



INSTALLATION MANUAL

Single-Zone, Heat Pump System

MODELS:

3VIR09HP115V1AO
3VIR12HP115V1AO
3VIR09HP230V1AO
3VIR12HP230V1AO
3VIR18HP230V1AO
3VIR24HP230V1AO

Thank you for choosing our product.
Please read this Installation & Owner's Manual carefully before
operation and retain it for future reference.

If you lose this Manual, please contact your local distributor or
visit www.greecomcomfort.com/resources now to download and
file the electronic version.

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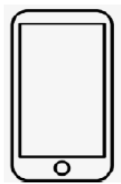
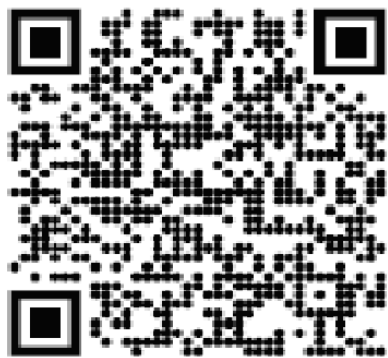
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**SCAN ME FOR QUICK
TIP VIDEOS**

Explanation of Symbols



WARNING

This symbol indicates the possibility of death or serious injury.



CAUTION

This symbol indicates the possibility of injury or damage to property.

NOTICE

Indicates important but not hazard-related information, used to indicate risk of property damage.

Exception Clauses

Manufacturer will bear no responsibilities when personal injury or property loss is caused by the following reasons.

1. Damage the product due to improper use or misuse of the product;
2. Altering, changing, maintaining or using the product with other equipment without following the recommendations in manufacturer's instruction manual;
3. After verification, the product defect is directly caused by corrosive gas;
4. After verification, the defects are due to improper operation or handling during the transportation of product;
5. Operating, repairing or maintaining the unit without following the instruction manual or related regulations.
6. After verification, the problem or dispute is caused by the quality or performance of parts and components produced by other manufacturers;
7. The damage is caused by natural disasters, a hazardous environment or force majeure.

If you need to install, move or maintain this air conditioner, please use a licensed HVAC dealer to avoid serious damage or personal injury or death.

When refrigerant leaks or requires discharging during installation, maintenance, or disassembly, it should be handled by certified professionals in compliance with local laws and regulations.

This equipment 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 equipment by a person responsible for their safety.

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

Safety precautions



WARNING

Installation

- Installation or maintenance must be performed by qualified professionals.
- The equipment shall be installed in accordance with local and national wiring codes.
- All wiring, circuit breakers and disconnects must be to code.
- All wiring of indoor and outdoor units should be connected by licensed professionals.
- Disconnect the power supply before proceeding with any work related to electricity and safety.
- All power and control wiring must conform to the air conditioner's specification and local codes. Unstable power supply or incorrect wiring may result in electrical shock, fire hazard or unit malfunction.
- Grounding of units must comply with the National Electrical Code and local codes.
- Air Conditioner should be properly grounded. Incorrect grounding may cause electrical shock.
- Do not connect power before finishing installation.
- To prevent malfunctions, install a properly sized circuit breaker.
- An all-pole disconnect switch having a contact separation of at least 3mm in all poles should be installed in fixed wiring.
- Circuit breaker must be properly sized to the unit specifications and code to prevent an electrical overload or short-circuit.

Safety precautions



CAUTION

Installation

- Instructions for installation and use of this product are provided by the manufacturer.
- Select a location which is out of reach for children and far away from animals or plants. If unavoidable, please install a fence for safety.
- The indoor unit should be installed close to an outside wall.
- Wire to code (see submittals).
- Power and control wiring from the outdoor unit to the indoor unit must be continuous.
- A circuit breaker must be installed in the line.
- The yellow-green wire is the ground wire it cannot be used for any other purpose.
- This air conditioner is a first class electric equipment. It must be properly grounded to code. Improper grounding could cause an electrical shock.
- The refrigerant circuit temperature will be hot, keep the interconnecting wire away from all copper tubing.

Safety precautions



WARNING

Operation and Maintenance

- This equipment 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 equipment in a safe way and understand the hazards involved.
- Children shall not play with the equipment.
- Cleaning and user maintenance shall not be made by children without supervision.
- If the supply wiring is damaged, it must be replaced by a licensed HVAC technician or other licensed electrical professional.
- Connect air conditioner to a dedicated circuit breaker.
- Disconnect power supply when cleaning air conditioner, to avoid an electrical shock.
- To avoid electrical shock, do not wash the equipment with water.
- To avoid electrical shock or unit malfunction do not spray water on indoor unit.
- Do not repair air conditioner by yourself. Doing so may cause electrical shock or damage. Contact a licensed HVAC contractor.
- To avoid injury, do not touch fins when removing the filter.
- Do not extend fingers or objects into air inlet or air outlet. It may cause personal injury or damage.

Safety precautions



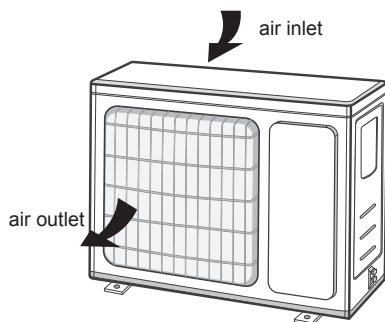
CAUTION

Operation and Maintenance

- To avoid damaging the remote controller, do not spill water on it.
- To avoid damage when drying the air filter, do not use a flame or hair dryer.
- Do not block air outlet or air inlet. It may cause the unit to malfunction.
- Do not step on or put heavy objects on top panel of outdoor unit . It may damage the unit or cause personal injury.
- If any of the following occur, turn off the air conditioner and disconnect power immediately and contact the dealer or a qualified professional for service.
 - Wiring is overheating or damaged.
 - Abnormal sounds during operation.
 - Circuit breaker trips off frequently.
 - A burning smell coming from the air conditioner.
 - Indoor unit is leaking.

Parts name

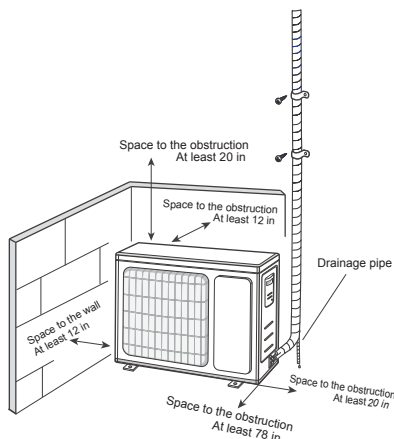
Outdoor Unit



NOTE

- Actual product may be different from above graphics, please refer to actual product.

Installation notice



■ Safety precautions for installing and relocating the unit

To ensure safety, please be mindful of the following precautions.

⚠ WARNING

- **When installing or relocating the unit, be sure to keep the refrigerant circuit free from air or substances other than the specified refrigerant.**

Any presence of air or other foreign substance in the refrigerant circuit will cause system pre-ssure rise or compressor rupture, resulting in injury.

- **When installing or moving this unit, do not charge the refrigerant which is not comply with that on the nameplate or unqualified refrigerant.**

Otherwise, it may cause abnormal operation, wrong action, mechanical malfunction or even serious safety accident.

- **When refrigerant needs to be recovered during relocating or repairing the unit, be**

⚠ WARNING

sure that the unit is running in cooling mode. Then, fully close the valve at high pressure side (liquid valve). About 30-40 seconds later, fully close the valve at low pressure side (gas valve), immediately stop the unit and disconnect power. Please note that the time for refrigerant recovery should not exceed 1 minute.

If refrigerant recovery takes too much time, air may be sucked in and cause pressure rise or compressor rupture, resulting in injury.

- **During refrigerant recovery, make sure that liquid valve and gas valve are fully closed and power is disconnected before detaching the connection pipe.**

If compressor starts running when stop valve is open and connection pipe is not yet connected, air will be sucked in and cause pressure rise or compressor rupture, resulting in injury.

- **When installing the unit, make sure that connection pipe is securely connected before the compressor starts running.**

If compressor starts running when stop valve is open and connection pipe is not yet connected, air will be sucked in and cause pressure rise or compressor rupture, resulting in injury.

- **Prohibit installing the unit at the place where there may be leaked corrosive gas or flammable gas.**

If there is leaked gas around the unit, it may cause an explosion and other accidents.

- **Do not use extension cords for electrical connections.** If the electric wire is not long enough, please contact a local service center authorized and ask for a proper electric wire. Poor connections may lead to electric shock or fire.

- **Use the specified types of wires for electrical connections between the indoor and outdoor units. Firmly clamp the wires so that their terminals receive no external stresses.**

Electric wires with insufficient capacity, wrong wire connections and insecure wire terminals may cause electric shock or fire.

■ Tools for installation

- | | | |
|-----------------|-------------------|-------------------------|
| ① Level meter | ⑦ Open-end wrench | ⑫ Universal meter |
| ② Screw driver | ⑧ Pipe cutter | ⑬ Inner hexagon spanner |
| ③ Impact drill | ⑨ Leak detector | ⑭ Measuring tape |
| ④ Drill head | ⑩ Vacuum pump | |
| ⑤ Pipe expander | ⑪ Pressure meter | |
| ⑥ Torque wrench | | |

NOTICE

- Please contact the local agent for installation.
- Don't use unqualified power cold.

■ Selection of installation location

Basic requirement

Installing the unit in the following places may cause malfunction. If it is unavoidable, please consult the local dealer:

1. The place with strong heat sources, vapors, flammable or explosive gas, or volatile objects spread in the air.
2. The place with high-frequency devices (such as welding machine, medical equipment).
3. The place near coast area.
4. The place with oil or fumes in the air.
5. The place with sulfureted gas.
6. Other places with special circumstances.
7. The equipment shall not be installed in the laundry.
8. It's not allowed to be installed on the unstable or motive base structure (such as truck) or in the corrosive environment (such as chemical factory).

Outdoor unit

1. Select a location where the noise and outflow air emitted by the outdoor unit will not affect neighborhood.
2. The location should be well ventilated and dry, in which the outdoor unit won't be exposed directly to sunlight or strong wind.
3. The location should be able to withstand the weight of outdoor unit.
4. Make sure that the installation follows the requirement of installation dimension diagram.
5. Select a location which is out of reach for children and far away from animals or plants. If it is unavoidable, please add the fence for safety purpose.

Safety precaution

1. Must follow the electric safety regulations when installing the unit.
2. According to the local safety regulations, use qualified power supply circuit and air switch.
3. Make sure the power supply matches with the requirement of air conditioner. Unstable power supply or incorrect wiring or malfunction. Please install proper power supply cables before using the air conditioner.
4. Properly connect the live wire, neutral wire and grounding wire of power socket.
5. Be sure to cut off the power supply before proceeding any work related to electricity and safety.
6. Do not put through the power before finishing installation.
7. 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.

■ Requirements for electric connection

8. The temperature of refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.
9. The equipment shall be installed in accordance with national wiring regulations.

Grounding requirement

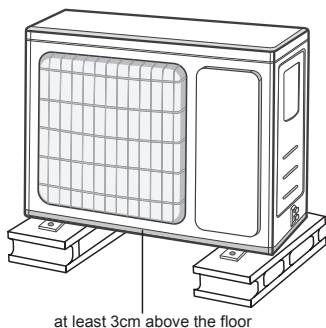
1. The air conditioner is the first class electric equipment. It must be properly grounded with specialized grounding device by a professional. Please make sure it is always grounded effectively, otherwise it may cause electric shock.
2. The yellow-green wire in air conditioner is grounding wire, which can't be used for other purposes.
3. The grounding resistance should comply with national electric safety regulations.
4. The equipment must be positioned so that the disconnect is accessible.
5. An all-pole disconnection switch having a contact separation of at least 3mm in all poles should be connected in fixed wiring.

Installation of outdoor unit

Step 1:

Fix the support of outdoor unit (select it according to the actual installation situation)

1. Select installation location according to the house structure.
2. Fix the support of outdoor unit on the selected location with expansion screws.



NOTICE

- Take sufficient protective measures when installing the outdoor unit.
- Make sure the support can withstand at least four times of the unit weight.
- The outdoor unit should be installed at least 1-1/4 in above the floor in order to install drain joint.(for the model with heating tube, the installation height should be no less than 8 in.)
- For the unit with cooling capacity of 9000 - 12000 Btu, 6 expansion screws are needed; for the unit with cooling capacity of 24000~30000 Btu, 8 expansion screws are needed; for the unit with cooling capacity of 36000+ Btu 10 expansion screws are needed.

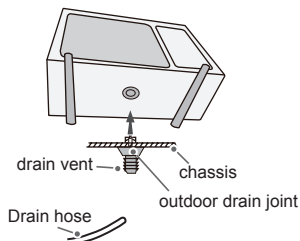
Step 2:

Install drain joint (only for some models)

1. Connect the outdoor drain joint into the hole on the chassis, as shown in the picture below.
2. Connect the drain hose into the drain vent.

NOTICE

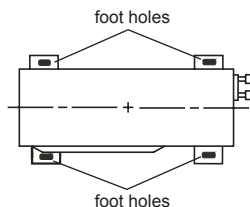
- As for the shape of drainage joint, please refer to the current product. Do not install the drainage joint in the severe cold area. Otherwise, it will be frosted and then cause malfunction.



Step 3:

Fix outdoor unit

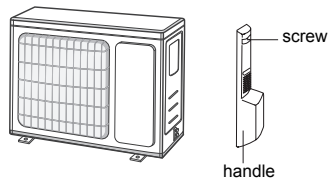
1. Place the outdoor unit on the support.
2. Fix the foot holes of outdoor unit with bolts.



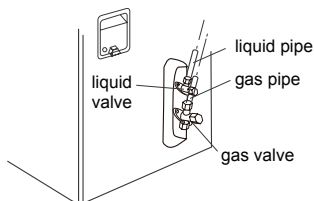
Step 4:

Connect indoor and outdoor pipes

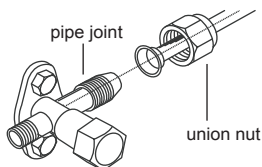
1. Remove the screw on the right handle of outdoor unit and then remove the handle.



2. Remove the screw cap of valve and aim the pipe joint at the bellmouth of pipe.



3. Pretighten the union nut with hand.



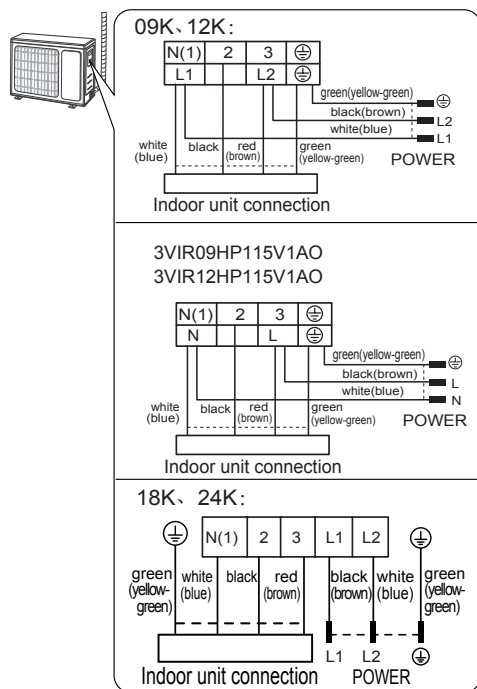
4. Tighten the union nut with torque wrench by referring to the sheet below.

Hex nut diameter	Tightening torque(N·m)
1/4"	15~20
3/8"	30~40
1/2"	45~55
5/8"	60~65
3/4"	70~75

Step 5:

Connect outdoor electric wire

1. Remove the wire clip; connect the power connection wire and signal control wire (only for cooling and heating unit) to the wiring terminal according to the color; fix them with screws.



NOTICE

- The wiring board is for reference only, please refer to the actual one.

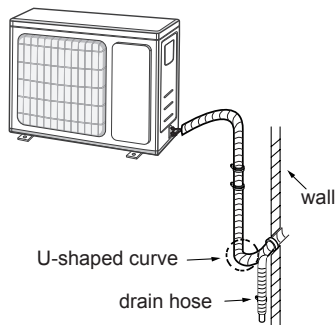
2. Fix the power connection wire and signal control wire with wire clip (only for cooling and heating unit).

NOTICE

- After tighten the screw, pull the power cord slightly to check if it is firm.
- Never cut the power connection wire to prolong or shorten the distance.

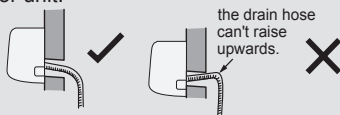
Step 6: Pipe Neatly

- The pipes should be placed along the wall, bent reasonably and hidden possibly. Min. semidiameter of bending the pipe is 4 in.
- If the outdoor unit is higher than the wall hole, you must set a U-shaped curve in the pipe before pipe goes into the room, in order to prevent rain from getting into the room.

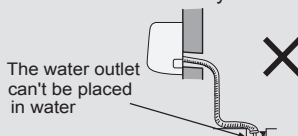


NOTICE

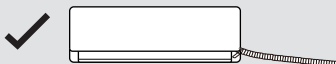
- The through-wall height of drain hose should not be higher than the outlet pipe hole of indoor unit.



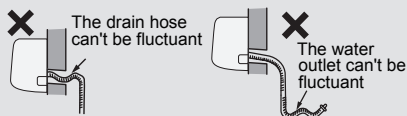
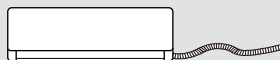
- The water outlet can't be placed in water in order to drain smoothly.



- Slant the drain hose slightly downwards. The drain hose can't be curved, raised and fluctuant, etc.



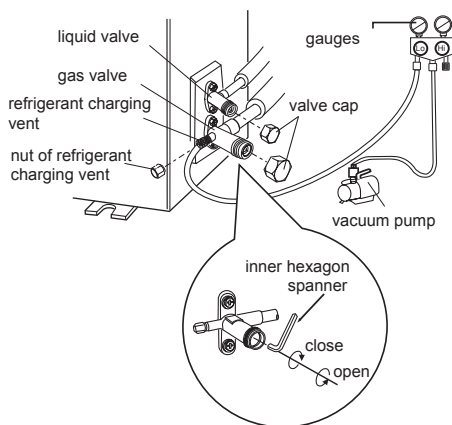
- The drain hose can't be fluctuant



Test and operation

Use vacuum pump

1. Remove the valve caps on the liquid valve and gas valve and the nut of refrigerant charging vent.
2. Connect the charging hose of gauges to the refrigerant charging vent of gas valve and then connect the other charging hose to the vacuum pump.
3. Open the gauges completely and operate for 10-15 min to check if the pressure gauge remains in -15 psi.
4. Close the vacuum pump and maintain this status for 1-2min to check if the pressure of gauge remains in -15 psi. If the pressure decreases, there may be a leak.
5. Remove the gauges, open the valve core of liquid valve and gas valve completely with inner hexagon spanner.
6. Tighten the screw caps of valves and refrigerant charging vent.
7. Reinstall the handle.



Leak detection

1. With a leak detector: Check if there is a leak.
2. With soap water: If leak detector is not available, please use soapy water for leak detection. Apply soap water at the suspected position and keep the soap water for more than 3min. If there are air bubbles coming out of this position, there's a leak.

Check after installation

- Check according to the following requirement after finishing installation.

Items to be checked	Possible malfunction
Has the unit been installed firmly?	The unit may drop, shake or emit noise.
Have you done the refrigerant leak test?	It may cause insufficient cooling(heating) capacity.
Is heat insulation of pipe-line sufficient?	It may cause condensation and water dripping.
Is water drained well?	It may cause condensation and water dripping.
Is the voltage of power supply according to the voltage marked on the nameplate?	It may cause malfunction or damage the parts.
Is electric wiring and pipeline installed correctly?	It may cause malfunction or damage the parts.
Is the unit grounded securely?	It may cause electric leakage.
Does the power cord follow the specification?	It may cause malfunction or damage the parts.
Is there any obstruction in the air inlet and outlet?	It may cause insufficient cooling(heating) capacity.
The dust and sundries caused during installation are removed?	It may cause malfunction or damage the parts.
The gas valve and liquid valve of connection pipe are open completely?	It may cause insufficient cooling (heating) capacity.
Is the inlet and outlet of piping hole been covered?	It may cause insufficient cooling (heating) capacity or waste electricity.

Test operation

1. Preparation of test operation

- The client approves the air conditioner.
- Specify the important notes for air conditioner to the client.

2. Method of test operation

- Put through the power, press ON/OFF button on the remote controller to start operation.
- Press MODE button to select AUTO, COOL, DRY, FAN and HEAT to check whether the operation is normal or not.
- If the ambient temperature is lower than 16°C(61°F), the air conditioner can't start cooling.

Configuration of connection pipe

1. Standard length of connection pipe: 5m, 7.5m, 8m.
2. Min. length of connection pipe is 3m.
3. Max. length of connection pipe is shown as below.

Max. length of connection pipe

Cooling capacity	Max. length of connection pipe(ft)
9000Btu/h (2637W)	50
12000Btu/h (3516W)	66
18000Btu/h (5274W)	82
24000Btu/h (7032W)	82

4. The additional refrigerant oil and refrigerant charging required after prolonging connection pipe.

- After the length of connection pipe is prolonged for 10m at the basis of standard length, you should add 5ml of refrigerant oil for each additional 5m of connection pipe.
- The calculation method of additional refrigerant charging amount(on the basis of liquid pipe):
Additional refrigerant charging amount = prolonged length of liquid pipe × additional refrigerant charging amount per meter
- Basing on the length of standard pipe, add refrigerant according to the requirement as shown in the table. The additional refrigerant charging amount per meter is different according to the diameter of liquid pipe. See the following sheet.

Additional refrigerant charging amount for R410A

Piping size		Outdoor unit throttle	
Liquid pipe	Gas pipe		Clg and htg (oz/ft)
1/4"	3/8" or 1/2"		.215
1/4" or 3/8"	5/8" or 3/4"		.54
1/2"	3/4" or 7/8"		1.29
5/8"	1" or 1 1/4"		1.29
3/4"	—		2.7
7/8"	—		3.76

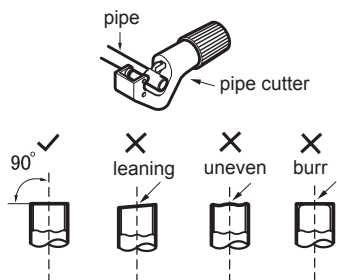
Pipe expanding method

NOTICE

Improper pipe expanding is the main cause of refrigerant leaks. Please expand the pipe according to the following steps:

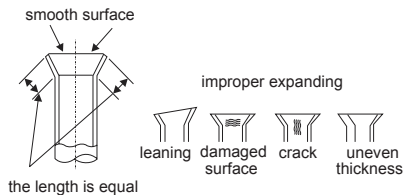
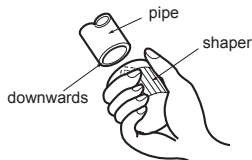
A: Cut the pipe

- Confirm the pipe length according to the distance of indoor unit and outdoor unit.
- Cut the required pipe with pipe cutter.



B: Remove the burrs

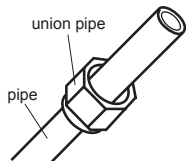
- Remove the burrs with shaper and prevent the burrs from getting into the pipe.



C: Put on suitable insulating pipe

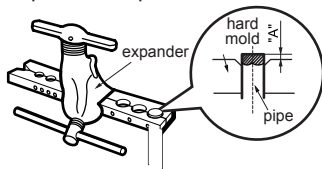
D: Put on the union nut

- Remove the union nut on the indoor connection pipe and outdoor valve; install the union nut on the pipe.



E: Expand the port

- Expand the port with expander.



NOTICE

- "A" is different according to the diameter, please refer to the sheet below:

Outer diameter (mm)	A(mm)	
	Max	Min
Φ6 - 6.35(1/4")	1.3	0.7
Φ9 - 9.52(3/8")	1.6	1.0
Φ12-12.7(1/2")	1.8	1.0
Φ15.8-16(5/8")	2.4	2.2

F: Inspection

- Check the quality of expanding port. If there is any blemish, expand the port again according to the steps above.

Working temperature range

3VIR09HP230V1AO, 3VIR12HP230V1AO
3VIR18HP230V1AO, 3VIR24HP230V1AO

	Indoor side DB/WB(°C /°F)	Outdoor side DB/WB(°C /°F)
Maximum cooling	26.7/19.4 (80/67)	50/24 (122/75)
Maximum heating	26.7/-(80/-)	30/18 (86/65)

NOTE

- The operating temperature range (outdoor temperature) for cooling is -29°C(-20°F)~50°C(122°F); for heating is -30°C(-22°F)~30°C(86°F).

3VIR09HP115V1AO, 3VIR12HP115V1AO

NOTE

- The operating temperature range (outdoor temperature) for cooling is -25°C(-13°F)~50°C(122°F); for heating is -30°C(-22°F)~30°C(86°F).



LIMITED WARRANTY STATEMENT

FOR WARRANTY SERVICE OR REPAIR:

Contact your installing contractor. You may find the installer's name on the equipment or in your Owner's packet. Complete product registration below and keep on file for future reference. Warranty registration: Register your unit(s) on www.greecomfort.com, follow links to "Warranty Registration"

PRODUCT REGISTRATION

Model No. _____

Serial No. _____ Date of Installation _____

Owner Name _____

Address of Installation _____

Installing Contractor _____

Address _____

Phone No. / E-mail _____

GREE distributor (hereinafter "Company") warrants this product against failure due to defect in materials or workmanship under normal use and maintenance as follows. All warranty periods begin on the date of original installation. If the date cannot be verified, the warranty period begins one hundred twenty (120) days from date of manufacture. If a part fails due to defect during the applicable warranty period, Company will provide a new or remanufactured part, at Company's option, to replace the failed defective part at no charge for the part. This limited warranty is subject to all provisions, conditions, limitations and exclusions listed below.

- A warranty period of Five (5) years on all parts to the original registered end user.
 - A warranty period of 90 days on the remote control provided with the original unit.
 - A warranty period of 1 yr on all parts to the original registered commercial end user.
- Limited warranty applies only to systems that are properly installed by a state certified or licensed HVAC contractor, under applicable local and state law in accordance with all applicable building codes and permits; GREE installation and operation instructions and good trade practices.
- Warranty applies only to products remaining in their original installation location.
 - Defective parts must be returned to the distributor through a registered servicing dealer for credit.

LIMITATIONS OF WARRANTIES: ALL IMPLIED WARRANTIES AND/OR CONDITIONS (INCLUDING IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR USE OR PURPOSE) ARE LIMITED TO THE DURATION OF THIS LIMITED WARRANTY, SOME STATES OR PROVINCES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY OR CONDITION LASTS, SO THE ABOVE MAY NOT APPLY TO YOU. THE EXPRESS WARRANTIES MADE IN THIS WARRANTY ARE EXCLUSIVE AND MAY NOT BE ALTERED, ENLARGED, OR CHANGED BY ANY DISTRIBUTOR, DEALER, OR OTHER PERSON, WHATSOEVER.

THIS WARRANTY DOES NOT COVER:

1. Labor or other costs incurred for diagnosing, repairing, removing, installing, shipping, servicing or handling of either defective parts, or replacement parts, or new units.
2. Product cleaning required prior to warranty service and repair.
3. Normal maintenance as outlined in the installation and servicing instructions or Owner's Manual, including filter cleaning and/or replacement and lubrication.
4. Failure, damage or repairs due to faulty installation, misapplication, abuse, improper servicing, unauthorized alteration or improper operation.
5. Failure to start due to voltage conditions, blown fuses, open circuit breakers, or damages due to the inadequacy or interruption of electrical service.
6. Failure or damage due to floods, winds, fires, lightning, accidents, corrosive environments (rust, etc.) or other conditions beyond the control of the Company.
7. Failure or damage of coils or piping due to corrosion on installations within one (1) miles of sea coast or corrosive body.
8. Parts not supplied or designated by Company, or damages resulting from their use.
9. Products installed outside the 48 contiguous United States, except the District of Columbia and Hawaii.
10. Electricity or fuel costs, or increases in electricity or fuel costs from any reason whatsoever, including additional or unusual use of supplemental electric heat.
11. Any cost to replace, refill or dispose of refrigerant, including the cost of refrigerant.
12. Shipping damage or damage as a result of transporting the unit.
13. Accessories such as condensate pumps, line sets and so forth are not covered.
14. Any special, indirect or consequential property or commercial damage of any nature whatsoever. Some states or provinces do not allow the exclusion of incidental or consequential damages, so the above limitation may not apply to you.
15. Consumable components, such as air filters, are not covered under parts warranty.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. In jurisdictions where warranty benefits conditioned on registration are prohibited by law, registration is not required, and the STANDARD warranty period shown above will apply.

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