Gross weight	Kg	44/48	45/49
Refrigerant type		g	R410/1250g	R410/1630g
Refrigerant piping	Liquid side/ Gas side	mm(inch)	Φ6.35/Φ12.7(1/4"/1/2")	Φ9.52/Φ15.88(3/8"/5/8")
	Max. refrigerant pipe length	m	10	15
Connection wiring			2.5	2.5
Operation temperature	Indoor(cooling/ heating)	℃	17～32	17～32
	Outdoor(cooling/heating)	℃	18～43/-7～24	18～43/-7～24

Brief Introduction Of Installation

The installation of air-conditioner should meet with the “Installation Instruction”. The machine
must be installed correctly by professional technicians according to the “Installation Instruction”.

(1) Guide to customer

①The customer should provide a suitable power supply source, its voltage should be in the
range of 90-110% of its rated voltage.

②The power supply circuit should have MCB leakage protection. The capacity should be more than 1.5 times of the maximum current.

③Must use independent circuit and suitable grounding socket matching with the plug of air-conditioner.

④The wiring must be installed by qualified electrician according to the electrical safety requirements.

⑤The air-conditioner must be well grounded, the switch of the main power of air-conditioner
must be reliably grounded.

⑥The power supply wire, must be changed by qualified electrician.

(2) Installation Instruction

1. Installation order

Selection of the installation position Installing the air-conditioner
Expelling the air in the pipes and the indoor unit Connecting the pipes and wires
Testing

2. Selection of the installation position

Indoor Unit:

①There is no heating and steaming source nearby.

②No obstacles for installation position from nearby.

③Keep good air circulation.

④Convenient to adopt measures to reduce noises.

⑤Don’t install them near the doorway.

⑥ Make sure to have the distance specified in the picture between the ceiling, wall, furniture
and other obstacles.

⑦2 meters high above the floor.

Outdoor Unit:

① In case that you put up a canopy to protect it from rains and sunrays, pay attention not to
cause any obstacles for the heating dispersion for the condenser.

② Don’t keep animals or plants near the installation location for the hot air from the outdoor
unit will affect them.

③ Make sure to have the distance specified in the picture between ceiling, wall, furniture and
other obstacles.

④ Stay away from heating source and inflammable air.

⑤The installation base and supporting frame should be strong and secure. The machine should be at a level surface.

3. Installation

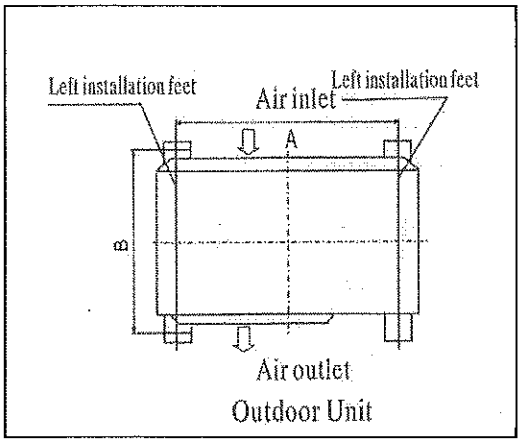
Outdoor Unit:

① The outdoor unit must be firmly fixed to avoid falling in strong wind.

② Install on the cement base as in the drawing.

③ If it is installed at seaside or at a place high above the ground and with strong wind, the AC should be installed against the wall to ensure the normal operation of the fan and the blocking plate should be used.

④ If it is an overhanging installation, the structure of the mounting wall should be made of solid, cement or materials with equivalent strength, and of sufficient support capacity. Otherwise, measures such as reinforcement, support or vibration damping should be adopted.



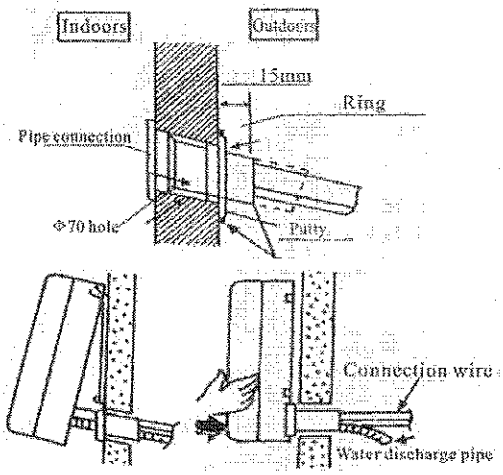
Indoor Unit

①First make changes to wall and make sure that is hard and secure. Using four "+" type screws to fasten the installation board onto the wall. Keep it level in horizontal direction and perpendicular in vertical direction. Otherwise it might cause water drips when air-conditioner is running in cooling operation.

②Drill 70mm diameter pipe hole at the left lower or right lower side of the installation board. The hole shall slant outward slightly.

③Hang the indoor unit to the oard and make sure the machine is in the middle of the board.

④Push the machine towards the left lower and right lower side of the installation board until the hangers enter tightly into the grooves (it produces "click" sound)



4. Check the water discharge

(1)Take off the frame from the unit cover.

Take off the front frame for maintenance according to the following steps:

①As shown in the picture on the right, take off two covers from the front frame and then unfasten two fixture screws.

②Pull the front frame towards yourself and take it off.

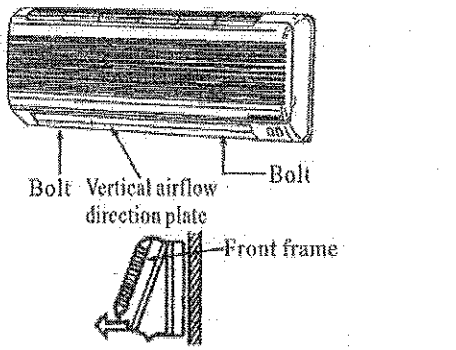
To put the front frame back, reverse the steps.

You should check whether the front frame is firmly fixed into the fixture groove on the top.

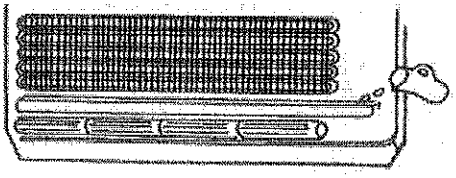
(2)Check the water discharge

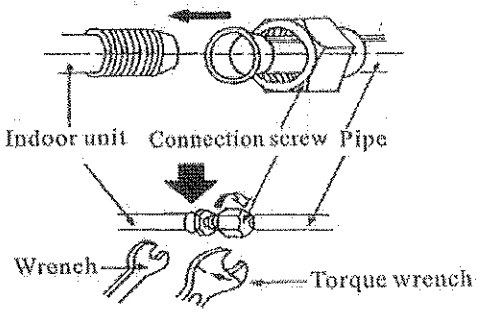
①Pour a cup of water into groove.

②Check whether the water flow through the water discharge hole.



Pull down the front frame towards your and take off the front frame.



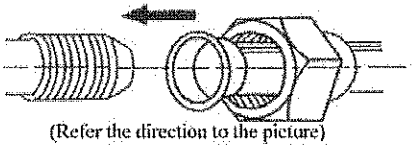


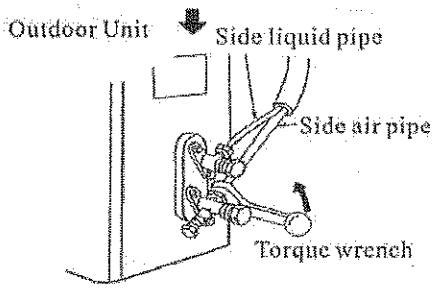
5. Pipe Connection

① Connect the pipe to the unit: point to the center of pipe and fasten the connection screw at first by hand and then by wrench until it is tightly fastened. The fastening direction is shown in the picture.

② Pointing towards the center of pipe, fasten the screw with strength.

③ Wrench the screw in the end until you hear the "click" sound.





6. The fixing of pipe

① Wrap up all pipe, water discharge and connection wire from top to below.

② Cover the connection parts with insulation material and fix them with two plastic rings.

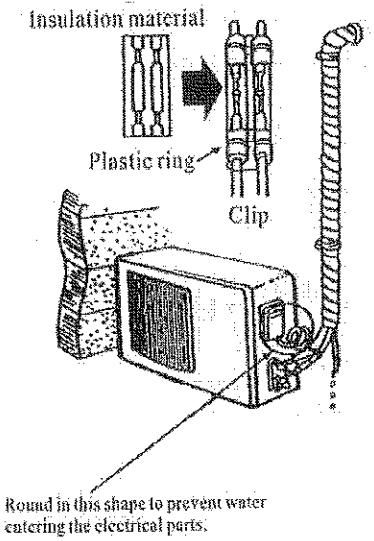
③ Wrap up the pipes with tape alongside the wall and fix them to the wall with clips. These steps are usually adopted when outdoor unit is installed below the indoor unit.

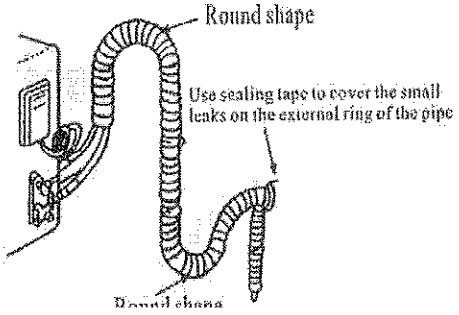
④ In case that you want to have additional water discharge pipe, the end of pipe should be within certain distance from the floor (to prevent water from draining back into the pipe). Fix it onto the wall so it won't be swayed by wind.

⑤ Wrap the pipes and connection wire well from below to top.

⑥ Wrap up the pipes that are rounded up in the way shown in the picture so it can prevent water from entering the room.

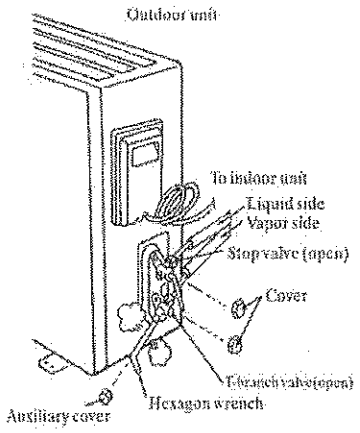
⑦ Use clips or other fixture to fasten the pipes to the walls.





7. Expelling the air in the pipes and the indoor unit

Expelling the air: humid air in the refrigerating system might cause trouble of compressor.



①Take off the cover from the stop valve and T-branch valve.

②Take off the auxiliary cover from the T-branch valve.

③Turn the stop valve rod anti-clock wise to an angle of 90 degree, keep it open for 8 seconds and close the valve.

④Check whether there is air leakage at all connection parts of pipes.

⑤ Push the top rod of T-branch valve by hexagon wrench to expel air.

⑥Repeat the third and fifth steps.

⑦Open the stop and T-branch valve with a hexagon wrench to make the unit operate.

⑧No leakage is allowed, please check all the piping connection parts. You must test the leakage, generally, it can be tested by soap water.

8. Electrical connection

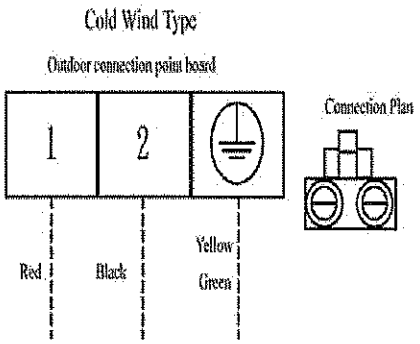
① Unscrew the screw, take off the control panel cover from the unit.

② Cooling type: connect the wire to the related connection point on the panel and connect the signal connection plug.

Remarks: yellow and green cord should be connected to connection point with ⏚ mark.

③ Fasten the fixture of wire to control panel.

④ Screw up the control panel cover to its original place.



9. Test running

① Make sure that the pipes and wires are connected.

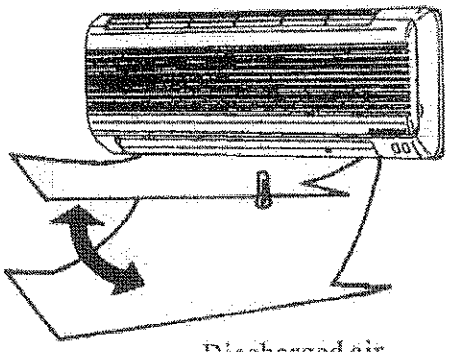
② Make sure that both the liquid valve and gas valve on the side are completely open.

The connection of power source

- Connect the wire to independent power source socket.
- Preparation of remote control.
- Run the air-conditioner in cooling operation mode for 30 minutes or longer.

Performance evaluation

- Test the out and in air temperature.
- Make sure that the temperature difference between the out and in air is greater than 8°C.



10. Items of attention

① Fix the machine firmly, otherwise it will produce noise and vibration.

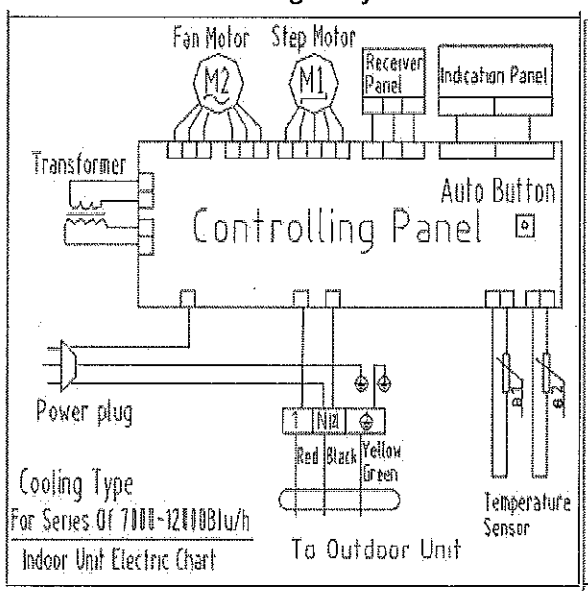
② Install the outdoor unit where it will not disturb your neighbor.

Wiring Diagram

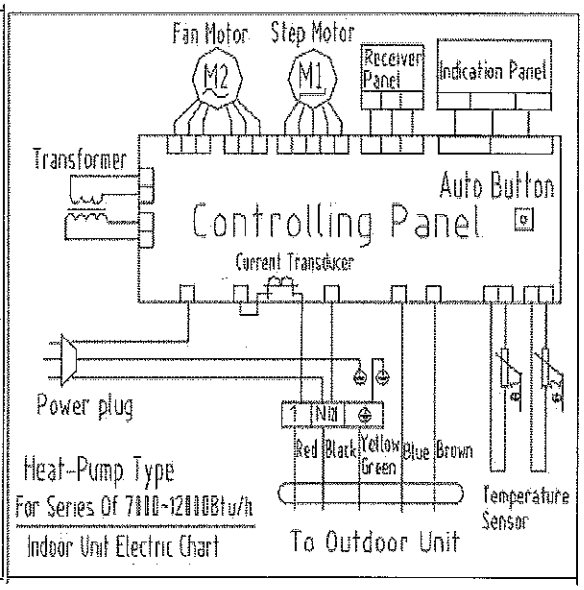
(1)7000-12000BTU

1. Indoor Unit

Cooling Only

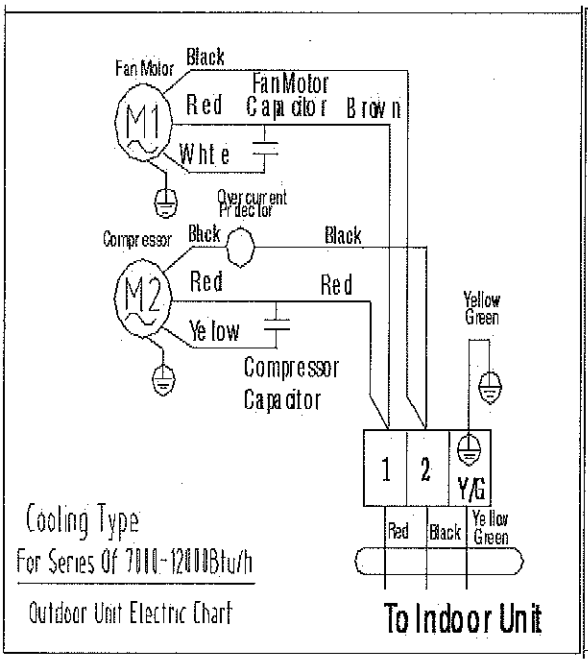


Cooling & Heating

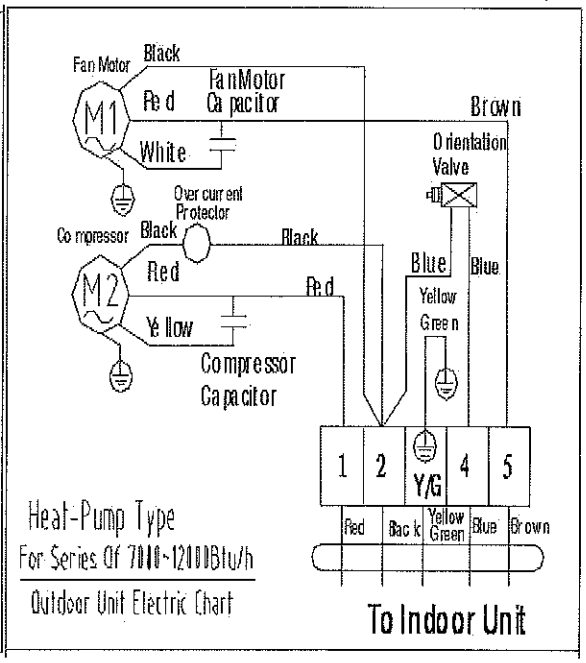


2. Outdoor Unit

Cooling Only



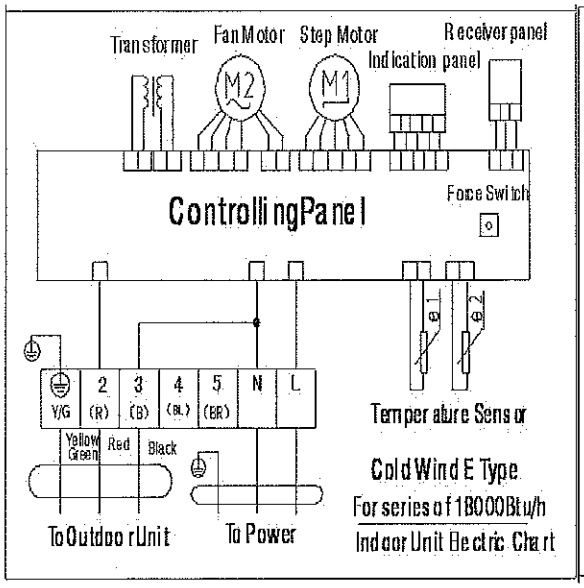
Cooling & Heating



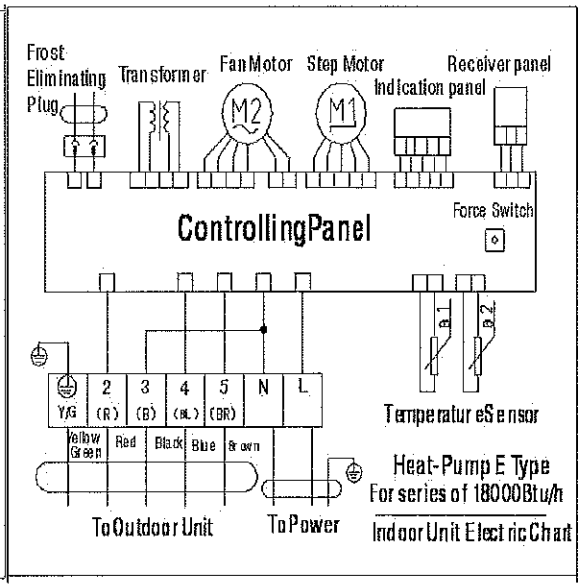
(2)18000 BTU

1. Indoor Unit

Cooling Only

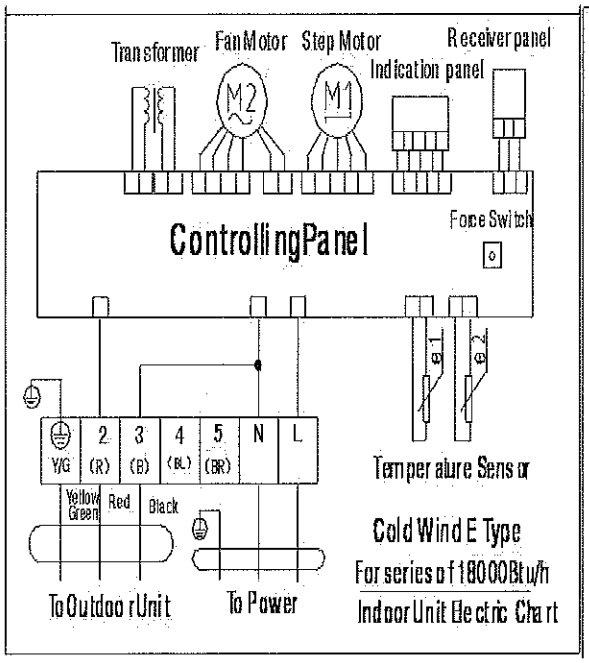


Cooling & Heating

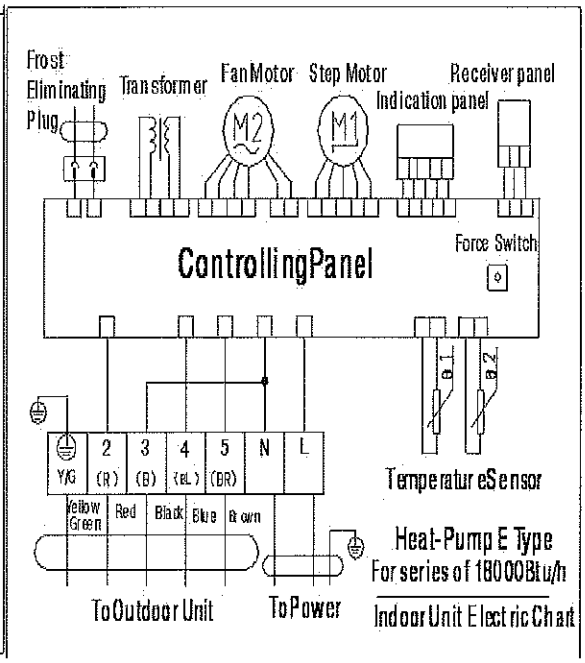


2. Outdoor Unit

Cooling Only



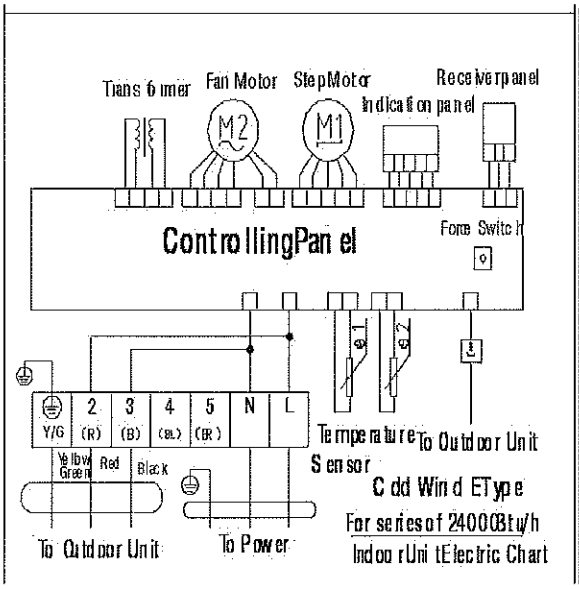
Cooling & Heating



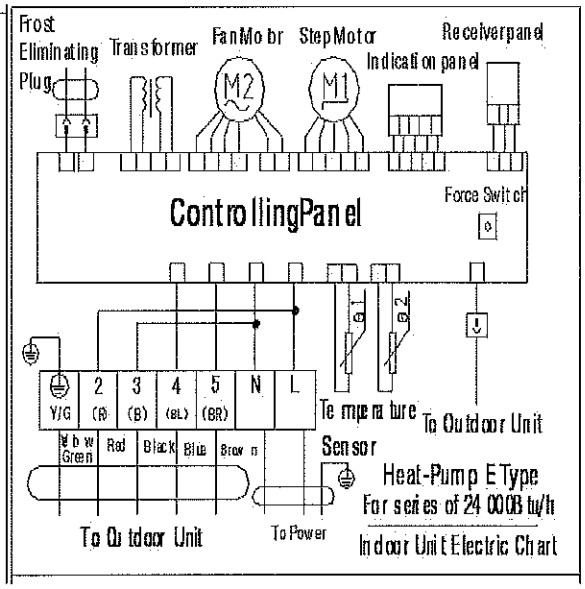
(3)24000 BTU

1. Indoor Unit

Cooling Only

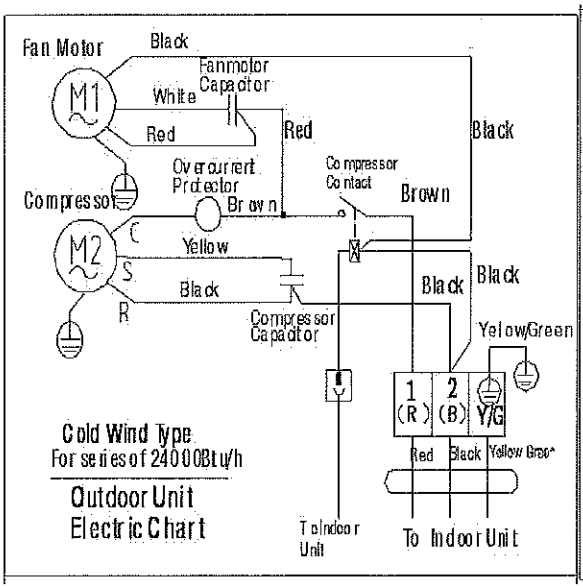


Cooling & Heating

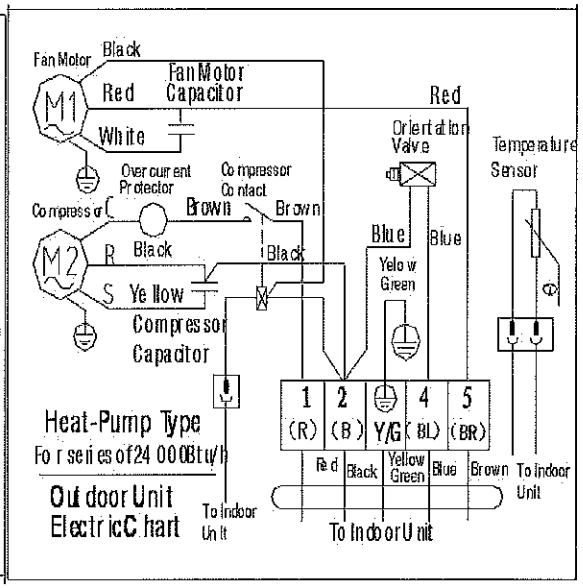


2. Outdoor Unit

Cooling Only



Cooling & Heating



Operation Details

(1)The basic function introduction of the split wall-mounted type electric-controller (9000BTU~12000BTU)

1. The basic conditions for the operation of the controller

(1)The applicable voltage range of the electrical power: The input voltage 175 V – 253V;
(2)The input AC current frequency: 50Hz;
(3)The operating temperature for electric controller: （-10~+70）℃;
(4)The operating moisture for electric controller: RH20%~RH90%;
(5)The indoor fan: RP plastic-sealed motor, three impulse feedback signal;
(6)The outdoor fan: tap iron-shell motor, only one speed range and the normal working current shall be lower than 1.5A;
(7)The normal working current of the four-way valve: lower than 1A/220VAC;
(8)The Swing Motor: DC12V, Four phase eight step stepping motor;
(9)Compressor: Single-phase power supply, the normal working current shall less than 15A.

2. Functions of the electric controller

The function of the controller consists of the following parts:
(1)The remote control receiving function;
(2)LED/ Digital displaying function;
(3)Force operation function;
(4)The air vane's automatic swing function and the position setting function;
(5)The buzzer's driving function;
(6)The indoor fan's driving function;
(7)The timing on-off function;
(8)The compressor restarting protection function;
(9)The indoor heat-exchanger overheating protection function under heating mode;
(10)The automatic defrosting and resume function under heating mode;
(11)The anti-cold air function under heating mode;
(12)The anti-freezing function under cooling and defrosting modes;
(13)Self-detecting function.

3. The main functions specification

(1)The specialty terms and their express:

TA: Stands for the indoor ambiance temperature;
TE: Stands for the indoor evaporator temperature;
TS: Stands for the setting temperature;

(2)Emergency switch

①The air-conditioner turns off if press on this button when the air-conditioner is working; The air-conditioner turns on if press on this button when the air-conditioner is off, and it will work in an automatic mode after press on this button. Then the indication light twinkles for 20 seconds and the air-conditioner does not start working until the working mode to be selected by the system;

The air-conditioner automatically selects one of cooling, dehumidification, and heating mode as the working mode according to the indoor air temperature.

a) When TA≥Ts+2℃, the controller enters into the cooling mode and follows the mode in

working. The setting temperature herein is 24℃ and the setting wind speed is high fan;
b) When Ts-2℃<TA<Ts+2℃, The setting temperature is 24℃ and the setting wind speed is low fan; the running light is always bright .
c) When TA≤Ts+2℃, the controller enters into the heating mode and follows the mode in working (Notes: This process with 3℃ compensatory temperature; the fan will not stop until the remaining heat is blew off). The setting temperature herein is 24℃ and the setting wind speed is low fan;
When the compressor continues to be in the OFF state for 6 minutes by the thermostat control in either of the cooling or heating , it is switched to the monitoring . The indoor fan's louver keeps its previous state, remote control's instruction for the louver is applicable.
② Press this emergency-switch without release at least 5 seconds until the ring of the buzzer rings twice. The controller enters into the trial operation. The trial operation time is 30min:
a) The sensor of the air-inlet temperature doesn't function in the period of trial operation. The compressor starts work after 3min delay protection (The primary running has no 3min safety-guard protection), the wind speed of the indoor fan is automatic fan, the running mode is cooling mode, and the wind door is maximum opening. The position of the wind door is same as cooling mode; Over-current protection function is effective in test of run.
b) There are no anti-freezing protection and high temperature-preventing protection during trial operation.

(3)Automatic run mode

When controller select an automatic working mode, the indication light twinkles for 20 seconds and the air-conditioner does not start working until the working mode to be selected by the system; The air-conditioner automatically selects one of the cooling, and heating mode as the working mode according to the indoor air temperature .
①The cooling operation starts when the detected room temperature (TA) is given in the formula「TA≥Ts+2℃」. Set temperature is the remote controller's setting temperature . The fan will operate at set speed.
② The monitoring continues when the detected room temperature (TA) is in the following formula 「Ts-2℃< TA < Ts+2℃」. Set temperature is the remote controller's setting temperature. The fan will operate at low speed and the running indicator light will be lightful continuously till the monitoring process finishes.
③The heating operation starts when the detected room temperature (TA) is given in the formula「TA≤Ts-2℃」(Notes: This process with 3℃ compensatory temperature; the fan will not stop until the remaining heat is blew off). Set temperature is the remote controller's setting temperature . The fan will operate at set speed.
When the compressor continues to be in the OFF state for 6 minutes by the thermostat control in either of the cooling or heating , it is switched to the monitoring . The indoor fan's louver keeps its previous state, remote control's instruction for the louver is applicable.

(4)Cooling mode

The setting temperature shall be set by the remote control. The temperature controlling range is 16℃ - 32℃. The setting temperature can be adjusted through the button of "+" "-". The setting wind speed can be adjusted through the button of "wind speed selection" in the selection of the four wind speed types, such as strong wind, high wind, low wind and mute wind. The four-way valve always be closed under this mode. The other action is as following:

① When TA - TS≥1℃，after the compressor meet the 3 minutes delay protection, the compressor and the outdoor fan start running;
② When TA = TS，maintain the previous status;
③ When TA - TS≤-1℃，after the compressor meet the 3 minutes protection condition, the compressor and the outdoor fan turn off;
④ The setting wind speed can be adjusted by the remote control during the ongoing cooling process, and the interior fan still retains working;
⑤When it is given the condition「TE ≤ 2℃」(Tc=temperature of the indoor coil),which lasts for 10 seconds , meanwhile compressor runs for more than 30 seconds, the outdoor fan will be turned off ; When it is given the condition「TE ≤ 0℃」(TE=temperature of the indoor coil),which lasts for 10 seconds , meanwhile compressor runs for more than 5 minutes, compressor will be turned off and indoor fan runs according to the set speed ; When it is given the condition 「TE ≥ 7℃」(TE=temperature of the indoor coil), system will quit aforesaid protective mode.
⑥ This mode includes the functions of timing, sleeping, auto-restart (optional), negative ion (optional), I feel（optional）;
⑦ When the cooling ongoing，the button of the "Swing" can control the swing and stop of the horizontal air-blade;
⑧ Automatic wind-speed control：

TA - TS≥3℃，wind-speed works in high wind;
TS +1℃≤TA＜TS +3℃，wind-speed works in middle wind;
TA – TS＜1℃，wind-speed works in low wind;

Without 3 minutes delay when the wind speed turns from the high wind from the low wind, otherwise with 3 minutes delay;
⑨ Being initially electrified, the compressor doesn't have the 3 minutes extension/delay protection, the outdoor fan starts after 2 seconds of the compressor's start; TS＞TA set by the remote control, the compressor turns off immediately with no need of 3 minutes delay protection;

(5)Dehumidification mode

①The four-way valve always turns off when the dehumidification mode is ongoing. The control range of the temperature is: 16℃ - 32℃.
②Under the dehumidification mode, after the 3 minutes protection conditions being meet satisfactorily, the performance of the compressor and the outdoor fan is as following:
a)TA ≥ TS+2℃，the compressor and the outdoor fan works continuously, the wind speed retains the setting wind speed;
b)TS ≤ TA < TS+2℃，the compressor and the outdoor fan runs for 10minutes and stops for 6minutes，The indoor fan turns off during the compressor's 3 minutes stopping period and keeps on working in breeze mode under other conditions;
c)TA < TS，the compressor and the outdoor fan stop working, and the indoor fan start to work in breeze mode after stopping for 3 minutes；
Automatic wind-speed control：

TA - TS≥5℃，the wind speed is on high wind;
TS +3℃≤TA＜TS +5℃，the wind speed is on middle wind;
TS +2℃≤TA＜TS +3℃，the wind speed is on low wind;
TS≤TA＜TS +2℃，the wind speed is on fitful breeze;
TA＜TS，the indoor fan is off during the 3 minutes delay of the compressor, and 3 minutes

later, the wind is at breeze speed.

③The primary electrifying to compressor has no 3 minutes protection delay, the outdoor fan starts 2 seconds later after the start of the compressor;

④When the indoor fan runs, the horizontal air-blade can be set as free swing, and the swing condition is same as the one under cooling mode;

⑤When TE ≤ TE1 last for 10seconds and the compressor runs continuously for above 5minutes，if turn off the compressor and outdoor fan, the indoor fan runs at the setting wind speed; If TE ≥ 7℃， quit the protection;

⑥This mode includes the functions of timing, sleeping, auto-restart (optional), negative ion (optional), I feel (optional).

(6)Ventilation mode

Under ventilation mode, the outdoor unit is always off, and the indoor fan runs according to the default wind-speed. The remote control can be set with three types wind-speed, e.g. high fan, low fan and silent fan except the strong fan; The operation condition of the air door is same as the one under the refrigeration mode; The mode includes the function of timing, auto-restart (optional), negative ion (optional), I feel (optional）.

(7)Heating mode

The default temperature is determined by the remote control and to be within the range of 16℃ - 32℃, which can be adjusted by the button of "+" and "-". Press the button of "fan speed selection" for choosing the wind speed from the four gears of automatic fan, high fan, medium fan, and low fan. The other conditions are as following, when:

①TA-3-TS≤-1℃， if after three minutes delay time as for protection purpose, the compressor and the outdoor fan start, the indoor fan works in cold-wind prevention condition, the TA shown on the digital display has 3℃ temperature compensation.

②TA-3-TS≥1℃，if the compressor last continuously running for 3minutes, the compressor and the outdoor fan stop, the indoor fan keeps on working under anti cold-wind condition. The TA shown on the digital display has 3℃ temperature compensation.

③TA-3=TS，retain the previous status;

④Automatic wind speed control, when:

TA ＜ TS，wind speed in high fan;

TS ≤ TA＜TS +2℃，wind speed in middle fan;

TA ≥ TS + 2℃，wind speed in low fan;

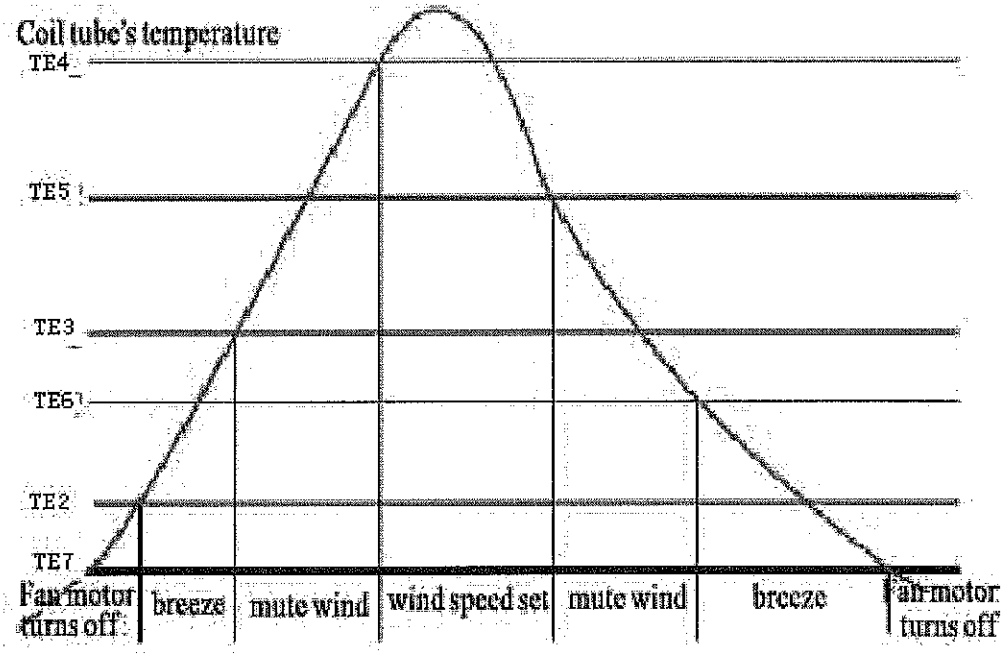
When wind speed turns from the low fan to high fan without 3 minutes protection delay; wind speed turns from the high fan to low fan with 3 minutes protection delay;

⑤When the heating process is ongoing, the button of the "Swing" can control and stop the swing leaves; When swing works freely, the maximum angle of the swing leaves is 50°e.g. the swinging status between 3-5 (refer to picture 3);

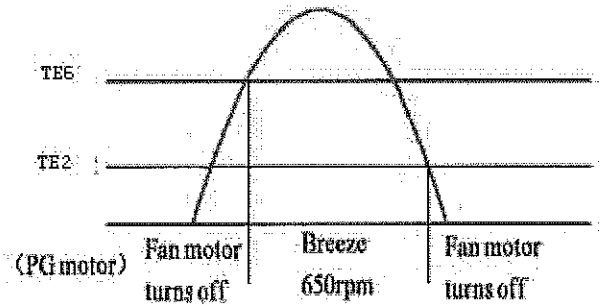
⑥There is no 3 minutes' delay protection for electrifying the compressor initially. The compressor starts 10 seconds later after the start of the four-way valve. The outdoor fan starts 2 seconds later after the start of the compressor; Low down TS to be ＜TA-3，then the compressor turns off immediately without the restriction condition of 3 minutes protection delay;

⑦The mode includes the functions of timing, sleeping, auto-restart (optional), negative ion (optional), I feel（optional）

⑧The four-way valve starts immediately once being electrified.10 seconds later the compressor starts; Under the compressor opening condition, the four-way valve shuts off after 2 minutes and 50 seconds delay protection when turn off or switch the controller; The four-way valve turns off immediately after turning off the controller when the compressor is off;
⑨Anti cold-wind and Residual-heat Removing function:
TE controls the wind speed of the indoor fan, and the specific conditions are as below:
The anti cold-wind status when the compressor runs:
a) When TE in rise status and at the moment of TE＜TE1，the indoor fan turns off；TE2≤TE＜TE3，the indoor fan blows the breeze; TE3≤TE＜TE4，the indoor fan blows the mute wind; TE≥TE4，the indoor fan blows the set wind speed;
b)When TE in fall status and at the moment of TE＞TE5，the indoor fan blows the set wind speed; TE6＜TE≤TE5，the indoor fan blows the mute wind；TE7＜TE≤TE6，the indoor fan blows the breeze；TE≤TE7，the indoor fan turns off.



The anti cold-wind status when the compressor stops working:
a）Monitoring. TE＞30℃，the indoor fan blows breeze for 30 s , then indoor fan turns off；once there is TE≤30℃ in this 30 s，indoor fan turns off;
b）Monitoring. TE≤30℃，indoor fan turns off;



The residual-heat Removing function：
When TE＞TE8，the indoor fan runs in breeze，if ≤TE8，the indoor fan stops working, and the time in removing residual heat ≤10seconds，Within the 10 seconds of residual heat removing,

if TE< TE8, the indoor fan stops immediately.

⑩Overheated protection:

a) When heating function runs, if TE≥TE9 and last for 10seconds, the outdoor fan stops; if TE≥TE10 and last for 10seconds, then stop the compressor; When TE< TE11 and after the 3 minutes protection delay, the compressor resumes normal working.

b) This temperature protection is valid only when the TE temperature sensor runs normally.

(8)The auxiliary electric heating function

①The electric heating function may not start unless the heating mode runs normally e.g. the compressor starts, the outdoor fan runs, the four-way valve is electrified, the indoor fan is on as well as the availability of the below conditions:

a)TE < TE12;

b)TA < TA3;

c)TS – TA ≥ 3℃;

d)The compressor runs continuously in heating mode for 4min;

②The auxiliary electric heating may withdraw working if meet one of the below conditions:

a)TA > TA3;

b)TS – TA < 2℃;

c)TE > TE11;

③If one of the compressor, four-way valve and indoor fan doesn't work or there is error feedback from the indoor fan, the auxiliary electric heating withdraw from work;

④If the sensor of TE is damaged and the turn-off without non-electricity occurred in the ongoing auxiliary electric heating process, the indoor fan turns in the low speed wind operation for 40 seconds and stops;

(9)Intelligent defrosting function

①Under the operation of the intelligent defrosting mode, the air-conditioner starts the defrosting process if satisfying the requirement of one of the below five conditions (the sub-conditions included shall all be satisfied). During the defrosting process, the sleeping light is twinkling:

- a) The outdoor fan starts the overloading protection and the outdoor fan stops;

  b) Restart the outdoor fan after stop and the continuous running time over than 10 minutes;

  c)The accumulated operation time of the compressor ≥45min;

  d)The continuous operation time of the compressor≥20min;

  e)TE ≤ TE12。

- a) After the 5 minutes operation of the heating mode or 5 minutes later after the defrosting process, starts the capture motion for the max. difference value between TE and TA, when the difference between TE and TA being reduced up than X min and the time lasts≥3min;

  b)The continuous operation time of the compressor≥5min;

  c)The accumulated operation time of the compressor≥45min;

  d)TE ≤ TE12;

Note: When the wind speed correction available, if the wind speed of the indoor fan drops by one gear, the temperature difference correction value shall be -1℃, if the wind speed of the indoor fan rises by one gear, the temperature difference correction value shall be +1℃.

- a)The accumulated operation time of the compressor≥3hour;

b)The continuous operation time of the compressor≥20 minutes;

c) The difference value between TE and TA less than Y℃.

• a)The difference value between TE and TA less than Y℃ and continuously last for 5minutes;

b)The accumulated operation time of the compressor is over than 45minutes;

c)The continuous operation time of the compressor is over than 20minutes;

The air-conditioner starts the defrosting process if satisfying the conditions, and records the TE value then before defrosting starts. Compare the TE value after defrosting with the one before defrosting, if the value of the later is not 3℃ more than the former one, it will not start the defrosting process according to this condition until the mode conversed and the air-conditioner to be restarted for heating or after another defrosting process;

•The air-conditioner starts time counting after overheating protection delay (the outdoor fan stops) and starts an force defrosting process two hours later.

②The intelligent defrosting process quit if satisfying one of the below four conditions:

a)The duration of the intelligent defrosting process≥9min;

b)After the 4 minutes defrosting process，if TE≥0℃ and the TE rise by 2℃ within 10seconds;

c)After the 5 minutes defrosting process，if TE≥5℃;

d)Test the current of the compressor 1 minute later after compressor starts, When the current of the compressor ≥6A（3.2Kw、3.5Kw wall-mounted unit require the current of the compressor≥8A）and continuous lasts for 5 seconds.

(10)The sleeping control function

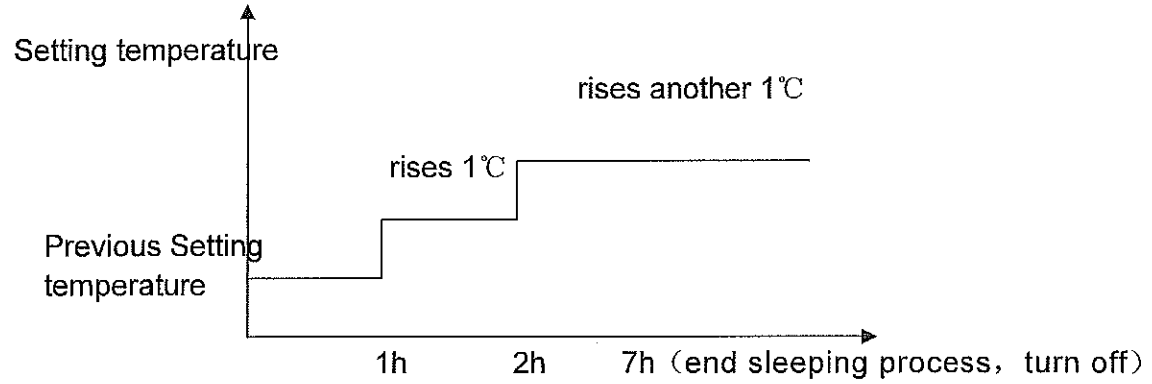
①The sleeping control function is valid during the automatic, cooling, dehumidifying and heating mode. The wind speed of the indoor fan falls by one gear after starts the sleeping control function and the sleeping indication lamp on;

②Press the button of "sleeping" and start the sleeping process. The default temperature rises by 1℃ to the ongoing cooling mode after 1 hour running; the default temperature falls by 2℃ to the ongoing heating mode after 1 hour running; after another 1 hour running, the default temperature for the ongoing cooling process rises by 1℃ and falls by 2℃ for the ongoing heating process. The sleeping process last for 7 hours until power-off.

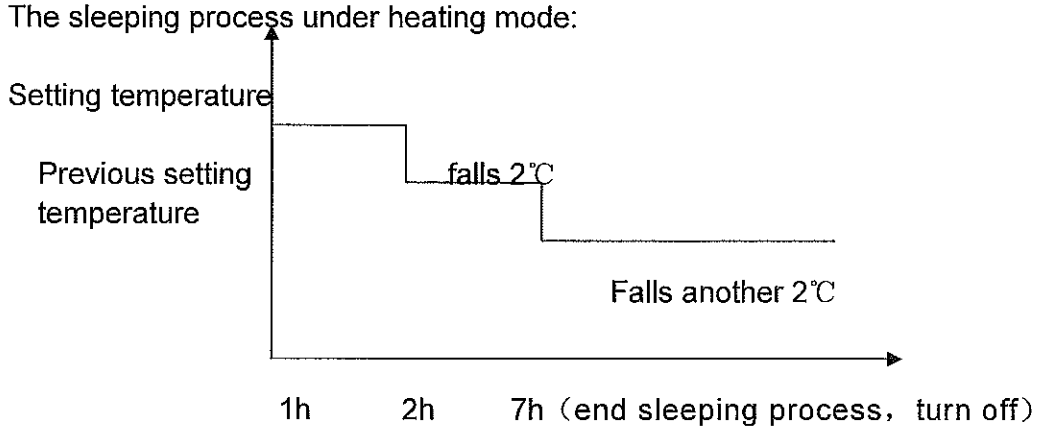
③The modes switch function is still valid after enter into the sleeping process, but will quit after modes switched. The air-conditioner runs at the temperature value of "new default temperature + correction temperature" if press the button of temperature "+".

④Under the sleeping status, press the button of "sleeping" again or press the modes option and on-off button to quit sleeping function and end the sleeping process.

The sleeping process under cooling mode:



The sleeping process under heating mode:



(11)Timing control function

①The longest Timing time is 24 hour and to be counted per minute, single timing method，the timing function will not be cancelled due to the modes changed, and the timing indication light on after completing the timing setting.

②Timing power-off：The timing power-off function can be set only under the working condition of the air-conditioner. The timing range is 1min-24h，and the air-conditioner turns off automatically once the time is over.

③Timing power-on：The timing power-on function can be set only under the working condition of the air-conditioner. The timing range is 1min-24h，and the air-conditioner turns on automatically once reaching the time.

④The restart and power-off motions happen after completion of the Timing setting will cause the automatic cancellation of the previous timing and sleeping setting function.

(12)Self-detecting function

Press the Emergency button and electrify the air-conditioner, the self-detecting process starts after twice short buzz from buzzer:

Start the electric heating, run the indoor fan at a high fan speed, open the air door to be the maximum →the digital display and three indicating light on in 1 second→ digital displays "11"、"22"、"33"、"44" in turn and 1second for each of them →Run light on 1 second →Timer light on 1 second →Sleep light on 1 second →Each phase of the stepping motor's motion in 1 second →the indoor fan runs for 1 second at low fan speed and middle fan speed separately→the compressor's motion for 1 second →The four-way valve's motion for 1 second →Outdoor fan's motion for 1 second →Negative generator's motion for 1 second →buzzer deliver one short tone→Electric heating runs 30 Seconds and stops, then the air conditioner turns into waiting status, the self-detecting function ends.

(13)Fault indication

When there is faults happen to the air-conditioner, the Timer lights on. The control light panel will indicate the corresponding fault codes, which are specified as the following:

FAULT	Digital Display	Phenomenon
PG abnormity	"E4"	AC stopped
TA abnormity	"E1"	AC stopped
TE abnormity	"E3"	AC stopped

After the indoor motor electrified, if there is no impulse signal feedback by the indoor motor detected within 10 seconds, cut off the output voltage supplied to the indoor fan from the controller. After 30seconds waiting time, re-electrify the indoor fan. If still has no impulse signal feedback by the indoor motor being detected within 10 seconds, the controller stays in waiting and the digital display indicates the corresponding fault code is E4.Turn off the air-conditioner by remote control, and the fault display will not show.

(14)The definition to swing angle of the air door

Picture 3 shows the swing angle of the step motor of E series wall-mounted type air-conditioner under 4.8kW (Except 4.8 kW);

①Once being electrified, the air door effect a motion of total closed, and the swinging speed is 22°/s;

②After the air-conditioner turns on, the air door effect a motion of total opening, and swing to the corresponding primary position. The primary position for heating mode is the position 5(Picture 3), for cooling mode is the position 2 (Picture 3).

③The air door "Swing" on the remote control can set the swinging mode to be automatic swing or hand swing;

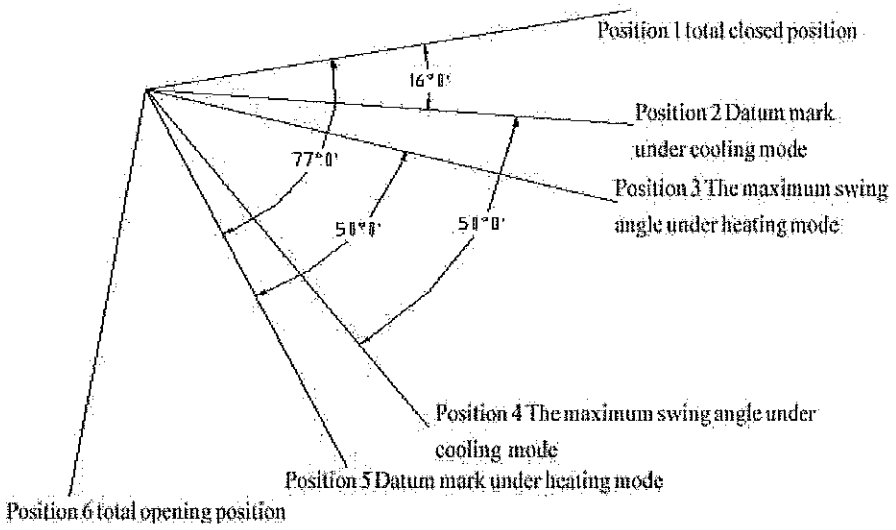
④The maximum swing angle of automatic swing under heating mode is 50°, e.g. the angle between position 3-5 in picture 3; the angle under cooling mode is 50°e.g. the angle between position 2-4 in picture 3; The swinging speed is 5.5°/s;

⑤After the air-conditioner being turned on and electrified, if the air door is not set "Swing", the swing angle will swing to the corresponding position according to the different modes. For example: the corresponding position under cooling mode is position 2(Picture 3), heating mode is position 5(Picture 3). The air door resumes the automatic swing after the fan starts. If the setting swing mode is hand swing, the swing angle will never change;

⑥After turning off the air-conditioner and stopping the running of the indoor fan, the air door shut off automatically;

⑦Enter into the automatic mode by pressing the Emergency button, the air door opens after the setting mode of the system starts. Before the starting of the setting mode, the air door parks at the datum mark of cooling mode.

The below picture shows the swing angle of E type:



Picture 3

(15)The wind speed selection function

The resistance value of the wind speed option is as below:

High Fan	R24	Middle Fan	R28	Low Fan	R26
1330	1.2K	1250	1.2K	1100	1.2K
1280	3K	1200	3K	1050	3K
1230	5.1K	1150	5.1K	1000	5.1K
1180	8.2K	1100	8.2K	950	8.2K
1130	12K	1050	12K	900	12K
1080	20K	1000	20K	850	20K
1030	36K	950	36K	800	36K
980	82K	900	82K	750	82K

Note: The mute wind speed under heating mode is 850r/min and 800r/min for non-heating mode. The breeze speed is 650r/min.

The controller added the function of high efficient wind speed, which bases on the previous strong fan plus 100r/min.

(22)Optional functions

The below functions' program are already write into the Main chip of the PCB and to be performed if being equipped with the corresponding hardware. For example, the "Auto-restart" function shall be equipped with the corresponding E^2 main chip, the "I feel" function shall be equipped with the corresponding remote controller, and the "Negative ion" shall be equipped with the corresponding relay.

①Auto-restart control function

a)The setting method for Auto-restart function: After the controller being electrified, press the sleeping button on the remote control for 10 times within 5seconds towards to the controller, later, if the Auto-restart function is successfully set, there are four sounds delivered from the buzzer; If the Auto-restart function need to be cancelled, press the sleeping button of the remote control for 10 times within 5seconds towards to the controller, later, if the Auto-restart function is successfully cancelled, there are two sounds delivered from the buzzer otherwise

there is no sound;
b) The contents memorized by the Auto-restart function are: operation modes, setting wind speed, setting temperature, negative ion function, swing status and on-off condition.
c) After the setting of non-electricity memory function succeeds, when the non-electricity event happens after turning off the air-conditioner normally, if re-electrify and turn on the air-conditioner, there is no 3 minutes protection delay occurred to the compressor; when the non-electricity event happens accidentally under the power-on status, if re-electrify and turn on the air-conditioner, there is 3 minutes protection delay occurred to the compressor;
d) If the setting of sleeping and timing functions occurs before the non-electricity event after air-conditioner owns the Auto-restart function, the default condition of the controller is power-off status after being electrified again.
②I feel function
a)The setting method for I feel function: Press the "I feel" function button on the remote controller, the controller will effect the I feel function once receiving the signal, and the controller herein will default the temperature value of the sensor on the remote control as the previous TA of the controller (Except the defrosting case);
b) The quitting method for the I feel function:
- Press the I feel function button, the former I feel function setting will be cancelled at once;
- Position the remote controller towards to the receiving window of the controller, the remote control may deliver the signal to the controller every 3minutes. If the controller fails to receive the signal from the remote control, the I feel function will be automatically cancelled, and the TA control the temperature according to the temperature value detected by the TA sensor of the PCB.

c) When the I feel function starts, the controller doesn't test the former TA sensor on the PCB.
③Negative ion function
When the indoor fan is working, press the negative ion function button on the remote control, and the negative ion relay in the controller turns on for starting the output of the negative ions; When the negative ion function is on, press the negative ion function button on the remote control, and the negative ion relay in the controller turns off for stopping the output of the negative ion;

(2)The basic function introduction of the split wall-mounted type electric-controller (18000BTU~24000BTU)

1. The basic conditions for the operation of the controller

(1)The applicable voltage range of the electrical power: The input voltage 175 V – 253V;
(2)The input AC current frequency: 50Hz;
(3)The operating temperature for electric control: (-10~+70) ℃;
(4)The operating moisture for electric control: RH20%~RH90%;
(5)The indoor fan: RP plastic-sealed motor, three-impulse feedback signal;
(6)The outdoor fan: tap iron-shell motor, only one speed and the normal working current shall be lower than 1.5A;
(7)The normal working current of the four-way valve: lower than 1A/220VAC;
(8)The Swing Motor: DC12V, Four phase eight step stepping motor;
(9)Compressor: Single-phase power supply, the normal working current shall less than 20A.

2. Partition of the controller's function

The function of the controller consists of the following parts:
(1)The remote control receiving function;

(2)Force operation function;
(3)The air vane's automatic swing function and the position setting function;
(4)The buzzer's driving function;
(5)The indoor fan's driving function;
(6)The timing on-off function;
(7)The compressor restarting protection function;
(8)The indoor heat-exchanger overheating protection function under heating mode;
(9)The automatic defrosting and reheating function under heating mode;
(10)The anti-cold air functions under heating mode;
(11)The anti-freezing function under cooling and defrosting modes;
(12)Self-detecting function

3. The Specification of the main function

(1)**he specialty terms and express:**

TA: stands for the indoor ambiance temperature;
TE: stands for the indoor evaporator's temperature;
TS: stands for the setting temperature;
TW: stands for the outdoor condenser's temperature;

(2)**Emergency switch**

①The air-conditioner turns off if press on this button when the air-conditioner is working; the air-conditioner turns on if press on this button when the air-conditioner is off, and it will work in an automatic mode after press on this button. Then the indication light twinkles for 20 seconds and the air-conditioner does not start working until the working mode to be selected by the system; the air-conditioner automatically selects one of the cooling, dehumidification, and heating mode as the working mode according to the indoor air temperature.

a) When TA≥27℃, the controller enters into the cooling mode and follows the mode in working. The setting temperature herein is 24℃ and the setting wind speed is strong wind;

b) When 20℃< TA < 27℃, the controller enters into the dehumidifying mode and follows the mode in working. The setting temperature is 24℃ and the setting wind speed is strong wind;

c) When TA≤20℃, the controller enters into the heating mode and follows the mode in working (The cooling only type runs with the ventilation mode). The setting temperature herein is 24℃ and the setting wind speed is strong wind;

d)This mode includes the functions of timing, sleeping, auto-restart (optional), negative ion (optional), I feel（optional）; The system mode will not change along with the variety of the indoor temperature after being selected. The default status of the horizontal air-blade is still. The operation can be adjustable by receiving the remote signal.

Press this force on-off button without release at least 5 seconds until the ring of the buzzer rings twice. The controller enters into the trial operation the trial operation time is 30min:

•The sensor of the air-inlet temperature doesn't function in the period of trial operation. The compressor starts work after the 3min delay protection (The primary electrifying has no 3min delay protection), the wind speed of the indoor fan is high wind, the running mode is cooling mode, and the wind door is maximum opening.

•There are no anti-freezing protection and high temperature-preventing protection during trial operation.

(3)**Automatic mode**

When controller selects an automatic working mode, the indication light twinkles for 20 seconds and the air-conditioner does not start working until the working mode to be selected by the system; The air-conditioner automatically selects one of the cooling, dehumidification, and heating mode as the working mode according to the indoor air temperature .

①When TA≥27℃, the controller enters into the cooling mode and follows the mode in working. The setting temperature herein is 24℃ and the air-conditioner runs according to the setting wind speed;

②When 20℃<TA<27℃, the controller enters into the dehumidification mode and follows the mode in working. The setting temperature is 24℃ and the air-conditioner runs according to the setting wind speed;

③When TA≤20℃, the controller enters into the heating mode and follows the mode in working (The cooling only type follow the ventilation mode). The setting temperature herein is 24℃ and the air-conditioner runs according to the setting wind speed;

④This mode includes the functions of timing, sleeping, auto-restart(optional), negative ion(optional),I feel（optional）;

⑤The system mode will not change along with the variety of the indoor temperature after being selected. The new working mode will be selected again after air-conditioner turns off or mode switch.

(4)**Cooling mode**

The setting temperature shall be fixed by the remote control. The temperature-controlling range is 16℃ - 32℃. The setting temperature can be adjusted through the button of "+" "-". The setting wind speed can be adjusted through the button of "wind speed selection" in the selection of the four wind speeds type, such as strong wind, high wind, low wind and mute wind. The four-way valve always is closed under this mode. The other action is as following:

①When TA - TS≥1℃，after the compressor meet the 3 minutes delay protection, the compressor and the outdoor fan start running;

②When TA = TS，maintain the previous status;

③When TA - TS≤-1℃，after the compressor meet the 3 minutes protection condition, the compressor and the outdoor fan turn off;

④The setting wind speed can be adjusted by the remote control during the ongoing cooling process, and the interior fan still retains working;

⑤When the status of TE ≤ 0℃ last for 10 seconds and the compressor keeps working for above than 5 minutes, turn off the compressor and outdoor fan, the indoor fan keep working according to the setting wind speed; Quit from such protection if TE≥ 7℃;

⑥This mode includes the functions of timing, sleeping, auto-restart (optional), negative ion (optional), I feel（optional）;

⑦When the cooling ongoing，the button of the "Swing" can control the swing and stop of the horizontal air-blade;

⑧Automatic wind-speed control：

TA - TS≥3℃，wind-speed works at high wind;

TS +1℃≤TA＜TS +3℃，wind-speed works at middle wind;

TA – TS＜1℃，wind-speed works at low wind;

Without 3 minutes delay when the wind speed turns into the high wind from the low wind,

otherwise with 3 minutes delay;
⑨Being initially electrified, the compressor doesn't have the 3 minutes delay protection, the outdoor fan starts after 2 seconds of the compressor's start; When TS＞TA set by the remote control, the compressor turns off immediately with no need of 3 minutes delay protection;
⑩When TE ≥ 64℃ and after last for 10seconds, the compressor and the outdoor fan turn off; If meet the 3 minutes delay condition and TE ≤ 62℃, the compressor can start normally. When the air-conditioner is under overheating protection, if the wind speed setting is by hand, the indoor fan unit will run at the setting wind speed; if the wind speed setting is automatic, the indoor fan unit runs at the low fan speed.

⑸Dehumidification mode
①The four-way valve always turns off when the dehumidification mode is ongoing. The control range of the temperature is: 16℃ - 32℃.
②Under the dehumidification mode, after the 3 minutes delay conditions being meet satisfactorily, the performance of the compressor and the outdoor fan is as following:
a)TA ≥ TS+2℃, the compressor and the outdoor fan works continuously, the wind speed retains the setting wind speed;
b) TS ≤ TA < TS+2℃, the compressor and the outdoor fan runs for 10minutes and stops for 6 minutes, The indoor fan turns off during the compressor's 3 minutes stopping period and keeps on working in breeze mode under other conditions;
c)TA < TS, the compressor and the outdoor fan stop working, and the indoor fan start to work in breeze mode after stopping for 3 minutes;
Automatic wind-speed control:
TA - TS≥5℃, the wind speed is at high wind;
TS +3℃≤TA＜TS +5℃, the wind speed is at middle wind;
TS +2℃≤TA＜TS +3℃, the wind speed is at low wind;
TS≤TA＜TS +2℃, the wind speed is at fitful breeze;
TA＜TS, the indoor fan is off during the 3 minutes delay of the compressor, and 3 minutes later, the wind is at breeze speed.
③The primary electrifying to compressor has no 3 minutes protection delay, the outdoor fan starts 2 seconds later after the start of the compressor;
④When the indoor fan runs, the air door can be set as free swing, and the swing condition is same as the one under cooling mode;
a)When TE ≤ -2℃ last for 10seconds and the compressor runs continuously for above 5minutes, if turn off the compressor and outdoor fan, the indoor fan runs at the setting wind speed; If TE ≥ 7℃, quit from the protection;
b) When TE ≥ 64℃ last for 10seconds, the compressor and outdoor fan unit turns off. If meet the 3 minutes delay condition and TE ≤ 62℃, the compressor can start normally. When the air-conditioner is under overheating protection, if the wind speed setting is by hand, the indoor fan unit will run at the setting wind speed; if the wind speed setting is automatic, the indoor fan unit runs at the low fan speed.
⑤This mode includes the functions of timing, sleeping, auto-restart (optional), negative ion (optional), I feel (optional）.

⑹Ventilation mode
Under ventilation mode, the outdoor unit is always off, the indoor fan runs at the setting wind

speed, the remote control can set high fan, middle fan and low fan except automatic fan; The performance condition of the air door is same as the one under refrigeration mode; This mode includes the timing function, auto-restart (optional), negative ion (optional), I feel（optional）

(7)Heating mode

The setting temperature can be decided and adjusted by the remote control within the control range of 16℃ - 32℃ through the button of temp. Add "+" and temp. Reduce "-". Press the button "wind speed option" to choose the wind speed among the options of automatic fan, high fan, middle fan and mute fan. The other conditions refer to the following:

(1)When TA-3-TS≤-1℃，if satisfying the 3 minutes protection delay condition for compressor, the compressor and outdoor fan start, and the indoor fan runs in accordance with the anti-cold wind condition.

(2)When TA-3-TS≥1℃，if satisfying the 3 minutes protection delay condition for compressor，the compressor and outdoor fan stop working, and the indoor fan runs in accordance with the anti-cold wind condition.

(3)When TA-3=TS，remain the previous status；

(4)Temperature display has the temperature compensation of 3℃

(5)Automatic wind speed control：

TA ＜ TS，run at high fan speed；

TS ≤ TA＜TS +2℃，run at middle fan speed；

TA ≥ TS + 2℃，run at low fan speed；

There is no 3 minutes protection delay when the wind speed turns to high fan from the low fan; there is 3 minutes protection delay when the wind speed turns to low fan from the high fan;

(6)When heating process ongoing, the button of "Swing" can control the swing leaves to swing or stop；

(7)Being electrified initially, the compressor has no 3 minutes protection delay. The compressor starts 10 seconds later after the start of the four-way valve, and the outdoor fan starts 2 seconds later after the start of the compressor; Set the TS ＜TA-3 by remote control，the compressor stops immediately and without the 3 minutes protection delay;

(8)This mode includes the timing function, sleeping function, auto-restart (optional), negative ion (optional), I feel（optional）.

(9)Being electrified initially, the four-way valve starts immediately ,and the compressor starts 10 seconds later; During the operation condition of the compressor, the four-way valve stops after 2min50s protection delay when stops the air-conditioner or switch mode;

In the case of compressor stops, the four-way valve stops immediately once stopping the air-conditioner；

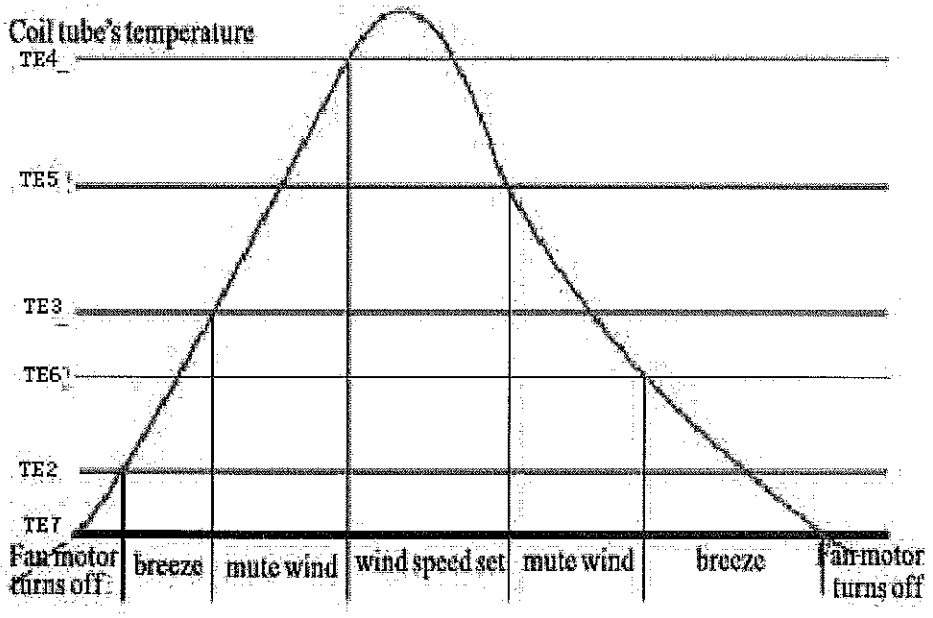
(10)Anti-cooling wind and residual-heat Removing function:

The wind speed of the indoor fan is controlled by TE, and the specific conditions are as below:

Anti-cold wind when compressor runs：

①When TE is in rise status, if Te<30℃,the indoor fan turns off;30℃≤TE＜38℃,the indoor fan runs at low fan speed;Te≥38℃, the indoor fan runs at setting wind speed;

②When Te in fall status, if TE>34℃,the indoor fan runs at the setting fan speed;28℃＜TE≤34℃,the indoor fan runs at the low fan speed;TE≤28℃，the indoor fan turns off.

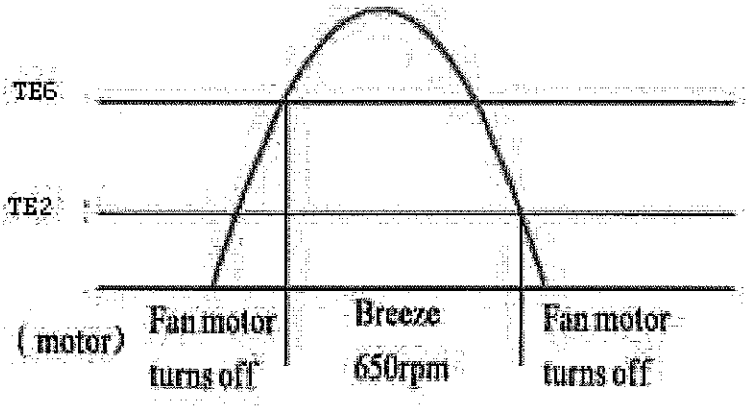


（Picture 1）

Anti-cold wind function when compressor stops：

① When TE is in the fall status, if TE>30℃,the indoor fan runs at low fan speed;TE30≤℃,indoor fan turns off;

② When TE is in the rise status, if TE35≥℃, the indoor fan runs at low fan speed; TE35<℃, indoor fan turns off;



（Picture 2）

Residual-heat removing function after air-conditioner stops：

When TE＞35℃， the indoor fan runs at the low fan speed, if≤35℃,the indoor fan turns off, and air-conditioner stops for starting the process of residual heat removal and last for ≤10seconds, within the 10second of process of residual heat removal, if TE< 35℃, the indoor fan turns off at once.

⑾Anti-high temperature protection：

①when run on Heating mode， if TE≥57℃ and continuously last 10 seconds, the outdoor fan stops; if TE≥64℃ and last for 10s， the compressor stops again； When TE< 52℃ and satisfying 3minutes protection delay condition, the compressor resume normal work.。

②Such temperature protection is valid only if the TE sensor works normally.

⑿The defrosting function under heating mode

①When the outdoor sensor in good condition, the defrosting process starts, and the sleeping

light is twinkling:

a)TW≤-6℃ and continuously last for 2minutes;

b)The accumulated operation time of the compressor is over than 50 minutes, the interval time between defrosting process is 50 minutes(the accumulated time shall be recalculated if power off or remote control off), the continuous working time of the compressor is over 5 minutes.

Once the defrosting process starts, the compressor, the indoor fan and outdoor fan turn off, and the four-way valve turns off after 30 seconds, and after another 15 seconds the compressor turns on and starts the defrosting process.

②The defrosting process ending condition:（The defrosting process will quit if one of the below conditions to be satisfied）

a) Outdoor coil≥12℃;

b) Defrosting process last for 12minutes;

c) The defrosting process quits once change modes or air-conditioner turns off by remote control.

After the defrosting process, the compressor turns off and the outdoor fan turns on; After 55 seconds, the four-way valve turns on; after another 5 seconds, the compressor turns on; the air-conditioner resume the normal heating process, the indoor fan runs in the mode of anti-cold wind.

(8) **Auxiliary electric heating function**

①When heating mode working normally, e.g. the compressor starts and the outdoor fan runs and the four-way valve is electrified and the indoor fan starts, the electric heating starts if satisfying the below conditions:

A、TE < 48℃;

B、TA < 22℃;

C、TS – TA ≥ 3℃;

D、The compressor runs continuously for 4 minutes with the heating mode;

②The auxiliary electric heating quit operation if satisfying one of the below conditions:

A、TA > 22℃;

B、TS – TA < 2℃;

C、TE > 52℃;

③If anyone of the compressor, four-way valve and indoor fan doesn't work or fault feedback from the indoor fan, the auxiliary electric heating quit operation;

④The auxiliary electric heating may be allowed to restart after 1 minutes rest if the auxiliary electric heating quit during the operation process of the compressor.

(9) **Sleeping control function**

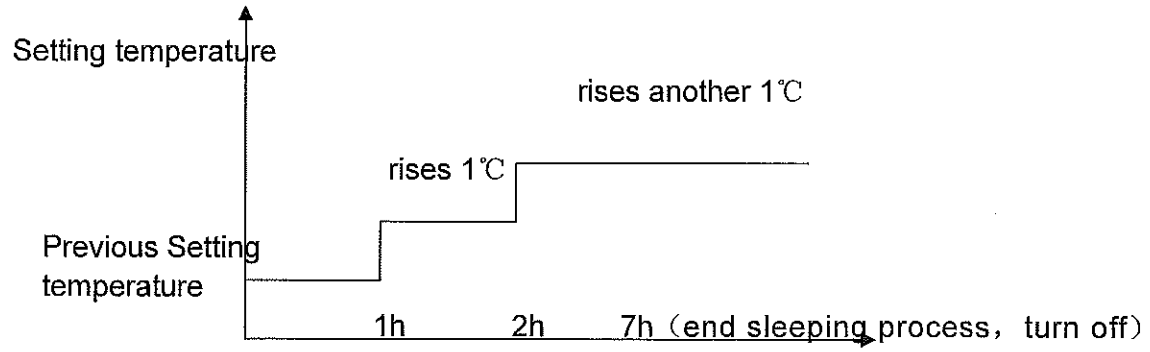
The sleeping function is valid during the automatic, cooling, dehumidifying and heating process. The indoor fan runs at low fan speed during sleeping mode, and the sleeping indication light on;

After turning into the sleeping process by pressing down the button of "sleeping" on the remote controller, to the Cooling process, the setting temperature rises by 1℃ automatically one hour later; to the Heating process, the setting temperature falls by 2℃ automatically one hour later. After another 1 hour, the setting temperature of the Cooling process raises another 1℃, and the one of the Heating process falls another 2℃. The sleeping process lasts 7 hours until air-conditioner turns off.

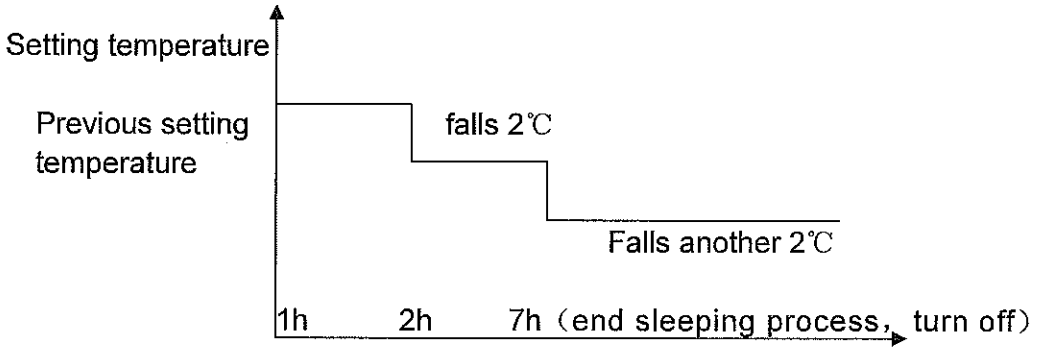
During the sleeping process, the mode switching operation is allowed and workable, but it will

delete the sleeping function. The air-conditioner will run at the temperature of "new setting temperature + temperature correction" if press the button of add temp."+".Under the sleeping status, if press down the button of "sleeping" or change modes or on-off, the sleeping process will be deleted and ended.

The sleeping process under cooling mode:



The sleeping process under heating mode:



⑩Timing control function

The time range of the Timing control set is 24 hours, and the time unit is minute, single timing mode. The conversion of the modes doesn't cancel the timing function, and the timing indication light turns on after timing setting.

①Timing turns off

The timing turns off function can be set only under the running status of the air-conditioner. The timing range is 1min.-24hour. The air-conditioner stops automatically once the setting timing reached.

②Timing turns on

The timing turns on function can be set only under the running status of the air-conditioner. The timing range is 1min.-24hour. The air-conditioner turns on automatically once the setting timing reached. The turning on and turning off action happen after setting timing set will

cancel the previous set setting timing and sleeping functions

(11) Self-detecting function

Press the Emergency button and electrify the air-conditioner, the self-detecting process starts after the buzzer delivers short tone twice:

Start the electric heating, run the indoor fan at a high fan speed, open the air door to be the maximum →the digital display and three indicating light on in 1 second→ digital displays "11"、"22"、"33"、"44" in turn and 1second for each of them →Working light on 1 second →Timing light on 1 second →Sleeping light on 1 second →Each phase of the stepping motor moves in 1 second →the indoor fan runs for 1 second at low fan speed and middle fan speed separately→the compressor moves for 1 second →The four-way valve moves for 1 second →Outdoor fan moves for 1 second →Negative ion generator moves for 1 second →buzzer deliver one short tone→Electric heating runs 30 Seconds and stops, then the air conditioner turn into the waiting status, the self-testing is ended.

(12)Fault indication

When there is faults happen to the air-conditioner, the timing lights on the display panel will indicate the corresponding fault codes, which are specifically reflected as the following:

For LED display:

FAULT	DISPLAY MODE	DISPLAY PRIORITY	APPEARANCE
TA abnormity	Timer lamp flash **1** times/8 seconds	2	AC stopped
TE abnormity	Timer lamp flash **2** times/8 seconds	3	AC stopped
TW abnormity	Timer lamp flash **8** times/8 seconds	4	AC hasn't stopped

For Digital display:

FAULT	DISPLAY MODE	DISPLAY PRIORITY	APPEARANCE
TA abnormity	display"E1"	2	AC stopped
TE abnormity	display "E3"	3	AC stopped
TW abnormity	display "E2"	4	AC hasn't stopped

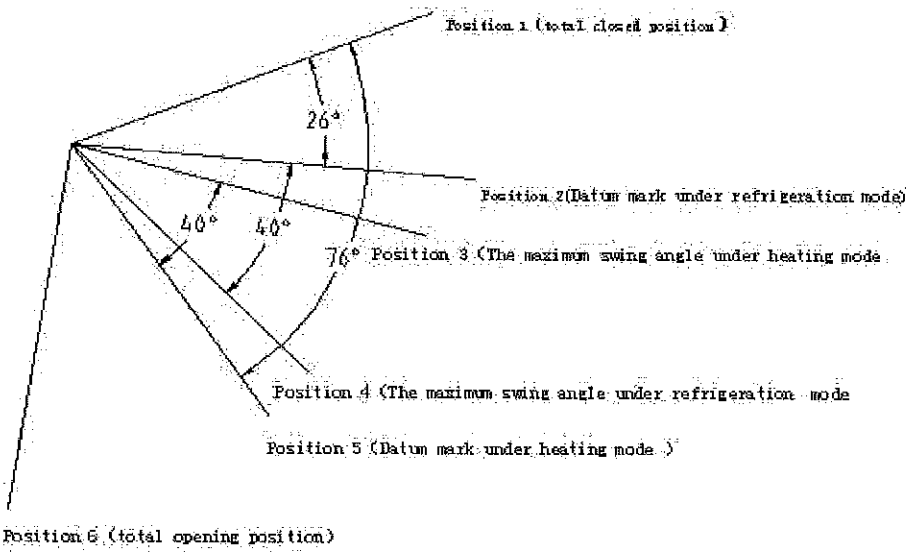
(13)The definition of the swing angle

(Picture 3)It shows the swing angles of the types 18000BTU and 24000BTU stepping motor, the air door's swing angle of 18000BTU,24000BTU and 7000BTU,12000BTU are same, but the swing directions of the motors are not same.

①Once being electrified, the air door effect a motion of totally closed, and the swinging speed is 1 step/4ms;

②After the air-conditioner turns on, the air door effect a motion of total opening, and swing to

the corresponding primary position. The primary position for Heating mode is the position 5(Picture 3), for Cooling mode is the position 2 (Picture 3).
③The "Swing" button on the remote controller can set the Horizontal air-blade to be swing Automatically or not;
④The maximum swing angle of automatic swing under Heating mode is 40°, e.g. the angle between 3-5 in picture 3; the angle under Cooling mode is 40°e.g. the angle between 2-4; The swinging speed is 1step/16ms;
⑤When the indoor fan stops operation, if the setting swinging mode set by the remote control is automatic swinging, the Horizontal air-blade will turn to the corresponding position and to be orientated. For example: the corresponding position under Cooling mode is position 2(Picture 3), for Heating mode is position 5(Picture 3), resume the automatic Swing once the fan motor starts; if the setting swing mode is Manual, the swing angle of the Horizontal air-blade will never change;
⑥After turning off the air-conditioner and stopping the running of the indoor fan, the air door will shut off automatically;
⑦Enter into the Auto-run mode by pressing the Emergency switch, the setting status of the air door is in accordance with the Cooling mode, and will be adjusted again after the new mode is selected.



(Picture3)

⑭ Wind speed option function

18000BTU-24000BTU are RP plastic-sealed motor, the rotate speed can not be controlled by the PCB.

⑮Optional functions

The below functions' programs are already write into the Main chip of the PCB, and can be performed if only the corresponding hardware is available. For example: the E^2 CMOS chip is in need for the Auto-restart function, the corresponding remote control is in need for the I feel function, and the relay is in need for the Negative ion function.
①Auto-restart control function

a)The setting method for Auto-restart function: After the controller being electrified, press the sleeping button on the remote control for 10 times within 5seconds towards to the controller, later, if the Auto-restart function is successfully set, there are four sounds delivered from the buzzer; If the Auto-restart function need to be cancelled, press the sleeping button of the remote control for 10 times within 5seconds towards to the controller, later, if the Auto-restart function is successfully cancelled, there are two sounds delivered from the buzzer otherwise there is no sound;

b) The contents memorized by the Auto-restart function are: operation modes, setting wind speed, setting temperature, negative ion function, swing status and on-off condition.

c) After the setting of non-electricity memory function succeeds, when the non-electricity event happens after turning off the air-conditioner normally, if re-electrify and turn on the air-conditioner, there is no 3 minutes protection delay occurred to the compressor; when the non-electricity event happens accidentally under the power-on status, if re-electrify and turn on the air-conditioner, there is 3 minutes protection delay occurred to the compressor;

d) If the setting of sleeping and timing functions occurs before the non-electricity event after air-conditioner owns the Auto-restart function, the default condition of the controller is power-off status after being electrified again.

②I feel function

a)The setting method for I feel function: Press the "I feel" function button on the remote controller, the controller will effect the I feel function once receiving the signal, and the controller herein will default the temperature value of the sensor on the remote control as the previous TA of the controller（Except the defrosting case）;

b) The quitting method for the I feel function:

- Press the I feel function button, the former I feel function setting will be cancelled at once;
- Position the remote controller towards to the receiving window of the controller, the remote control may deliver the signal to the controller every 3minutes. If the controller fails to receive the signal from the remote control, the I feel function will be automatically cancelled, and the TA control the temperature according to the temperature value detected by the TA sensor of the PCB.

c) When the I feel function starts, the controller doesn't test the former TA sensor on the PCB.

③Negative ion function

When the indoor fan is working, press the negative ion function button on the remote control, and the negative ion relay in the controller turns on for starting the output of the negative ions; When the negative ion function is on, press the negative ion function button on the remote control, and the negative ion relay in the controller turns off for stopping the output of the negative ion;