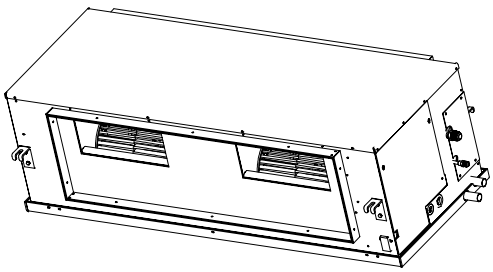
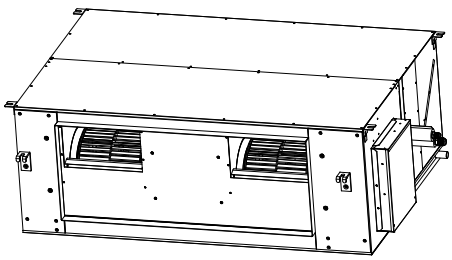
DUCT TYPE AIR CONDITIONER
OPERATION MANUAL AND INSTALLATION MANUAL





AD100S2SH5FA
AD105S2SH5FA
AD125S2SH5FA
AD140S2SH5FA
AD160S2SH5FA

AD180S2SH5FA
ADH200H1ERG
AD200S5SH2FA
AD250S5SH2FA

Contents

English

No. 0150595821

- This product must only be installed or serviced by qualified personnel. Please read this manual carefully before installation.

Keep this operation manual for future reference.

Original instructions

Haier

Haier Industrial Park,Qianwangang Road,Eco-Tech Development Zone,Qingdao 266555,Shandong,P.R.C.

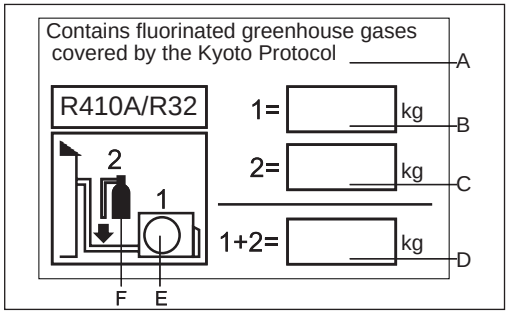
A	D	200	S	5	S	H	2	F	A
1	U	200	S	5	S	A	2	F	B
I	II	III	IV	V	VI	VII	VIII	IX	X

I: Outdoor 1:1
II: U-Outdoor D-Duct
III: Cooling Capacity
IV: S-Smart power
V: 5-Australia Series
VI: S-Standard for Inverter
VII: Chassis Code of Outdoor unit and indoor unit
VIII: 2-version 2
IX: Refrigerant R32
X: A-220-240V,1Ph,50/60Hz B-380V-400V,3PH,50/60Hz

DISPOSAL REQUIREMENTS:

Your air conditioning product is marked with this symbol.This means that electrical and electronic products shall not be mixed with unsorted household waste.Do not try to dismantle the system yourself:the dismantling of the air conditioning system,treatment of the refrigerant,of oil and of other part must be done by a qualified installer in accordance with relevant local and national legislation.Air conditioners must be treated at a specialized treatment facility for reuse, recycling and recovery.By ensuring this product is disposed of correctly,you will help to prevent potential negative consequences for the environment and human health.Please contact the installer or local authority for more information. Battery must be removed from the remote controller and disposed of separately in accordance with relevant local and national legislation.

IMPORTANT INFORMATION REGARDING THE REFRIGERANT USED



This product contains fluorinated greenhouse gases covered by the Kyoto Protocol.Do not vent into the atmosphere.
Refrigerant type:R410A Refrigerant type:R32
GWP:2088 GWP:675
GWP=global warming potential
Please fill in with indelible ink,

- 1 the factory refrigerant charge of the product
- 2 the additional refrigerant amount charged in the field and
- 1+2 the total refrigerant charge

on the refrigerant charge label supplied with the product. The filled out label must be adhered in the proximity of the product charging port(e.g.onto the inside of the stop value cover).
A contains fluorinated greenhouse gases covered by the Kyoto Protocol
B factory refrigerant charge of the product:see unit name plate
C additional refrigerant amount charged in the field
D total refrigerant charge
E outdoor unit
F refrigerant cylinder and manifold for charging

⚠ WARNING

If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

This appliance is not intended for use by persons (including children) with reduced physical,sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

Children should be supervised to ensure that they do not play with the appliance.

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

The appliances are not intended to be operated by means of an external timer or separate remote-control system.

Keep the appliance and its cord out of reach of children less than 8 years.

The A-weighted emission sound pressure level at workstations is below 70 dB(A). (For AD100/105/125/140/160/180S2SH5FA and ADH200H1ERG models)

The A-weighted emission sound pressure level at workstations is below 78 dB(A). (For AD200/250S5SH2FA models)

This appliance is intended to be used by expert or trained users in shops, in light industry and on farms, or for commercial use by lay persons
Air conditioner working temperature: cooling 10~43 degree, heating -15~24 degree.

Means for disconnection from the supply mains, which have a contact separation in all poles that provide full disconnection under overvoltage category III conditions, must be incorporated in the fixed wiring in accordance with the wiring rules.

The appliance shall be installed in accordance with national wiring regulations, which can impose additional requirements.

The type and rating of fuse are shown in the following text.

The minimum single room area Amin being provided conditioned air by the indoor unit is shown in the "Minimum Room Area "table.

This unit is equipped with a refrigerant leak detection system for safety. To be effective, the unit must be electrically powered at all times after installation, other than when servicing. (If equipped with a refrigerant monitoring system)

Please pay attention that additional transportation regulations can exist with respect to equipment containing flammable gas. The maximum number of pieces of equipment or the configuration of the equipment permitted to be transported together will be determined by the applicable transport regulations.

The maximum number of pieces of equipment permitted to be stored together will be determined by local regulations.

Employers should ensure that employees receive suitable and sufficient instruction and training on the meaning of appropriate safety signs and the actions that should be taken in connection with these signs.

See national regulations for the disposal of equipment.

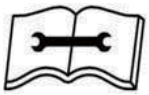
Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.

The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater.

Do not pierce or burn.

Be aware that refrigerants may not contain an odour.

Disconnect the appliance from its power source during service and when replacing parts.

	**Read the precautions in this manual carefully before operating the unit.**		**Waring:Risk of fire/Flammable material**
	**Read the operator's manual**		**Service indicator, read technical manual**

After reading this handbook, hand it over to those who will be using the unit.

The user of the unit should keep this mamual at hand and make it available to those who will be performing repairs or relocating the unit. Also, make it available to the new user when the user changes hands.

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 a 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

The User's Guide contains very important observations relating to the assembly, operation and maintenance of the air conditioner. We recommend that you read this instruction manual carefully before using your air conditioner to gain full advantage of the functions and to avoid malfunction due to mishandling or incorrect operation.
The precautions described below are WARNINGS and CAUTIONS. These are very important precautions concerning safety. Be sure to observe all of them without fail.
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 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.

Cautions

- 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.
- 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.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Children should be supervised to ensure that they do not play with the appliance.
- If the air conditioner appears to be operating abnormally (smell of something burning, etc.), switch the air conditioner off at the main switch and contact the dealer where you purchased the air conditioner. Continued operation under such circumstances may result in a failure, electric shock or fire.
- Only use a qualified installer for installation of the air conditioner. Incorrect installation may result in a water leakage, electric shock or fire.
- Ask your dealer to carry out improvements, repairs and maintenance. Incorrect improvements, repairs and maintenance may result in a water leakage, electric shock or fire.
- Never remove any fixed coves on the indoor or outdoor unit. Removal of the covers may expose fast moving fan blades or electrical components operating at a hazardous voltage. Contact with the blades or high voltage components may result in injury or electric shock.
- Precaution against refrigerant leakage. If the air conditioner is to be installed in an unventilated room it is necessaryto take proper measures to ensure that the allowable refrigerant concentration per cubic metre cannot be exceeded, should a refrigerant leak occur. If the allowable refrigerant concentration is exceeded, drowsiness or asphyxiation due to oxygen deficiency may occur.
- For installation of separately sold component parts, ask a specialist only. Be sure to use separately sold component parts designated by Haier. Incomplete installation performed by yourself may result in a water leakage, electric shock orfire.
- Ask your dealer to move and reinstall the air conditioner. Incomplete installation may result in a water leakage, electric shock or fire.
- Never insert any objects into the openings in the indoor or outdoor unit. This may damage the product or result ininjury or death to the person inserting the object.
- When the air conditioner is used in combination with burners or heaters, ensure sufficient ventilation. Insufficient ventilation may result in an oxygen deficiency accident.
- Regularly check the quality of the foundation blocks. If they are left in a damaged condition, the unit may fall and result in injury.
- Do not place or use a flammable spray can near the air conditioner. Doing so may result in a fire.
- To clean the air conditioner, stop the operation and switch the power off at the main switch. Otherwise, an electric shock and injury may result.
- Do not expose the indoor unit or remote controller to rain or moisture. Water or other fluids on the electrical components may result in fire or electric shock.
- Always replace any blow fuse with a fuse of the same specification. The use of the wrong type fuse may allow the electrical wiring to overheat and catch on fire. If the correct type of fuse continues to blow contact your installer or electrician.
- Do not place a burner or heater in a place directly exposed to the airstream from the air conditioner. Incomplete combustion of the burner or heater may result.
- Do not wash the air conditioner with water. An electric shock may result.
- Do not install the air conditioner in an area where flammable gas may be present. If the gas leaks out and stays around the air conditioner, a fire may break out.
- Avoid prolonged exposure of your body to direct streams of cold air. Your physical condition may deteriorate.

WHAT TO DO BEFORE OPERATING YOUR SYSTEM FOR THE FIRST TIME

- Carefully read the operation manual supplied with your controller. Be sure to follow the operation instructions to ensure the system functions correctly.
- Ensure that your installer shows you the location of the main power switch of the air conditioning system. This switch is normally located adjacent to the outdoor unit or in the fuse box switchboard.
- The main switch must be turned on at least 6 hours before the air conditioner is operated to warm up the compressor. Failure to do so may result in damage to the compressor which will not be covered by warranty.
- Ensure that there are no obstacles near the air outlet of the outdoor unit.
  Obstacles such as plants, boxes, fences, etc. may result in declined performance and increased running noises.
- Ensure the air filter is installed in the return air grille.

General

1. During the field-installation of refrigerant pipes, the following shall be applied:
a. The installation of pipe-work shall be kept to a minimum.
b. Pipe-work shall be securely mounted and guarded from physical damage.
c. Pipe-work shall not be installed in an unventilated space, if that space is smaller than Amin in Annex GG(IEC 60335-2-40).
d. National gas regulations can impose additional requirements.
e. Joints made in the installation between parts of the refrigerating system, with at least one part charged, shall be made in accordance with the following.
- A brazed, welded, or mechanical connection shall be made before opening the valves to permit refrigerant to flow between the refrigerating system parts. A vacuum valve shall be provided to evacuate the interconnecting pipe and/or any uncharged refrigerating system part.
- Mechanical connectors used indoors shall comply with ISO 14903. When mechanical connectors are reused indoors, sealing parts shall be renewed. When flared joints are reused indoors, the flare part shall be re-fabricated.
- Refrigerant tubing shall be protected or enclosed to avoid damage.
- Flexible refrigerant connectors (such as connecting lines between the indoor and outdoor unit) that can be displaced during normal operation shall be protected against mechanical damage.
f. Mechanical connections made in accordance with above shall be accessible for maintenance purposes.
2. Where addition of charge is required to complete installation, the label provided by the manufacturer that allows the installer to note the resulting total refrigerant charge for each refrigerating system shall be considered.
Interconnecting refrigerant piping length and diameter shall be taken into consideration.
3. Installation of the appliance including piping in every space in which refrigerant can leak into, shall consider the following factors:
a. minimum room area, Amin, as mentioned above.
b. The effect on refrigerant charge from field-installed piping, field charging, or both, if applicable, shall be considered.
c. Required installed height, hinst.
d. minimum ventilation airflow volume Qmin.
e. minimum opening area for natural ventilation Anv,min.
Additional minimum room area data may be provided based on other installed heights and/or charge levels.
4. Please check the following relevant chapters for the information for handling, installation, cleaning, servicing and disposal of the appliance.
5. WARNING: Keep any required ventilation openings clear of obstruction.
6. NOTICE: Servicing shall be performed only as recommended by the manufacturer.
7. WARNING: Ducts connected to an appliance shall not contain a potential ignition source.
8. Please check the following relevant chapter for wiring to external zoning dampers and/or mechanical ventilation, if required to comply with Clause GG.9(IEC 60335-2-40), to ensure that upon detection of a leak, the zoning dampers are driven fully open and additional mechanical ventilation is activated.
9. The life of the refrigerant sensor is 15 years.
10. The supply and return air shall be directly ducted to the space. Open areas such as false ceilings shall not be used as a return air duct.
11. WARNING: Precautions shall be taken to avoid excessive vibration or pulsation to refrigerating piping.
12. WARNING: Protection devices, piping and fittings shall be protected as far as possible against adverse environmental effects, for example the danger of water collecting and freezing in relief pipes or the accumulation of dirt and debris.
13. WARNING: Provision shall be made for expansion and contraction of long runs of piping.
14. WARNING: Piping in refrigerating systems shall be so designed and installed as to minimize the likelihood of hydraulic shock damaging the system.
15. WARNING: Solenoid valves shall be correctly positioned in the piping to avoid hydraulic shock and shall not block in liquid refrigerant.
16. WARNING: Steel pipes and components shall be protected against corrosion with a rustproof coating before applying any insulation.
17. Field-made refrigerant joints indoors shall be tightness tested. The test method shall have a sensitivity of 5 grams per year of refrigerant or better under a pressure of at least 0,25 times the maximum allowable pressure. No leak shall be detected.
18. The refrigerant detection system refrigerant sensors shall only be replaced with refrigerant sensors specified by the appliance manufacturer.
19. Electrical components that can arc or spark, which are not considered ignition sources due to compliance with 22.116.1 points b), c), d), or f) (IEC 60335-2-40),shall only be replaced with parts specified by the appliance manufacturer. Replacement with other parts can result in the ignition of refrigerant in the event of a leak.
20. The openings connecting rooms and the openings for natural ventilation shall not be blocked.

Unventilated areas

If the appliances containing more than m1 for any refrigerating circuit, an unventilated area where the appliance is installed shall be so constructed that should any refrigerant leak, it will not stagnate so as to create a fire or explosion hazard.This shall include:

– WARNING: If appliances connected via an air duct system to one or more rooms are installed in a room with an area less than Amin as determined in Clause GG.2 (IEC 60335-2-40), that room shall be without continuously operating open flames (for example an operating gas appliance) or other potential ignition sources (for example an operating electric heater, hot surfaces). A flame-producing device may be installed in the same space if the device is provided with an effective flame arrestor.

– WARNING: Auxiliary devices which can be a potential ignition source shall not be installed in the ductwork. Examples of such potential ignition sources are hot surfaces with a temperature exceeding 700 ℃ and electric switching devices.

– WARNING: Only auxiliary devices approved by the appliance manufacturer or declared suitable with the refrigerant shall be installed in the connecting ductwork. The manufacturer can list in the instructions all approved auxiliary devices by the manufacturer and model number for use with the specific appliance.
The appliance shall be stored so as to prevent mechanical damage from occurring.

Qualification of workers

The installation, maintenance, service and repair of this product shall be carried out by professional personnel, who have been trained and certified by national training organizations that have been accredited to teach the relevant national competency standards that may be set in legislation.
NOTE Information about competence of service personnel is given in informative Annex HH.
Examples for such working procedures are:
– breaking into the refrigerating circuit.
– opening of sealed components.
– opening of ventilated enclosures.

Checks to the area

Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimised. For repair to the refrigerating system, the following checks shall be completed prior to conducting work on the system.

Work procedure

Work shall be undertaken under a controlled procedure so as to minimise the risk of a flammable gas or vapour being present while the work is being performed

General work area

All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided.

Checking for presence of refrigerant

The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.

Presence of fire extinguisher

If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO2 fire extinguisher adjacent to the charging area.

No ignition sources

No person carrying out work in relation to a refrigerating system which involves exposing any pipe work shall use any sources of ignition in such a manner that it can lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. "No smoking" signs shall be displayed.

Ventilated area

Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

Checks to the refrigerating equipment

Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer's maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer's technical department for assistance.
The following checks shall be applied to installations using flammable refrigerants:
– the refrigerant charge is in accordance with the room size within which the refrigerant containing parts are installed;
– the ventilation machinery and outlets are operating adequately and are not obstructed;
– if an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant;
– marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected;
– refrigerating pipe or components are installed in a position where they are unlikely to be exposed to any substance which can corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

Checks to electrical devices

Repair and maintenance of electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised.
Initial safety checks shall include:
– that capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking; – that no live electrical components and wiring are exposed while charging, recovering or purging the system;
– that there is continuity of earth bonding.

Sealed electrical components

Sealed electrical components shall not be repaired.

Cabling

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of ageing or continual vibration from sources such as compressors or fans.

Detection of flammable refrigerants

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.
The following leak detection methods are deemed acceptable for all refrigerant systems.
Electronic leak detectors may be used to detect refrigerant leaks but, in the case of flammable refrigerants, the sensitivity can be inadequate or can require re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25 % maximum) is confirmed.

Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine can react with the refrigerant and corrode the copper pipe-work.
NOTE Examples of leak detection methods are
– bubble method,
– fluorescent agent method.
If a leak is suspected, all naked flames shall be removed/extinguished.
If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut-off valves) in a part of the system remote from the leak. Removal of refrigerant shall be according to the following sub-clause.

Refrigerant removal and circuit evacuation

When breaking into the refrigerant circuit to make repairs – or for any other purpose – conventional procedures shall be used. However, for flammable refrigerants it is important that best practice is followed since flammability is a consideration. The following procedure shall be adhered to:
– safely remove refrigerant. Local and national regulations can apply;
– evacuate;
– purge the circuit with inert gas (optional for A2L);
– evacuate (optional for A2L);
– continuously flush with inert gas when using flame to open circuit;
– open the circuit.
The refrigerant charge shall be recovered into the correct recovery cylinders.
The manufacturer shall specify the inert gases that can be used. Compressed air or oxygen shall not be used for purging refrigerant systems.
NOTE An example of an inert gas is dry nitrogen.
Purging of the refrigerant circuit shall be achieved by breaking the vacuum in the system with inert gas and continuing to fill until the working pressure is achieved, then releasing to atmosphere, and finally pulling down to a vacuum. This process shall be repeated until no refrigerant is within the system. The system shall be vented down to atmospheric pressure to enable work to take place.
Ensure that the outlet of the vacuum pump is not close to any potential ignition sources and that ventilation is available.

Charging procedures

In addition to conventional charging procedures, the following requirements shall be followed.
– Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimise the amount of refrigerant contained in them.
– Cylinders shall be kept in an appropriate position according to the instructions.
– Ensure that the refrigerating system is earthed prior to charging the system with refrigerant.
– Label the system when charging is complete (if not already labelled).
– Extreme care shall be taken not to overfill the refrigerating system.
Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas. The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

Decommissioning

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of the recovered refrigerant. It is essential that electrical power is available before the task is commenced.
1. Become familiar with the equipment and its operation.
2. Isolate the system electrically.
3. Before attempting the procedure, ensure that:
a. mechanical handling equipment is available, if required, for handling refrigerant cylinders;
b. all personal protective equipment is available and being used correctly;
c. the recovery process is supervised at all times by a competent person;
d. recovery equipment and cylinders conform to the appropriate standards.
4. Pump down the refrigerant system, if possible.
5. If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
6. Make sure that the cylinder is situated on the scales before recovery takes place.
7. Start the recovery machine and operate in accordance with instructions.
8. Do not overfill cylinders (no more than 80 % volume liquid charge).
9. Do not exceed the maximum working pressure of the cylinder, even temporarily.
10. When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.
11. The recovered refrigerant shall not be charged into another refrigerating system unless it has been cleaned and checked.

Labelling

Equipment shall be labelled stating that it has been decommissioned and emptied of refrigerant. The label shall be dated and signed. For appliances containing flammable refrigerants, ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

Recovery

When removing refrigerant from a system, either for servicing or decommissioning, it is required to follow good practice so that all refrigerants are removed safely.
When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.
The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of the flammable refrigerant. Consult manufacturer if in doubt. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition.
The recovered refrigerant shall be processed in the correct recovery cylinder, and the relevant waste transfer note arranged. Local legislation can apply. Do not mix refrigerants in recovery units and especially not in cylinders.
If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The compressor body shall not be heated by an open flame or other ignition sources to accelerate this process. Draining of oil from a system shall be carried out safely.

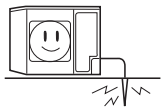
Safety Precautions

- Before starting to use the system, read carefully this "SAFETY PRECAUTIONS" to ensure a proper operation of the system.
- Safety precautions described here are classified to " ⚠ WARNING" and " ⚠ CAUTION". Precautions which are shown in the column of " ⚠ WANING" means that an improper handing could lead to a grave result like a death, serious injury, etc. However, even if precautions are shown in the column of " ⚠ CAUTION", a very serious problem could occur depending on situation. Make sure to observe these safety precautions faithfully because they are very important information to ensure the safety.
- Symbols which appear frequently in the text have following meanings.

⃠	Strictly prohibited.	❗	Observe instructions faithfully.	⏚	Provide a positive grounding.

- When you have read through the manual, keep it always at hand for read consultation. If the operator is replaced, make sure to hand over this manual to the new operator.

CAUTIONS FOR INSTALLATION

⚠ WARNING		
The system should be applied to places as office, restaurant, residence and the like. ⃠ Application to inferior environment such as an engineering shop, could cause equipment malfunction and serious injury or death.	The system should be installed by your dealer or a professional installer. ❗ Installation by yourself is not encouraged because it could cause such problems as water leakage, electrical shock or fire accident by some improper handing.	When you need some optional devices such as a humidifier, electric heater, etc., be sure to use the products which are recommended by us. These devices should be attached by a professional installer. ❗ Installation by yourself is not encouraged because it could cause such problems as water leakage, electrical shock or fire accident by some improper handing.
⚠ CAUTION		
Do not install nearby the place where may have leakage of flammable gas. ⃠  If the gas leaks and gathers around, it may cause the fire.	Depending on the place of installation, a circuit breaker may be necessary. ❗  Unless the circuit breaker is installed, it could cause electrical shocks.	Drain pipe should be arranged to provide a positive draining. ❗  If the pipe is arranged improperly, furniture or the likes may be damaged by leaked water.
Where strong winds may prevail, the system should be fixed securely to prevent a collapse. ❗ Bodily injury could result by a collapse.	Install on the place where can endure the weight of air conditioner. ❗ Bodily injury could result by a careless installation.	Make sure the system is grounded. ⏚  Grounding cable should never be connected to a gas pipe, city water pipe, lightning conductor rod or grounding cable of telephone. If the grounding cable is not set properly, it could cause electric shocks.

WARNING!

★The floor area of any room in which an R32 refrigerant air conditioner is installed must not be smaller than the minimum area specified in the table below. This requirement is necessary to prevent potential safety hazards caused by excessive refrigerant concentration inside the room in the event of a leak from the indoor unit's refrigeration system.

★Once the flared connection of the piping is tightened, it cannot be reused, as doing so may compromise the air-tightness of the joint.

★A single, continuous connector cable must be used between the indoor and outdoor units, in accordance with the installation requirements and operating instructions.

Minimum Room Area

Type	LFL Kg/m^3	hv m	Total Mass Charged/kg Minimum Room Area/m^2						
			4	7	10	15	20	30	50
R32	0.306	0.6	0.68	0.90	1.08	1.32	1.53	1.87	2.41
		1.0	1.14	1.51	1.80	2.20	2.54	3.12	4.02
		1.8	2.05	2.71	3.24	3.97	4.58	5.61	7.24
		2.2	2.50	3.31	3.96	4.85	5.60	6.86	8.85

CAUTIONS FOR TRANSFER OR REPAIR

⚠ WARNING	
Modification of the system is strictly prohibited. When the system needs a repair, consult your dealer. ⃠ Improper practice of repair could cause water leakage, electric shock or fire.	When the air conditioner is relocated, contact your dealer or a professional installer. ❗ Improper practice of installation could cause water leakage, electric shock or fire.

Safety Precautions

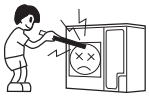
CAUTIONS FOR OPERATION

⚠ WARNING

You should refrain from exposing your body directly to cool wind for a long time.

It could affect your physical condition or cause some health problems.

Do not poke the air inlet or outlet with a bar, etc.



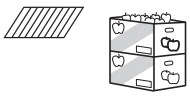
Since the internal fan is operating with a high speed, it could cause an injury.

When any abnormal condition (scorching smell or others) is found, stop the operation immediately and turn off the power switch. Then consult your dealer.

If you continue the operation without removing the cause, it could result in a trouble, electric shock or fire.

⚠ CAUTION

The system should never be used for any other purposes than intended such as for preservation of food, flora and fauna, precision devices or work of art.

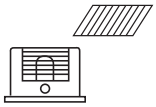


It could cause deterioration of food or other problems.

Do not handle switches with a wet hand.

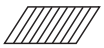
It could cause electric shocks.

Combustion apparatus should not be placed allowing a direct exposure to wind of air conditioner.



Incomplete combustion could occur on the apparatus.

Do not wash the air conditioner with water.



It could cause electric shocks.

Do not install the system where the air outlet reaches directly the flora and fauna.

It will not be good for their health.

Make sure to use a fuse of proper electric rating.

Use of steel or copper wire in place of a fuse is strictly prohibited because it could result in a trouble or fire accident.

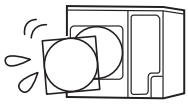
Neither stand on the air conditioner nor place something on it.

There are risks of falling or injury by collapsed object.

It is strictly prohibited to place a container of combustible gas or liquid near the air conditioner or to spray it directly with the gas or liquid.

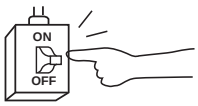
It could cause a fire accident.

Do not operate the system while the air outlet grill is removed.



There is a risk of injury.

Do not use the power switch to turn on or off the system.



It could cause a fire or water leakage.

Do not touch the air outlet section while the swing louver is operating.

There is a risk of injury.

Do not use such equipment as a water heater, etc. around the indoor unit or the wire controller.

If the system is operated at the vicinity of such equipment which generates steam, condensed water may drip during cooling operation or it could cause a fault current or short-circuit.

When operating the system simultaneously with a combustion apparatus, indoor air must be ventilated frequently.

Insufficient ventilation could cause an oxygen deficiency accident.

Check occasionally the support structure of the unit for any damage after a use of long period of time.

If the structure is not repaired immediately, the unit could topple down to cause a personal injury.

When cleaning the system, stop the operation and turn off the power switch.

Cleaning should never be done while the internal fans are running with high speed.

Do not put water containers on the unit such as a flower vase, etc.

If the water enters into the unit and damages the electric insulation material, it may cause electric shock.

Safety Precautions

The machine is adaptive in following situation

1. Applicable ambient temperature range:

Cooling	Indoor temperature	max. DB/WB min. DB/WB	32/23℃ 18/14℃
	Outdoor temperature	max. DB/WB min. DB/WB	43/24℃ 10/6℃
Heating	Indoor temperature	max. DB/WB min. DB/WB	27℃ 15℃
	Outdoor temperature	max. DB/WB min. DB/WB	24/18℃ -15℃

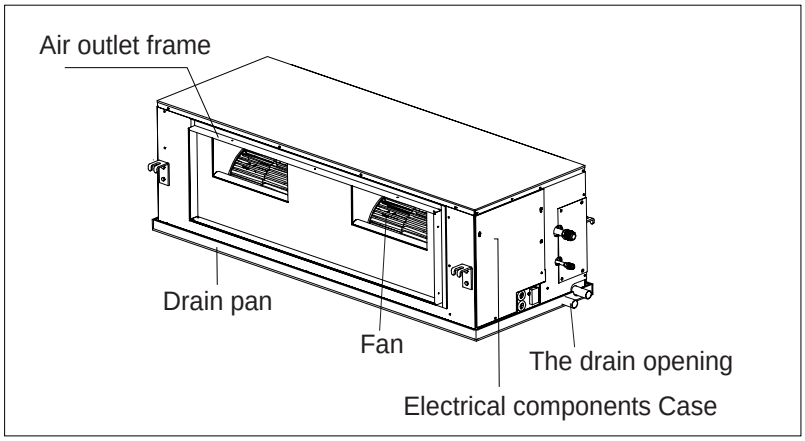
2. If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similar qualified person.
3. If the fuse on the indoor PC board is broken please change it with the type of T8A/250V(For AD100/105/125/140/160S2SH5FA , AD180S2SH5FA/ADH200H1ERG) T6.3A/250V(For AD200/250S5SH2FA)
4. The wiring method should be in line with the local wiring standard.
5. The power cable should be:
   H05RN-F 3G 4.0mm^2 (outdoor unit 1U71S2SS5FA/1U100S2SN5FA/1U105S5SN5FA),
   or H05RN-F 3G 6.0mm^2 (outdoor unit 1U125/140/160/180S2SP5FA),
   or H05RN-F 5G 4.0mm^2 (outdoor unit 1UH200W1ERK),
   or H05RN-F 5G 4.0mm2(outdoor unit 1U200/250S5SA2FB).
   The connecting cable should be:
   H05RN-F4G 2.5mm^2;
   All the cables shall have got the European authentication certificate. During installation, when the connecting cables break off, it must be assured that the grounding wire is the last one to be broken off.
6. The power cable and connect cable should be self-provided.
7. The breaker of the air conditioner should be all-pole switch, and the distance between its two contacts should be no less than 3mm.
8. The indoor unit installation height is at least 2.5m.
9. A leakage breaker must be installed.
10. For AD100S2SH5FA,AD105S2SH5FA,AD125S2SH5FA,AD140S2SH5FA,AD160S2SH5FA,AD180S2SH5FA, ADH200H1ERG,AD200S5SH2FA,AD250S5SH2FA,You can select from 10 static-pressure levels, with Level 2 set as tthe factory default.

Please note that even when models share the same static-pressure level number, the actual static pressure value may differ between models.Static-pressure level selection must be carried out using the wiredcontroller. For detailed procedures, refer to the wired controller's manual.Static-pressure adjustment can also be performed through the zorhe controller; please consult the zone controller's manual for the specific method.

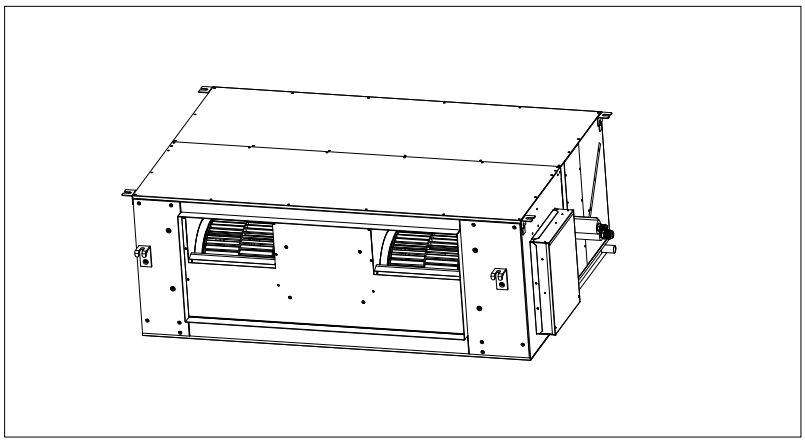
Static pressure level (N)	External static pressure (pa)		
	AD100S2SH5FA AD105S2SH5FA AD125S2SH5FA AD140S2SH5FA AD160S2SH5FA	AD180S2SH5FA	ADH200H1ERG AD200S5SH2FA AD250S5SH2FA
1	37	40	40
2 (Factory default)	50	60	72
3	60	100	100
4	80	120	120
5	100	150	150
6	120	180	180
7	150	210	210
8	170	230	230
9	190	250	250
10	210	270	300

Parts and Functions

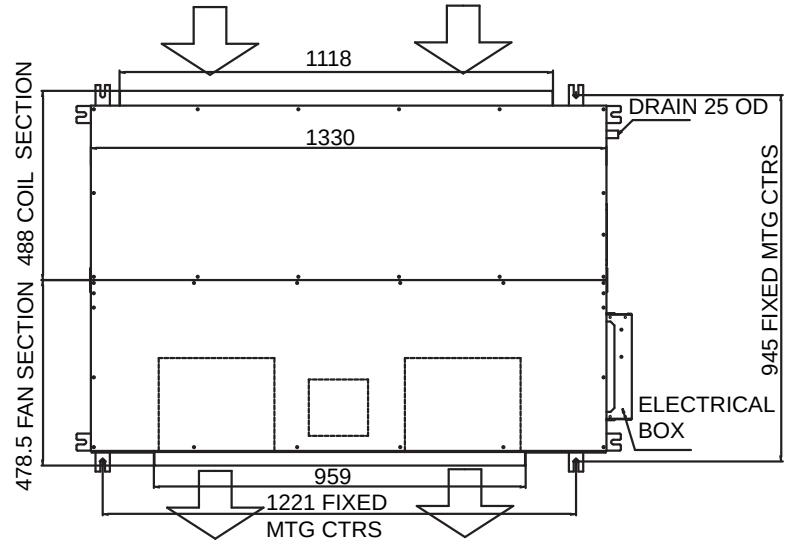
AD100S2SH5FA AD105S2SH5FA AD125S2SH5FA AD140S2SH5FA AD160S2SH5FA



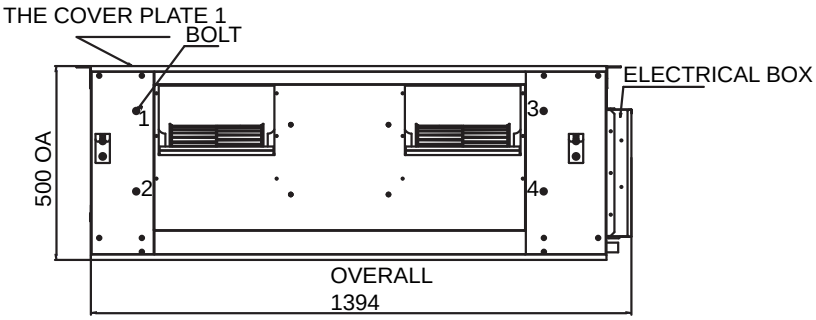
AD180S2SH5FA ADH200H1ERG AD200S5SH2FA AD250S5SH2FA

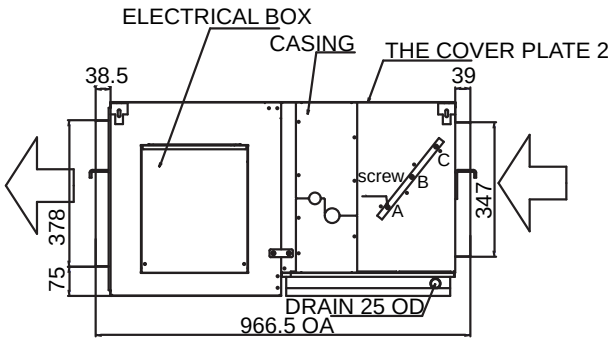


Parts and Functions



NOTE:
1.Open the cover plate 1, disconnect the four bolts(1-4) and take out the fan motor assembly.
2.Open cover plate 2 and the casing, then remove the six screws (A – F) and take out the evaporator assembly.





Heating Mode

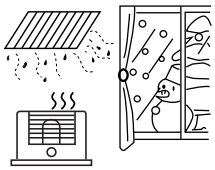
"HOT KEEP" function

"HOT KEEP" is operated in the following cases.

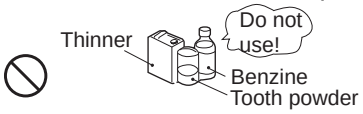
- When heating is started:
  In order to prevent blowing out of cool wind, the indoor unit fan stopped according to the room temperature which heating operation is started. Wait for approx. 2 to 3 minute, and the operation will be automatically changed to the ordinary heating mode.
- Defrosting operation (in the heating mode):
  When it is liable to frost, the heating operation is stopped automatically for 5 to 12 minutes once per approx. one hour, and defrosting is operated. After defrosting is completed, operation mode is automatically changed to ordinary heating operation.
- When the room thermostat is actuated:
  When room temperature increases and room temperature controller actuates, the fan speed is automatically changed to stop under low temperature condition of indoor heat exchanger. When room temperature decreases, air conditioner automatically changes over to ordinary heating operation.

Warming operation

- Heat pump type warming
  With the heat pump type warming, the mechanism of heat pump that concentrate heat of outdoor air with the help of refrigerant to warm the indoor space, is utilized.
- Defrosting operation
  When a room is warmed with a heat pump type air conditioner, frost accumulates on the heat exchanger of outdoor unit along with the drop of indoor temperature. Since the accumulated frost reduces the effect of warming, it is necessary to automatically switch the operation to the defrosting mode. During the defrosting operation, heating operation is interrupted.
- Atmospheric temperature and warming capacity
  Warming capacity of heat pump type air conditioner decreases along with the drop of outdoor temperature.
  When the warming capacity is not sufficient, it is recommended to use another heating implement.
- Period of warm-up
  Since the heat pump type air conditioner employs a method to circulate warm winds to warm the entire space of a room, it takes time before the room temperature rises.
  It is recommendable to start the operation a little earlier in a very cold morning.

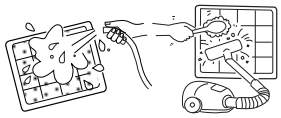


Care and Maintenance

Points to observe		
Turn off the power supply switch. 	Do not touch with wet hand. 	Do not use hot water or volatile liquid. 

CAUTION
- Do not open the inlet grill until fan stops completely.
- Fan will continue rotating for a while by the law of inertia after operation is being stopped.

Cleaning the air filter



1.Clean the air filter by lightly tapping it or with the cleaner. It is more effective to clean the air filter with water.
If the air filter is very dirty, dissolve neutral detergent in the lukewarm water (approx. 30˚C), rinse the air filter in the water, and thoroughly wash the air filter off the detergent in the plain water.
2.After drying the air filter, set it up on the air conditioner.

CAUTION
- Do not dry the air filter with fire.
- Do not run the air conditioner without the air filter.

Care and Cleaning of the unit
- Clean with soft and dry cloth.
- If it is very dirty, dissolve neutral detergent in the lukewarm water and make the cloth wet with the water. After wiping, clean off the detergent using clean water.

Post-Season Care
- Operate the unit with FAN mode on a fair day for about half a day to dry the inside of the unit well.
- Stop operation and turn off the power supply switch. Electric power is consumed even the air conditioner is in stop.
- Clean the air filter and set it in the place.

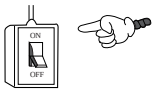
Pre-Season Care
- See that there are no obstacles blocking the air inlet and air outlet of both indoor and outdoor units.
- Make sure that the air filter is not dirty.
- Cut in the power supply switch 12 hours before starting run.

IMPORTANT NOTES ABOUT THE OPERATION OF YOUR AIR CONDITIONER
AUTOMATIC RESTART AFTER POWER FALURE
- If the air conditioner is operating during a power failure it may automatically restart in the same mode when the power is restored.

OPTIMUM OPERATION
- Observe the following precautions to ensure the system operates efficiently.
  Adjust the room temperature for a comfortable environment. Avoid excessive heating or cooling.
- Prevent direct sunlight from entering a room during cooling operation by using curtains or blinds.
- Keep doors and windows closed, If the doors and windows remain open, room air will flow our and decrease the effect of cooling and heating.
- Never place objects near the air inlet and the air outlet of the unit. It may retard effectiveness or cause operation to stop.
- Turn off the main power supply switch when not using for long periods of time. Electricity is consumed an long the switch is on save energy. Turn on the main power supply switch 6 hours before restarting operation in order to ensure smooth operation(Refer to MAINTENANCE)
- Ventilate the room regularly.
  Using the unit for long periods of time requires regular ventilation of the room.

Troubleshooting

Please check the following things about your air conditioner before making a service call.

Unit fails to start			
Is the power source switch adjust cut in?  Power supply switch is not ON.	Is city supply power in normal?  	Isn't the signal receiving section exposed to the direct sunlight or strong illumination?	Isn't the earth leakage breaker in action? It is dangerous. Turn off the power supply switch immediately and contact the sales dealer.

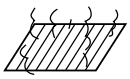
Cooling or heating is not sufficient			
Is the thermostat adjust as required?	Isn't the air filter dirty?	Isn't any doors or windows left open?	Doesn't any obstacle exist at the air inlet or outlet?
Isn't the swing louver horizontal? (At HEATING mode) If swing louver is horizontal, the blow wind does not reach floor.			

Cooling is not sufficient			
Isn't sun-shine invading direct?	Isn't any unexpected heating load generated?	Isn't the room much crowded?	The wind does not blow during heating operation Isn't it warming up?

When the air conditioner does not operate properly after you have checked the above mentioned items or when the following phenomenon is observed, stop the operation of the air conditioner and contact your sales dealer.

- The fuse or breaker often shuts down.
- Water drops off during cooling operation.
- There is a irregularity in operation or abnormal sound is audible.

The followings are not malfunction

Water flowing sound is heard.	When the air conditioner is started, when the compressor starts or stops during operation or when the air conditioner is stopped, it sometimes sounds "shuru shuru" or "gobo gobo". It is the flowing sound of the refrigerant, and it is not a trouble. 
Cracking sound is heard.	This is caused by heat expansion or contraction of plastics.
It smells.	Air which blows out from the indoor unit sometimes smells. The smell results from residents of tobacco smoke or cosmetics stuck inside of unit.
During operation, white fog comes out of indoor unit. 	When the air conditioner is used at restaurant etc. where dense edible oil fume is always exists, white fog sometimes blows out of air outlet during operation. In this case consult sales dealer for cleaning the heat exchanger.
It is switched into the FAN mode during cooling.	To prevent frost from being accumulated on the indoor unit heat exchanger, it is sometimes automatically switched to the FAN mode,but it will soon return to the cooling mode.
The air conditioner can not be restarted soon after it stops.  	Even if the operation switch is turned on, cooling, dehumidifying or heating is not operable for three minutes after the conditioner is stopped. Because the protecting circuit is activated. (During this time air conditioner operates in fan mode.) 
Air does not blow or the fan speed can not be changed during dehumidifying.	When it is excessively cooled during dehumidifying, the blower automatically repeats reducing and lowering the fan speed.
During operation, operation mode has changed over automatically.	Isn't the AUTO mode selected? In the case of AUTO mode, operation mode is changed automatically from cooling to heating or vise-versa according to the room temperature.
Water or steam generates from the outdoor unit during heating.	This results when frost accumulated on the outdoor unit is removed (during defrosting operation).

INDOOR UNIT TROUBLE SHOOTING

AD100S2SH5FA/AD105S2SH5FA/AD125S2SH5FA/AD140S2SH5FA/AD160S2SH5FA

LED flash times of indoor PCB		Wired controller display	Contents of Malfunction	Possible reasons
LED4	LED3			
0	1	01	Malfunction of indoor unit ambient temperature sensor	Sensor disconected,or broken,or at wrong position,or short circuit
0	2	02	Malfunction of indoor unit piping temperature sensor	Sensor disconected,or broken,or at wrong position,or short circuit
0	4	04	EEPROM wrong of indoor PCB	EEPROM chip disconected or broken or wrong programmed,or PCB broken
0	7	07	Abnormal communication between indoor and outdoor units	Wrong connection,or the wires be disconected or wrong adress setting of indoor unit or faulty power supply or faulty PCB or sub unit malfunction in MAXI system
0	8	07 *flashing	Abnormal communication between wired controller and indoor unit	Wrong connection or wired controller broken,or PCB faulty
0	12	0C	Malfunction of drain system	Pump motor disconnected or at wrong position,or the float switch,disconnected* or at wrong position,or the short circuit bridge disconne ted
0	13	0D	Zero cross sigal wrong	Zero cross sigal detected wrong
0	14	0E	Indoor unit DC fan motor abnormal	DC Fan motor disconnected or DC Fan broken or circuit broken or motor blocked

Note:

1.The outdoor failure can also be indicated by the indoor unit,the checking method as follows: If the outdoor error code is M(DECIMAL)* the indoor unit s wired controller display will show the after converted hexadecimal code of DECIMAL), for example,if the outdoor error code is 2,the indoor unit wired controller display will flash the error code 16 (2→2+20=22 →change decimal 22 to hexadecimal code,get 16*

2.To get much more details about the out door unit failure,please refer to the outdoor unit trouble shooting list.

3.For YR-E17 communication error between I.D.PCB and wired controller 07 will flash in the main display not the check display interface .

INDOOR UNIT TROUBLE

AD180S2SH5FA ADH200H1ERG

LED flash times of indoor PCB		Wired controller display	Contents of Malfunction	Possible reasons
LED4	LED3			
0	1	01	Malfunction of indoor unit ambient temperature sensor	Sensor disconected,or broken,or at wrong position,or short circuit
0	2	02	Malfunction of indoor unit piping temperature sensor	Sensor disconected,or broken,or at wrong position,or short circuit
0	4	04	EEPROM wrong of indoor PCB	EEPROM chip disconected or broken or wrong programmed,or PCB broken
0	7	07	Abnormal communication between indoor and outdoor units	Wrong connection,or the wires be disconected or wrong adress setting of indoor unit or faulty power supply or PCB hardware malfunction
0	8	/	Abnormal communication between wired controller and indoor unit	Wrong connection or wired controller broken,or PCB hardware malfunction
0	12	0C	Malfunction of drain system	Pump motor disconnected or at wrong position,or the float switch disconnected，or at wrong position,or the short circuit bridge disconne ted
0	13	0D	Zero cross sigal wrong	Zero cross sigal detected wrong
0	14	0E	Abnormal communication between main control PCB & fan motor driver	communication wire disconecte-cted or wrong conected or PCB hardware malfunction
0	15	0F	Fan motor overcurrent	fan motor current too high
0	17	11	DC voltage high or low	DC voltage of the fan motor driver too high or too low
0	18	12	F.M.D temperature high	Fan motor driver over 95℃
0	19	13	Fan motor out of step	wrong rotor location detected
M(≥1)	N(≥0)	/	Error of the outdoor unit	See note 1, 2

Note:

1.The outdoor failure can also be indicated by the indoor unit,the checking method as follows:outdoor unit error code=(M*10+N)-20.LED4 flash M times and LED3 flash N times .

2.LED4 is a yellow one on the indoor main control PCB,LED3 is a green one.

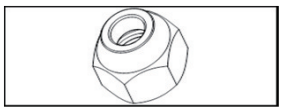
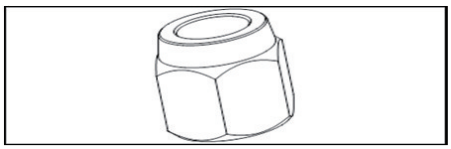
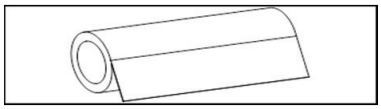
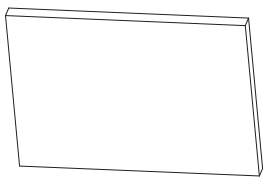
3.To get much more details about the out door unit failure,please refer to the outdoor unit trouble shooting list.

LED9 flash times	Panel display	Wired controller display	Contents of Malfunction	Possible reasons
1	E1	01	Malfunction of indoor unit ambient temperature sensor	Sensor disconected,or broken,or at wrong position,orshort circuitsor.
2	E2	02	Malfunction of indoor unit piping temperature sensor	Sensor disconected,or braken,or at wrong position,or short circuit.
4	E4	04	EEPROM wrong ofindoor PCB	EEPROM chip disconectedor broken or wrong programmed,or PCB broken.
7	E7	07	Abnormal communication between indoor and outdoor units	Wrong connection,or thewires be disconected or wrong adress setting of indoorunit or faulty power supplyor faulty PCB
12	E12	0C	Malfunction of drainsystem	Pump motor disconnectedor at wrong position,or thefloat switch,disconnected,or at wrong position, or the short circuit bridge disconneted
13	E13	0D	Zero cross sigal wrong	Zero cross sigal detected wrong.
14	E14	0E	Indoor unit DC fanmotor abnormal	DC Fan motor disconnectedor DC Fan broken or circuitbroken
M(≥2,)N(≥0)	F1-F45	code +20 correspond HEX code	Outdoor unit error	Corresponding to outdoor unit fault code M * 10+N-20; The specific definition of external unit fault codes can be found in the outdoor unit fault code table
M=18，N=6	bA	bA	The refrigerant detector is not installed	No refrigerant detector is installed
M=17,N=0	AA	AA	Refrigerant leakage	Fault “AA” cannot be cleared. Only the leakage concentration decreases and the fault is turned to “Ab”.See the technical manual for elimination
M=17,N=2	Ac	Ac	The communication of the refrigerant sensor is faulty	When the air conditioner is running, the cable harness of the refrigerant sensor falls off
M=17,N=3	Ad	Ad	The refrigerant sensor selfcheck is faulty	The refrigerant sensor is faulty
M=17,N=4	AE	AE	Refrigerant sensor life threshold	Refrigerant sensor life threshold reminder
M=17,N=5	AF	AF	The refrigerant sensor expires	Refrigerant sensor life threshold, need to be replaced.

Note:
1.The specifications for displaying the outdoor unit code are as follows:First flash the ten digit M, then flash one digit N after an interval of 2 seconds (if there are no ten digits, only one digit will flash). After flashing, pause for 4 seconds and repeat the flashing process.
2.To get much more details about the out door unit failure,please refer tothe outdoor unit trouble shooting list.

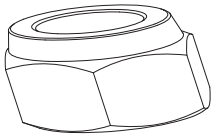
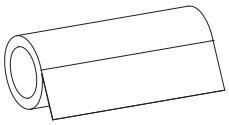
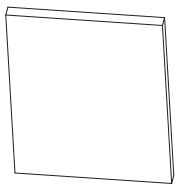
Accessories

Accessories supplied with the indoor unit:for AD100/105/125/140/160 series.

No.	name	Quantity	Descriptions	Shape
1	3/8 Brass nut (liquid side)	1	For tightening the Connecting pipe	
2	3/4 Brass nut(gas side) for AD140/AD160 series	1		
	5/8 Brass nut(gas side) for others	1		
3	Coupler heat insulation(gas side)	1	For indoor side pipe joint(gas side)	
4	Coupler heat insulation(liquid side)	1	For indoor side pipe joint(liquid side)	
5	Instructions	1	Air conditioner operation	
6	Cable tie(Large)	7	For fixing the heat insulation	
7	Cable tie(Small)	4	For fixing the remote controller cable and connecting cable	

Accessories

AD180S2SH5FA/**ADH200H1ERG/AD200S5SH2FA/AD250S5SH2FA**

No.	name	Quantity	Descriptions	Shape
1	3/8 Brass nut (liquid side) for AD180 1/2 Brass nut (liquid side) for ADH200	1	For tightening the Connecting pipe	
2	3/4 Brass nut (gas side)	1		
3	Coupler heat insulation(gas side)	1	For indoor side pipe joint(gas side)	
4	Coupler heat insulation(liquid side)	1	For indoor side pipe joint(liquid side)	
5	Instructions	1	Air conditioner operation	
6	Cable tie(Large)	5	For fixing the heat insulation	
7	Cable tie(Small)	3	For fixing the remote controller cable and connecting cable	

Precaution for Installation

- Please read these "Safety Precautions" first and then accurately execute the installation work.
- Though the precautionary points indicated herein are divided under two headings, ⚠ WARNING and ⚠ CAUTION, those points which are related to the strong possibility of an installation done in error resulting in death or serious injury are listed in the ⚠ WARNING section. However, there is also a possibility of serious consequences in relationship to the points listed in the ⚠ CAUTION section as well. In either case, important safety related information is indicated, so by all means, properly observe all that is mentioned.
- After completing the installation, along with confirming that no abnormalities were seen from the operation tests, please explain operating methods as well as maintenance methods to the user (customer) of this equipment, based on the owner's manual. Moreover, ask the customer to keep this sheet together with the owner's manual.

⚠ WARNING

- This system should be applied to places as office, restaurant, residence and the like. Application to inferior environment such as engineering shop could cause equipment malfunction.
- Please entrust installation to either the company which sold you the equipment or to a professional contractor. Defects from improper installations can be the cause of water leakage, electric shocks and fires.
- Execute the installation accurately, based on following the installation manual. Again, improper installations can result in water leakage, electric shocks and fires.
- When a large air-conditioning system is installed to a small room, it is necessary to have a prior planned countermeasure for the rare case of a refrigerant leakage, to prevent the exceeding of threshold concentration. In regards to preparing this countermeasure, consult with the company from which you purchased the equipment, and make the installation accordingly. In the rare event that a refrigerant leakage and exceeding of threshold concentration does occur, there is the danger of a resultant oxygen deficiency accident.
- For installation, confirm that the installation site can sufficiently support heavy weight. When strength is insufficient, injury can result from a falling of the unit.
- Execute the prescribed installation construction to prepare for earthquakes and the strong winds of typhoons and hurricanes, etc. Improper installations can result in accidents due to a violent falling over of the unit.
- For electrical work, please see that a licensed electrician executes the work while following the safety standards related to electrical equipment, and local regulations as well as the installation instructions, and that only exclusive use circuits are used. Insufficient power source circuit capacity and defective installation execution can be the cause of electric shocks and fires.
- Accurately connect wiring using the proper cable, and insure that the external force of the cable is not conducted to the terminal connection part, through properly securing it. Improper connection or securing can result in heat generation or fire.
- Take care that wiring does not rise upward, and accurately install the lid/service panel. Its improper installation can also result in heat generation or fire.
- When setting up or moving the location of the air conditioner, do not mix air etc. or anything other than the designated refrigerant (R410A) within the refrigeration cycle. Rupture and injury caused by abnormal high pressure can result from such mixing.
- Always use accessory parts and authorized parts for installation construction. Using parts not authorized by this company can result in water leakage, electric shock, fire and refrigerant leakage.

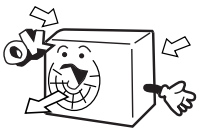
⚠ CAUTION

- Execute proper grounding. Do not connect the ground wire to a gas pipe, water pipe, lightning rod or a telephone ground wire. Improper placement of ground wires can result in electric shock.
- The installation of an earth leakage breaker is necessary depending on the established location of the unit. Not installing an earth leakage breaker may result in electric shock.
- Do not install the unit where there is a concern about leakage of combustible gas.
  The rare event of leaked gas collecting around the unit could result in an outbreak of fire.
- For the drain pipe, follow the installation manual to insure that it allows proper drainage and thermally insulate it to prevent condensation. Inadequate plumbing can result in water leakage and water damage to interior items.

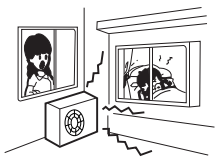
Is The Unit Installed Correctly

Confirm the following items for safe and comfortable use of air conditioner.
The installation work is to be burden on the sales dealer, and do not conduct it by yourself.

<table>
<tr><th colspan="3">Installation place</th></tr>
<tr>
<td>Avoid installing the air conditioner near the place where possibility of inflammable gas leakage exists.
 

Explosion (Ignition) may occur.</td>
<td>Install the unit at well ventilated place.
 

If some obstacle exist, it may cause capacity reduction or noise increase.</td>
<td>Install the air conditioner firmly on the foundation that can fully support the weight of the unit.
 

If not, it may cause vibration or noise.</td>
</tr>
<tr>
<td>Select the place so as not to annoy neighbor with the hot air or noise.
  </td>
<td>Snow protection work is necessary where outdoor unit is blocked up by snow.
For details consult your sales dealer.</td>
<td>It is advisable not to install the air conditioner at the following special place. It may cause malfunction, consult the sales dealer when you have to install the unit on such a place.
• The place where corrosive gas generates (Hot spring area etc.)
• The place where salt breeze blows (Seaside etc.)
• The place where dense soot smoke exists
• The place where humidity is extraordinarily high
• The place where near the machine which radiates the electromagnetic wave
• The place where voltage variation is considerably large</td>
</tr>
</table>

NOTE

All wiring of this installation must comply with NATIONAL, STATE AND LOCAL REGULATIONS. These instructions do not cover all variations for every kind of installation circumstance. Should further information be desired or should particular problems occur, the matter should be referred to your local distributor.

WARNING

BE SURE TO READ THESE INSTRUCTIONS CAREFULLY BEFORE BEGINNING INSTALLATION. FAILURE TO FOLLOW THESE INSTRUCTIONS COULD CAUSE SERIOUS INJURY OR DEATH, EQUIPMENT MALFUNCTION AND/OR PROPERTY DAMAGE.

Preparation of indoor unit

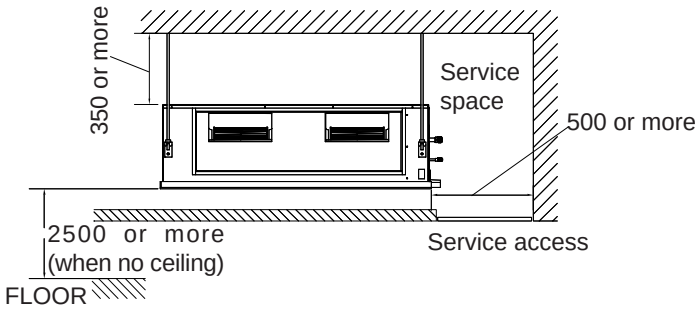
Before or during the installation of the unit, assemble necessary optional panel etc. depending on the specific type.

Select places for installation satisfying following conditions and at the same time obtain the consent on the part of your client user.

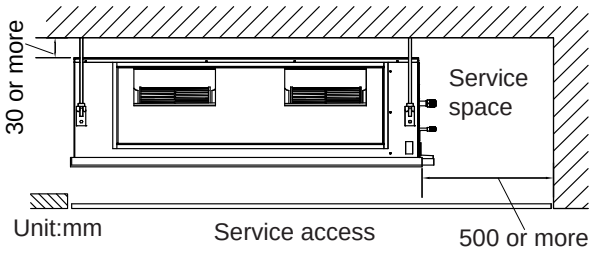
a. Places where chilled or heated air circulates freely. When the installation height exceeds 3m warmed air stays close to the ceiling. In such cases, suggest your client users to install air circulators.
b. Places where perfect drainage can be prepared and sufficient drainage.
c. Places free from air disturbances to the suction port and blowout hole of the indoor unit, places where the fire alarm may not malfunction or short-circuit.
d. Places with the environmental dew-point temperature is lower than 28℃ and the relative humidity is less than 80 %. (When installing at a place under a high humidity environment, pay sufficient attention to the prevention of dewing such as thermal insulation of the unit.)
e. Installation dimension is the following.

(1) Installation by which service space is made on top of the unit (recommended)

Install the unit away from the ceiling by 350mm or more



(2) Installation by which service is carried out from the bottom of the unit



Avoid installation and use at those places listed below.

a. Places exposed to oil splashes or steam (e.g. kitchens and machine plants).
Installation and use at such places incur deteriorations in the performance or corrosion with the heat exchanger or damage in molded synthetic resin parts.
b. Places where corrosive gas (such as sulfurous acid gas) or inflammable gas (thinner, gasoline etc.) in generated or remains. Installation and use at such places cause corrosion in the heat exchanger and damage in molded synthetic resin parts.
c. Places adjacent to equipment generating electromagnetic waves or high-frequency waves such as in hospitals. Generated noise may cause malfunctioning of the controller.

Pipe size

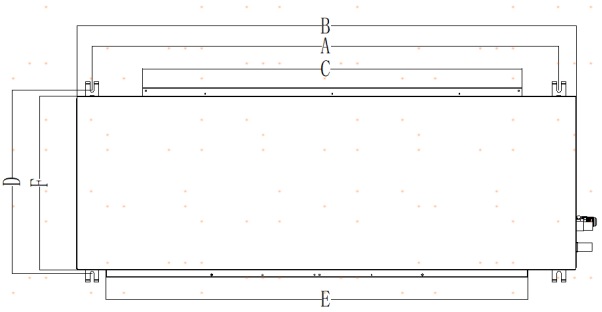
Model	Liquid side	Gas side
AD100S2SH5FA AD105S2SH5FA AD125S2SH5FA	⌀9.52mm	⌀15.88mm
AD140S2SH5FA AD160S2SH5FA AD180S2SH5FA	⌀9.52mm	⌀19.05mm
ADH200H1ERG AD200S5SH2FA AD250S5SH2FA	⌀12.7mm	⌀19.05mm

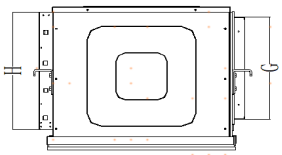
Installation Procedure

1. Preparation for suspending the unit

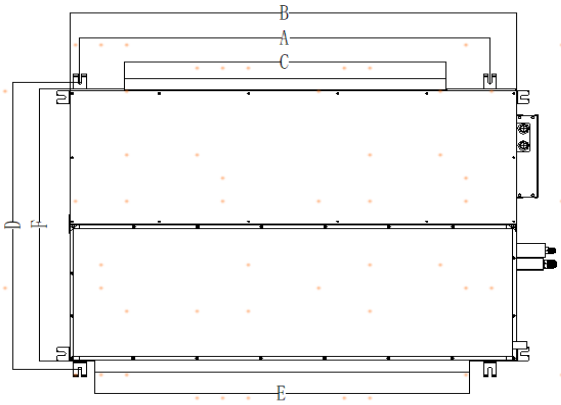
a.Size of hole at ceiling and position of hanging bolts

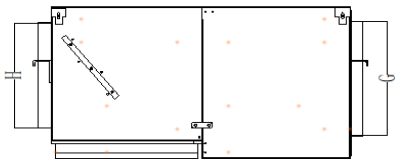
AD100-160S2SH5FA





AD180S2SH5FA
ADH200H1ERG
AD200S5SH2FA
AD250S5SH2FA





Model / Dimensions	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	F(mm)	G(mm)	H(mm)
AD100-160S2SH5FA	1285	1350	1163	549	1045	521	307	353
AD180S2SH5FA ADH200H1ERG AD200S5SH2FA AD250S5SH2FA	1221	1330	1118	945	959	895	377	347

b.Hanger bolts installation

Use care of the piping direction when the unit is installed.

2.Installation of indoor unit

Fix the indoor unit to the hanger bolts.
If required, it is possible to suspend the unit to the beam, etc. Directly by use of the bolts without using the hanger bolts.

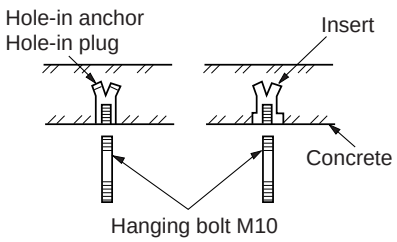
Note

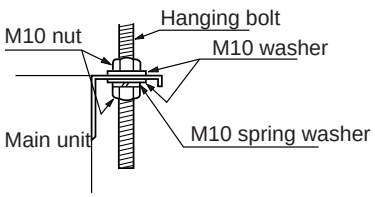
When the dimensions of main unit and ceiling holes does not match, it can be adjusted with the slot holes of hanging bracket.

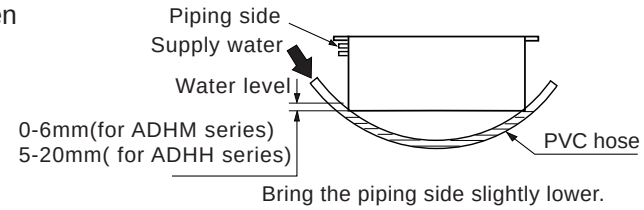
Adjusting to the levelness

(a) Adjust the out-of levelness using a level or by the following method. Make adjustment so that the relation between the lower surface of the unit proper and water level in the hose becomes as given below.

(b) Unless the adjustment to the levelness is made properly, malfunctioning or failure of the float switch may occur.







Installation & Maintenance

1. GENERAL

Follow these Instructions to ensure the optimum performance, reliability and durability.
Units must be installed in accordance with all national and regional regulations and bylaws.
National Health and Safety regulations must to followed to avoid personal injuries.
The appropriate permits must be acquired and adhered to Seismic restraints must be fitted if required.
Local regulations on maximum boundary noise need to be considered when positioning the unit.

For some models (250 series):
All refrigeration pipe brazing, evacuation and charging shall be performed by a technician with a current Refrigerant Handling Licence.
Hot Permits should be acquired where necessary before work commences.
Follow the Refrigeration Code of Practice Guidelines.

Piping and Brazing.

a.The Outdoor unit has shut off valves and uses swaged pipe connections.
b.The Indoor unit is shipped from the factory with pressured nitrogen.
c. Immediately before removing the brazed pipe seals from the Indoor and Outdoor units, relieve the pressure to atmosphere after first ensuring the Outdoor unit shut off valves are closed.
d. Refer to supplied Specification Sheet for pipe sizing.
e. Use clean sealed refrigeration grade piping designed for R410A/R32.
f. Before brazing any pipe connections, ventilate the pipe concerned with low pressure nitrogen.
g. Use pipe cutters to avoid swarf.
h. Use long radius bends (2x pipe dia.).
i. Insulate both suction (gas) and liquid lines; seal all insulation joints.
j.10 Ensure open pipe ends are sealed until the final connection is made.
k. If the outdoor unit is to be installed above the indoor unit, then the suction riser should be trapped at the bottom of the vertical and then again at 10 m (maximum) intervals. This is to ensure oil return to the compressor. The trap should be a 'swan-neck' curve in the pipe, with no change in the pipe size.
Refer figure 3.

2.INSTALLATION

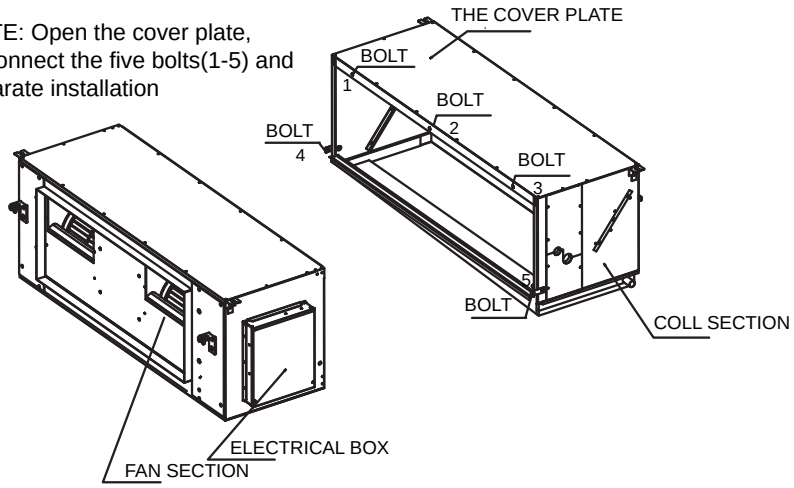
Indoor unit (AD180S2SH5FA/ADH200H1ERG/AD200S5SH2FA/AD250S5SH2FA)

Positioning & Mounting
Clearances for servicing are shown in the Dimension diagrams on the supplied Specifications Sheet.
Separable Indoor Units (AD180S2SH5FA/ADH200H1ERG/AD200S5SH2FA/AD250S5SH2FA):
If splitting for ease of manoeuvrability:
a. Unplug the Red and White sensor wires from electrical board and retract.
b. Undo the 5 nuts and separate the two halve.

Installing the split sections:
a. Use the 'L' shape brackets to hang both components.
b. Mount coil section level as drain tray has abuilt-in slope (not important for the fan section).
c. Re-connect sensor wires correctly to the electrical board.
d. Optional: Fit Spigot Plate Adaptors; refer Figure.
e. Fit insulated ducting to suit.Figure 1 Separable Indoor Unit (AD180S2SH5FA/ADH200H1ERG/AD200S5SH2FA/AD250S5SH2FA)

Installing the complete Indoor unit.
a. Use 'L' shape brackets supplied to hang the unit on threaded rods or suspension wires.
b. Optional: Fit Spring Mount Kit for anti-vibration mounting, if required.
c. Mount unit level as drain tray has a built-in slope.

NOTE: Open the cover plate, disconnect the five bolts(1-5) and separate installation

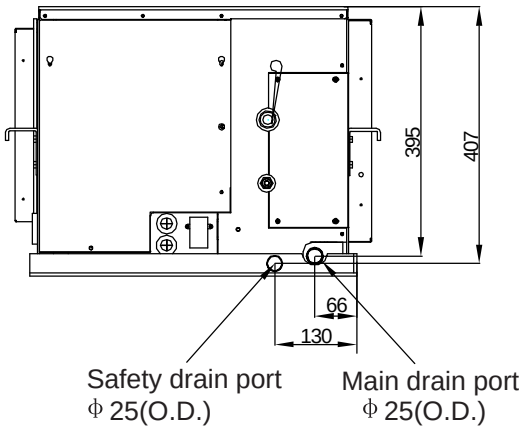


Installing Drain Pipes

⚠ CAUTION
Install the drain pipe in accordance with the instructions in this installation Manual and keep the area warm enough to prevent condensation.Problems with the piping may lead to water leaks.
Be sure to properly insulate the drain pipes.
The position of the installed drain pipe should have a downward gradient of 1/100 or more.
Do not connect the drain pipe in which ammonia or other types of gas affecting the unit is generated.

Install the drain pipes according to the measurements given in the following figure.

- Flange positions for connecting the drain pipes.



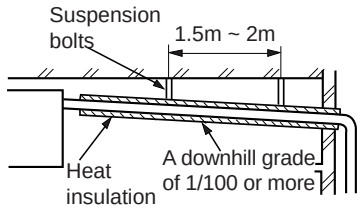
- The size of drain opening

Unit model	The size of drain opening
AD100S2SH5FA AD105S2SH5FA AD125S2SH5FA AD140S2SH5FA AD160S2SH5FA AD180S2SH5FA ADH200H1ERG AD200S5SH2FA AD250S5SH2FA	⌀25mm(O.D.)

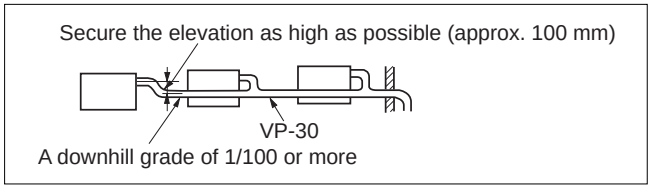
Please refer to the diagram and select drain pipe size according to drain opening inner diameter size.

Drain piping should always be in a downhill grade (1/50~1/100) and avoid riding across an elevation or making traps.

Good piping



(e) When constructing drain piping for several units, position the common pipe about 100 mm below the drain outlet of each unit as shown in the sketch. Use VP-30(11/4") or thicker pipe for this purpose.

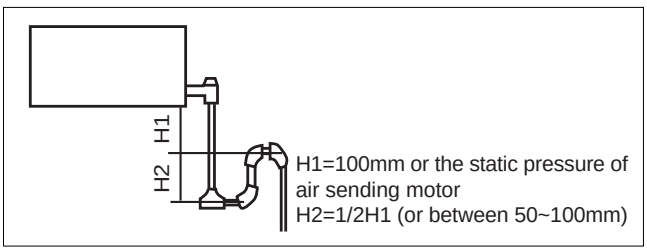


(f) The stiff PVC pipe put indoor side should be heat insulated.

(g) Avoid positioning the drain piping outlet at a place where generation of odor may be stimulated. Do not lead the drain piping direct into a sewer from where sulfur gas may generate.

(h) Because the drain spout is at the position, which negative pressure may occur. So with the rise of water level in the drain pan, water leakage may occur. In order to prevent water leakage, we designed a backwater bend. The structure of backwater bend should be able to be cleaned. As the below figure shown, use T type joint. The backwater bend is set near the air conditioner.

As figure shown, set a backwater bend in the middle of drain hose.



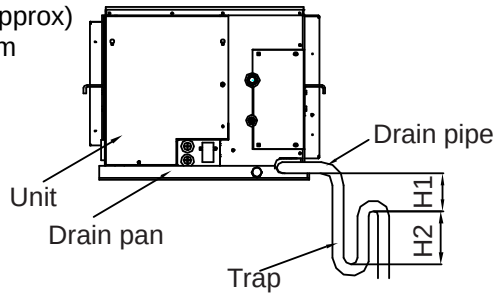
Taking the ADH**H serials as an example, the installation of the drain pipe is the following.

Use general hard polyvinyl chloride (VP25) and connect it with adhesive (polyvinyl chloride) so that there is no leakage. Do not perform air bleeding.

- Main drain pipe

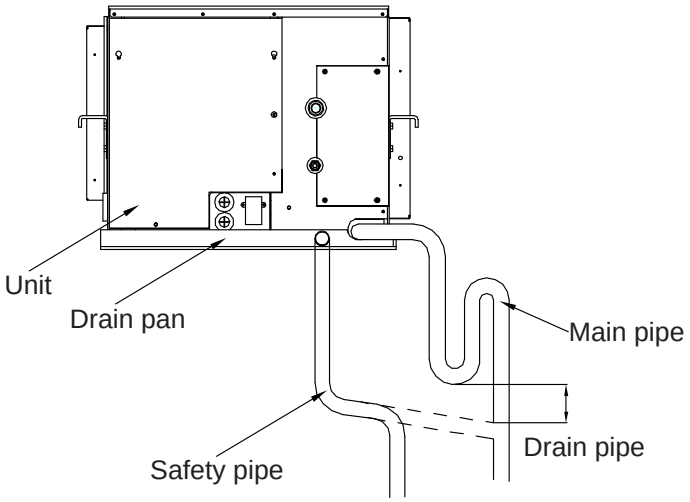
provide one trap on the main drain pipe near the indoor unit.

H1=100 mm(Approx)
H2=50~100 mm

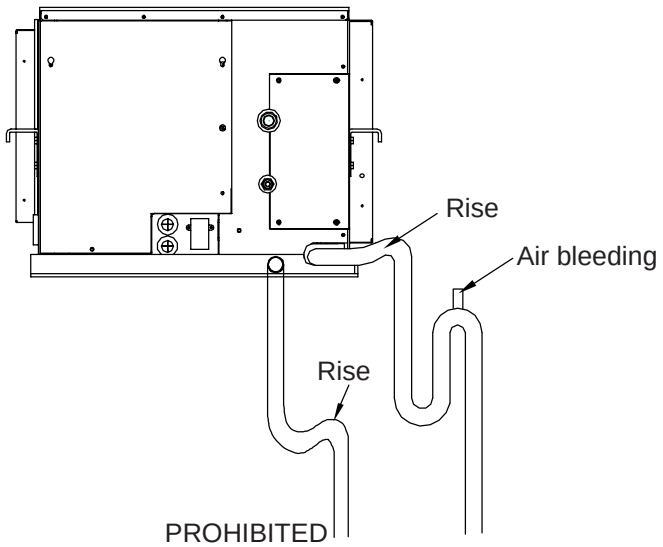


- Safety drain

There is no need to provide a trap for the safety drain pipe.If the safety drain pipe is connected to the main drain pipe,make the connection below the trap on the main drain pipe.



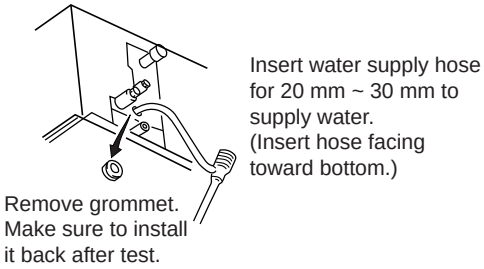
- Make sure that drain pipe is installed without rises.
- Do not perform air bleeding.



Installation Procedure

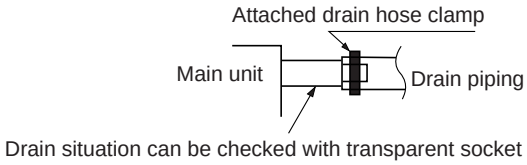
Drainage Test

(1) Conduct a drainage test after completion of the electrical work.
(2) During the trial, make sure that drain flows properly through the piping and that no water leaks from connections.
(3) In case of a new building, conduct the test before it is furnished with the ceiling.
(4) Be sure to conduct this test even when the unit is installed in the heating season.

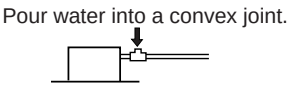


Procedures

(a) Supply about 1000 cc of water to the unit through the air outlet using a feed water pump.
(b) Check the drain while cooling operation.



Before the electrical work has not been completed, connect a convex joint in the drain pipe connection to provide a water inlet. Then, check if water leaks from the piping system and that drain flows through the drain pipe normally.

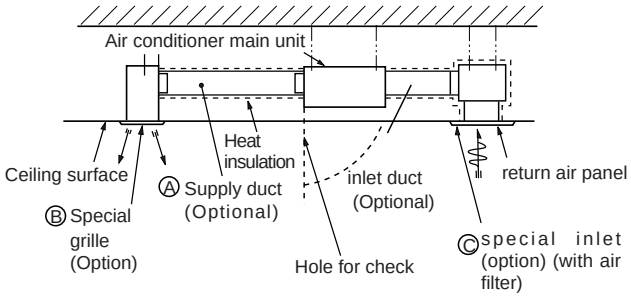


Installation Procedure

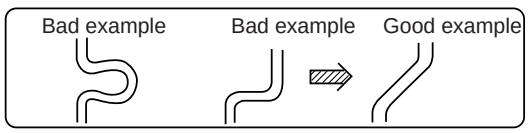
Installation work for air outlet ducts

Calculate the airflow and external static pressure and select the length,shape of starter box.

Ⓐ Starter box



- Reduce the length of duct as much as possible.
- Reduce the number of bends as much as possible. (Corner R should be as larger as possible.)
- Use a band. etc. to connect the main unit and the blowout duct flange.
- Conduct the duct installation work before finishing the ceiling.



Connection of return, exhaust ducts

a.Fresh air inlet

- Inlet can be connected from the side or rear faces depending on the working conditions.

⚠ WARNING
DANGER OF BODILY INJURY OR DEATH • TURN OFF ELECTRIC POWER AT CIRCUIT BREAKER OR POWER SOURCE BEFORE MAKING ANY ELECTRIC CONNECTIONS. • GROUND CONNECTIONS MUST BE COMPLETED BEFORE MAKING LINE VOLTAGE CONNECTIONS.

Precautions for electrical wiring

- Electrical wiring work should be conducted only by authorized personnel.
- Do not connect more than three wires to the terminal block. Always use round type crimped terminal lugs with insulated grip on the ends of the wires.
- Use copper conductor only.

Selection of size of power supply and interconnecting wires

Select wire sizes and circuit protection from table below. (This table shows 20 m length wires with less than 2% voltage drop.)

Item / Model	Phase	Circuit breaker		Power source wire size (minimum) (mm^2)
		Switch breaker (A)	Overcurrent protector rated capacity (A)	
AD100S2SH5FA AD105S2SH5FA AD125S2SH5FA AD140S2SH5FA AD160S2SH5FA AD180S2SH5FA	1	40	32	6.0
ADH200H1ERG	1	40	30	4.0
AD200S5SH2FA	1	20	16	4.0
AD250S5SH2FA	1	25	16	4.0

Electric work

The electric work must be burden on the authorized engineer with qualification for electric work and grounding work, and the work must be conducted in accordance with electric equipment technical standard.

- The power source for the unit is to be of exclusive use.
- An earth leakage breaker should be installed.(This is necessary to prevent electric shock.)
- The unit must be grounded.

When you change your address or the installation place

Special technology is required for removal or reinstallation of air conditioner, consult the sales dealer. Besides, construction expense is charged for removal or reinstallation.

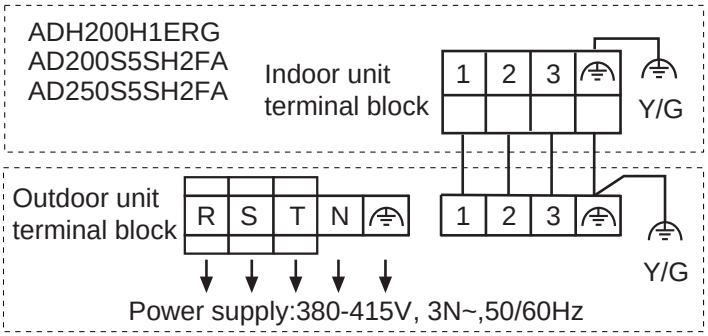
For inspection and maintenance

The capacity of air conditioner will decrease by contamination of inside of unit when it is used for about three years although depending upon the circumstances under which it is used, and so in addition to the usual maintenance service, special inspection/maintenance service is necessary. It is recommended to make a maintenance contract (charged) by consulting your sales dealer.

Wiring connection

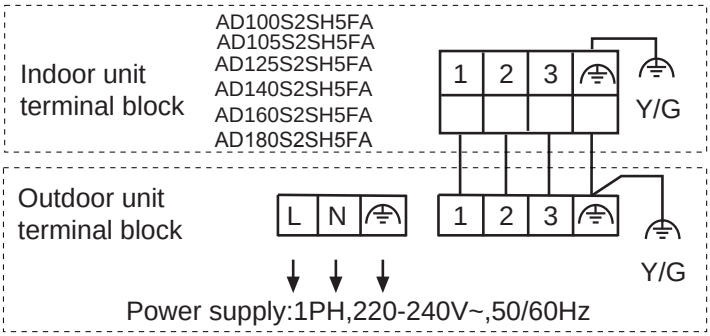
Make wiring to supply power to the outdoor unit, so that the power for the indoor unit is supplied by outdoor unit.

Outdoor 3 phase type



1UH200W1ERK
1U200S5SA2FB
1U250S5SA2FB

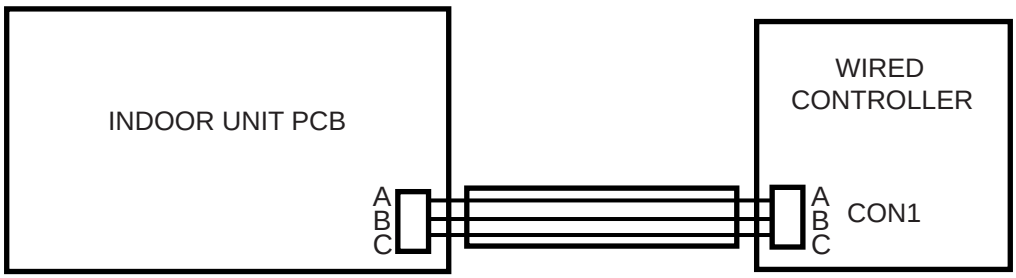
Outdoor single phase type



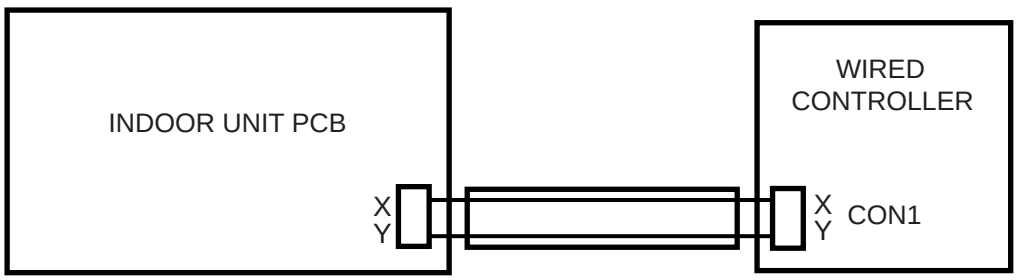
1U100S2SN5FA
1U105S5SN5FA
1U125S2SP5FA
1U140S2SP5FA
1U160S2SP5FA
1U180S2SP5FA

WIRED CONTROLLER& INDOOR PCB CONNECTION(one for one wiring type):

For AD100/105/125/140/160/180 and ADH200 models



For AD200/250 models



Move and scrap the air conditioning

- When moving, to disassemble and re-install the air conditioning, please contact your dealer for technical support.
- In the composition material of air conditioning, the content of lead, mercury, hexavalent chromium, polybrominated biphenyls and polybrominated diphenyl ethers are not more than 0.1% (mass fraction) and cadmium is not more than 0.01% (mass fraction).
- Please recycle the refrigerant before scrapping, moving, setting and repairing the air conditioning; for the air conditioning scrapping, should be dealt with by the qualified enterprises.

Customer Care

Visit the website for technical data
Australia: https://www.haier.com.au/air-conditioning/
New Zealand: https://www.haier.co.nz/air-conditioning/

24/7 customer support and service booking
Australia: 1300 729 948
New Zealand: 0800 424 372

24/7

5 YEAR WARRANTY

Manufacturer's warranty information: You receive a 5 year Manufacturer's Warranty. Fisher & Paykel Appliances Ltd will repair (or at its option replace) any part which is found to be defective within five years from date of purchase, without cost to you for either parts or labour. Retention of your original proof of purchase is recommended. To make a claim under any Manufacturer's Warranty, call Customer Care. Service under any Manufacturer's Warranty must be provided by an authorised Fisher & Paykel Appliances Service provider. Use other than in accordance with the product's user guide and other than for human comfort use may invalidate any Manufacturer's Warranty. This Manufacturer's Warranty is an extra benefit and does not affect your legal rights. Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to a replacement or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure. To view full terms and conditions, visit www.haier.com.au/warranty or www.haier.co.nz/warranty.
The warrantor is:
Fisher & Paykel Australia Pty Ltd, Level 1, 1 Eden Park Drive, Macquarie Park, NSW 2113. Phone Customer Care: 1300 729 948 Email: customer.care@haier.com.au
Fisher & Paykel Appliances Ltd, 78 Springs Road, East Tamaki, Auckland 2013. Phone Customer Care: 0800 424 372. Email: customer.care@haier.co.nz