



# Haier

北京2008年奥运会赞助商  
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## CAUTION

**READ THIS MANUAL CAREFULLY TO  
DIAGNOSE TROUBLE CORRECTLY  
BEFORE OFFERING SERVICE .**

# SERVICE MANUAL

## Air Conditioners

**MODEL:** HSU-09H03/H(DBP)  
HSU-12H03/H(DBP)

**THIS MANUAL IS USED BY  
QUALIFIED APPLIANCE  
TECHNICIANS ONLY. HAIER  
DOES NOT ASSUME ANY  
RESPONSIBILITY FOR PROPERTY  
DAMAGE OR PERSONAL INJURY  
FOR IMPROPER SERVICE  
PROCEDURES DONE BY ONE  
UNQUALIFIED PERSON.**

REVISION 0

## IMPORTANT INFORMATION

**MODEL:** HSU-09H03/H(DBP)



### ● Features

- Comfortable: wide-angle airflow
- health air purifying
- quiet operation
- super energy efficient

### ● Main Specification

- Cooling Capacity : 2800W
- Rated Power/Current(cooling) : 860W/4.0A
- EER: 3.26
- Heating Capacity : 4000W
- Rated Power/Current(heating): 1240W/5.8A
- COP: 3.23
- Air Volume(Indoor): 500m<sup>3</sup>/h
- Power: 1PH- 220V- 50 Hz

## IMPORTANT INFORMATION

**MODEL:** HSU-12H03/H(DBP)



### ● Features

- Comfortable: wide-angle airflow
- health air purifying
- quiet operation
- super energy efficient

### ● Main Specification

- Cooling Capacity : 3500W
- Rated Power/Current(cooling) : 1080W/5.2A
- EER: 3.24
- Heating Capacity : 4800W
- Rated Power/Current(heating): 1460W/7.0A
- COP: 3.29
- Air Volume(Indoor): 500m<sup>3</sup>/h
- Power: 1PH- 220V- 50 Hz

## Safety Information

### General Information

This Service Manual describes the operation,disassembly,troubleshooting,and repair of Haier Room Air Conditioners,etc. It is intended for use by authorized servicers who troubleshoot and repair these units.

**NOTE:**It is assumed that users of this manual are familiar with the use of tools and equipment used to troubleshoot and repair electrical,mechanical,and refrigeration systems;and understand the terminology used to describe and discuss them.

Haier urges you read and follow all safety precautions and warnings contained in this manual. Failure to comply with safety information may result in severe personal injury or death.

### Related Publications

This is a base service manual,covering a range of similar models.It is intended to be used in conjunction with the Parts Manual and Technical Sheet covering specific model being serviced.

### General Precautions and Warnings



#### **WARNING**

To avoid risk of personal injury or death due to electrical shock,disconnect electrical power to unit before attempting to service the unit.



#### **WARNING**

To avoid risk of personal injury or death due to electrical shock,**DO NOT**,under any circumstances,alter the grounding plug .Air conditioner must be grounded at all times.Do not remove warning tag from power cord.If a two-prong (non-grounding) wall receptacle is encountered,contact a qualified electrician and have the receptacle replaced with a properly grounder wall receptacle in accordance with the National Electrical Code.



#### **WARNING**

To avoid risk of personal injury or death due to electrical shock,grounding wires and wires colored like grounding wires are **NOT** to be used as current carrying conductors.The standard accepted color coding for ground wires is **green** or **green with a yellow stripe**.Electrical components such as the compressor and fan motor are grounded through an individual wire attached to the electrical component and to another part of the air conditioner.Grounding wires should not to be removed from individual components while servicing,unless the component is to be removed and replaced.It is extremely important to replace all removed grounding wires before completing service.



#### **WARNING**

To avoid risk of heat exposure,which may cause death or severe illness,air conditioner must be monitored when malfunctions or shuts down.

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## SPECIFICATION

|                                     |  |                      |                                     |             |                                    |                          |                                       |                                 |                              |                |  |
|-------------------------------------|--|----------------------|-------------------------------------|-------------|------------------------------------|--------------------------|---------------------------------------|---------------------------------|------------------------------|----------------|--|
| Model:                              |  | HSU-09H03/H(DBP)     |                                     | Brand Mark: |                                    | -----                    |                                       |                                 |                              |                |  |
| Cooling                             |  | Cooling Capacity:    | 2800(700-3800)W                     |             | Frequency Range:                   |                          | 50Hz                                  |                                 |                              |                |  |
|                                     |  | Rated Power/Current: | 860(180-1250)W/4.0A                 |             | Power                              |                          | 1PH 220V~ 50 Hz                       |                                 |                              |                |  |
|                                     |  | Max Power/Current:   | 1250W/6.3A                          |             | Power Cord                         |                          | Model×Sectional Area:                 |                                 | -----                        |                |  |
|                                     |  | EER                  | 3.26                                |             |                                    |                          | Refer. No.:                           |                                 | -----                        |                |  |
| Heating                             |  | Heating Capacity:    | 4000(600-5000)W                     |             | Compressor manufacturer/Type       |                          | RITACHI/FG720C                        |                                 |                              |                |  |
|                                     |  | Rated Power/Current: | 1240(180-1500)W/5.8A                |             |                                    |                          |                                       |                                 |                              |                |  |
|                                     |  | Max Power/Current:   | 1500W/7.5A                          |             | Compressor Oil charge              |                          | 380ml(poe)                            |                                 |                              |                |  |
|                                     |  | COP                  | 3.23                                |             |                                    |                          |                                       |                                 |                              |                |  |
| Power/Current of Electric Heating:  |  |                      | -----                               |             | Refrigerant                        |                          | Type/Net Charge:                      |                                 | R22 800g                     |                |  |
| Operating temp. range               |  |                      | -7℃-43℃                             |             |                                    |                          | Additional Charge for exhausting air. |                                 | 50 g                         |                |  |
| Indoor Velocity                     |  | H:                   | 1150(C)/1200(H) r/min               |             |                                    |                          | Charge if over Standrad Pipe Lenth    |                                 | 50g/m                        |                |  |
|                                     |  | M:                   | 1050(C)/1075(H) r/min               |             | Capillary                          |                          | Lenth×Internal/External Diametre      |                                 | 2.7*0.65*530<br>2.7*0.55*400 |                |  |
|                                     |  | L:                   | 950 r/min                           |             |                                    |                          | Refer No.:                            |                                 | -----                        |                |  |
| Outdoor Velocity                    |  | H:                   | 800 r/min                           |             | Height of rising radiator slice    |                          | Indoor:                               |                                 | 1.30 mm                      |                |  |
|                                     |  | H:                   | ---- r/min                          |             |                                    |                          | Outdoor:                              |                                 | 1.32 mm                      |                |  |
|                                     |  | H:                   | 650 r/min                           |             | Indoor Weight                      |                          | Net:                                  |                                 | 8.5kg                        |                |  |
|                                     |  |                      |                                     | Gross:      |                                    |                          | 10.6kg                                |                                 |                              |                |  |
| Air Volume (High)                   |  | Indoor:              |                                     | 500 m³/h    |                                    | Outdoor Weight           |                                       | Net:                            |                              | 34kg           |  |
|                                     |  |                      |                                     |             |                                    |                          |                                       | Gross:                          |                              | 38kg           |  |
|                                     |  | Outdoor:             |                                     | ----- m³/h  |                                    | Indoor Dimension(L×W×H): |                                       |                                 |                              | 760×182×265 mm |  |
| Capacitor of Fan Motor:             |  |                      | -----                               |             | Indoor Packaging Dimension(L×W×H)  |                          |                                       |                                 | 863x275x330 mm               |                |  |
| Class of electric Shock Protection  |  |                      | I                                   |             | Outdoor Dimension (L×W×H):         |                          |                                       |                                 | 780×245×540 mm               |                |  |
| Class of Water Proof:               |  |                      | IP 24                               |             | Outdoor Packaging dimension(L×W×H) |                          |                                       |                                 | 915×325×599 mm               |                |  |
| Moisture Removal:                   |  |                      | 1.5×10 <sup>-3</sup> m³/h           |             | Refrigerant Pipe                   |                          | liquid /Gas pipe Diametre             |                                 | φ6.35/9.52 mm                |                |  |
| Remote Controller                   |  | Model:               | YR-H47                              |             |                                    |                          | standard Lenth                        |                                 | 5m                           |                |  |
|                                     |  | Refer. No.:          | ----                                |             |                                    |                          | Max Lenth                             |                                 | 15 m                         |                |  |
| Remote Controller Bracket:          |  |                      | -----                               |             | Lenth/Diametre of Drain Hose       |                          |                                       | ----                            |                              |                |  |
| Appearance:                         |  |                      | -----                               |             | Max. pressure at warm side:        |                          |                                       | 2.65MPa                         |                              |                |  |
| Climate Type:                       |  |                      | T1                                  |             | Max.pressure at cool side:         |                          |                                       | 2.65MPa                         |                              |                |  |
| Installation Bracket Type:          |  |                      | -----                               |             | Plug Type(spec.):                  |                          |                                       | ---                             |                              |                |  |
| Area available for clooling/heating |  |                      | 12-18 m²                            |             | Ammeter spec.:                     |                          |                                       | ---                             |                              |                |  |
| Max.running temperature(cooling):   |  |                      | Dry/Wet ball(indoor): 32 / 23 °C    |             | Max.running temperature(heating):  |                          |                                       | Dry/Wet ball(indoor) 16℃        |                              |                |  |
|                                     |  |                      | Dry/Wet ball(outdoor): 43 °C/ 26 °C |             |                                    |                          |                                       | Dry/Wet ball(outdoor):-1℃ / -2℃ |                              |                |  |

|                                     |             |                                   |                       |                                    |                                 |                                       |                                  |                               |                              |                |  |
|-------------------------------------|-------------|-----------------------------------|-----------------------|------------------------------------|---------------------------------|---------------------------------------|----------------------------------|-------------------------------|------------------------------|----------------|--|
| Model:                              |             | HSU-12H03/H(DBP)                  |                       | Brand Mark:                        |                                 | -----                                 |                                  |                               |                              |                |  |
| Cooling                             |             | Cooling Capacity:                 | 3500(800-4500)W       |                                    | Frequency Range:                |                                       | 50Hz                             |                               |                              |                |  |
|                                     |             | Rated Power/Current:              | 1080(210-1500)W/5.2A  |                                    | Power                           |                                       | 1PH 220V~ 50 Hz                  |                               |                              |                |  |
|                                     |             | Max Power/Current:                | 1500W/78A             |                                    | Power Cord                      |                                       | Model×Sectional Area:            |                               | -----                        |                |  |
|                                     |             | EER                               | 3.24                  |                                    |                                 |                                       | Refer. No.:                      |                               | -----                        |                |  |
| Heating                             |             | Heating Capacity:                 | 4800(650-6300)W       |                                    | Compressor manufacturer/Type    |                                       | RITACHI/FGZ20TB2-N1              |                               |                              |                |  |
|                                     |             | Rated Power/Current:              | 1460(250-1800)W/7.0A  |                                    |                                 |                                       |                                  |                               |                              |                |  |
|                                     |             | Max Power/Current:                | 1800W/9.3A            |                                    | Compressor Oil charge           |                                       | 380ml(poe)                       |                               |                              |                |  |
|                                     |             | COP                               | 3.29                  |                                    |                                 |                                       |                                  |                               |                              |                |  |
| Power/Current of Electric Heating:  |             | -----                             |                       | Refrigerant                        |                                 | Type/Net Charge:                      |                                  | R22 1100g                     |                              |                |  |
| Operating temp. range               |             | -7℃-43℃                           |                       |                                    |                                 | Additional Charge for exhausting air. |                                  | 50 g                          |                              |                |  |
| Indoor Velocity                     |             | H:                                | 1250(C)/1300(H) r/min |                                    |                                 | Charge if over Standrad Pipe Lenth    |                                  | 50g/m                         |                              |                |  |
|                                     |             | M:                                | 1100(C)/1125(H) r/min |                                    | Capillary                       |                                       | Lenth×Internal/External Diametre |                               | 2.7*0.65*700<br>2.7*0.55*300 |                |  |
|                                     |             | L:                                | 950 r/min             |                                    |                                 |                                       | Refer No.:                       |                               | -----                        |                |  |
| Outdoor Velocity                    |             | H:                                | 800 r/min             |                                    | Height of rising radiator slice |                                       | Indoor:                          |                               | 1.30 mm                      |                |  |
|                                     |             | H:                                | ---- r/min            |                                    |                                 |                                       | Outdoor:                         |                               | 1.32 mm                      |                |  |
|                                     |             | H:                                | 650 r/min             |                                    | Indoor Weight                   |                                       | Net:                             |                               | 8.5kg                        |                |  |
|                                     |             |                                   |                       | Gross:                             |                                 |                                       | 10.6kg                           |                               |                              |                |  |
| Air Volume (High)                   |             | Indoor:                           |                       | 500 m³/h                           |                                 | Outdoor Weight                        |                                  | Net:                          |                              | 38kg           |  |
|                                     |             |                                   |                       |                                    |                                 |                                       |                                  | Gross:                        |                              | 42kg           |  |
|                                     |             | Outdoor:                          |                       | ----- m³/h                         |                                 | Indoor Dimension(L×W×H):              |                                  |                               |                              | 760×182×285 mm |  |
| Capacitor of Fan Motor:             |             | -----                             |                       | Indoor Packaging Dimension(L×W×H)  |                                 |                                       |                                  | 842x292x322 mm                |                              |                |  |
| Class of electric Shock Protection  |             | I                                 |                       | Outdoor Dimension (L×W×H):         |                                 |                                       |                                  | 780×245×540 mm                |                              |                |  |
| Class of Water Proof:               |             | IP 24                             |                       | Outdoor Packaging dimension(L×W×H) |                                 |                                       |                                  | 908×342×619 mm                |                              |                |  |
| Moisture Removal:                   |             | 1.5×10 <sup>-3</sup> m³/h         |                       | Refrigerant Pipe                   |                                 | liquid /Gas pipe Diametre             |                                  | φ6.35/12.7 mm                 |                              |                |  |
| Remote Controller                   | Model:      | YR-H47                            |                       |                                    |                                 | standard Lenth                        |                                  | 5m                            |                              |                |  |
|                                     | Refer. No.: | ----                              |                       |                                    |                                 | Max Lenth                             |                                  | 15 m                          |                              |                |  |
| Remote Controller Bracket:          |             | -----                             |                       | Lenth/Diametre of Drain Hose       |                                 |                                       |                                  | ----                          |                              |                |  |
| Appearance:                         |             | -----                             |                       | Max. pressure at warm side:        |                                 |                                       |                                  | 2.65MPa                       |                              |                |  |
| Climate Type:                       |             | T1                                |                       | Max.pressure at cool side:         |                                 |                                       |                                  | 2.65MPa                       |                              |                |  |
| Installation Bracket Type:          |             | -----                             |                       | Plug Type(spec.):                  |                                 |                                       |                                  | ---                           |                              |                |  |
| Area available for clooling/heating |             | 15-24 m²                          |                       | Ammeter spec.:                     |                                 |                                       |                                  | ---                           |                              |                |  |
| Max.running temperature(cooling):   |             | Dry/Wet ball(indoor): 32 / 23 ℃   |                       | Max.running temperature(heating):  |                                 |                                       |                                  | Dry/Wet ball(indoor) 16℃      |                              |                |  |
|                                     |             | Dry/Wet ball(outdoor): 43 ℃/ 26 ℃ |                       |                                    |                                 |                                       |                                  | Dry/Wet ball(outdoor):-1℃/-2℃ |                              |                |  |

## ACCESSORIES

## HSU-09H03/H(DBP)

| Number | Name              | Refer No.   | Description                                                                                                                                                                                                                                                                                                    | Quality | Failure Rate(%) | Remark |
|--------|-------------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-----------------|--------|
| 1      | remote controller | 0010403015A | None                                                                                                                                                                                                                                                                                                           | 1       | 0.2             | *      |
| 2      | battery           | 001A4600001 | None                                                                                                                                                                                                                                                                                                           | 2       | 0.1             |        |
| 3      | mounting plate    | 0010101274  | Fix mounting plate according to installation position and pipe direction                                                                                                                                                                                                                                       |         | 0               |        |
| 4      | drain pipe        | 001A0900011 | Choose the place that can drain water and connect pipe easily                                                                                                                                                                                                                                                  | 1       | 0.1             |        |
| 5      | connecting pipe   | ----        | The maximal length of the connecting pipe is 15m,the maximal height between indoor unit and outdoor unit is 5m                                                                                                                                                                                                 | 1       | 0.2             | *      |
| 6      | connecting wire   | ----        | The connecting methods include ring terminal and direct terminal .Ring terminal connecting method:Unscrew the screws ,and put it through the ring of connecting line ends,then connect it into the terminal block. Direct terminal connecting method:unscrew the screws,then fully insert the cable ends into. | 1       | 0.2             | *      |
| 7      | manual            | 001A7265614 | Operation                                                                                                                                                                                                                                                                                                      | 1       | 0               |        |

## HSU-12H03/H(DBP)

| Number | Name              | Refer No.   | Description                                                                                                                                                                                                                                                                                                    | Quality | Failure Rate(%) | Remark |
|--------|-------------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-----------------|--------|
| 1      | remote controller | 0010403015A | None                                                                                                                                                                                                                                                                                                           | 1       | 0.2             | *      |
| 2      | battery           | 001A4600001 | None                                                                                                                                                                                                                                                                                                           | 2       | 0.1             |        |
| 3      | mounting plate    | 0010101274  | Fix mounting plate according to installation position and pipe direction                                                                                                                                                                                                                                       |         | 0               |        |
| 4      | drain pipe        | 001A0900011 | Choose the place that can drain water and connect pipe easily                                                                                                                                                                                                                                                  | 1       | 0.1             |        |
| 5      | connecting pipe   | ----        | The maximal length of the connecting pipe is 15m,the maximal height between indoor unit and outdoor unit is 5m                                                                                                                                                                                                 | 1       | 0.2             | *      |
| 6      | connecting wire   | ----        | The connecting methods include ring terminal and direct terminal .Ring terminal connecting method:Unscrew the screws ,and put it through the ring of connecting line ends,then connect it into the terminal block. Direct terminal connecting method:unscrew the screws,then fully insert the cable ends into. | 1       | 0.2             | *      |
| 7      | manual            | 001A7265614 | Operation                                                                                                                                                                                                                                                                                                      | 1       | 0               |        |

## OPERRATION

# Cautions

## Disposal of the old air conditioner

Before disposing an old air conditioner that goes out of use, please make sure it's inoperative and safe. Unplug the air conditioner in order to avoid the risk of child entrapment.

It must be noticed that air conditioner system contains refrigerants, which require specialized waste disposal. The valuable materials contained in an air conditioner can be recycled. Contact your local waste disposal center for proper disposal of an old air conditioner and contact your local authority or your dealer if you have any question. Please ensure that the pipework of your air conditioner does not get damaged prior to being picked up by the relevant waste disposal center, and contribute to environmental awareness by insisting on an appropriate, anti-pollution method of disposal.

## Disposal of the packaging of your new air conditioner

All the packaging materials employed in the package of your new air conditioner may be disposed without any danger to the environment.

The cardboard box may be broken or cut into smaller pieces and given to a waste paper disposal service. The wrapping bag made of polyethylene and the polyethylene foam pads contain no fluorochloric hydrocarbon.

All these valuable materials may be taken to a waste collecting center and used again after adequate recycling.

Consult your local authorities for the name and address of the waste materials collecting centers and waste paper disposal services nearest to your house.

## Safety Instructions and Warnings

Before starting the air conditioner, read the information given in the User's Guide carefully. The User's Guide contains very important observations relating to the assembly, operation and maintenance of the air conditioner.

The manufacturer does not accept responsibility for any damages that may arise due to non-observation of the following instruction.

- Damaged air conditioners are not to be put into operation. In case of doubt, consult your supplier.
- Use of the air conditioner is to be carried out in strict compliance with the relative instructions set forth in the User's Guide.
- Installation shall be done by professional people, don't install unit by yourself.
- For the purpose of the safety, the air conditioner must be properly grounded in accordance with specifications.
- Always remember to unplug the air conditioner before opening inlet grill. Never unplug your air conditioner by pulling on the power cord. Always grip plug firmly and pull straight out from the outlet.
- All electrical repairs must be carried out by qualified electricians. Inadequate repairs may result in a major source of danger for the user of the air conditioner.
- Do not damage any parts of the air conditioner that carry refrigerant by piercing or perforating the air conditioner's tubes with sharp or pointed items, crushing or twisting any tubes, or scraping the coatings off the surfaces. If the refrigerant spurts out and gets into eyes, it may result in serious eye injuries.

## Cautions

- Do not obstruct or cover the ventilation grille of the air conditioner. Do not put fingers or any other things into the inlet/outlet and swing louver.
  - Do not allow children to play with the air conditioner. In no case should children be allowed to sit on the outdoor unit.
7. The appliance is not intended for use by young children or infirm persons without supervision.
  8. Young children should be supervised to ensure that they do not play with the appliance.

### Specifications

- The refrigerating circuit is leak-proof.

The machine is adaptive in following situation

1. Applicable ambient temperature range:

|         |         |                                                        |
|---------|---------|--------------------------------------------------------|
| Cooling | Indoor  | Maximum:D.B/W.B 32°C/23°C<br>Minimum:D.B/W.B 18°C/14°C |
|         | Outdoor | Maximum:D.B/W.B 43°C/26°C<br>Maximum:D.B 18°C          |
| Heating | Indoor  | Maximum:D.B 27°C<br>Maximum:D.B 15°C                   |
|         | Outdoor | Maximum:D.B/W.B 24°C/18°C<br>Minimum:D.B/W.B -15°C     |

2. If the power supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similar qualified person.
3. If the fuse of indoor unit on PC board is broken, please change it with the type of T. 3.15A/ 250V. **If the fuse of outdoor unit is broken, change it with the type of T.25A/250V**
4. The wiring method should be in line with the local wiring standard.
5. After installation, the power plug should be easily reached.
6. The waste battery should be disposed properly.

9. Please employ the proper power plug, which fit into the power supply cord.
10. The power plug and connecting cable must have acquired the local attestation.

**11. In order to protect the units, please turn off the A/C first, and at least 30 seconds later, cutting off the power.**

## HSU-09H03/H(DBP)

| Number | Name              | Refer No.   | Description                                                                                                                                                                                                                                                                                                       | Quality | Failure Rate(%) | Remark |
|--------|-------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-----------------|--------|
| 1      | remote controller | 0010404051  | None                                                                                                                                                                                                                                                                                                              | 1       | 0.2             | *      |
| 2      | battery           | 001A4600001 | None                                                                                                                                                                                                                                                                                                              | 2       | 0.1             |        |
| 3      | mounting plate    | 0010101274  | Fix mounting plate according to installation position and pipe direction                                                                                                                                                                                                                                          |         | 0               |        |
| 4      | drain pipe        | 001A0900011 | Choose the place that can drain water and connect pipe easily                                                                                                                                                                                                                                                     | 1       | 0.1             |        |
| 5      | connecting pipe   | ----        | The maximal length of the connecting pipe is 15m,the maximal height between indoor unit and outdoor unit is 5m                                                                                                                                                                                                    | 1       | 0.2             | *      |
| 6      | connecting wire   | ----        | The connecting methods include ring terminal and direct terminal .Ring terminal connecting method:Unscrew the screws ,and put it through the ring of connecting line ends,then connect it into the terminal block.<br>Direct terminal connecting method:unscrew the screws,then fully insert the cable ends into. | 1       | 0.2             | *      |
| 7      | manual            | 001A7265614 | Operation                                                                                                                                                                                                                                                                                                         | 1       | 0               |        |

## HSU-12H03/H(DBP)

| Number | Name              | Refer No.   | Description                                                                                                                                                                                                                                                                                                       | Quality | Failure Rate(%) | Remark |
|--------|-------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-----------------|--------|
| 1      | remote controller | 0010404051  | None                                                                                                                                                                                                                                                                                                              | 1       | 0.2             | *      |
| 2      | battery           | 001A4600001 | None                                                                                                                                                                                                                                                                                                              | 2       | 0.1             |        |
| 3      | mounting plate    | 0010101274  | Fix mounting plate according to installation position and pipe direction                                                                                                                                                                                                                                          |         | 0               |        |
| 4      | drain pipe        | 001A0900011 | Choose the place that can drain water and connect pipe easily                                                                                                                                                                                                                                                     | 1       | 0.1             |        |
| 5      | connecting pipe   | ----        | The maximal length of the connecting pipe is 15m,the maximal height between indoor unit and outdoor unit is 5m                                                                                                                                                                                                    | 1       | 0.2             | *      |
| 6      | connecting wire   | ----        | The connecting methods include ring terminal and direct terminal .Ring terminal connecting method:Unscrew the screws ,and put it through the ring of connecting line ends,then connect it into the terminal block.<br>Direct terminal connecting method:unscrew the screws,then fully insert the cable ends into. | 1       | 0.2             | *      |
| 7      | manual            | 001A7265614 | Operation                                                                                                                                                                                                                                                                                                         | 1       | 0               |        |

# Cautions

## Safety Instruction

- Please read the following Safety Instructions carefully prior to use.
- The instructions are classified into two levels, WARNING and CAUTION according to the seriousness of possible risks and damages as follows. Compliance to the instructions are strictly required for safety use.

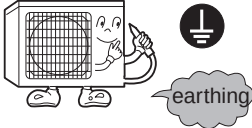
## Installation

### ⚠ WARNING

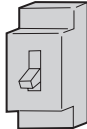
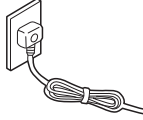
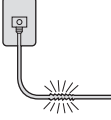
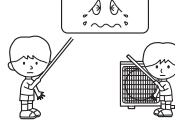
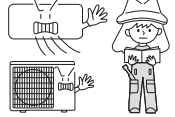
Please call Sales/Service Shop for the Installation.  
Do not attempt to install the air conditioner by yourself because improper works may cause electric shock, fire, water leakage.

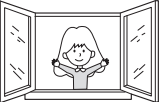
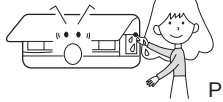
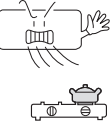
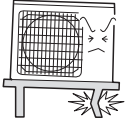
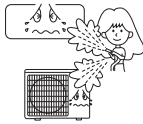
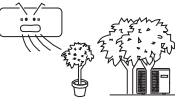
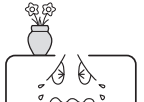
Installation in a inadequate place may cause accidents. Do not install in the following place.

### ⚠ CAUTION

|                                                                                                                     |                                                                                                                                                                                                                      |                                                                                                                                                                  |                                                                                                                                                                           |
|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Connect the earth cable.</p>  | <p>Do not install in the place where there is any possibility of inflammable gas leakage around the unit.</p>  <p>PROHIBITION</p> | <p>Do not get the unit exposed to vapor or oil steam.</p>  <p>PROHIBITION</p> | <p>Check proper installation of the drainage securely</p>  <p>STRICT ENFORCEMENT</p> |
|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

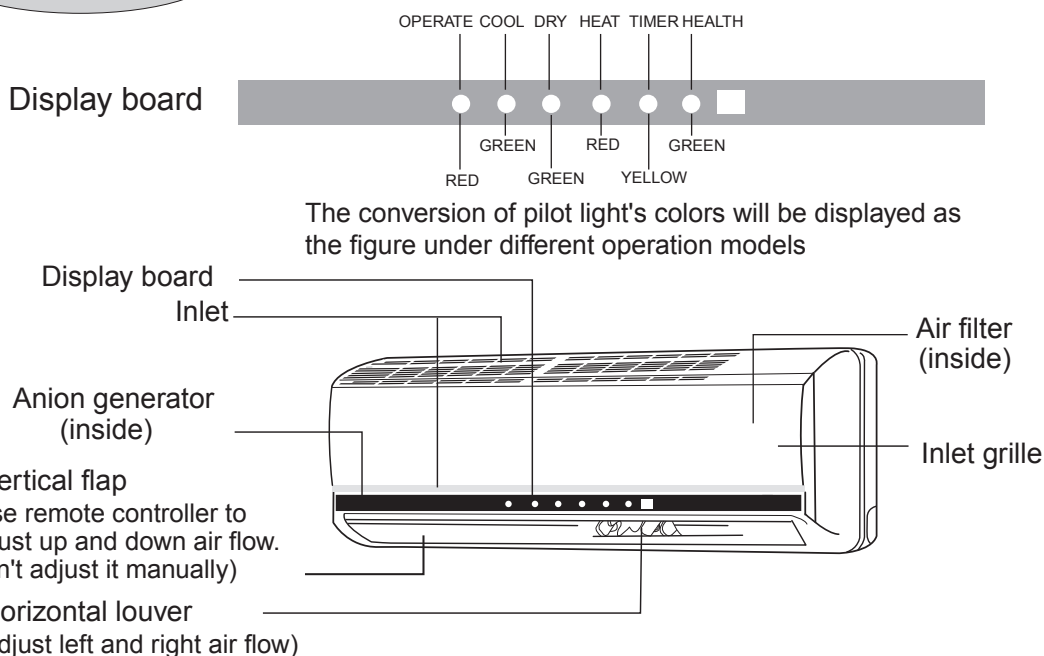
# Cautions

| ⚠ WARNING                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                  |                                                                                                                                                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>When abnormality such as burnt-small found, immediately stop the operation button and contact sales shop.</p>  <p>OFF</p>  <p>STRICT ENFORCEMENT</p> | <p>Use an exclusive power source with a circuit breaker</p>                                                   |                                                                                                                                                                   |
| <p>Connect power supply cord to the outlet completely</p>  <p>STRICT ENFORCEMENT</p>                                                                                                                                                     | <p>Use the proper voltage</p>  <p>STRICT ENFORCEMENT</p>                                                        | <p>Do not use power supply cord extended or connected in halfway</p> <p>PROHIBITION</p>                                                                           |
| <p>Do not use power supply cord in a bundle.</p>  <p>PROHIBITION</p>                                                                                                                                                                     | <p>Take care not to damage the power supply cord.</p>  <p>PROHIBITION</p>                                       | <p>Do not insert objects into the air inlet or outlet.</p>  <p>PROHIBITION</p> |
| <p>Do not start or stop the operation by disconnecting the power supply cord and so on.</p>  <p>PROHIBITION</p>                                                                                                                        | <p>Do not channel the air flow directly at people, especially at infants or the aged.</p>  <p>PROHIBITION</p> | <p>Do not try to repair or reconstruct by yourself.</p>                      |

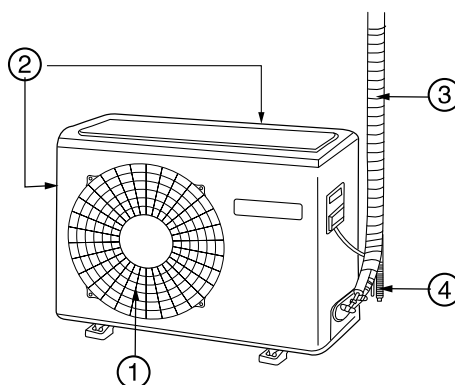
| ⚠ CAUTION                                                                                                                                                                                                           |                                                                                                                                                                                                             |                                                                                                                                                                                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Do not use for the purpose of storage of food, art work, precise equipment, breeding, or cultivation.</p>  <p>PROHIBITION</p> | <p>Take fresh air occasionally especially when gas appliance is running at the same time.</p>  <p>STRICT ENFORCEMENT</p> | <p>Do not operate the switch with wet hand.</p>  <p>PROHIBITION</p>                             |
| <p>Do not install the unit near a fireplace or other heating apparatus.</p>  <p>PROHIBITION</p>                                  | <p>Check good condition of the installation stand</p>  <p>PROHIBITION</p>                                                | <p>Do not pour water onto the unit for cleaning</p>  <p>PROHIBITION</p>                         |
| <p>Do not place animals or plants in the direct path of the air flow</p>  <p>PROHIBITION</p>                                     | <p>Do not place any objects on or climb on the unit.</p>  <p>PROHIBITION</p>                                             | <p>Do not place flower vase or water containers on the top of the unit.</p>  <p>PROHIBITION</p> |

# Parts and Functions

## Indoor unit



## Outdoor unit



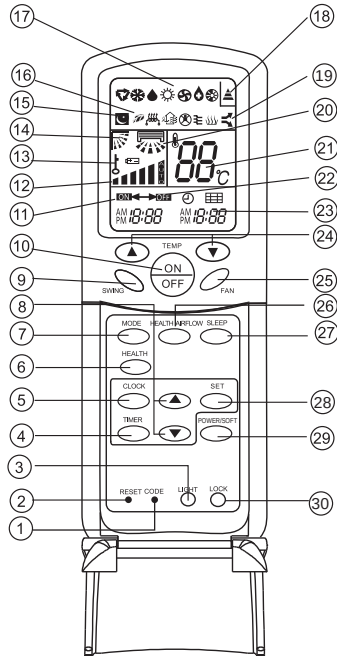
① OUTLET

② INLET

③ CONNECTING PIPING AND ELECTRICAL WIRING

④ DRAIN HOSE

# Parts and Functions



## 1.CODE

Used to select CODE A or B with a press,A or B will be displayed on LCD.  
Please select A without special explanation.

## 2.RESET

When the remote controller appears abnormal, use a sharp pointed article to press this button to reset the remote controller normal.

## 3.LIGHT button

Control the lightening and extinguishing of the indoor LED display board.

## 4. TIMER button

Used to select TIMER ON, TIMER OFF, TIMER ON-OFF.

## 5. CLOCK button

Used to set correct time.

## 6. HEALTH button

Used to set healthy operation.

## 7. MODE button



## 8. HOUR button

Used to set clock and timer setting.

## 9. SWING button

Used to select up or down air sending direction.

## 10. ON/OFF button

Used for unit start and stop.

## 11. TIMER ON display

## 12. FAN SPEED display



## 13. LOCK display

## 14. SWING UP/DOWN display

## 15. SLEEP display

## 16. HEALTH display

## 17. Operation mode display

| Operation mode    | AUTO | COOL | DRY | FAN | HEAT |
|-------------------|------|------|-----|-----|------|
| Remote controller |      |      |     |     |      |

## 18.Singal sending display

## 19. POWER/SOFT display

## 20. Left/right air flow display

## 21. TEMP display

Remote controller: to display the TEMP. setting.

## 22. TIMER OFF display

## 23. CLOCK display

## 24. TEMP button

Used to select your desired temperature.

## 25. FAN button

Used to select fan speed: LOW,MED, HI, AUTO.

## 26. HEALTH AIRFLOW button

Used to set the health airflow mode.

## 27. SLEEP button

Used to select sleep mode.

## 28. SET button

Used to confirm timer and clock settings.

## 29. POWER/SOFT button

Use to set power/soft function.

## 30. LOCK

Used to lock buttons and LCD display. If pressed, the other buttons will be disabled and the lock condition display appears. Press it once again, lock will be cancelled and lock condition display disappears.

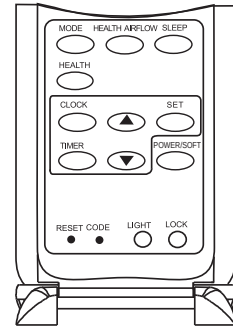
NOTE: The following functions and related displays are not available: (20)

# Parts and Functions

## ■ Clock Set

When unit is started for the first time and after replacing batteries in remote controller, clock should be adjusted as follows:

1. Press CLOCK button, "AM" or "PM" flashes.
2. Press  $\Delta$  or  $\nabla$  to set correct time. Each press will increase or decrease 1 min. If the button is kept depressed, time will change quickly.
3. After time setting is confirmed, press SET, "AM" or "PM" stop flashing, while clock starts working.



## ■ Remote controller's operation

- When in use, put the signal transmission head directly to the receiver hole on the indoor unit.
- The distance between the signal transmission head and the receiver hole should be within 7m without any obstacle as well.
- Don't throw or knock the remoter controller.
- When electronic-started type fluorescent lamp or change-over type fluorescent lamp or wireless telephone is installed in the room, the receiver is apt to be disturbed in receiving the signals, so the distance to the indoor unit should be shorter.

## ■ Loading of the battery

Load the batteries as illustrated right  
2 R-03 (7#) batteries

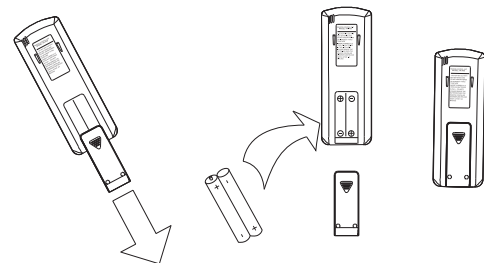
Remove the battery cover:

Slightly press "≡" area and push down the cover as illustrated.

Load the battery:

Be sure that the loading is in line with the "+" / "-".  
request as illustrated on the bottom of the case.

Put on the cover again.



Confirmation indicator:

After pressing power ON/OFF, if no display, reload the batteries.

Note:

- Full display or unclear display during operation indicates the batteries have been used up. Please change batteries.
- Used two new same-typed batteries when loading.
- If the remote controller can't run normally during operation, please remove the batteries and reload several minutes later.

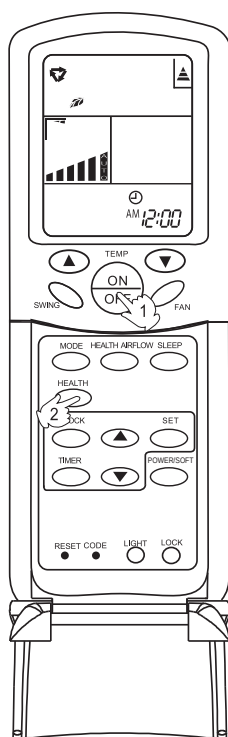
Hint:

Remove the batteries in case unit won't be in usage for a long period. If there are any display after taking-out, just need to press reset key.

# Operation

## HEALTH operation

### Remote controller



#### 1. Unit start

Press ON/OFF on the remote controller, unit starts.

Health function includes health anion function, UV light degerming function.

#### 2. Health anion function

Press HEALTH button. For each press,  is displayed.

Air conditioner starts health anion function operation.

For twice press,  disappears, the operation stops.

When indoor fan motor is running, it has healthy process function. (It's available under any mode)

When the fan in the indoor unit does not work, the health lamp lights up, but the anion generator does not release anion.

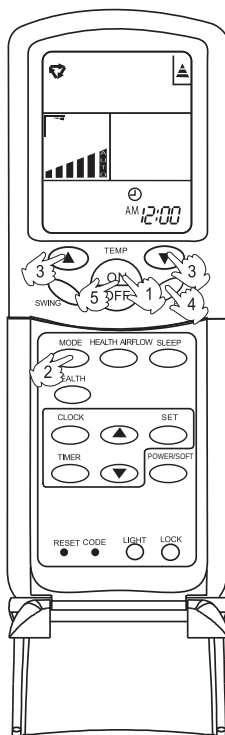
#### BRIEF INTRODUCTION TO HEALTH ANION FUNCTION

The anion generator in the air conditioner can generate a lot of anion effectively balance the quantity of positive and negative ions in the air and also to kill bacteria and speed up the dust sediment in the room and finally clean the air in the room.

# Operation

## Auto Operation

### Remote controller



#### 1. Unit start

Press ON/OFF on the remote controller, unit starts.

#### 2. Select operation mode

Press MODE button. For each press, operation mode changes as follows:

Remote controller:



Then Select Auto operation

#### 3. Select temp. setting

Press TEMP. button

△ Every time the button is pressed, temp. setting increase 1°C, if kept depressed, it will increase rapidly

▽ Every time the button is pressed, temp. setting decrease 1°C, if kept depressed, it will decrease rapidly

Select a desired temperature.

#### 4. Fan speed selection

Press FAN button. For each press, fan speed changes as follows:

Remote controller:



Air conditioner is running under displayed fan speed. When FAN is set to AUTO, the air conditioner automatically adjusts the fan speed according to room temperature.

#### 5. Unit stop

Press ON/OFF button, the unit stops.

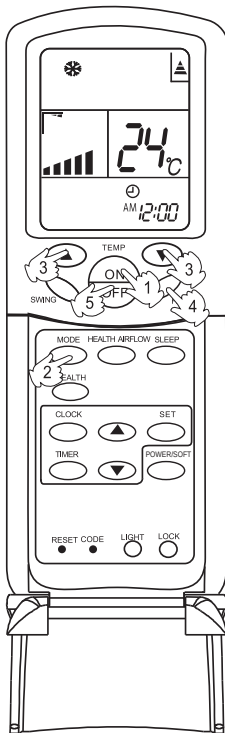
#### About Auto Operation

Under the mode of auto operation, air conditioner will automatically select Cool or Heat operation according to room temperature.

# Operation

## Cool Operation

### Remote controller



#### 1. Unit start

Press ON/OFF on the remote controller, unit starts.

#### 2. Select operation mode

Press MODE button. For each press, operation mode changes as follows:

Remote controller:



Then **Select COOL operation**

#### 3. Select temp. setting

Press TEMP. button

△ Every time the button is pressed, temp. setting increase 1°C, if kept depressed, it will increase rapidly

▽ Every time the button is pressed, temp. setting decrease 1°C, if kept depressed, it will decrease rapidly

Select a desired temperature.

#### 4. Fan speed selection

Press FAN button. For each press, fan speed changes as follows:

Remote controller:



Air conditioner is running under displayed fan speed.  
When FAN is set to AUTO, the air conditioner automatically adjusts the fan speed according to room temperature.

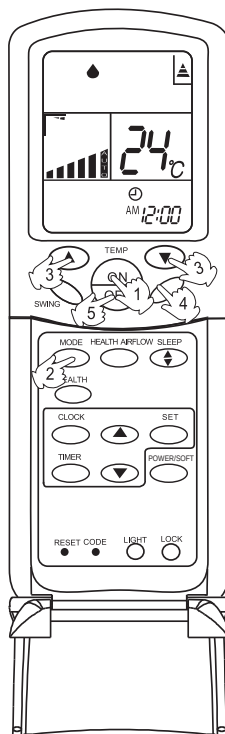
#### 5. Unit stop

Press ON/OFF button, the unit stops.

# Operation

## Dry Operation

### Remote controller



#### 1. Unit start

Press ON/OFF on the remote controller, unit starts.

#### 2. Select operation mode

Press MODE button. For each press, operation mode changes as follows:

Remote controller:



Then Select DRY operation

#### 3. Select temp. setting

Press TEMP. button

△ Every time the button is pressed, temp.setting increase 1°C, if kept depressed, it will increase rapidly

▽ Every time the button is pressed, temp.setting decrease 1°C, if kept depressed, it will decrease rapidly

Select a desired temperature.

#### 4. Fan speed selection

Press FAN button. For each press, fan speed changes as follows:

Remote controller:

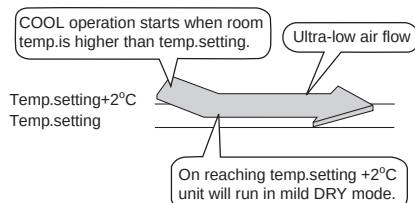


Air conditioner is running under displayed fan speed.

In DRY mode, when room temperature becomes lower than temp.setting+2°C, unit will run intermittently at LOW speed regardless of FAN setting.

#### 5. Unit stop

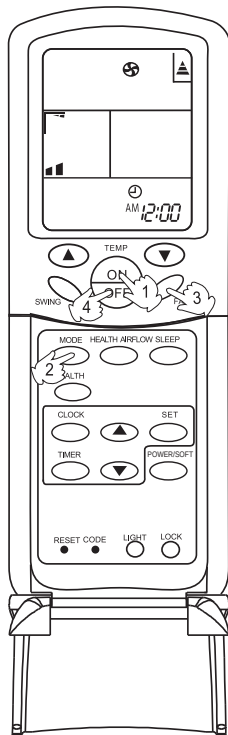
Press ON/OFF button, the unit stops.



# Operation

## Fan Operation

### Remote controller



#### 1. Unit start

Press ON/OFF on the remote controller, unit starts.

#### 2. Select operation mode

Press MODE button. For each press, operation mode changes as follows:

Remote controller:



Then **Select FAN operation**

#### 3. Fan speed selection

Press FAN button. For each press, fan speed changes as follows:

Remote controller:



#### 4. Unit stop

Press ON/OFF button, the unit stops.

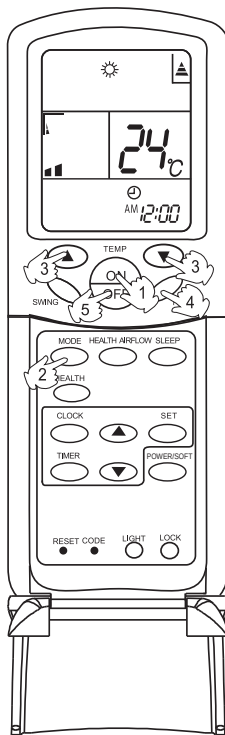
#### About FAN operation

In FAN operation mode, the unit will not operate in COOL or HEAT mode but only in FAN mode, AUTO is not available in FAN mode. And temp. setting is disabled. In FAN mode, SLEEP operation is not available.

# Operation

## Heat Operation

### Remote controller



#### 1. Unit start

Press ON/OFF on the remote controller, unit starts.

#### 2. Select operation mode

Press MODE button. For each press, operation mode changes as follows:

Remote controller:



Then Select HEAT operation

#### 3. Select temp. setting

Press TEMP. button

△ Every time the button is pressed, temp. setting increase 1°C, if kept depressed, it will increase rapidly

▽ Every time the button is pressed, temp. setting decrease 1°C, if kept depressed, it will decrease rapidly

Select a desired temperature.

#### 4. Fan speed selection

Press FAN button. For each press, fan speed changes as follows:

Remote controller:



Air conditioner is running under displayed fan speed  
IN HEAT mode, warm air will blow out after a short period of the time due to cold-draft prevention function.

When FAN is set to AUTO, the air conditioner automatically adjusts the fan speed according to room temperature.

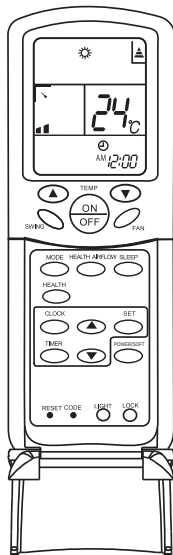
#### 5. Unit stop

Press ON/OFF button, the unit stops.

# Operation

## Air Flow Direction Adjustment

### 1.Status display of air sending



Vertical flap

- Pos.1
- Pos.2
- Pos.3
- Pos.4
- Pos.5
- Pos.6

### 2.Up and down air flow direction

For each press of button, air flow direction on remote controller displays as follows according to different operation modes:

COOL/DRY/FAN

remote controller: → Pos.1 → Pos.2 → Pos.3 → Pos.4 → Pos.6

HEAT:

remote controller: → Pos.5 → Pos.4 → Pos.3 → Pos.2 → Pos.1 → Pos.6

AUTO:

remote controller: → Pos.1 → Pos.2 → Pos.3 → Pos.4 → Pos.5 → Pos.6

The vertical flap will swing according to the above positions

Note:When restart after remote turning off, the remote controller will automatically memorize the previous set swing position.

# Operation

## Sleep Operation

Before going to bed, you can simply press the SLEEP button and unit will operate in SLEEP mode and bring you a sound sleep.

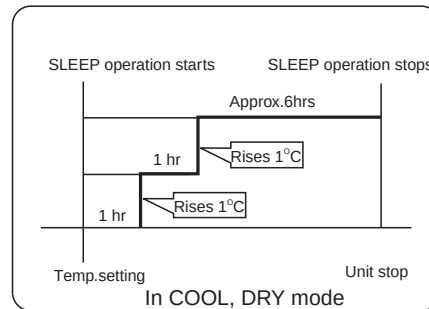
Use of SLEEP function

After the unit starts, set the operation status, then press SLEEP button before which the clock must be adjusted and time being set.

Operation Mode

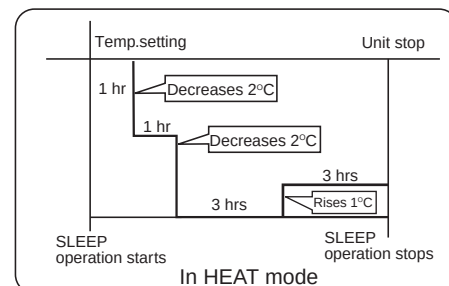
1. In COOL, DRY mode

1 hours after SLEEP mode starts, temp. will become 1°C higher than temp. setting. After another 1 hours, temp. rises by 1°C further. The unit will run for further 6 hours then stops. Temp. is higher than temp. setting so that room temperature won't be too low for your sleep.

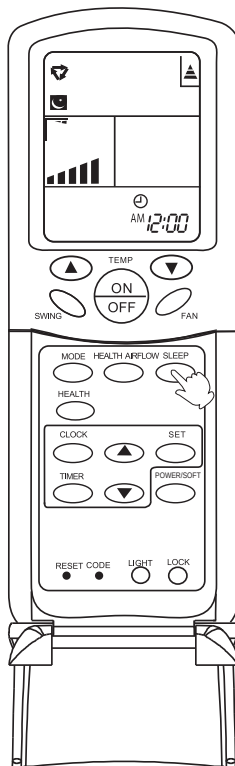


2. In HEAT mode

1 hours after SLEEP mode starts, temp. will become 2 °C lower than temp. setting. After another 1 hours, temp decrease by 2 °C further. After more another 3 hours, temp. rises by 1°C further. The unit will run for further 3 hours then stops. Temp. is lower than temp. setting so that room temperature won't be too high for your sleep.



## Remote Controller



3. In AUTO mode

The unit operates in corresponding sleep mode adapted to the automatically selected operation mode.

4. In FAN mode

It has no SLEEP function.

5. Set the wind speed change when sleeping

If the wind speed is high or middle before setting for the sleep, set for lowering the wind speed after sleeping.

If it is low wind, no change.

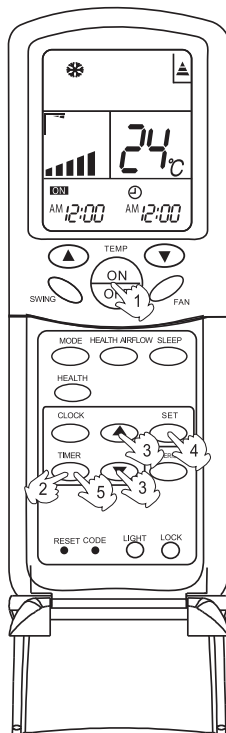
## Note

When TIMER function is set, the sleeping function can't be set up. After the sleeping function is set up, if user resets TIMER function, the sleeping function will be cancelled; the machine will be in the state of timing-on.

# Operation

## Timer On/Off Operation

### Remote Controller



Set clock correctly before starting TIMER operation.

1. After unit starts, select your desired operation mode.

2. Timer mode selection

Press TIMER button to change TIMER mode. Every time the button is pressed, display changes as follows:

Remote controller:



Then select your desired TIMER mode (TIMER ON or TIMER OFF). "ON" or "OFF" will flash.

3. Time setting

Press HOUR  $\Delta$  /  $\nabla$  button.

$\Delta$  Every time the button is pressed, time setting increases 1 min, if kept depressed, it will increase rapidly.

$\nabla$  Every time the button is pressed, time setting decreases 1 min, if kept depressed, it will decrease rapidly.

It can be adjusted within 24 hours.

4. Confirming your setting

After setting correct time, press SET button to confirm "ON" or "OFF" on the remote controller stops flashing.

Time displayed: Unit starts or stops at x hour x min. (TIMER ON or TIMER OFF).

5. Cancel TIMER mode

Just press TIMER button several times until TIMER mode disappears.

### Hints:

After replacing batteries or a power failure happens, time setting should be reset.

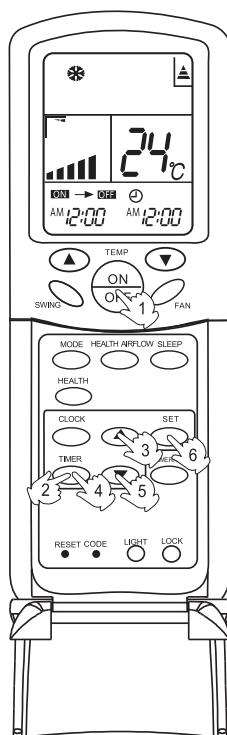
Remote controller possesses memory function, when use TIMER mode next time,

just press SET button after mode selecting if time setting is the same as previous one.

# Operation

## Timer On-Off Operation

### Remote Controller



Set clock correctly before starting TIMER operation.

1. After unit starts, select your desired operation mode

2. Timer mode selection

Press TIMER button to change TIMER mode. Every time the button is pressed, display changes as follows:

Remote controller:



Then select your desired TIMER mode (TIMER ON - OFF).

" ON "will flash.

3. Time setting

Press HOUR  $\Delta$  /  $\nabla$  button.

$\Delta$  Every time the button is pressed, time setting increases 1 min, if kept depressed, it will increase rapidly.

$\nabla$  Every time the button is pressed, time setting decreases 1 min, if kept depressed, it will decrease rapidly. It can be adjusted within 24 hours.

4. Timer confirming for TIMER ON

After setting correct time, press TIMER button to confirm

" ON " on the remote controller stops flashing.

" OFF " starts flashing.

Time displayed: Unit starts or stops at x hour x min.

5. Time setting for TIMER OFF

Just press HOUR button ,follow the same procedure in

"Time setting for TIMER ON"

6. Time confirming for TIMER OFF

After time setting,press SET button to confirm.

" OFF " on the remote controller stops blinking.

Time displayed:Unit stops at x hour x min.

To cancel TIMER mode

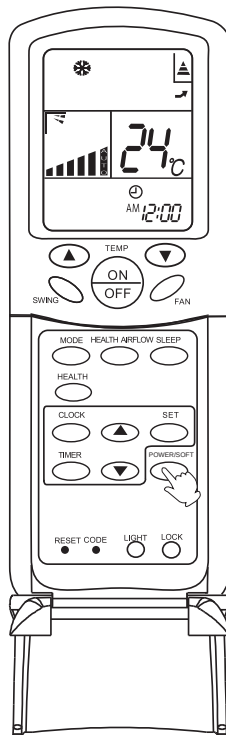
Just press TIMER button several times until TIMER de disappears.

According to the Time setting sequence of TIMER ON or TIMER OFF, either Start-Stop or Stop-Start can be achieved.

# Operation

## POWER/SOFT Operation

### Remote controller

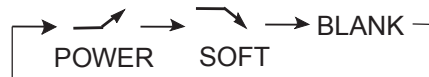


### POWER Operation

When you need rapid heating or cooling, you can use this function.

Selecting of POWER operation

Press POWER/SOFT button. Every time the button is pressed, display changes as follows:



Stop the display at " ".

In POWER operation status:

In COOL mode, wind speed automatically takes high wind of AUTO wind mode.

In HEAT mode, wind speed automatically takes medial wind of AUTO wind mode.

To cancel POWER operation

Press POWER/SOFT button twice ,POWER/SOFT disappears.

### SOFT Operation

You can use this function when silence is needed for rest or reading.

Selecting of SOFT operation

Press POWER/SOFT button. Every time the button is pressed, display changes as follows:



Stop the display at " ".

In SOFT operation mode, wind speed automatically takes low wind of AUTO wind mode.

To cancel SOFT operation

Press POWER/SOFT button again ,POWER/SOFT disappears.

Hints:

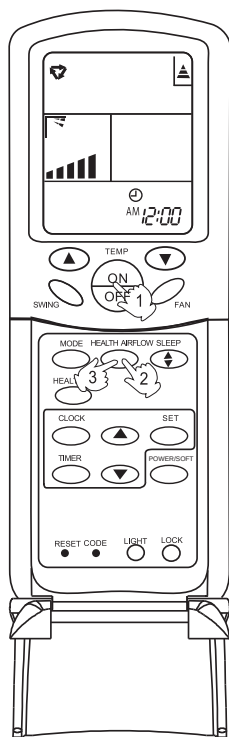
During POWER operation, in rapid HEAT or COOL mode, the room will show inhomogeneous temperature distribution.

Long period SOFT operation will cause effect of not too cool or not too warm.

# Operation

## Health airflow Operation

### Remote controller



#### 1. Press ON/OFF to starting

The liquid crystal will display the working state of last time (Except timer, sleeping, power/soft and health airflow).  
Setting the comfort work conditions.

#### 2. The setting of health airflow function

1). Press the button of health airflow,  appears on the display. The nether inlet and outlet grills of the air conditioner are closed and the airflow is blown horizontally from the above inlet and outlet grills. Avoid the strong airflow blows direct to the body.

2). Press the button of health airflow again,  appears on the display. The above inlet and outlet grills of the air conditioner are closed and the airflow is blown vertically from the nether inlet and outlet grills. Avoid the strong airflow blows direct to the body.

#### 3. The cancel of the health airflow function

Press the button of health airflow again, both the inlet and outlet grills of the air conditioner are opened, and the unit goes on working under the condition before the setting of health airflow function.

After stopping, the outlet grille will close automatically.

Notice: Cannot pull direct the outlet grille by hand. Otherwise, the grille will run incorrectly. If the grille is not run correctly, stop for a minute and then start, adjusting by remote controller.

#### Note:

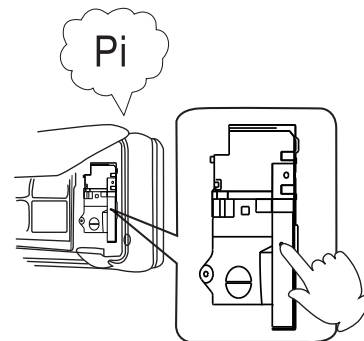
1. After setting the health airflow function, the position of inlet and outlet grills is fixed.
2. In heating, it is better to select the  mode.
3. In cooling, it is better to select the  mode.
4. In cooling and dry, using the air conditioner for a long time under the high air humidity, a phenomenon falling drips of water occurs at the outlet grille .
5. Select the appropriate fan direction according to the actual conditions.

# Operation

## Emergency and Test Operation

### Emergency operation:

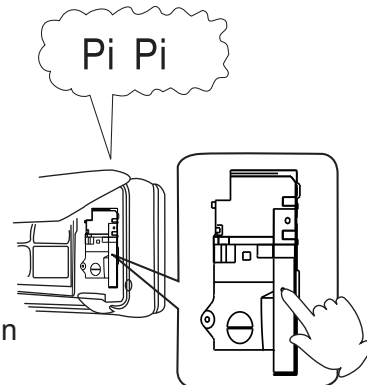
- Use this operation only when the remote controller is defective or lost.
- When the emergency operation switch is pressed, the "Pi" sound is heard once, which means the start of this operation.
- In this operation, the system automatically selects the operation modes, cooling or heating, according to the room temperature.
- When machine is running in emergency, the set value of temperature and wind speed couldn't be altered; meanwhile, it can't operate for dehumidifying or under timing mode.



### Test operation:

Test operation switch is the same as emergency switch.

- Use this switch in the test operation when the room temperature is below 16°C, do not use it in the normal operation.
- Continue to press the test operation switch for more than 5 seconds. After you hear the "Pi" sound twice, release your finger from the switch: the cooling operation starts with the air flow speed "Hi".



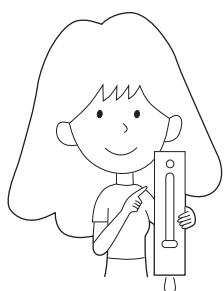
### Removal of the restriction of emergency or test operation

- Press the emergency operation switch once more, or manipulate through the remote controller; the "Pi" sound, the emergency or test operation is terminated.
- When the remote controller is manipulated, it gets the system back to the normal operation mode.

## Maintenance

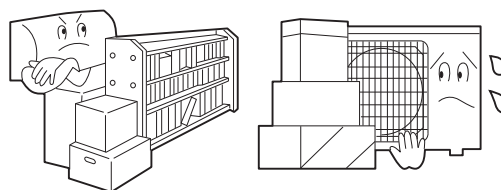
### For Smart Use of The Air Conditioner

Setting of proper room temperature

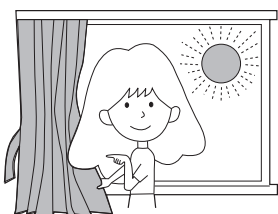


Proper temperature

Do not block the air inlet or outlet

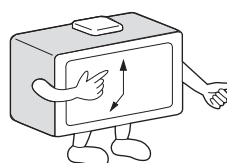
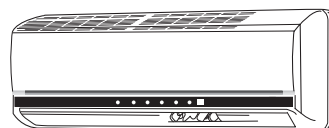


Close doors and windows during operation

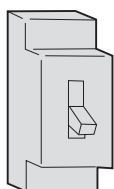


During cooling operation prevent the penetration of direct sunlight with curtain or blind

Use the timer effectively

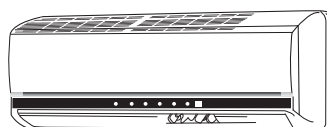


If the unit is not to be used for a long time, turn off the power supply main switch.



OFF

Use the louvers effectively



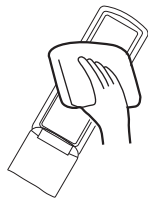
# Maintenance

## For Smart Use of The Air Conditioner

### ⚠ WARNING

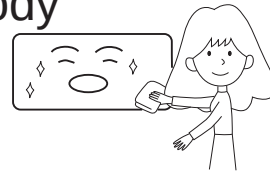
Before maintenance, be sure to turn off the system and the circuit breaker.

#### Remote Controller



Do not use water, wipe the controller with a dry cloth. Do not use glass cleaner or chemical cloth.

#### Indoor Body



Wipe the air conditioner by using a soft and dry cloth. For serious stains, use a neutral detergent diluted with water. Wring the water out of the cloth before wiping, then wipe off the detergent completely.

### Do not use the following for cleaning



Gasoline, benzene, thinner or cleanser may damage the coating of the unit.



Hot water over 40°C (104°F) may cause discoloring or deformation.

### Air Filter cleaning

**1** Open the inlet grille by pulling it upward.

**2** Remove the filter.

Push up the filter's center tab slightly until it is released from the stopper, and remove the filter downward.

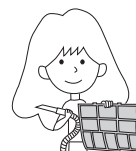
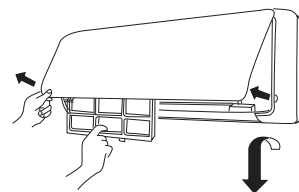
**3** Clean the filter.

Use a vacuum cleaner to remove dust, or wash the filter with water. After washing, dry the filter completely in the shade.

**4** Attach the filter.

Attach the filter correctly so that the "FRONT" indication is facing to the front. Make sure that the filter is completely fixed behind the stopper. If the right and left filters are not attached correctly, that may cause defects.

**5** Close the inlet grille.



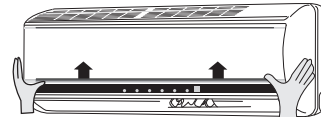
Once every two weeks

# Maintenance

## Replancement of Air Purifying Filter

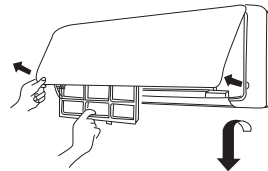
### 1.Open the Inlet Grille

Open the inlet grille by pushing each ends of the inlet grille upward.(use thumbs to push up)



### 2.Detach the standard air filter

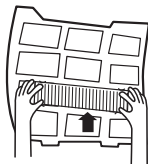
Slide the knob slightly upward to release the filter, then withdraw it.



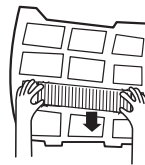
### 3.Detach old Air Purifying Filter

### 4.Attach old Air Purifying Filter

Put air purifying filter appliances into the right and left filter frames .



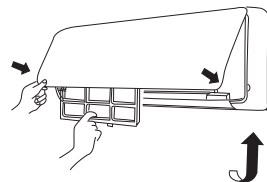
### Detach old Air Purifying Filter



### 5.Attach the standard air filter (Necessary installation)

### 6.Close the Inlet Grille

Close the Grille surely



### NOTE:

- The air purifying filter of the bacteria-killing medium and the electrostatic air purifying filter accessories with machine will be used based on real situation.
- The bacteria-killing medium air purifying filter is available for a long time and needn't to be changed. But it must be noticed to use the vacuum cleaner frequently to adsorb the dusts covering the purifying filter lest the covering dusts effect the function of the bacteria-killing medium air purifying filter. (It is strictly prohibited for the bacteria-killing medium air purifying filter to be washed)
- The green aspect of the bacteria-killing medium air purifying filter will face outside, the white aspect will face to the machine. and the white side of the electrostatic air purifying filter will face outside.

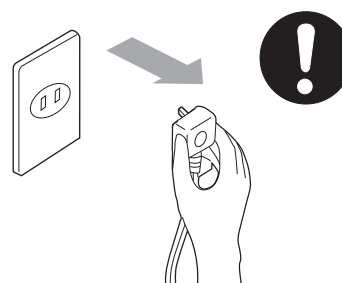
# Maintenance

To Keep Your Air conditioner in Good Condition after Season.

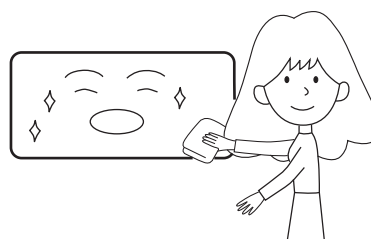
## 1 Operate in cooling mode for 2-3 hours.

To prevent breeding mold or bad smell, be sure to operate at the designated temperature or 30°C, cooling mode and High speed fan mode for 2-3 hours.

## 2 Put off the power supply cord.



## 3 Cleaning the body.



## 4 Take out the batteries from the wireless remote controller.

# Maintenance

## Before Setting in High season

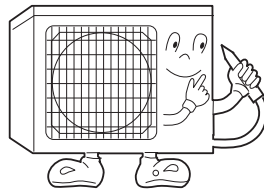
### 1 Cleaning the standard air filter.

Operation without filter may cause troubles. Be sure to attach both right and left filters prior to the operation. Each of them are of different shapes.

### 2 Connecting the earthing cable.

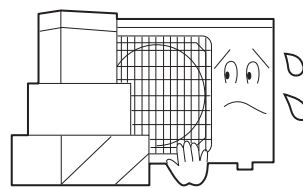
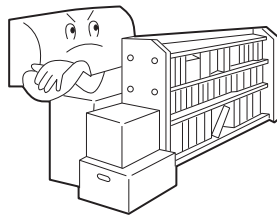
#### ⚠ Caution

- Incomplete earthing may cause an electric shock.



EARTHING

### 3 Do not block the air inlet or outlet.



### 4 Plug-in

#### ⚠ Caution

- After brush away dust at the plug, insert the plug of the power supply cord into the outlet completely. In case of using exclusive circuit breaker, switch on the circuit breaker.



NO WET HAND

## ELECTRICAL CONTROL

## INDOOR UNIT

### Content

1. Application range
2. Temperature Adjusting function
3. Domestic Blower Fan control
4. Powerful Running
5. Silent Running
6. Timed Running
7. Automatic Running (emergency running)
8. Trial Running
9. Low Work-intense protection control
10. High Work-intense protection control
11. Cooling process for Heating System
12. Remote control
13. EEPROM Control
14. Malfunction records
15. Special functions
16. Ways of marking malfunctions

#### **1. Application Range**

This function guide can be used for the HSU-09H03/R2(DB) air-conditioners and other frequency-converting made by Headquarters of Qingdao Haier Air-conditioner Co.,Ltd. Indexes in this guide (symbolised by parameters) refer to the indexes stored in the EEPROM. Please refer to the EEPROM index chart.

## 2. Temperature Adjusting function

. This function will decide the outdoor-set's running speed according to the domestic temperature and the set temperature.

. Control the domestic blower fan according to the need for temperature adjusting when the wind rate is automatic

. Control the domestic blower fan according to the disc-tube temperature when it's running for heating.

### 2.1.1 Indoor environment temperature sensor specification

Under the conditions of short circuit or open circuit, the indicative light will flash an alarm and the indoor blower fan stops. When it returns to normal conditions, the operation will come back to normal.

Short circuit

Temperature: over 126°C. Sixteen scales: over F8H. Resistance value: below 0.65 K. Voltage: over 4.85 V

Normal temperature

Temperature: 25 °C. Sixteen scale: 40H Resistance value: 23K . Voltage: 2.33 V

Disconnection

Temperature : below minus 31 °C. Sixteen scale: below 08H . Resistance value: below 620K. Voltage: below 0.15 V

.B index=4200 R(25°C)=23K

2.1.2 During the time when the heat running starts and indoor blower fan stops or when the warm boot starts and within 30 seconds after the indoor blower fan starts, the resistance value for indoor environment temperature sensor will be neglected.

### 2.2 The frequency kept when the frequency rises.

. When the operation enters into the work mode, in order to insure the full oil-returning, some frequency should be kept for some time.

| Indication time             |            |                          | Indication frequency |
|-----------------------------|------------|--------------------------|----------------------|
| Cooling & moisture removing | Heating    | Heating & Frost removing | Frequency kept       |
| 60 seconds                  | 60 seconds | 30 seconds               | 58 Hz                |

When the unit is switched on and the forcible running is over, the temperature level control starts.

### 2.3 Modify the set temperature

The set temperature can be modified according to the unit's operation mode, wind volume or whether it is under forceful running condition.

The modification of wind volume is only limited within the switch between weak and medium of wind volume when it is under heating mode.

Modification index table for set temperature

| Mode    | Content of modification         | Modified variable | Modified parameter |
|---------|---------------------------------|-------------------|--------------------|
| Heating | Operation mode modification     | ETBL0             |                    |
|         | Forceful operation modification | ETBL1             |                    |
|         | Weak wind volume modification   | ETBL2             |                    |
|         | Medium wind volume modification | ETBL3             |                    |

|                             |                                 |       |  |
|-----------------------------|---------------------------------|-------|--|
| Cooling & moisture removing | Operation mode modification     | ETBL4 |  |
|                             | Forceful operation modification | ETBL5 |  |

## 2.4 temperature level control

### 2.4.1 Deviation

Work out the deviation of temperature level as follows:

In heating mode:  $E = (\text{Remote-control set temperature} + \text{modified value}) - \text{room temperature}$

In cooling & moisture removing mode:  $E = \text{room temperature} - (\text{Remote-control set temperature} + \text{modified value})$

### 2.4.2 Compressor OFF

E is minus and  $|E| > \Delta T$

|                                  | Heating |  | Cooling |  |
|----------------------------------|---------|--|---------|--|
| $\Delta T$                       | TCH AHL |  | TCH ACL |  |
| after $\Delta T$ changes         | TCH AHH |  | TCH ACH |  |
| condition for $\Delta T$ changes |         |  |         |  |

The compressor stops after 120 seconds of continuous detection

When the operation starts, according to the table above, the unit will operate according to the after-the- $\Delta T$ -change parameters before the compressor stops for the first time.

From the time the compressor stops to the time it starts again, the operation will follow the  $\Delta T$  (except the moisture removing mode)

When the operation starts and the operation modes change (except when the idle mode is over) and the deviation is bigger than  $-\Delta T$ , the compressor starts.

When the compressor is working and the remote-controller set temperature falls below  $-\Delta T$ , the compressor stops.

### 2.4.3 Compressor operation

When the compressor is kept idle for 3 minutes, the deviation E will be higher than  $-\Delta T + 0.67^\circ\text{C}$  and the compressor will start working.

### 2.4.4 DASH operation

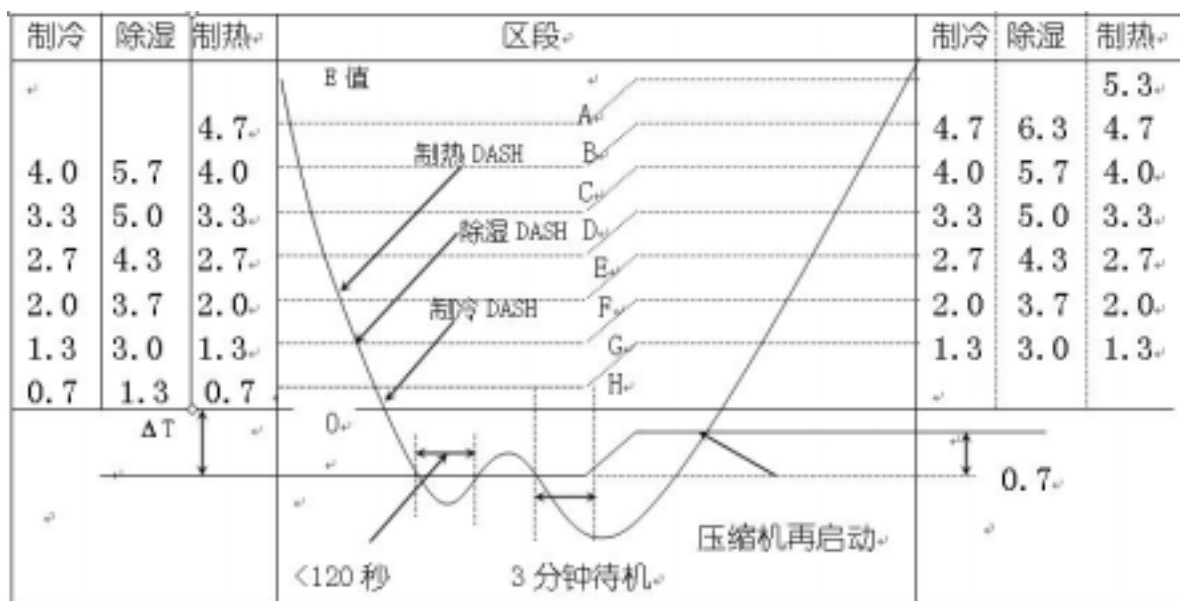
When the operation starts or the operation mode changes (except when the compressor is switched on after being off), the compressor is on and the indicated maximum frequency should be as follows:

|                   |                      |
|-------------------|----------------------|
| Cooling           | deviation to zero    |
| Moisture removing | deviation to level G |
| Heating           | deviation to level F |

There will be no DASH operation under trial operation, emergency operation and silent operation modes.

### 2.4.5 Temperature adjusting of different levels. (DASH operation conditions under different modes)

cooling 制冷/ moisture removing 除湿 /heating 制热 /level 区断/ cooling 制冷/ moisture removing 除湿/heating 制热/Value E E 值/<120 seconds/ 3-minute idle mode 3 分钟待机/compressor resta`1rt 压缩机再启动



#### 2.4.6 Frequencies for different levels

Within different levels, the indicated frequencies are (the frequency the indoor unit transmits to the outdoor unit) as follows ;

Under the cooling & moisture-removing mode, level A and B have the same frequency.

Under the silent mode, levels A-E have the same frequency with level F

|                   | Indicated frequency | Frequency range | Temperature change level |
|-------------------|---------------------|-----------------|--------------------------|
| Heating           | FQHOT [0—7]         |                 | A—H                      |
| Silent heating    | FQSHOT [0—2]        |                 | F—H                      |
| Moisture removing | FQDRY [0—7]         |                 | B—H                      |
| Cooling           | FQCOOL [0—7]        |                 | B—H                      |
| Silent cooling    | FQSCOOOL [0—2]      |                 | F—H                      |

The maximum frequency value refers to the max value listed above.

The maximum and minimum values for cooling and heating are the maximum and minimum values for correspondent items.

#### 2.4.7 Controlled frequency for the same level

The indicated frequency when a level remains unchanged after the compressor operates with the same frequency for 3 minutes.

The timing will start again when there is a different frequency input. If the temperature level remains unchanged for 3 minutes, the indicated frequency will change again (add FQUPH or FQUPL)

Controlling form for the same level

| Levels of temperature change |   |   |   |   |   |   |   |
|------------------------------|---|---|---|---|---|---|---|
| A                            | B | C | D | E | F | G | H |

|                                 |  |  |  |  |  |  |  |  |
|---------------------------------|--|--|--|--|--|--|--|--|
| Heating                         |  |  |  |  |  |  |  |  |
| Cooling<br>moisture<br>removing |  |  |  |  |  |  |  |  |

#### 2-4-8. Select the wind volume when it is set automatic

When the wind volume is automatic, it can be switched between strong, medium and weak according to the temperature adjusting levels.

Wind volume under the automatic wind volume mode

|                   | Temperature adjusting levels |        |        |        |        |        |      |      |      |
|-------------------|------------------------------|--------|--------|--------|--------|--------|------|------|------|
|                   | A                            | B      | C      | D      | E      | F      | G    | H    | I    |
| Heating           | Strong                       | Strong | Strong | Strong | Strong | Medium | Weak | Weak | SLO  |
| cooling           |                              | Strong | Strong | Strong | Medium | Medium | Weak | Weak | Weak |
| Moisture removing |                              | Strong | Medium | Medium | Medium | Weak   | Weak | SLO  | SLO  |

#### 2-5. Frost removing

Under the intensive-running protection mode, the protection control will be in priority  
The compressor does not stop

Under heating operation mode, the outdoor unit sends a frost-removing signal (I21=10) and the indoor unit will start the frost-removing control until the outdoor unit transmits the signal to end the frost-removing. Then the indoor unit starts the heating operation, indication levels and wind volume control will operate following the heating temperature levels.

#### 2-6. Wind volume limit

. When the compressor is working and the max setting for indoor blower fan is medium , the upper limit of indicated frequency is as follows:

Frequency control form for wind volume

|                    | Limited frequency variables | Limited frequency |
|--------------------|-----------------------------|-------------------|
| Medium wind volume | FQLIMMD                     |                   |
| Weak wind volume   | FQLIMLO                     |                   |

When judging the conditions for frequency limit under the heating mode, first judge if the unit has been set to weak wind volume mode. If it has been set to one mode, then follow the table below for the limit modification.

| Outdoor temperature condition | Indicated frequency        |  |
|-------------------------------|----------------------------|--|
| 011(Below 20°C)               | Limited frequency for weak |  |
| 010(15-20°C)                  | Limited frequency for weak |  |
| 001(10-15°C)                  | Limited frequency for weak |  |
| 000(below10°C)                | Normal frequency           |  |

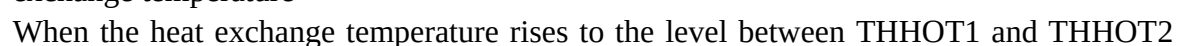
### 3. Indoor blower fan control

#### 3-0-1. Targeted running speed

|                 |                   | Running speed variable | running speed<br>(rpm) |
|-----------------|-------------------|------------------------|------------------------|
| Heating         | Slightly weak     |                        | FRPMTBL00              |
|                 | SSLO silent SSLO  |                        | FRPMTBL01              |
|                 | Weak              |                        | FRPMTBL02              |
|                 | Strong            |                        | FRPMTBL05              |
|                 | Aut<br>oma<br>tic | Weak                   | FRPMTBL04              |
|                 |                   | Strong                 | FRPMTBL05              |
| Cooling         | Slightly weak     |                        | FRPMTBL06              |
|                 | SSLO silentSSLO   |                        | FRPMTBL07              |
|                 | Weak              |                        | FRPMTBL08              |
|                 | Strong            |                        | FRPMTBL11              |
|                 | Aut<br>oma<br>tic | Weak                   | FRPMTBL10              |
|                 |                   | Strong                 | FRPMTBL11              |
| Ventilatio<br>n | Weak              |                        | FRPMTBL12              |
|                 | Strong            |                        | FRPMTBL13              |
| Quota           | Cooling           |                        | FRPMTBL09              |
|                 | Heating           |                        | FRPMTBL03              |

When it is automatically medium, the running speed is (strong automatic+ weak automatic)/2(not counted if it is not up to 10rpm)

## Heat exchange temperature



and even after 4 minutes it cannot reach the level between THHOT2 and THHOT3, enter into the next level without referring to the heat exchange temperature.

the blower fan stops when the heat exchange temperature is below 25°C

the blower fan is working slightly weak when the heat exchange temperature is above 25°C and below 35°C

the blower fan is working weak if the heat exchange temperature remains 35°C for less than 4 minutes.

The blower fan works as set if the heat exchange temperature remains 35°C for more than 4 minutes

the blower fan works as set if the heat exchange temperature remains above 37°C

3-1-2. When the compressor stops and remains idle for 3 minutes

20 seconds after the compressor stops, the wind volume is weak (switching to SSLO in silent running mode) and then slightly weak.

If the compressor stops when the heat running starts, the wind volume is weak

3-1-3. Restart of the compressor

The wind volume is set by the remote-controller after the warm boot.

.select the wind volume by the temperature in the automatic wind volume mode.

Refer to the temperature level control function

3-1-4. Frost-removing operation

. The blower stops after 20 seconds

. When receiving the I21=11 signal from the outdoor unit in the heat frost-removing mode, warm boot will be done according to the heat exchange sensor. The wind volume control is the same with 3.1.1

When the frost-removing process is over, if the compressor is on, the wind volume control will be warm-booted; if the compressor is switched off, the wind volume will be weak.

3-2 cooling running

. The wind volume can be set to strong, medium and weak.

Automatic wind volume function will decide the wind volume according to the temperature

Picture 3.3

3-3. Moisture removing running

3-3-1. Compressor off, idle mode for 3 minutes

. The blower fan stops as the compressor stops

. The operation is weak after 3 minutes' idle mode

. After 3 minutes' idle mode, the compressor is on.

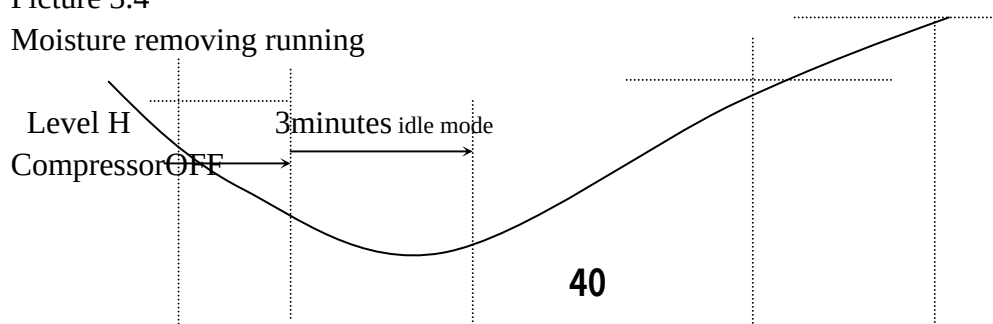
3-3-2. Compressors on

The compressor operates as the set wind volume when the wind volume is set to be strong, medium or weak

. The wind volume is decided according to the temperature adjusting when the wind volume is set to be automatic.

Picture 3.4

Moisture removing running





Setting    slightly weak OFF                      weak                      weak                      setting

#### 4. Powerful Running

- . Powerful running for 15 minutes
- . The running stops or ends the powerful running after 15 minutes
- . The mode switch ends the powerful running
- . Enter into the silent mode, normal running mode or timed switching on mode to end the powerful running
- . When in automatic mode, there are powerful and silent functions for your choice. When the main unit is in cooling mode, it operates with powerful cooling or silent cooling. When the main unit is in heating mode, it operates with powerful heating or silent heating. When the main unit is in wind-sending mode, there are no powerful or silent modes.

##### 4-0-1. Powerful heating

- . Change the set temperature. With temperature adjusting function
- . The wind volume is the automatic medium
- . When in frost removing mode, the outdoor unit does not accept the communication signal for powerful running
- . After 15 minutes of powerful running, the compressor can not be off within 10 minutes

##### 4-0-2. Powerful cooling

Change the set temperature. With temperature adjusting function

- . The wind volume is the automatic strong
- . After the compressor starts, there will be no low-intense running protection within 3 minutes

##### 4-0-3. There is no powerful mode for wind-sending and moisture removing

#### 5. Silent running

- . Send the silent running signal to the outdoor unit

##### 5-0-1. Silent hearing

The wind volume is SSLO after the compressor is on

The wind volume will be kept SSLO within 20 seconds after the compressor stops and then changes to weak

##### 5-0-2. Silent cooling

The wind volume is SSLO

##### 5-0-3. There is no silent mode for moisture removing and wind-sending.

#### 6. Timed running

- . Set the time duration according to the time difference between the clock for timing and the current clock

- . In timing mode, the display panel will flash the light at fixed times

##### 6-0-1. Timed OFF

When this function is set, operation modes on the panel display will not change. The timing icon will show and the operation stops when the set time comes.

##### 6-0-2. Timed ON

When this function is on, the panel display will only show a timing icon. The unit will operate as the set mode when the time comes.

#### 6-0-3. Timed ON/OFF

The unit will start operating or stop according to the order of your setting.

### 7. Automatic running

#### 7-1. Automatic running mode

Under this mode, the MCU will choose the work mode according to the room temperature so as to keep the set temperature ( set 23°C for heating mode and 26°C for cooling mode)

When the unit is powered on for the first time and the the room temperature is equal to or below 23°C, it will start the heating mode or the cooling mode when the room temperature is higher than 23°C

Enter into the heating mode and follow the heating process(supposed temperature 23°C). When the temperature is high enough to stop the compressor, the compressor stops and there will 3 minutes of idle mode. If the compressor senses the incoming wind temperature is higher than 23°C after it stops for 15 minutes, the unit will switch to cooling mode. Otherwise it will keep the heating mode.

Enter into the cooling mode and follow the cooling process( supposed temperature 26°C). Compensation temperature difference will be cancelled automatically. When the temperature is high enough to stop the compressor, the compressor stops and there will be 3 minutes for idle mode. If the compressor senses the incoming wind temperature is equal to or below 23°C after it stops for 15 minutes, the unit will switch to heating mode. The compensation temperature will be added automatically. Otherwise it will keep the cooling mode.

When the unit switches from other modes to automatic mode, if the work state changes (judge first and then work), there will be 3 minutes for idle mode. Ant then the temperature will change to the judged level according to the incoming wind temperature.

### 8. Trial running

The indicated frequency for trial running is 58Hz, wind volume is strong.

The trial running will last for 30 minutes and then the unit will be powered off. The unit will exit the trial running if it receives any remote-control signal during the trial running period.

There is no low work-intense running protection.

### 9. Low Work-intense protection control

Specification for heat-exchange temperature sensor

B fixed number=3700 R(25°C)= 10KΩ

Under the cooling /moisture removing modes,the low work-intense protection will be carried out according to the heat-exchange temperatures as shown in the table below.

Low Work-intense protection control

Picture 11.1

Heat-exchange temperature

THLHEATBL3

THLHEATBL2

THLHEATBL1

THLHEATBL0

| Indication level | Normal level2 | level 1 | stop | level 1 | level 2 | normal |
|------------------|---------------|---------|------|---------|---------|--------|
|------------------|---------------|---------|------|---------|---------|--------|

Low Work-intense protection control will be neglected in the trial running.

Low Work-intense protection control will be cancelled for 3 minutes temporarily after the powerful cooling starts for 1 minute

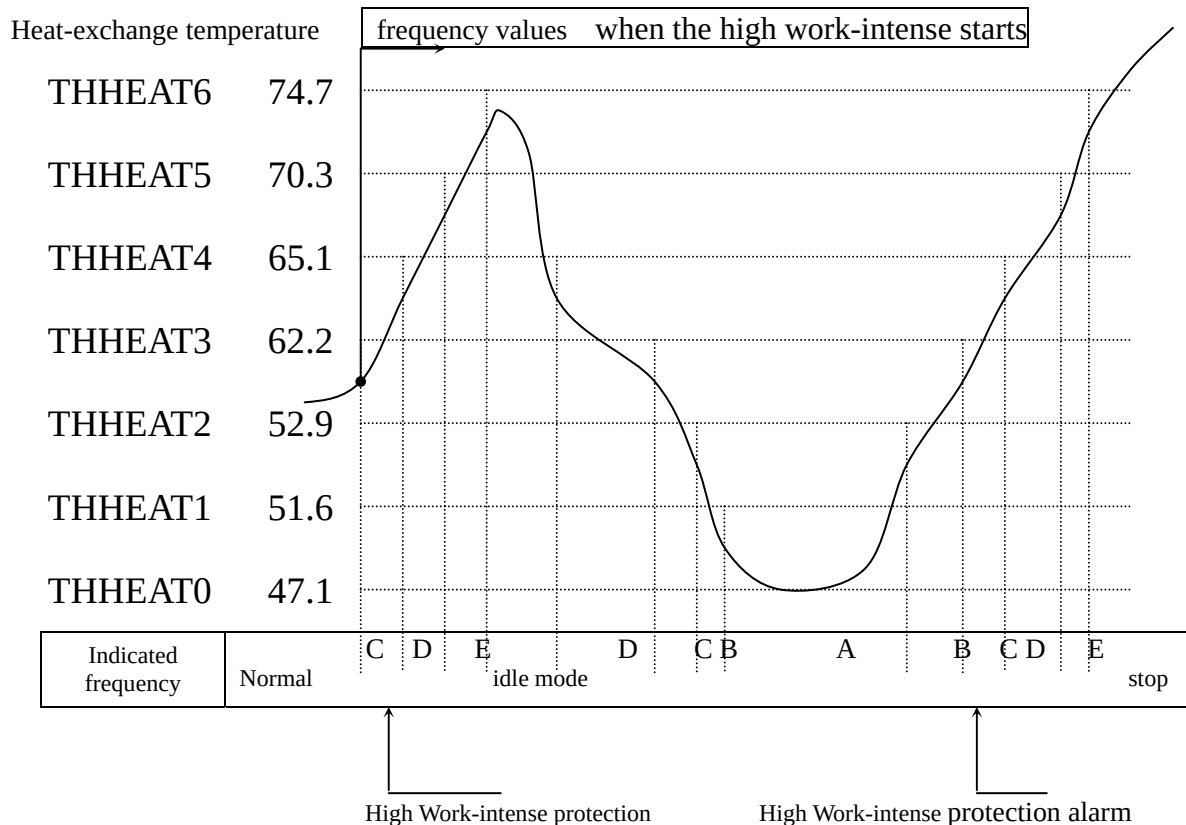
(THLH[3, 2, 1, 0]= 7°C , 4.6°C, 2.2°C, -0.5°C)

### 10. High Work-intense protection control

Under the heating mode, the high work-intense protection will be carried out according to the heat-exchange temperatures as shown in the table below.

High Work-intense protection control:

Picture 12.1



. High Work-intense protection alarm will start if there are two times of high work-intense protection within 30 minutes.

. If the heat-exchange temperature does not reach THHEAT [2], it will resume to the normal temperature level control

. The smaller one of the high work-intense frequency and level frequency will be the operation data.

### 11. Low-temperature treatment for Heating mode

If the four-way valve can not switch or when the none-frost-removing compressor starts again under the heating mode if the heat-exchange temperature remains under "THHOTLTH" (-4.5°C) for 90 seconds, the compressor will start 3 minutes of idle mode and start again when the heat-exchange temperature is above "THHOTLTH" (-4.5°C)

## 12. Remote control

. Start or stop running with the remote-control signals.

. Only OFF signal is accepted when there are emergencies or malfunctions.

1 second delay: Starting, stopping and signals except the wind direction signal all begins 1 second after the reception of the signal.

## 13.EEPROM control

. EEPROM is wrong when the EEPROM parameter sum does not accord with the check sum after the outdoor unit is powered on.

. The outdoor unit EEPROM is wrong will be displayed when the indoor unit receives wrong EEPROM signals from the outdoor unit.

. In this case the control and emergency operation are not allowed.

. Power-off to disarm.

## 14.Trouble Records

. There are no lists if there are no error code records.

. The malfunction display will automatically disappear after 10 seconds.

The remote control accepts stop signal only. The malfunction record may end according to the ON/OFF or remote-control's stop signal

. Models with EEPROM can store the records when they are replugged to the power.

## 15. Special functions

1、 The indoor unit operates only

a. To enter into this function please press the sleep key 6 times with 6 beeps in 7 seconds under the none-power-failure-compensation mode.

b. : The indoor unit operates as follows after entering into the function.

The indoor unit operates and communicates according to the setting without processing the signals from the outdoor unit but needs to send signals to the outdoor unit without stop.

c. To exit this function please press the OFF key of the remote-controller or the emergency key to power off the unit. You can also unplug the machine to exit this function.

When the indoor unit operates independently, it imitates the outdoor unit to send the following signals to the indoor unit.

Output frequency 58 Hz ,error frost removing state: 17654=0001,13=0,121=01 ,external temperature level K54=00, the indoor heat-exchange temperature is fixed at 47°C

## 16. Malfunction explanation

| Anomaly                           | Error symbols       | Indo<br>or | O<br>ut<br>do<br>or | Autom<br>atic<br>restore | Causes                                                            |
|-----------------------------------|---------------------|------------|---------------------|--------------------------|-------------------------------------------------------------------|
|                                   | PowerTiming Running |            |                     |                          |                                                                   |
| Indoor thermister anomaly         | ★ ■ ■               | *          |                     | *                        | 1.<br>Poor connection of the connectors or bad control base plate |
| Heat-exchange thermister anomaly  | ★ □ □               | *          |                     | *                        | 1. Poor connection of the connectors or bad control base plate    |
| Frost-removing thermister anomaly | □ □ ★               |            | *                   | *                        | 1. Poor connection of the connectors or bad control base plate    |
| Output thermister anomaly         | ★ □ ■               |            | *                   | *                        | 1. Poor connection of the connectors or bad control base plate    |

|                                             |                                                                           |   |   |   |                                                                                                                                                                                                                                                                                               |
|---------------------------------------------|---------------------------------------------------------------------------|---|---|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Base plate thermister anomaly               | <input type="checkbox"/> <input checked="" type="checkbox"/> ★            |   | * | * | 1. Poor connection of the connectors or bad control base plate                                                                                                                                                                                                                                |
| Module thermister anomaly                   | <input type="checkbox"/> ★ <input type="checkbox"/>                       |   | * | * | 1. Poor connection of the connectors or bad control base plate                                                                                                                                                                                                                                |
| Outdoor thermister anomaly                  | <input type="checkbox"/> ★ <input checked="" type="checkbox"/>            |   | * | * | 1. Poor connection of the connectors or bad control base plate                                                                                                                                                                                                                                |
| Transmission error                          | <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> ★ | * |   |   | 1. Poor connection of the connectors or bad control base plate                                                                                                                                                                                                                                |
|                                             |                                                                           |   | * |   | 2. Wrong wiring or bad base plate                                                                                                                                                                                                                                                             |
| Anomaly of compressor running               | ★ <input checked="" type="checkbox"/> <input type="checkbox"/>            |   | * |   | 1. If there is any seize of the compressor<br>2. If there are any damages of power module                                                                                                                                                                                                     |
| Overheat protection for exhaust temperature | <input checked="" type="checkbox"/> ★ <input checked="" type="checkbox"/> |   | * |   | 1. The system is lack of air or overloaded with air<br>2. The voltage is too high (over 242V)or too low (below 187V)<br>3. The capillary tubes may be blocked.<br>4. Check if the sensor or the controlling base plate parts are wrong<br>5. The indoor&outdoor temperature could be too high |
| AC electricity protection                   | ★ ★ <input checked="" type="checkbox"/>                                   |   | * |   | 1. Check if the system is overloaded with air<br>2. Check if the voltage is too low(below 187V)<br>3. Check if the CT or the base plate parts are all right                                                                                                                                   |
| DC electricity protection                   | ★ ★ <input type="checkbox"/>                                              |   | * |   | 1. Check if there are seizes in the compressor<br>2. Check if there are damages of the power modules<br>3. The voltage is too high (over 242V)or too low (187V)                                                                                                                               |
| Low power protection                        | <input checked="" type="checkbox"/> ★ <input type="checkbox"/>            |   | * |   | 1. Check if the voltage is too low<br>2. Check if the base plate is damaged.                                                                                                                                                                                                                  |
| Outdoor base plate temperature              | <input checked="" type="checkbox"/> ★ ★                                   |   | * |   | 1. Check if the base plate is all right<br>2. The outdoor environment temperature could be too high                                                                                                                                                                                           |
| Module temperature increase protection      | <input type="checkbox"/> ★ ★                                              |   | * |   | 1. Check if there are seizes in the compressor<br>2.<br>3. If there are any damages of power module<br>4. Check if the heat dispersion glue is even<br>5. The voltage is too high (over 242V)or too low (below 187V)<br>6.                                                                    |

|                              |                               |   |                                     |  |                                                                                                                                                                                                                                                                                                                                        |
|------------------------------|-------------------------------|---|-------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| High work-intense protection | ★ ★ ★                         | * |                                     |  | <ol style="list-style-type: none"> <li>1. Check if the filter net is blocked</li> <li>2. The indoor&amp;outdoor temperature could be too high</li> <li>3. Check if the system is overloaded with air</li> <li>4. Check if the base plate is damaged.</li> <li>5. The voltage is too high (over 242V)or too low (below 187V)</li> </ol> |
| CT wire breakage protection  | ★ ■ ★                         |   | *                                   |  | <ol style="list-style-type: none"> <li>1. Check if the base plate is damaged or not</li> <li>2. The system is lack of air</li> <li>3. The direction changing of the 4-way valve is not proper</li> </ol>                                                                                                                               |
| EEPROM anomaly               | ★ □ ★                         | * |                                     |  | 1. Check if the base plate is damaged or not                                                                                                                                                                                                                                                                                           |
|                              |                               |   | *                                   |  | 1. Check if the base plate is damaged.                                                                                                                                                                                                                                                                                                 |
| Inner blower fan anomaly     | ■ □ ★                         | * |                                     |  |                                                                                                                                                                                                                                                                                                                                        |
| Explanation                  | □bright★flashing<br>■turn-off |   | * Represents there is this function |  |                                                                                                                                                                                                                                                                                                                                        |

## OUTDOOR UNIT

### Chapter I: Indoor Unit and Main board for Outdoor Unit

#### Notice:

During operations under any mode, if short circuit, open circuit and other malfunctions of the temperature sensors are detected, the main engine should come to a halt immediately.

#### 1. Outdoor-board:

##### 1.1.Forced cooling operation switch:

Short circuit this switch before electrifying, data communication to indoor unit will be ignored:

Forced cooling will function, the 3-minute delay will be cancelled, and the following output will be ON simultaneously:

High wind volume (H) for outdoor fan motor;

Compressor operates at the frequency of 80Hz.

##### 1.2.Forced heating operation switch:

Short circuit this switch before electrifying, data communication to indoor unit will be ignored:

Forced heating will function, the 3-minute delay will be cancelled, and the following output will be ON simultaneously:

High wind volume (H) for outdoor fan motor;

Compressor operates at the frequency of 80Hz.

CPU checks all A/D ports

B. When safeguarding action happens outdoors, the actions in A should be OFF, and other inputs are independent of the actions in A.

C. LED output: Goes along even if safeguarding action happens outdoors;  
Cut this switch and go back to the original state. (The out-door safeguarding action will continue)

#### 2.LED output:

| Twinkling times of LED | Possible cause of the malfunction            |
|------------------------|----------------------------------------------|
| 1                      | Outdoor temperature sensor abnormality       |
| 2                      | Outdoor defrosting sensor abnormality        |
| 3                      | Compressor discharge temperature abnormality |
| 4                      | High compressor discharge temperature        |
| 5                      | Indoor-outdoor communication abnormality     |
| 6                      | Abnormal communication to IPDU module        |
| 7                      | E2PROM data abnormality                      |

|    |                                                     |
|----|-----------------------------------------------------|
| 8  | IPDU abnormality: Maximum revolving rate exceeded   |
| 9  | IPDU abnormality: Vibration                         |
| 10 | IPDU abnormality: Displaced                         |
| 11 | IPDU abnormality: Speeding up abnormality           |
| 12 | IPDU abnormality: G-TR short circuit                |
| 13 | IPDU abnormality: Position-testing loop abnormality |
| 14 | IPDU abnormality: Current sensor abnormality        |
| 15 | IPDU abnormality: Compressor locked                 |
| 16 | IPDU abnormality: Compressor damaged                |
| 17 | IPDU abnormality: Case thermo action                |

## Chapter II: Basic Functions

### 3. Cooling mode

3.1.The four-way valve does not work (not electrified)

3.2.The discharge temperature sensor will not be tested within five minutes after the compressor is started

3.3.Outdoor fan motor control: The fan motor starts five seconds after the compressor starts, switching conditions for the two gears of wind volume are as follows:

T ambient temp. <21°C, Low wind volume

T ambient temp. >21°C, High wind volume

When the fan motor starts up, and the ambient temperature is at the return difference ( $\pm 2^{\circ}\text{C}$ ), it runs at the low wind volume.

3.4.Compressor control: Frequency range: 30HZ-----120HZ

T ambient temp. <16°C, the maximum frequency is 65HZ

$16^{\circ}\text{C} \leq \text{T ambient temp.} \leq 30^{\circ}\text{C}$ , the maximum frequency is

90HZ

$30^{\circ}\text{C} \leq \text{T ambient temp.} \leq 41^{\circ}\text{C}$ , the maximum frequency is 110HZ

T ambient temp.  $\geq 41^{\circ}\text{C}$ , the maximum frequency is 85HZ

Actual temperature and frequency maybe adjusted through EEPROM

### 4.Heating mode

4.1.The four-way valve is electrified 2 seconds after the compressor is electrified

4.2.Malfunctions of the discharge temperature sensor will not be tested within five minutes after the compressor is started

4.3.Outdoor fan motor control: The fan motor starts five seconds after the compressor starts, switching conditions for the two gears of wind volume are as follows:

T ambient temp. <16°C, High wind volume

T ambient temp.  $\geq 16^{\circ}\text{C}$ , Low wind volume

When the fan motor starts up, and the ambient temperature is at the return difference ( $\pm 2^{\circ}\text{C}$ ), it runs at the low wind volume.

4.4.Compressor control: Frequency range: 30HZ-----120HZ

T ambient temp. >22°C, the maximum frequency is 70HZ

$9^{\circ}\text{C} \leq T \text{ ambient temp.} \leq 22^{\circ}\text{C}$ , the maximum frequency is 90HZ

$2^{\circ}\text{C} \leq T \text{ ambient temp.} \leq 9^{\circ}\text{C}$ , the maximum frequency is 100HZ

$T \text{ ambient temp.} < 2^{\circ}\text{C}$ , the maximum frequency is 110HZ

Actual temperature and frequency can be adjusted through EEPROM

#### 4.5. Conditions to enter into the defrosting stage:

##### A. Conditions to enter into the defrosting stage

After the heating operation has begun, and the operation time of the compressor adds up to 45 minutes (The total operation time of the compressor will be reset to zero after defrosting or the operating mode switched into cooling), through examining the defrosting sensor TE (Examining the frosting status of the outdoor heat exchanger) and the ambient temperature sensor TA, if the following conditions are met continuously up to 5 minutes, then defrosting operation is entered:

$$TE \leq C \times TA - \alpha$$

Of which :  $C : TA < 0^{\circ}\text{C}$ ,  $C=0.8$

$TA \geq 0^{\circ}\text{C}$ ,  $C=0.3$

$\alpha$  maybe adjusted through EEPROM

For places easy to frost, set  $\alpha$  as H; For places not easy to frost, set  $\alpha$  as L; It is set as M when leaving factory.

Temperature limit to enter into the defrosting stage  $-15^{\circ}\text{CE} \leq C \times TA - \alpha \leq 2^{\circ}\text{CE}$

##### B. Time interval of defrosting

- While the calculated data of  $C \times TA - \alpha$  fall within the range of  $-15^{\circ}\text{CE} \leq C \times TA - \alpha$ , the time interval between two defrosting operation is 45 minutes
- While the calculated data of  $C \times TA - \alpha$  fall within the range of  $C \times TA - \alpha \leq -15^{\circ}\text{CE}$ , the time interval between two defrosting operation is 55 minutes

##### C. Defrosting operation

- When defrosting begins, the compressor and the outdoor fan motor stops, and the four-way valve turns OFF 50 seconds later.
- The compressor starts and stays at the frequency of 60HZ for 30 seconds, then operates towards the target frequency (Can be adjusted through EEPROM)
- The current safeguard and the compressor discharge safeguard and other means of safeguard remain valid while defrosting. If the compressor halts during the defrosting stage, remain still for 30 seconds, then conducts defrosting operation if it is still within the defrosting stage, the compressor starts according to the demand of the startup of the defrosting compressor.
- Entering into the defrosting stage, it must be guaranteed that the minimum operation time of the compressor should amount at least to 2 minutes before exit defrosting.

##### D. Conditions to exit the defrosting stage

The defrosting operation will return to heating operation if any of the following conditions is met.

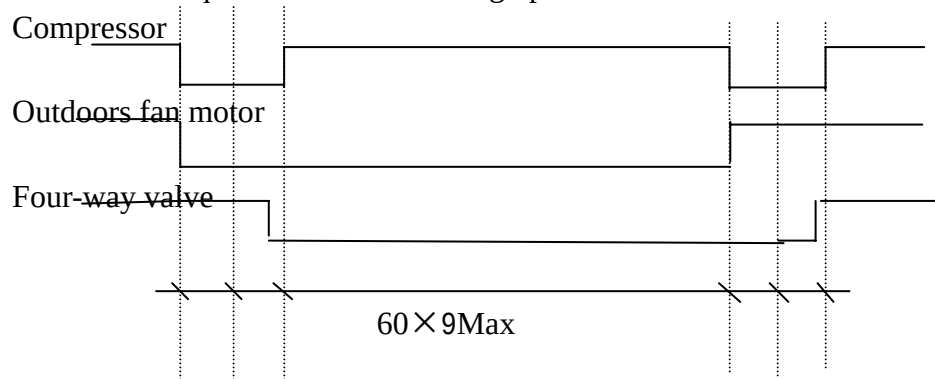
(1) : The temperature of the outdoor heat exchanger remains above 7°C (Can be adjusted through EEPROM) for over 80 seconds continuously.

(2) : Keep defrosting operation for 9 minutes (Can be adjusted through EEPROM) continuously.

E. After the condition to exit defrosting operation is met, work as follows.

The compressor stops, the outdoor fan motor stops 50 seconds later, the four-way valve turns on, the compressor starts according to the starting process.

Time sequence of the defrosting operation is as follows:



## 5.Outdoor condensation temperature control while cooling:

5.1.When the operation frequency  $F < 40\text{Hz}$ , if the temperature of the outdoor coiled pipe  $T_{\text{outdoor coil}} \geq 52^\circ\text{C}$ , decrease the operation frequency of the compressor by 2Hz, then examine the temperature of the outdoor coiled pipe at 10-second intervals, if  $T_{\text{outdoor coil}} \geq 52^\circ\text{C}$ , decrease the operation frequency further by 2Hz, until the frequency is the lowest;

During the frequency-decreasing operation, if  $47^\circ\text{C} \leq T_{\text{outdoor coil}} < 52^\circ\text{C}$ , the compressor and the fan motor keep their original states;

the compressor runs at the normal operating frequency, and the outdoor fan motor returns to its original state,

5.2.When the operation frequency  $F \geq 40\text{Hz}$ , if the temperature of the outdoor coiled pipe  $T_{\text{outdoor coil}} \geq 57^\circ\text{C}$ , decrease the operation frequency of the compressor by 2Hz, then examine the temperature of the outdoor coiled pipe at 10-second intervals, if  $T_{\text{outdoor coil}} \geq 57^\circ\text{C}$ , decrease the operation frequency further by 2Hz, until the frequency is the lowest;

During the frequency-decreasing operation, if  $52^\circ\text{C} \leq T_{\text{outdoor coil}} < 57^\circ\text{C}$ , the compressor and the fan motor keep their original states;

When  $T_{\text{outdoor coil}} \leq 51^\circ\text{C}$ , the compressor runs at the normal operating frequency, and the outdoor fan motor returns to its original state;

The above temperature points, frequency-decreasing step and time interval can all be adjusted through EEPROM

## III. Anti over-loading operation while heating:

5.3.When the operation frequency  $F < 40\text{Hz}$ , if the temperature of the outdoor

coiled pipe  $T_{\text{outdoor coil}} \geq 52^{\circ}\text{C}$ , the outdoor fan motor performs forced high-speed operation and the operation frequency of the compressor should be decreased by 2Hz, then examine the temperature of the outdoor coiled pipe at 10-second intervals, if  $T_{\text{outdoor coil}} \geq 52^{\circ}\text{C}$ , decrease the operation frequency further by 2Hz, until the frequency is the lowest;

During the frequency-decreasing operation, if  $47^{\circ}\text{C} \leq T_{\text{outdoor coil}} < 52^{\circ}\text{C}$ , the compressor and the fan motor keep their original states;

When  $T_{\text{outdoor coil}} \leq 46^{\circ}\text{C}$ , the compressor runs at the normal operating frequency, and the outdoor fan motor returns to its original state;

5.4. When the operation frequency  $F \geq 40\text{Hz}$ , if the temperature of the outdoor coiled pipe  $T_{\text{outdoor coil}} \geq 57^{\circ}\text{C}$ , the outdoor fan motor performs forced high-speed operation and the operation frequency of the compressor should be decreased by 2Hz, then examine the temperature of the outdoor coiled pipe at 10-second intervals, if  $T_{\text{outdoor coil}} \geq 57^{\circ}\text{C}$ , decrease the operation frequency further by 2Hz, until the frequency is the lowest;

During the frequency-decreasing operation, if  $52^{\circ}\text{C} \leq T_{\text{outdoor coil}} < 57^{\circ}\text{C}$ , the compressor and the fan motor keep their original states

When  $T_{\text{outdoor coil}} \leq 51^{\circ}\text{C}$ , the compressor runs at the normal operating frequency, and the outdoor fan motor returns to its original state;

The above temperature points, frequency-decreasing step and time interval can all be adjusted through EEPROM

#### 6.. Compressor discharge safeguard:

5 minutes after the compressor starts, when the compressor temperature rises above  $105^{\circ}\text{C}$ , decrease the compressor frequency by 2Hz/stop for 10 seconds, until the compressor temperature falls below  $90^{\circ}\text{C}$ , the compressor returns to normal operation;

When the compressor temperature rises above  $115^{\circ}\text{C}$ , the compressor should stop at once, wait until the compressor temperature falls below  $90^{\circ}\text{C}$  and the waiting time period exceeds 3 minutes, the compressor returns to normal operation;

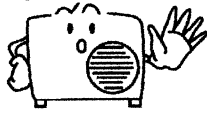
After the compressor restarts, if the compressor temperature rises above  $115^{\circ}\text{C}$  once more within 15 minutes, the compressor should stop at once and give an alarm.

The temperature points are stored in EEPROM

## TROUBLE SHOOTING

# Trouble Shooting

Before asking for service, check the following first.

|                                     | Phenomenon                                                                                                                        | Cause or check points                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Normal<br>Performance<br>inspection | <p>The system does not restart immediately.</p>  | <ul style="list-style-type: none"> <li>• When unit is stopped, it won't restart immediately until 3 minutes have elapsed to protect the system.</li> <li>• When the electric plug is pulled out and reinserted, the protection circuit will work for 3 minutes to protect the air conditioner.</li> </ul>                                                                                                                                                                                                                                 |
|                                     | <p>Noise is heard.</p>                           | <ul style="list-style-type: none"> <li>• During unit operation or at stop, a swishing or gurgling noise may be heard. At first 2-3 minutes after unit start, this noise is more noticeable. (This noise is generated by refrigerant flowing in the system.)</li> <li>• During unit operation, a cracking noise may be heard. This noise is generated by the casing expanding or shrinking because of temperature changes.</li> <li>• Should there be a big noise from air flow in unit operation, air filter may be too dirty.</li> </ul> |
|                                     | <p>Smells are generated.</p>                                                                                                      | <ul style="list-style-type: none"> <li>• This is because the system circulates smells from the interior air such as the smell of furniture, cigarettes.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                        |
|                                     | <p>Mist or steam are blown out.</p>            | <ul style="list-style-type: none"> <li>• During COOL or DRY operation, indoor unit may blow out mist. This is due to the sudden cooling of indoor air.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                         |
| Multiple<br>check                   | <p>Does not work at all.</p>                   | <ul style="list-style-type: none"> <li>• Is power plug inserted?</li> <li>• Is there a power failure?</li> <li>• Is fuse blown out?</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                            |
|                                     | <p>Poor cooling</p>                            | <ul style="list-style-type: none"> <li>• Is the air filter dirty? Normally it should be cleaned every 15 days.</li> <li>• Are there any obstacles before inlet and outlet?</li> <li>• Is temperature set correctly?</li> <li>• Are there some doors or windows left open?</li> <li>• Is there any direct sunlight through the window during the cooling operation? (Use curtain)</li> <li>• Are there too much heat sources or too many people in the room during cooling operation?</li> </ul>                                           |

Application temp. range of air conditioner -7℃~43℃.

## Abnormality Diagnosing

| Number | Trouble phenomenon              | Description                                                   | Parts that may appear problems and the Cause                                                                                                                                                                                                                                                                                | Prepared parts and tools                                                                  | Applicable machine              |
|--------|---------------------------------|---------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|---------------------------------|
| 1      | Not work with remote controller | Use the remote controller to boot machine and it doesn't work | 7805,transformer, piezo resistance, fuse,remote controller, receiver. If it can be booted by using manual emergency switch, that indicate the power cable and wiring board are electriferous, remote controller or receiver isn't well; else check whether piezo resistance ,fuse and 7805 are well。                        | 7805,transfor mer, fuse, piezo resistance, remote controller, receive,avome ter           | invariable frequency split unit |
| 2      | Outdoor fan motor doesn't work  | Outdoor fan motor doesn't run when cooling or heating         | Optical SCR, indoor P.C. board. Check the 2# and 4# terminal block of indoor unit, if it has 220V voltage, wiring board is normal, then check whether the optical SCR is good, replace it if it has flaw; else check whether there are something wrong with connecting line, outdoor fan motor capacitor and coil assembly。 | Optical SCR, indoor P.C. board , outdoor fan motor capacitor, outdoor fan motor,avomet er | invariable frequency split unit |
| 3      | Indoor fan motor doesn't work   | Indoor fan motor doesn't run when cooling or heating          | Optical SCR, indoor P.C. board 。 Check whether indoor fan motor has 80-170V voltage, if it has, wiring board is normal, then check whether the optical SCR is good, replace it if it has flaw; else check whether there are something wrong with connecting line, indoor fan motor capacitor and coil assembly。             | Optical SCR, indoor P.C. board , indoor fan motor capacitor, indoor fan motor,avomet er   | invariable frequency split unit |
| 4      | Not heating                     | Cooling but not heating                                       | Indoor P.C. board , four-way valve coil, body of four-way valve, Check the 2# and 3# terminal block of indoor unit, if it has 220V voltage when heating but no when cooling, then P.C. board is abnormal; else check whether four-way valve coil and the body of four-way valve are damaged。                                | Indoor P.C. board , four-way valve coil, body of four-way valve, avometer                 | invariable frequency split unit |

|   |                                                           |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                   |                                           |
|---|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| 5 | Indoor unit make water                                    | Oriented wind panel or drain pan makes water when used                                                   | Drain pan, drain hose. Check whether the indoor unit is installed horizontal, drain hose of indoor unit is leveled off ,the hole is over high , filter and drain hose is dirty and walled up、 drain pipe is underwater。                                                                                                                                                                                                                                                                                                                  | drain pan, drain hose                                                                                                             | invariable frequency split unit           |
| 6 | Compressor doesn't work                                   | running indicator lights up, but compressor doesn't work                                                 | Indoor P.C. board , startup capacity for compressor, overheat protector, compressor. Check the 1# and 2# terminal block of indoor unit whether it has single AV, if not then examine the power relay of P.C. board , else check overheat protector, startup capacity for compressor and compressor itself                                                                                                                                                                                                                                | Indoor P.C. board , startup capacity for compressor, overheat protector, compressor,avometer                                      | invariable frequency split unit           |
| 7 | The outdoor fan motor and compressor don't work           | The running lamp of air conditioner lights but the outdoor fan motor and compressor don't run            | Remote controller 、 electrolytic capacitor of 2500UF、 7805、 outdoor heat exchanger sensor and ambient temperature sensor. Use temperature key of remote controller to watch how much times the timing lamp glitters and judge what's the trouble .If there is no glitter we should check the terminal block to see if there is AC voltage about 220V.Check the electrolytic capacitor of 2500UF and see if there is current about 310V.Examine the output of the 7805 and switch transformer together with the resistance of the sensor. | Remote controller ,electrolytic capacitor of 2500UF、 7805、 outdoor heat exchanger sensor and ambient temperature sensor、 avometer | Little split unit of frequency conversion |
| 8 | The outdoor fan motor runs but the compressor doesn't run | The running lamp of air conditioner lights ,the outdoor fan motor works, but the compressor doesn't work | Power model、 switch transformer、 compressor. Check the temperature key of remote controller to watch how many times the timing lamp glitters and judge what's the trouble. Examine the two ends of PN to see if there is DC voltage about 310V.Four group DC power resource of 15V.Check the triphase coil assembly of the compressor and see if they are the same.                                                                                                                                                                      | Power model、 switch transformer、 compressor、 avometer                                                                             | Little split unit of frequency conversion |

|    |                     |                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                             |                                                |
|----|---------------------|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|------------------------------------------------|
| 9  | Don't make heat     | The air conditioner can refrigerate but can't make heat                                   | Outdoor P.C. Board、4 way valve coil、 4 way valve body. Examine the CN204 at Outdoor P.C. Board and watch if there is 220V voltage .If there doesn't have we can judge that the P.C. Board is bad. If there has, we need to connect and check the whether the 4 way valve coil and the 4way valve body have been damaged .                                                                                                     | Outdoor P.C. Board、4way valve coil、 4 way valve body、 avometer.                             | Little split unit of frequency conversion      |
| 10 | Show error code E8  | The machine doesn't work and shows error code E8                                          | Multimeter negative generator、 indoor P.C. board 、connecting and inserting lines .Check if the Multimeter negative generator is plane and the grounding (CF) is touching well, then examine not only whether the indoor P.C. Board and control board have been damaged or not but also the connecting lines are good.                                                                                                         | Multimeter negative generator、 indoor P.C. Board、 control board 、 grounding (CF)、 avometer. | The series of frequency fixed cabinet type     |
| 11 | Can't start         | The air conditioner can't start                                                           | Transformer、 indoor microcomputer plate、 fuse. Check if the transformer has been burned. power wave filter、 LX102.Check whether the fuse and indoor microcomputer plate have been damaged.                                                                                                                                                                                                                                    | Transformer、 power wave filter、 indoor microcomputer plate、 fuse、 avometer.                 | The series of frequency fixed cabinet type     |
| 12 | Show error code F11 | When the air conditioner has run about 5minutes the indoor unit shows the error code F11. | The system pressure、 outdoor P.C. Board、 Power source voltage、 power model、 the connecting lines of compressor. The cause is that protective action has been taken when it runs with large burden, there is more refrigerant than it should be .Examine the outdoor P.C. Board、 Power source voltage、 power model and see whether they have been damaged and the connecting lines touch well, if not, adjust it to be normal. | outdoor P.C. Board、 Power source voltage、 power model .                                     | The machine of frequency conversion split unit |

## INSTALLATION

# Installation Manual of Room Air Conditioner

- Read this manual before installation
- Explain sufficiently the operating means to the user according to this manual.

## Necessary Tools for Installation

- |                           |                                 |                                                    |           |
|---------------------------|---------------------------------|----------------------------------------------------|-----------|
| 1.Driver                  | 5.Torque wrench(17mm,22mm,26mm) | 9.Nipper                                           | 12.Reamer |
| 2.Hacksaw                 | 6.Pipe cutter                   | 10.Gas leakage detector or soap-and-water solution |           |
| 3.Hole core drill         | 7.Flaring tool                  | 11.Measuring tape                                  |           |
| 4.Spanner(17,19 and 26mm) | 8.Knife                         |                                                    |           |

## Drawing for the installation of indoor and outdoor units

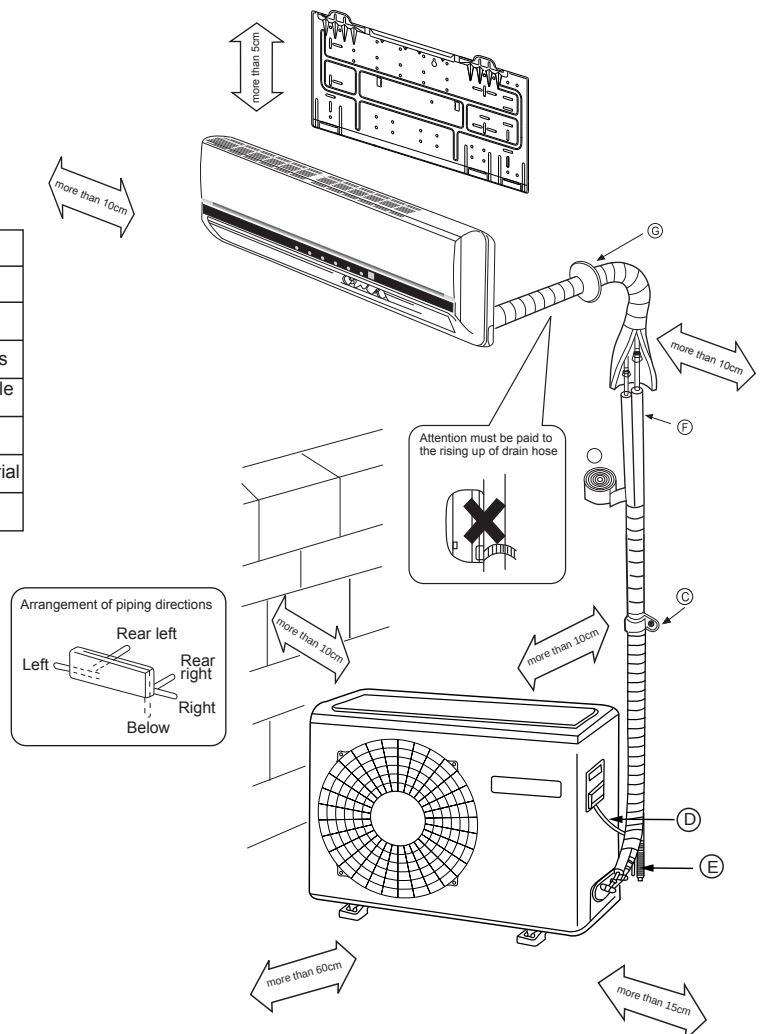
The models adopt HFC free refrigerant R410A

### Accessory parts

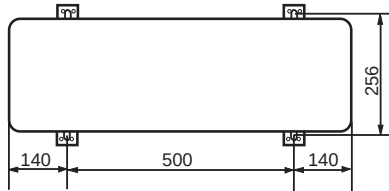
| No. | Accessory parts            | Number of articles |
|-----|----------------------------|--------------------|
| ①   | Remote controller          | 1                  |
| ②   | R-03 dry battery           | 2                  |
| ③   | Mounting plate             | 1                  |
| ④   | Drain hose                 | 1                  |
| ⑤   | Φ4X25 Screw<br>Plastic cap | 4                  |
| ⑥   | Drain-elbow                | 1                  |
| ⑦   | Cushion                    | 4                  |

### Optional parts for piping

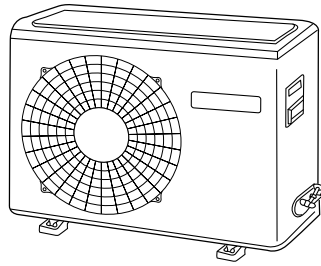
| Mark | Parts name                                       |
|------|--------------------------------------------------|
| Ⓐ    | Non-adhesive tape                                |
| Ⓑ    | Adhesive tape                                    |
| Ⓒ    | Saddle(L.S) with screws                          |
| Ⓓ    | Connecting electric cable for indoor and outdoor |
| Ⓔ    | Drain hose                                       |
| Ⓕ    | Heating insulating material                      |
| Ⓖ    | Piping hole cover                                |



- ※ The marks from Ⓐ to Ⓖ in the figure are the parts numbers.
- ※ The distance between the indoor unit and the floor should be more than 2m.



Floor fixing dimensions  
of the outdoor unit  
(Unit:mm)



### Fixing of outdoor unit

- Fix the unit to concrete or block with bolts(  $\phi 10\text{mm}$  ) and nuts firmly and horizontally.
- When fitting the unit to wall surface, roof or rooftop, fix a supporter surely with nails or wires in consideration of earthquake and strong wind.
- If vibration may affect the house, fix the unit by attaching a vibration-proof mat.

### Indoor Unit

## Selection of Installation Place

### Outdoor Unit

- Place, robust not causing vibration, where the body can be supported sufficiently.
- Place, not affected by heat or steam generated in the vicinity, where inlet and outlet of the unit are not disturbed.
- Place, possible to drain easily, where piping can be connected with the outdoor unit.
- Place, where cold air can be spread in a room entirely.
- Place, nearby a power receptacle, with enough space around. (Refer to drawings).
- Place where the distance of more than 1m from televisions, radios, wireless apparatuses and fluorescent lamps can be left.
- In the case of fixing the remote controller on a wall, place where the indoor unit can receive signals when the fluorescent lamps in the room are lightened.
- Place, which is less affected by rain or direct sunlight and is sufficiently ventilated.
- Place, possible to bear the unit, where vibration and noise are not increased.
- Place, where discharged wind and noise do not cause a nuisance to the neighbors.
- Place, where a distance marked  $\leftrightarrow$  is available as illustrated in the above figure.

## Power Source

- Before inserting power plug into receptacle, check the voltage without fail. The power source is the same as the corresponding name plate.
- Install an exclusive branch circuit of the power.
- A receptacle shall be set up in a distance where the power cable can be reached. Do not extend the cable by cutting it.

## Selection of pipe

- To this unit, both liquid and gas pipes shall be insulated as they become low temperature in operation.
- Use optional parts for piping set or pipes covered with equivalent insulation material.
- The thickness of the pipe must be 0.8mm at least.

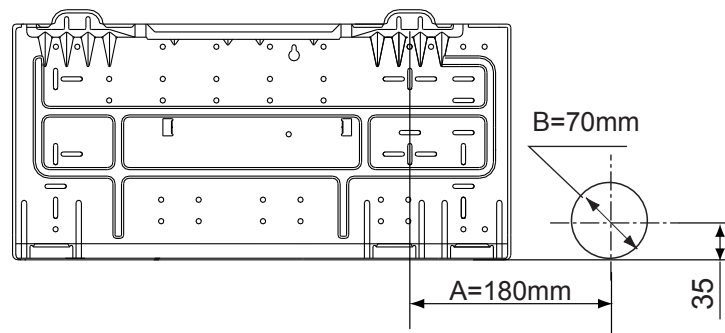
|                        | For 09       | For 12       |
|------------------------|--------------|--------------|
| Liquid pipe ( $\phi$ ) | 6.35mm(1/4") | 6.35mm(1/4") |
| Gas pipe ( $\phi$ )    | 9.52mm(3/8") | 12.7mm(1/2") |

# Indoor unit

## 1. Fitting of the Mounting Plate and Positioning of the wall Hole

### When the mounting plate is first fixed

1. Carry out, based on the neighboring pillars or lintels, a proper leveling for the plate to be fixed against the wall, then temporarily fasten the plate with one steel nail.
2. Make sure once more the proper level of the plate, by hanging a thread with a weight from the central top of the plate, then fasten securely the plate with the attachment steel nail.
3. Find the wall hole location A using a measuring tape



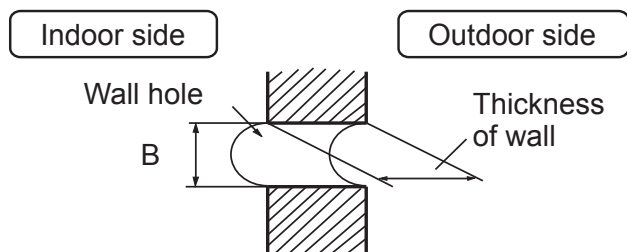
Find the level position

### When the mounting plate is fixed side bar and lintel

- Fix to side bar and lintel a mounting bar, Which is separately sold, and then fasten the plate to the fixed mounting bar.
- Refer to the previous article, " **When the mounting plate is first fixed** ", for the position of wall hole.

## 2. Making a Hole on the Wall and Fitting the Piping Hole Cover

- Make a hole of B mm in diameter, slightly descending to outside the wall.
- Install piping hole cover and seal it off with putty after installation



(Section of wall hole) © Piping hole pipe

# Indoor unit

## 3.Installation of the Indoor Unit

### Drawing of pipe

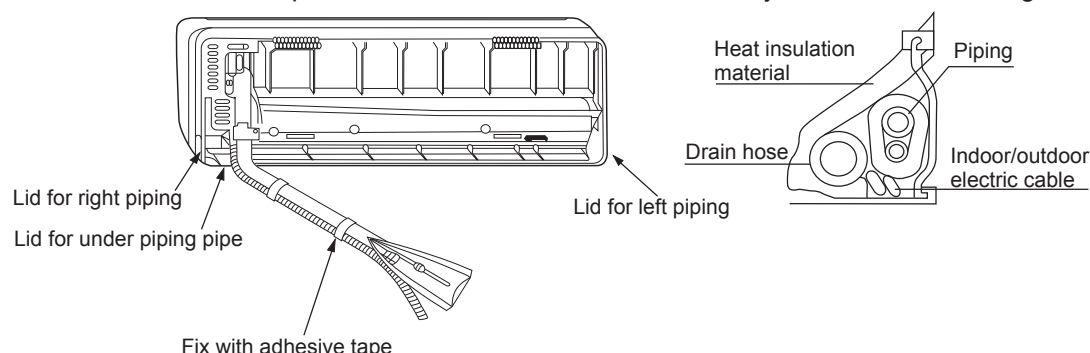
#### [Rear piping ]

- Draw pipes and the drain hose, then fasten them with the adhesive tape

#### [Left • Left-rear piping ]

- In case of left side piping, cut away, with a nipper, the lid for left piping.
- In case of left-rear piping, bend the pipes according to the piping direction to the mark of hole for left-rear piping which is marked on heat insulation materials.
  1. Insert the drain hose into the dent of heat insulation materials of indoor unit.
  2. Insert the indoor/outdoor electric cable from backside of indoor unit, and pull it out on the front side, then connect them.
  3. Coat the flaring seal face with refrigerant oil and connect pipes.

Cover the connection part with heat insulation materials closely, and make sure fixing with adhesive tape



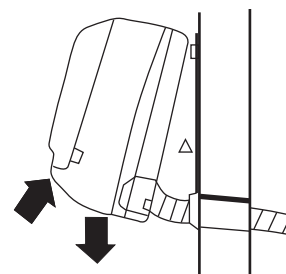
- Indoor/outdoor electric cable and drain hose must be bound with refrigerant piping by protecting tape.

#### [Other direction piping ]

- Cut away, with a nipper, the lid for piping according to the piping direction and then bend the pipe according to the position of wall hole. When bending, be careful not to crash pipes.
- Connect beforehand the indoor/outdoor electric cable, and then pull out the connected to the heat insulation of connecting part specially.

### Fixing the indoor unit body

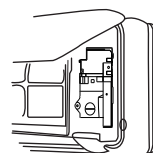
- Hang surely the unit body onto the upper notches of the mounting plate. Move the body from side to side to verify its secure fixing.
- In order to fix the body onto the mounting plate, hold up the body aslant from the underside and then put it down perpendicularly.



## 4.Connecting the indoor/outdoor Electric Cable

### Removing the wiring cover

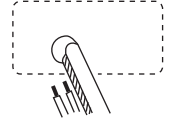
- Remove terminal cover at right bottom corner of indoor unit, then take off wiring cover by removing its screws.



# Indoor unit

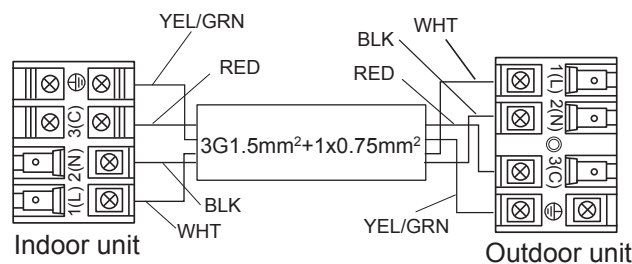
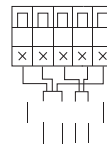
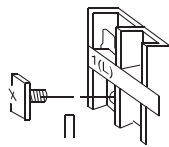
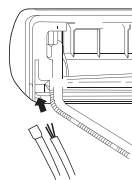
## When connecting the cable after installing the indoor unit

1. Insert from outside the room cable into left side of the wall hole, in which the pipe has already existed.
2. Pull out the cable on the front side, and connect the cable making a loop.



## When connecting the cable before installing the indoor unit

- Insert the cable from the back side of the unit, then pull it out on the front side.
  - Loosen the screws and insert the cable ends fully into terminal block, then tighten the screws.
  - Pull the cable slightly to make sure the cables have been properly inserted and tightened.
  - After the cable connection, never fail to fasten the connected cable with the wiring cover.
  - Note: When connecting the cable, confirm the terminal number of indoor and outdoor units carefully. If wiring is not correct, proper operation can not be carried out and will cause defect.
1. If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similar qualified person. The type of connecting wire is H05RN-F or H07RN-F.
  2. If the fuse on PC board is broken please change it with the type of T. 3.15A/250V.
  3. The wiring method should be in line with the local wiring standard.
  4. After installation, the power plug should be easily reached.
  5. A breaker should be incorporated into fixed wiring. The breaker should be all-pole switch and the distance between its two contacts should be not less than 3mm.



Power cable: \*3G1.5mm<sup>2</sup>

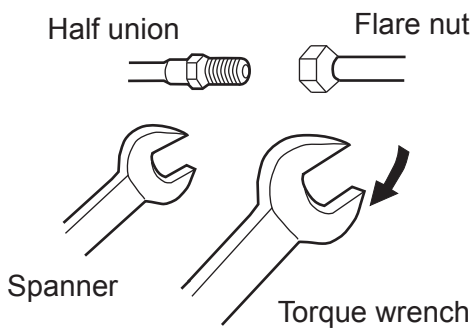
# Outdoor unit

## 1. Installation of Outdoor Unit

Install according to Drawing for the installation of indoor and outdoor units

## 2. Connection of pipes

- To bend a pipe, give the roundness as large as possible not to crush the pipe.
- Connecting the pipe of gas side first makes working easier.
- The max vertical distance between the indoor unit and the outdoor unit is 5 m.



Forced fastening without careful centering may damage the threads and cause a leakage of gas.

| Pipe Diameter ( $\phi$ ) | Fastening torque |
|--------------------------|------------------|
| Liquid side 6.35mm(1/4") | 18N.m            |
| Gas side 9.52mm(3/8")    | 42N.m            |
| Gas side 12.7mm(1/2")    | 55N.m            |

Be careful that matters, such as wastes of sands, etc. shall not enter the pipe.

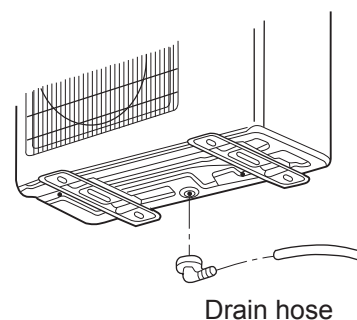
## 3. Connection

- Use the same method on indoor unit. Loosen the screws on terminal block and insert the plugs fully into terminal block, then tighten the screws.
- Insert the cable according to terminal number in the same manner as the indoor unit.
- If wiring is not correct, proper operation can not be carried out and controller may be damaged.
- Fix the cable with a clamp.

## 4. Attaching Drain-Elbow

- If the drain-elbow is used, please attach it as figure.

Note: Only for heat pump unit.

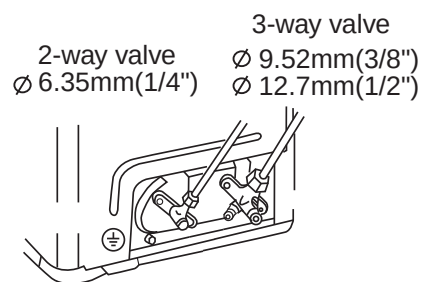


# Outdoor unit

## 5.Purging Method:

Push the air out of the indoor unit and piping as follows:

- (1) Remove the valve cap on 2-way valve in outdoor unit.
- (2) Loosen by 1/2 turn the flare nut of gas pipe, which is conneted to 3-way valve.
- (3) Loosen 2-way valve by 90° using hexagon wrench, and after approx. 10 sec tighten it up. Gas comes out through flare nut on wide pipe. If no gas is discharged, tighten flare nut with specified torque.
- (4) Open 2-way and 3-way valves using specified torque.
- (5) Tighten the caps on the valves with specified torque.



|           | Tighten torque N.m |
|-----------|--------------------|
| Valve rod | 7-9                |
| Valve cap | 20-25              |

- When connecting pipe exceeds 5 meters, 16g refrigerant shall be added per exceeding meter. Charge according to the following list.

|                   |         |     |     |
|-------------------|---------|-----|-----|
| Piping length     | 5m      | 7m  | 10m |
| Additional amount | No need | 32g | 80g |

- Note: When extending piping, air inside piping shall be removed by using external refrigerant gas, charge according to the following list.

Brand new outdoor unit is charged 50g more refrigerant than regulated weight. Only for first installation, this extra 50g can be used to purge air in pipes.

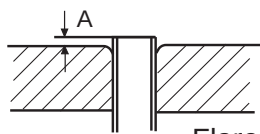
- ★ 1 During this procedure, 50g refrigerant will be discharged in piping.  
(This must be strictly controlled within 90° and 10 sec.)

## 1.Power Source Installation

- The power source must be exclusively used for air conditioner. (Over 10A)
- In the case of installing an air conditioner in a moist place, please install an earth leakage breaker.
- For installation in other places, use a circuit breaker as far as possible.

## 2.Cutting and Flaring Work of Piping

- Pipe cutting is carried out with a pipe cutter and burs must be removed.
- After inserting the flare nut, flaring work is carried out.



Flare tooling die

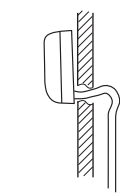
|             | Pipe diameter( $\phi$ ) | Size A(mm) |
|-------------|-------------------------|------------|
| Liquid side | 6.35mm(1/4")            | 0.8~1.5    |
| Gas side    | 9.52mm(3/8")            | 1.0~1.8    |
| Gas side    | 12.7mm(1/2")            | 1.2~2.0    |

| Correct | Incorrect |                 |       |         |             |
|---------|-----------|-----------------|-------|---------|-------------|
|         |           |                 |       |         |             |
|         | Lean      | Damage of flare | Crack | Partial | Too outside |

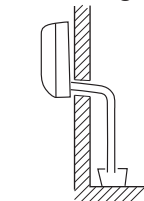
## 3.On Drainage

Please install the drain hose so as to be downward slope without fail.

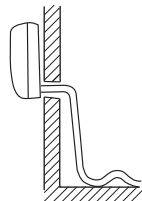
Please don't do the drainage as shown below.



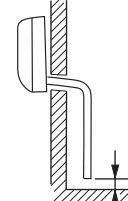
It becomes high midway.



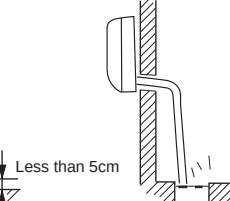
The end is immersed in water.



It waves.



The gap with the ground is too small



There is the bad smell from a ditch

- Please pour water in the drain pan of the indoor unit, and confirm that drainage is carried out surely to outdoor.
- In case that the attached drain hose is in a room, please apply heat insulation to it without fail.

## Check for Installation and Test Run

- Please kindly explain to our customers how to operate through the instruction manual.

### Check Items for Test Run

☐ Put check mark  $\checkmark$  in boxes

- |                                                                                                                  |                                                                      |                                                                                          |
|------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| <input type="checkbox"/> Gas leak from pipe connecting?                                                          | <input type="checkbox"/> Is drainage securely carried out?           | <input type="checkbox"/> Is the lamp normally lighting?                                  |
| <input type="checkbox"/> Heat insulation of pipe connecting?                                                     | <input type="checkbox"/> Is the earth line securely connected?       | <input type="checkbox"/> Are cooling and heating (when in heat pump) performed normally? |
| <input type="checkbox"/> Are the connecting wirings of indoor and outdoor firmly inserted to the terminal block? | <input type="checkbox"/> Is the indoor unit securely fixed?          | <input type="checkbox"/> Is the operation of room temperature regulator normal?          |
| <input type="checkbox"/> Is the connecting wiring of indoor and outdoor firmly fixed?                            | <input type="checkbox"/> Is power source voltage abided by the code? |                                                                                          |
|                                                                                                                  | <input type="checkbox"/> Is there any noise?                         |                                                                                          |

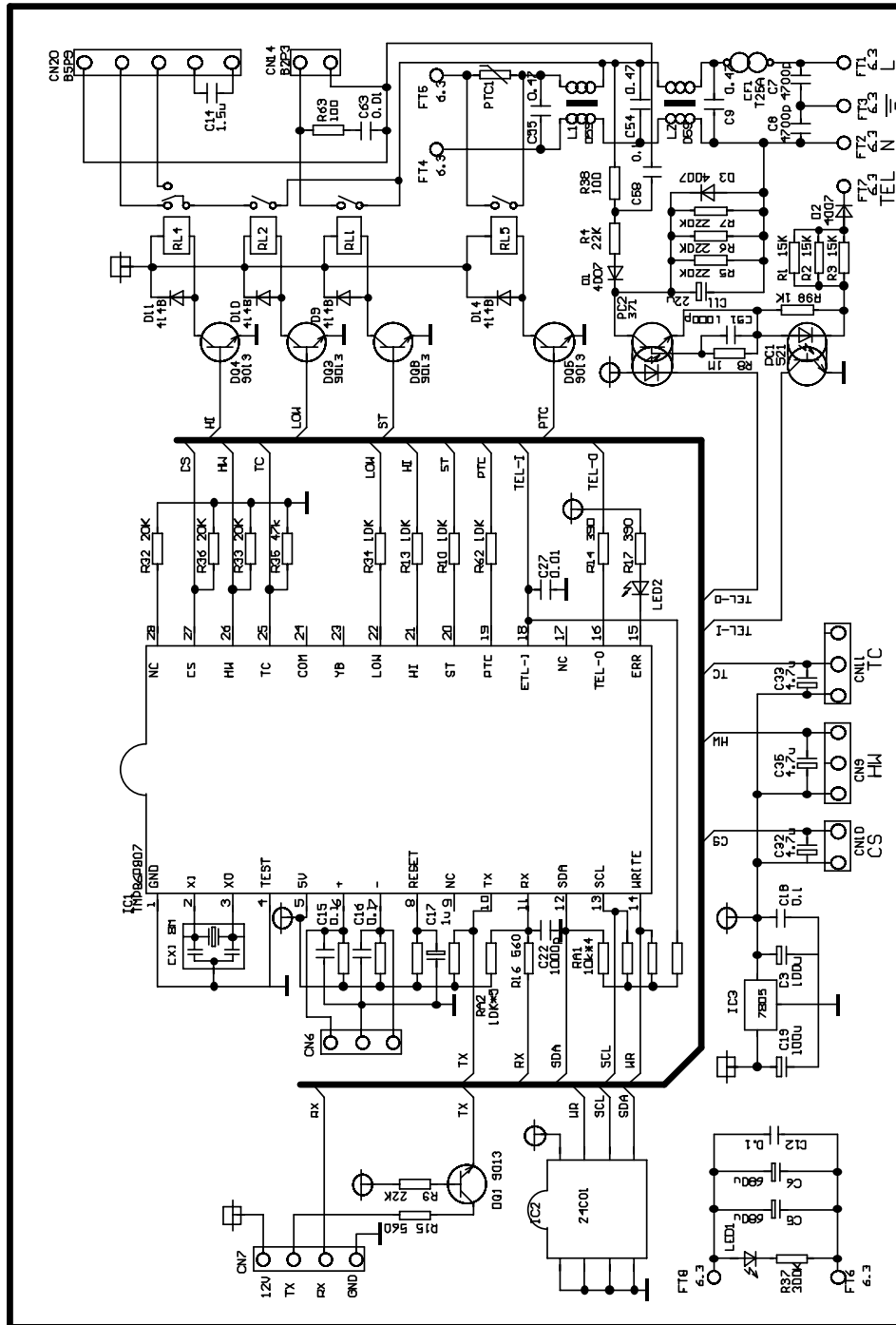
## CIRCUIT AND WIRING DIAGRAM

## HSU-09H03/H(DBP)



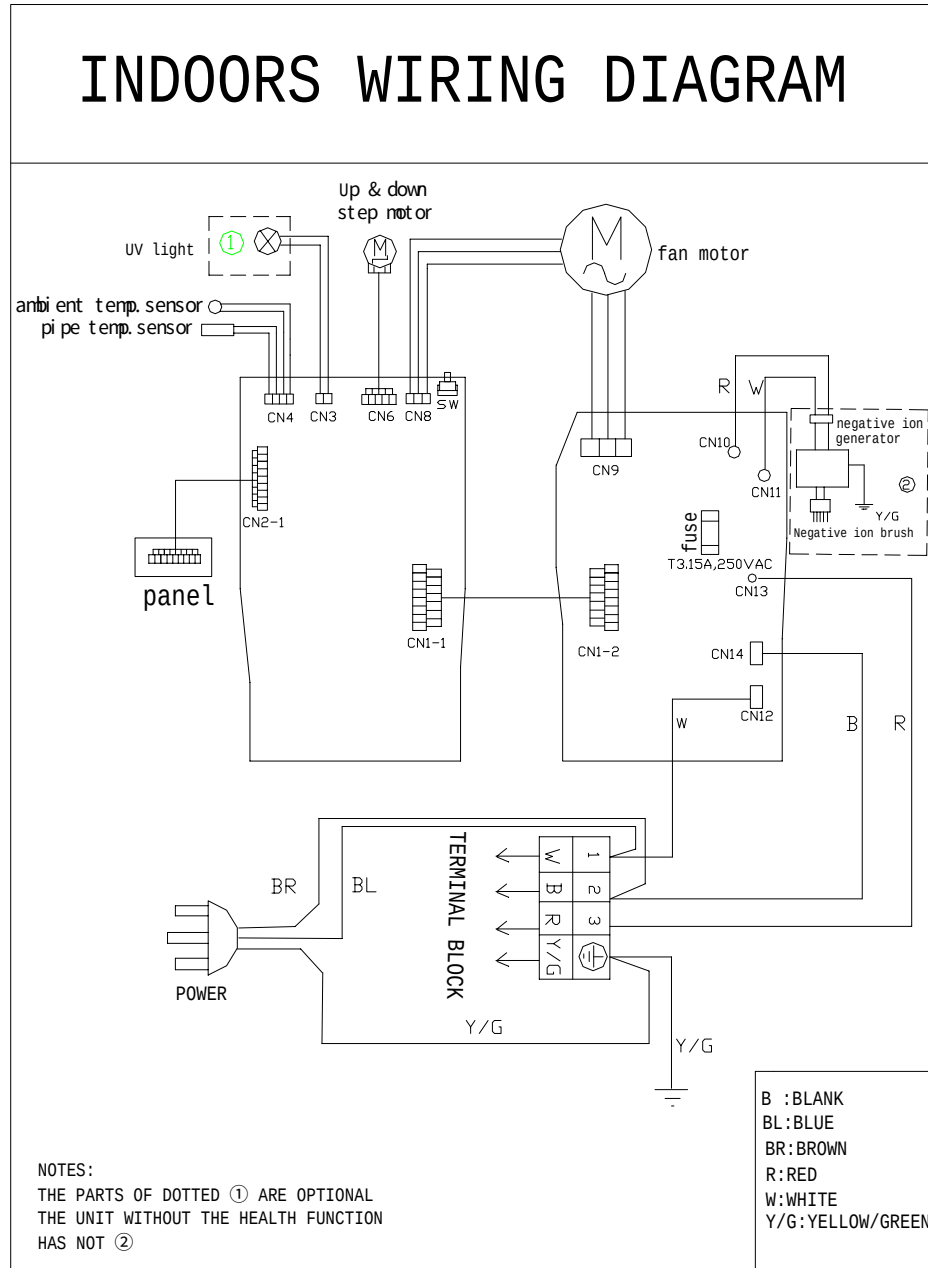
### CIRCUIT DIAGRAM FOR OUTDOOR UNIT

### HSU-09H03/H(DBP)



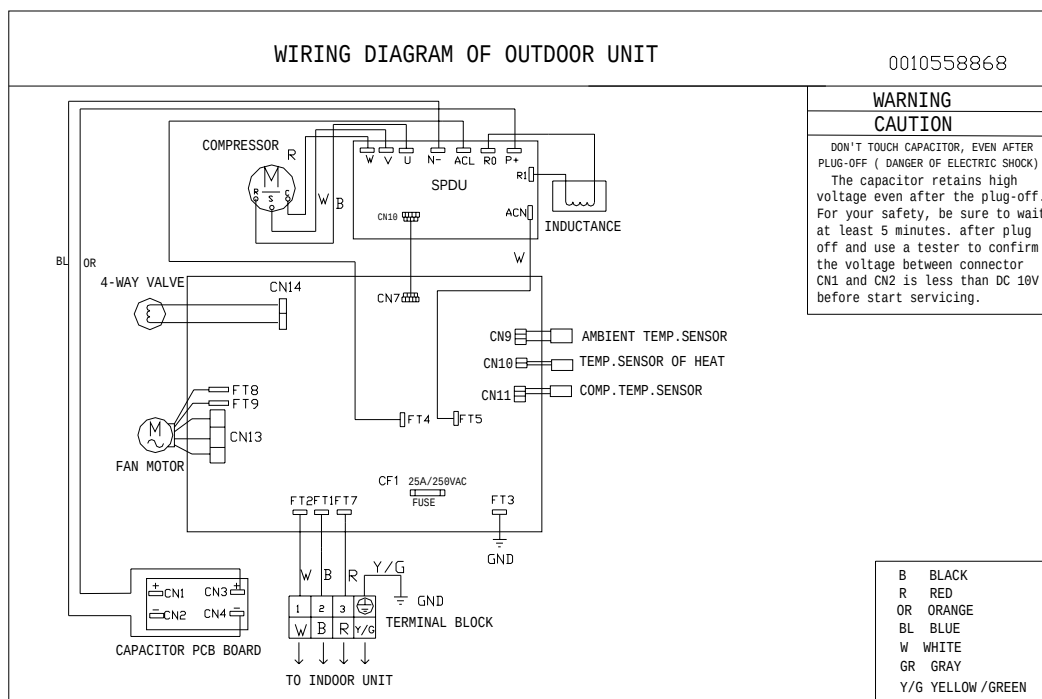
### WIRING DIAGRAM FOR INDOOR UNIT

HSU-09H03/H(DBP)



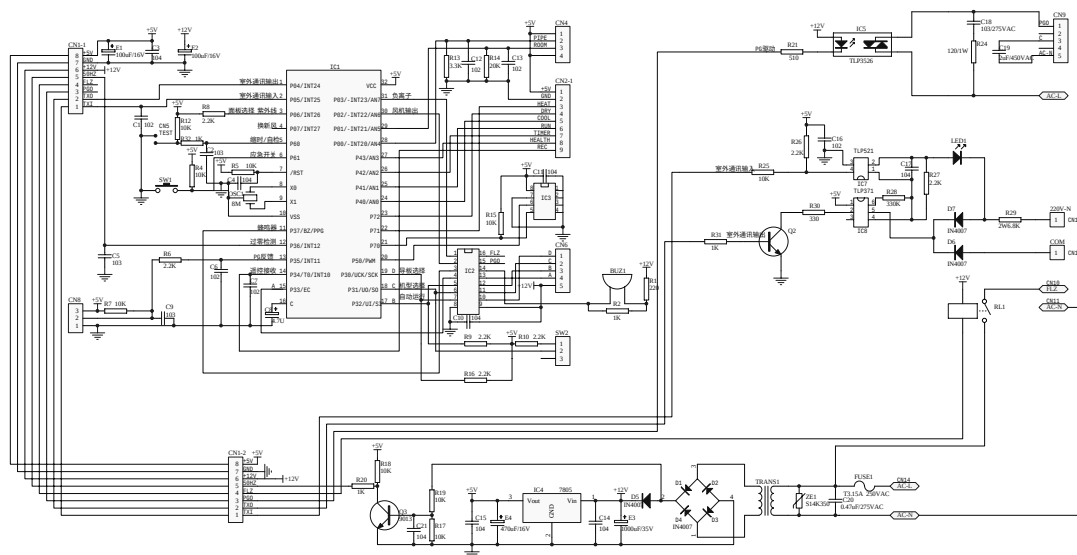
## WIRING DIAGRAM FOR OUTDOOR UNIT

HSU-09H03/H(DBP)



### CIRCUIT DIAGRAM FOR INDOOR UNIT

HSU-12H03/H(DBP)

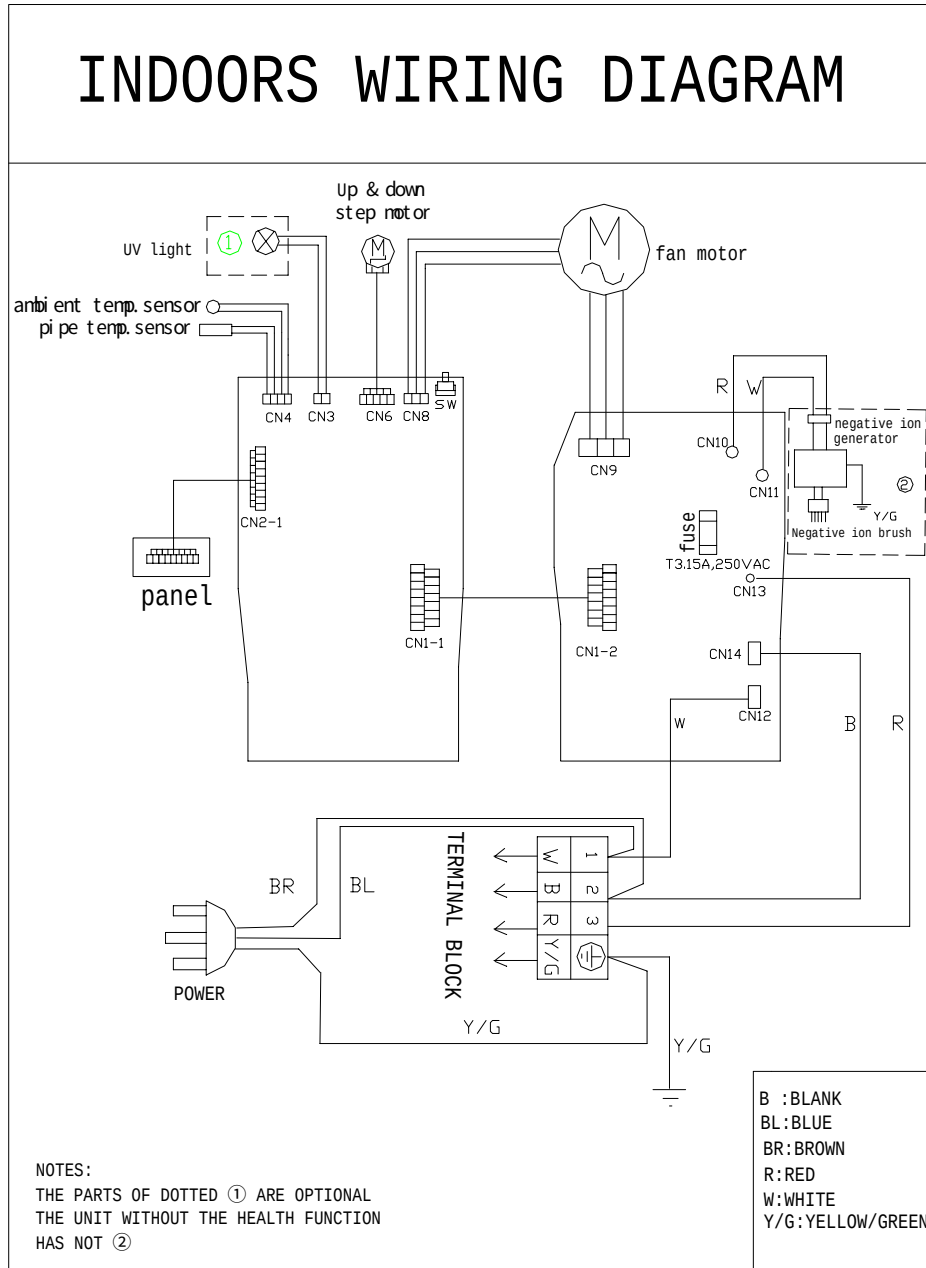


## HSU-12H03/H(DBP)



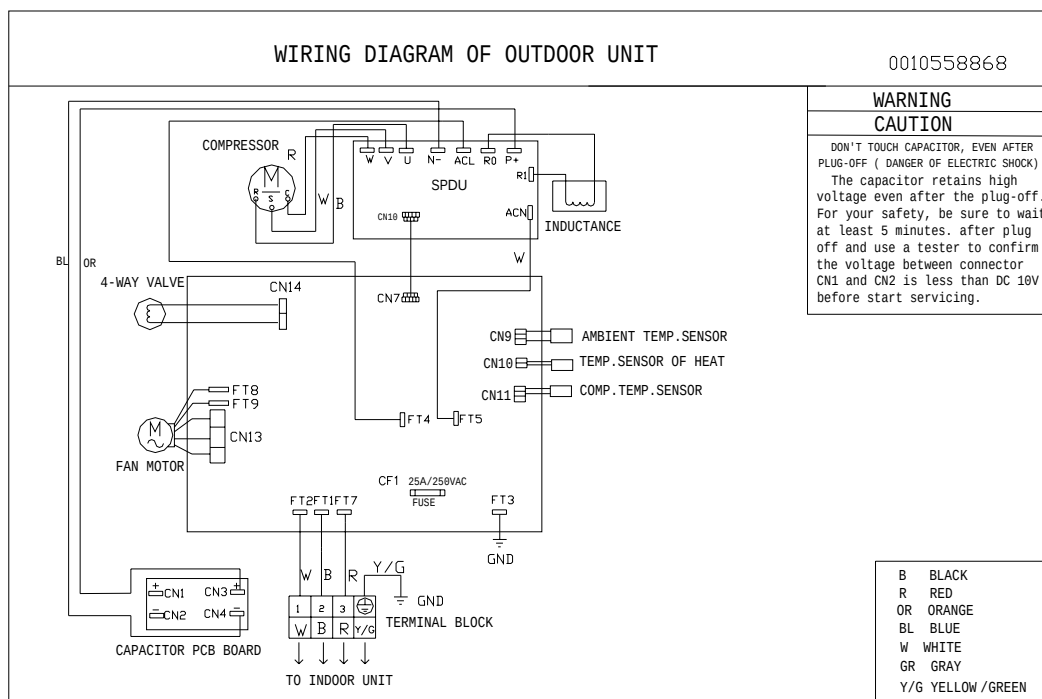
### WIRING DIAGRAM FOR INDOOR UNIT

HSU-12H03/H(DBP)



### WIRING DIAGRAM FOR OUTDOOR UNIT

HSU-12H03/H(DBP)



# **Sincere Forever**

**Haier Group**

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