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Haier 1U18TE2VHA-1 Owner's Manual

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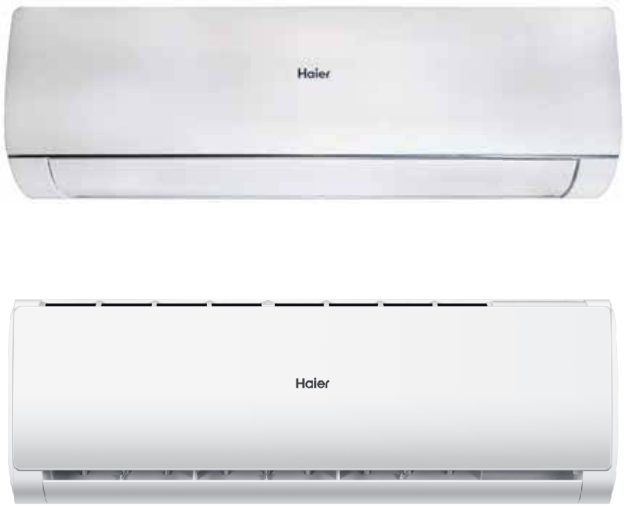
Ductless Split Air Conditioner

Installation Manual

Indoor	Outdoor
AW09ES2VH*	1U09ES2VHA
AW12ES2VH*	1U12ES2VHA
AW18ES2VH*	1U18ES2VHA
AW24ES2VH*	1U24ES2VHA
AW09TE1VH*	1U09TE1VHA
AW12TE1VH*	1U12TE1VHA
AW18TE2VH*	1U18TE2VHA
AW24TE2VH*	1U24TE2VHA



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Step 1 - Preparation

Required Tools for Installation

- Drill
- Wire Snipper
- Hole Saw 2 3/4"
- Vacuum pump
- Soap-and-water solution or gas leakage detector
- Torque wrench
- 17mm, 22mm, 26mm
- Tubing cutter
- Flaring tool
- Razor knife
- Measuring tape
- Level
- Micron gauge
- Nitrogen
- Mini-Split AD-87 Adapter (1/4" to 5/16")
- A - Non-adhesive Tape
- B - Adhesive Tape
- C - Saddle (L.S.) with screws
- D - Electrical wiring
- E - Drain hose (Included)
- F - Insulation
- G - Piping hole cover (Included)

Procedure for Selecting the Location

- Choose a place solid enough to bear the weight and vibration of the unit and where the operation noise will not be amplified.
- Choose a location where the hot air discharged from the unit or the operation noise and will not cause a nuisance to the neighbors of the user.
- There must be sufficient space for carrying the unit into and out of the site.
- There must be sufficient space for passage and no obstructions around the air inlet and air outlet.
- The site must be free from the possibility of flammable gas leakage in a nearby place.
- Locate the unit to avoid noise and discharged hot air will not annoy the neighbors.
- Install units, power cords and inter-unit cables at least 10ft away from television and radio sets. This is to prevent interference to images and sounds. (Noise may be heard even if they are more than 10ft away depending on radio wave conditions.)
- Since drain flows out of the outdoor unit, do not place anything under the unit that must be kept away from moisture.

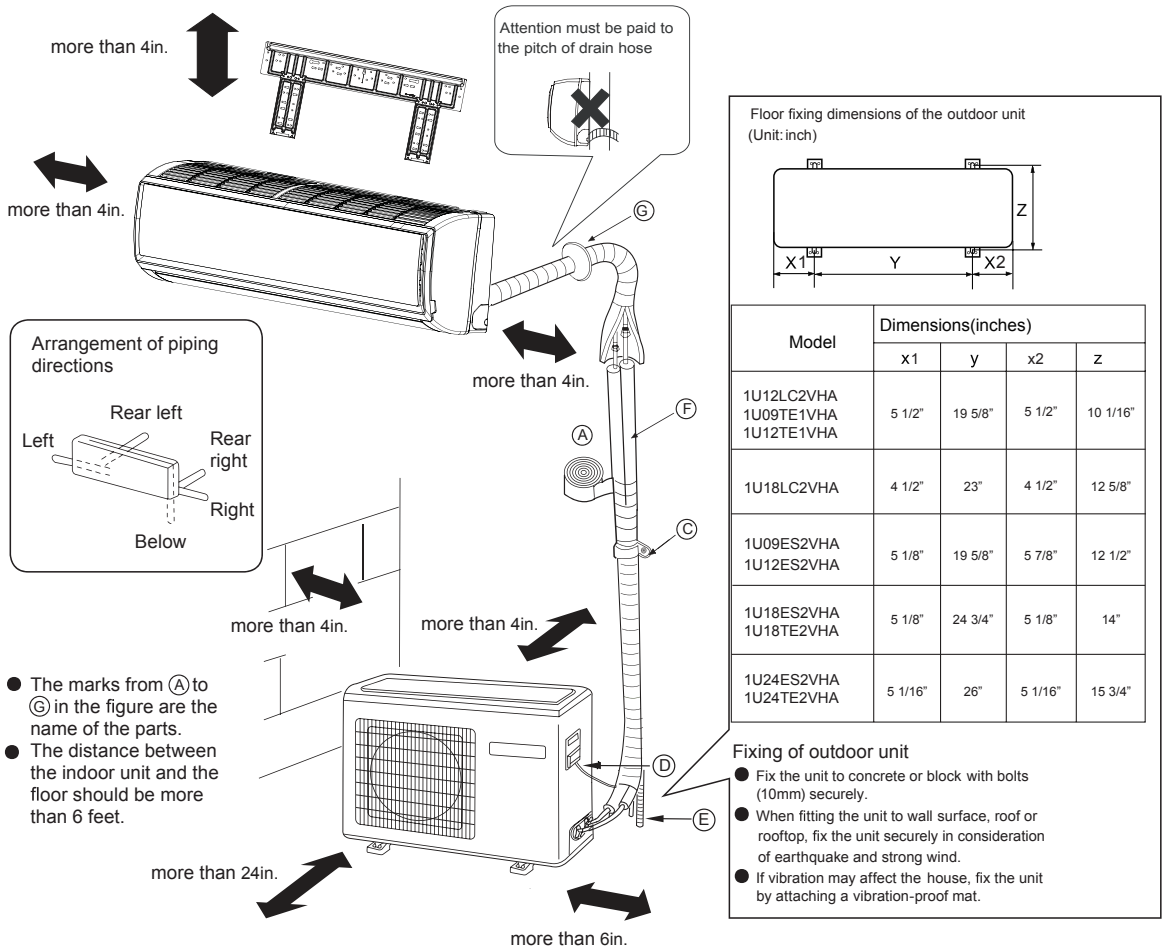
Note:

1) Cannot be installed hanging from ceiling or stacked.
2) If installing on a high place such as a roof, with a fence or guard rail around it.
3) If there is a potential for accumulated snow to block the air inlet or heat ex-changer, install the unit on a higher base.
4) R-410A refrigerant is a safe, nontoxic and nonflammable refrigerant. However, if there is a concern about a dangerous level of refrigerant concentration in the case of refrigerant leakage, add extra ventilation.
5) Avoid installing the outdoor unit where corrosive gases, such as sulfur oxides, am-monia, and sulfurous gas, are produced. If unavoidable, consult with an installation specialist about using a corrosion-proof or anti-rust additive to protect the unit coils.

Clearances of Indoor and Outdoor Units

This picture is for reference only.Your product may look different. Read this manual before installation. Explain the operation of the unit to the user according to this manual.

The models adopt HFC free refrigerant R410A



Model	Dimensions(inches)			
	x1	y	x2	z
1U12LC2VHA 1U09TE1VHA 1U12TE1VHA	5 1/2"	19 5/8"	5 1/2"	10 1/16"
1U18LC2VHA	4 1/2"	23"	4 1/2"	12 5/8"
1U09ES2VHA 1U12ES2VHA	5 1/8"	19 5/8"	5 7/8"	12 1/2"
1U18ES2VHA 1U18TE2VHA	5 1/8"	24 3/4"	5 1/8"	14"
1U24ES2VHA 1U24TE2VHA	5 1/16"	26"	5 1/16"	15 3/4"

- The marks from Ⓐ to Ⓖ in the figure are the name of the parts.
- The distance between the indoor unit and the floor should be more than 6 feet.

Step 2 - Installation of the Indoor Unit

Attaching the Mounting Plate to the Wall

2.1 Step 2.1

Using a stud sensor, locate and mark the stud positions in the wall where the indoor unit is to be mounted.

2.2 Step 2.2

Place the mounting plate on the wall in the desired location taking into account the minimum clearances necessary for proper operation.

Using a level, verify the mounting plate is horizontal and mark the screw locations.

2.3 Step 2.3

Screw the mounting plate to the wall.

The piping for the indoor unit may be routed to the unit from one of several directions. Left, Left Rear, Right, Right Rear, or Below (Illustration 1).

2.4 Step 2.4

Knockouts are provided on the case for Left, Right, and Right Below.

Drilling the hole through the wall for left rear or right rear installation

2.5 Step 2.5A & 2.5B

Measure and mark the location where the piping hole is to be drilled.

2.6 Step 2.6

Drill the piping hole using a hole saw of the correct diameter. Angle the drill with a downward pitch to the outside wall so that the outside hole will be ¼" lower than the inside hole, giving the hole the proper angle for condensate drainage.

2.7 Step 2.7

Install the piping hole cover flange at the hole opening on the inside wall.
NOTE: The cover flange may require modification to fit properly behind the wall unit housing.

2.8 Step 2.8A & 2.8B

Bundle the refrigerant piping, drain piping and wiring with tape and pass the bundle through the piping hole.
NOTE: When bundling the power cable, leave sufficient length available in the indoor unit to make the connections to the terminal block.

Step 2.1

Step 2.2

Step 2.3

Step 2.4

Step 2.5A

Step 2.5B

Step 2.6

Step 2.7

Step 2.8A

Step 2.8B

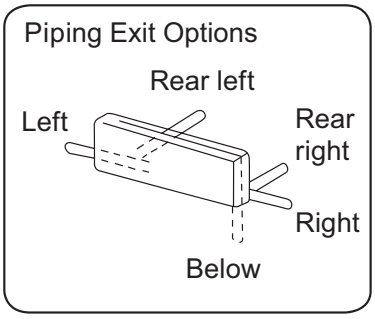


Illustration 1

Mounting the Indoor Unit Onto the Wall Plate

2.9 Step 2.9

With the top of the indoor unit closer to the wall, hang the indoor unit on the upper hooks of the mounting plate. Slide the unit slightly side to side to verify proper placement of the indoor unit on the mounting plate. Rotate the lower portion of the indoor unit to the mounting plate, and lower the unit onto the lower hooks of the mounting plate. (Illustration 2) Verify the unit is secure.

2.10 Step - 2.10

Slightly raise the entire unit vertically, pull the lower portion of the unit off the lower hooks of the mounting plate and away from the wall, then lift the upper portion of the unit off the upper hooks of the wall plate.

Step 2.9

Step 2.10

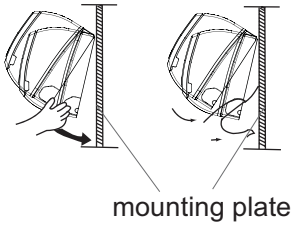


Illustration 2

Electrical Connections for the Indoor Unit

2.11 Step - 2.11A & 2.11B

To make the electrical connections for the indoor unit, two cover plates must be removed. Raise the front cover to access the screws to remove these covers.

2.13 Step - 2.13

Access the four conductor cable through the cover plate opening and make the wiring connections noting the wire color used on each terminal. The color of each wire must match the same positions on the terminal block of the outdoor unit. (Illustration 3)

Failure to wire the system correctly may lead to improper operation or component damage.

2.14 Step - 2.14A & 2.14B

After the terminal block wiring is completed, replace both cover plates.

Step 2.11A

Step 2.11B

Step 2.12

Step 2.13A

Step 2.13B

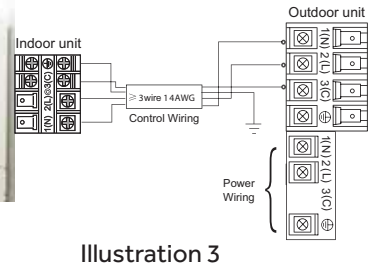


Illustration 3

Step 3 - Installation of the Outdoor Unit

Attaching Drain Elbow to Outdoor Unit

(Heat Pump models only)

3.1 Step - 3.1

If attaching the supplied drain elbow to the outdoor unit, do so prior to attaching the refrigerant lines and wiring. Extension piping to attach to this fitting is field supplied.

Step 3.1

Step 3.2

Electrical Connections for the Outdoor Unit

3.2 Step - 3.2

Remove the cover plate of the outdoor unit to expose the terminal block connections.

3.3 Step - 3.3

Connect the wiring for both the power source and indoor wiring.
Wire the system according to applicable national / local codes.
Verify that the wiring connections for the indoor unit match wire for wire.
(1-1, 2-2, 3-3, Gnd-Gnd). Failure to wire the system correctly may lead to improper operation or component damage.

Step 3.3

Step 3.4

3.4 Step - 3.4

Replace the cover plate.

Step 4 - Interconnecting the Indoor and Outdoor Units

*See Steps 2.11 - 2.13 & 3.2 - 3.4 for connecting the electrical.

Piping

The standard lineset length is 25ft. If the installation length is different, adjust the refrigerant charge by .2 oz /ft. for the 9K, 12K, 18K, and 24K model. (Illustration 4)

Cut the to lineset length, flare and attach the piping to the outdoor unit valves.
Torque the fittings to the specifications shown in the torque chart.

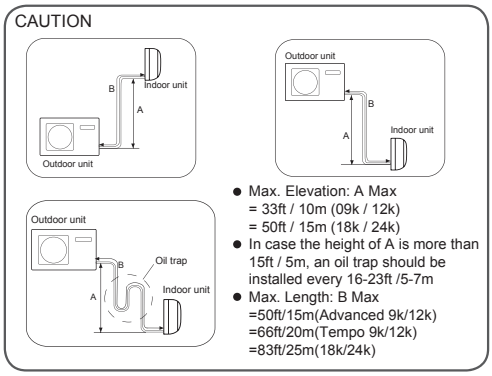


Illustration 4

4.1 Step - 4.1

Refrigerant piping connections for the mini-split system are made utilizing flare connections. Follow standard practices for creating pipe flares. When cutting and reaming the tubing, use caution to prevent dirt or debris from entering the tubing. Remember to place the nut on the pipe before creating the flare.

Step 4.1

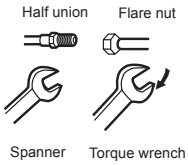
Step 4.2

4.2 Step - 4.2

To join the lineset piping together,directly align the piping flare to the fitting on the other pipe, then slide the nut onto the fitting and tighten. Misalignment may result in a leaking connection.

2.17 Step - 4.3

Two wrenches are required to join the flare connections, one standard wrench, and one torque wrench. See Table 1 for the specific torque per piping diameter.



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

Pipe Diameter(ø)	Fastening torque
Liquid side6.35mm(1/4")	18N.m/13.3Ft.lbs
Liquid/Gas side9.52mm(3/8")	42 N.m/30.1Ft.lbs
Gas side 12.7mm(1/2")	55N.m/40.6Ft.lbs
Gas side 15.88mm(5/8")	60 N.m/44.3Ft.lbs

Table 1

Step 4.3

Step 5 - Leak Test and Evacuation

Leak Test

Hazard of Explosion! Never use an open flame to detect gas leaks. Explosive conditions may occur. Use a leak test solution or other approved methods for leak testing. Failure to follow recommended safe leak test procedures could result In death or serious injury or equipment or property damage.

Use only dry nitrogen with a pressure regulator for pressurizing unit. Do not use acetylene, oxygen or compressed air or mixtures containing them for pressure testing. Do not use mixtures of a hydrogen containing refrigerant and air above atmospheric pressure for pressure testing as they may become flammable and could result in an explosion. Refrigerant, when used as a trace gas should only be mixed with dry nitrogen for pressurizing units. Failure to follow these recommendations could result in death or serious injury or equipment or property damage.

5.1 Step - 5.1

Using a tank of nitrogen with attached regulator, charge the system with 150 PSIG of dry nitrogen. Use adapter AD-87 (field supplied) to connect to the valve. Check for leaks at the flare fittings using soap bubbles or other detection methods. If a leak is detected, repair and recheck. If no leaks are detected, proceed to evacuate the system.

System Evacuation

5.2 Step - 5.2

Attach a manifold gauge, micron gauge, and vacuum pump to the suction line port using adapter AD-87 (field supplied). (Illustration 5)

Evacuate the system to 350 microns.
Close the vacuum pump valve and check the micron gauge. If the gauge rises above 500 microns in 60 seconds, evacuation is incomplete or there is a leak in the system. If the gauge does not rise above 500 microns in 60 seconds, evacuation is complete.

5.3 Step - 5.3

Remove the adapter and hose connection from the suction line port, and replace the cap.

5.4 Step - 5.4A & 5.4B

Remove the cap from the liquid line valve. Using the hex wrench, open the valve, then replace and tighten the cap.

5.5 Step - 5.5A & 5.5B

Remove the cap from the suction line valve. Using the hex wrench, open the valve, then replace and tighten the cap.

5.6 Step - 5.6

Wrap the lineset, drain line, and wiring starting at the bottom of the bundle with an overlap type wrap, concluding at the

Step 5.1

Step 5.2

Step 5.3

Step 5.4A

Step 5.4B

Step 5.5A

Step 5.5B

Step 5.6

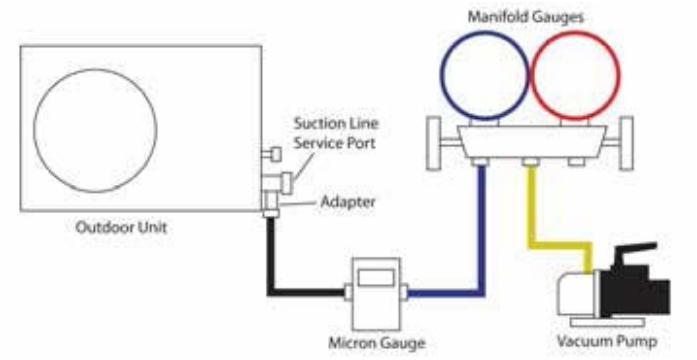


Illustration 5

piping hole. Use a sealant to seal the piping hole opening to prevent weather elements from entering the building. (Illustration 6)

Verify the condensate drain line has a constant pitch downward for proper water flow. There should be no kinks or rises in the tubing which may cause a trapping effect resulting in the failure of the condensate to exit the piping.

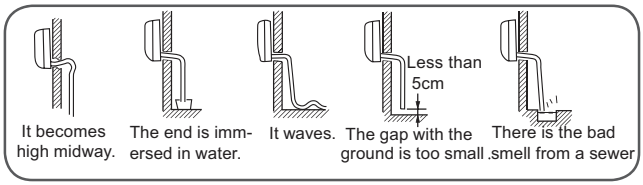


Illustration 6

ENGLISH

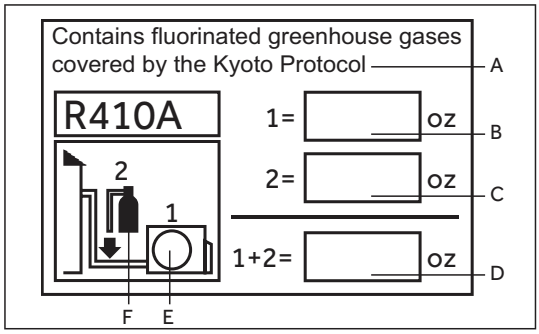
Step 6 - Charging

See Steps 5.2 - 5.5 for evacuating the system prior to charging. The standard lineset length is 25ft. If the installation length is different, adjust the refrigerant charge by .2 oz / ft. for the 9K, 12K, 18K, and 24K model. (Step 4 - Illustration 4)

Refrigerant Charge Label

This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. Do not vent into the atmosphere.
Refrigerant type: R410A
GWP* value: 1975
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 valve 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



System Test

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

Check Items for Test Run

Put check mark √ in boxes
- ☐ No gas leak from linesets?
- ☐ Are the linesets insulated properly?
- ☐ Are the connecting wirings of indoor and outdoor firmly inserted to the terminal block?
- ☐ Is the connecting wiring of indoor and outdoor firmly fixed?
- ☐ Is condensate draining correctly?
- ☐ Is the ground wire securely connected? Is the indoor unit securely fixed?
- ☐ Is power source voltage correct according to local code?
- ☐ Is there any noise?
- ☐ Is the lamp normally lighting?
- ☐ Are cooling and heating (when in heat pump) performing normally?
- ☐ Is the operation of room temperature sensor normal?

Section 7 - Explaining Operation to the End User

- Using the OPERATING INSTRUCTIONS, explain to the user how to use the air conditioner (the remote controller, removing the air filters, placing or removing the remote controller from the remote controller holder, cleaning methods, precautions for operation, etc.)
- Recommend that the user read the OPERATING INSTRUCTIONS carefully.

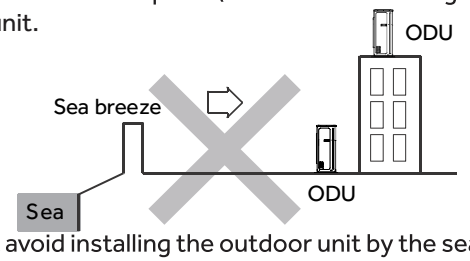
Section 8 - System Specifications

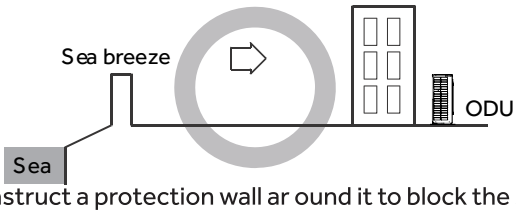
Model Name	**System**	**09ES**	**12ES**	**18ES**	**24ES**
	Outdoor	**1U09ES2VHA**	**1U12ES2VHA**	**1U18ES2VHA**	**1U24ES2VHA**
	Indoor	**AW09ES2VH***	**AW12ES2VH***	**AW18ES2VH***	**AW24ES2VH***
Operating Range	Cooling °F(°C)	14~115(-10~46)	14~115(-10~46)	14~115(-10~46)	14~115(-10~46)
	Heating °F(°C)	-4-75(-20-24)	-4-75(-20-24)	-4-75(-20-24)	-4-75(-20-24)
Power Supply	Voltage, Cycle, Phase V/Hz/-	208-230/60/1	208-230/60/1	208-230/60/1	208-230/60/1
Electrical Data	Compressor Type	DC inverter Driven Rotary			
	Maximum Fuse Size A	15	15	30	30
	Minimum Circuit Amp A	15	15	18	21
Refrigerate Line	Connections	Flare	Flare	Flare	Flare
	Liquid O.D. in	1/4	1/4	1/4	1/4
	Suction O.D. in	3/8	3/8	1/2	1/2
	Factory Charge Oz	38.8	38.8	52.2	74.1
	Maximum Line Length Ft/m	50/15	50/15	83/25	83/25
	Maximum Height Ft/m	33/10	33/10	50/15	50/15

Model Name	**System**	**09TE**	**12TE**	**18TE**	**24TE**
	Outdoor	**1U09TE1VHA**	**1U12TE1VHA**	**1U18TE2VHA**	**1U24TE2VHA**
	Indoor	**AW09TE1VH***	**AW12TE1VH***	**AW18TE2VH***	**AW24TE2VH***
Operating Range	Cooling °F(°C)	14~115(-10~46)	14~115(-10~46)	0~115(-18~46)	0~115(-10~46)
	Heating °F(°C)	-4-75(-20-24)	-4-75(-20-24)	-4-75(-20-24)	-4-75(-20-24)
Power Supply	Voltage, Cycle, Phase V/Hz/-	115/60/1	115/60/1	208-230/60/1	208-230/60/1
Electrical Data	Compressor Type	DC inverter Driven Rotary			
	Maximum Fuse Size A	20	20	20	25
	Minimum Circuit Amp A	18	18	17	19
Refrigerate Line	Connections	Flare	Flare	Flare	Flare
	Liquid O.D. in	1/4	1/4	1/4	1/4
	Suction O.D. in	3/8	3/8	1/2	1/2
	Factory Charge Oz	26.5	35.3	40.6	67
	Maximum Line Length Ft/m	66/20	66/20	83/25	83/25
	Maximum Height Ft/m	33/10	33/10	50/15	50/15

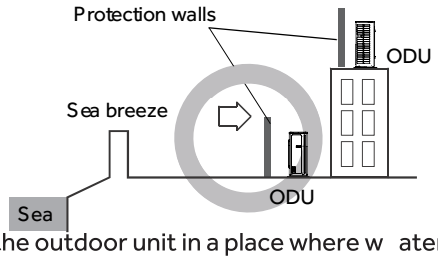
Section 9 - Seacoast Application

- The outdoor unit should be installed at least ½ mile away from the salt water, including seacoasts and inland waterways. If the unit installed from ½ mile to 5 miles away from the salt water, including seacoasts and inland waterways, please follow the installation instruction below.
- Install the outdoor unit in a place (such as near buildings etc.) where it can be protected from sea breeze which can damage the outdoor unit.





- If you cannot avoid installing the outdoor unit by the seashore, construct a protection wall around it to block the sea breeze.



- A protection wall should be constructed with a solid material such as concrete to block the sea breeze and the height and the width of the wall should be 1.5 times larger than the size of the outdoor unit. Also, secure over 28 in (700mm) between the protection wall and the outdoor unit for exhausted air to ventilate.
- Install the outdoor unit in a place where water can drain smoothly.
- If you cannot find a place satisfying above conditions, please contact manufacturer. Make sure to clean the sea water and the dust on the outdoor unit heat exchanger.

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Model #:
1U09ES2VHA, 1U12ES2VHA
1U18ES2VHA, 1U24ES2VHA
AW09ES2VH*, AW12ES2VH*
AW18ES2VH*, AW24ES2VH*
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AW12TE1VH*,1U12TE1VHA
AW18TE2VH*,1U18TE2VHA
AW24TE2VH*,1U24TE2VHA

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