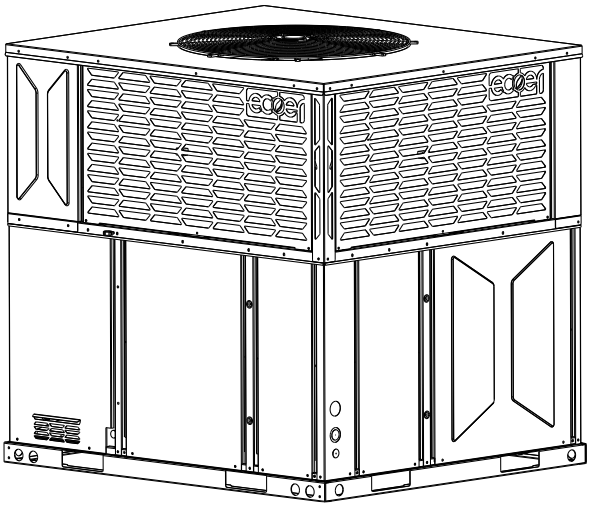
Making your home Green & Smart



Installation Manual

Inverter Ducted Packaged
5 Ton R-410A Heat Pump

NOTE: Appearance of unit may vary.

Installation must be performed in accordance with the requirements of NEC and CEC by authorized personnel only.

Contents

AHRI CERTIFIED® www.ahridirectory.org
Unitary Small HP
AHRI Standard 210/240
Certification applies only when the complete system is listed with AHRI.

C ETL LISTED US
Intertek

All phases of this installation must comply with National, State and Local Codes.

This document is customer's property and is to remain with this unit. Please return it to customer with service information upon completion of work. These instructions do not cover all variations in systems or provide for every possible contingency to be met in connection with the installation. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to your installing dealer or local distributor.

1. Safety

Read the following safety instructions before installing the unit or doing servicing work.

⚠ **WARNING** may cause personal death or serious injury.
⚠ **CAUTION** may lead to injury or structural damage under some conditions.

⚠ WARNING

HAZARDOUS VOLTAGE

Failure to follow this warning could result in property damage, severe personal injury, or death.
Disconnect all electric power, including remote disconnections before servicing. Follow proper lockout/ tagout procedures to ensure the power cannot be inadvertently energized.

REFRIGERANT OIL

Any attempt to repair the packaged products may result in property damage, severe personal injury, or death.
These units use R-410A refrigerant which operates at 50~70% higher pressures than R-22. Use only R-410A approved service equipment. Refrigerant cylinders are painted a “Rose” color to indicate the type of refrigerant and may contain a “dip” tube to allow for charging of liquid refrigerant into the system.
All R-410A systems with variable speed compressors use a POE oil that readily absorbs moisture from the atmosphere. To limit this “hygroscopic” action, the system should remain sealed whenever possible. If a system has been open to the atmosphere for more than 4 hours, the compressor oil must be replaced. Never break a vacuum with air and always change the driers when opening the system for component replacement.

SERVICE PORT

Failure to follow this warning will result in abrupt release of system charge and may result in personal injury and/or property damage.

HIGH CURRENT LEAKAGE

Failure to follow this warning could result in property damage, severe personal injury, or death. **Grounding is essential before connecting electrical supply.**

CHEMICAL COMPONENTS

This product can expose you to chemicals including Lead and Lead components, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www. P65Warnings.ca.gov.

⚠ CAUTION

AUTHORIZED PERSONNEL ONLY

This information is intended for use by individuals possessing adequate backgrounds of electrical and mechanical experience. Any attempt to repair central air conditioner or heat pump products may result in personal injury and/or property damage.

HOT SURFACE

May cause minor to severe burning.
Failure to follow this caution could result in property damage or personal injury.
Do not touch top of compressor.

GROUNDING REQUIRED

Failure to inspect or use proper service tools may result in equipment damage or personal injury. Reconnect all grounding devices. All parts of this product that are capable of conducting electrical current are grounded. If grounding wires, screws, straps, clips, nuts, or washers used to complete a path to ground are removed for service, it must be returned to their original position and properly fastened.

CONTAINS REFRIGERANT

Failure to follow proper procedures can result in personal illness or injury or severe equipment damage. System contains oil and refrigerant under high pressure.

MOBILE HOMES

A manufactured (mobile) home installation must conform with the Manufactured Home Construction and Safety Standard, Title 24 CFR, Part 3280, or when this Standard is not applicable, the Standard for Manufactured Home Installations (Manufactured Home Sites, Communities and Set-Ups), ANSI/NCS A225.1, and/or MH Series Mobile Homes, CAN/CSA Z240.

2 Unit Dimensions

2.1 Unit Dimensions

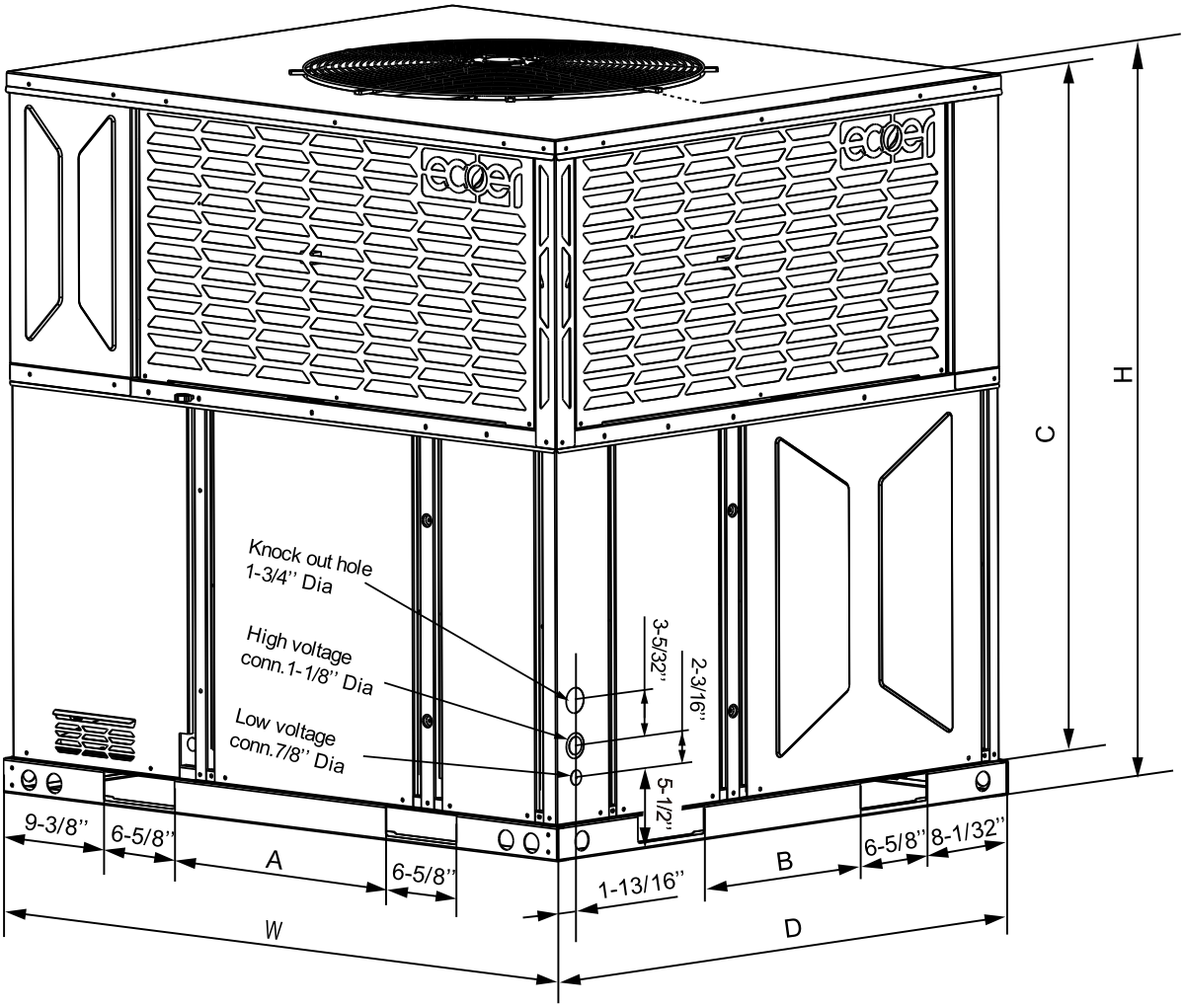


Figure 2.1 External dimensions

Model	Dimensions (Inch [mm])					
	A	B	C	D	H	W
ERDA19H-60AAA	19-11/16 [500]	15-1/2 [394]	47-11/64 [1198]	44-7/8 [1140]	50-19/32 [1285]	51-19/32 [1310]

Table 2.1 Unit Dimensions

Model	Net Weight	Gross Weight
ERDA19H-60AAA	606 lbs [275kg]	640 lbs [290 kg]

Table 2.2 Unit Weights

2.2 Dimensions - Back and Bottom

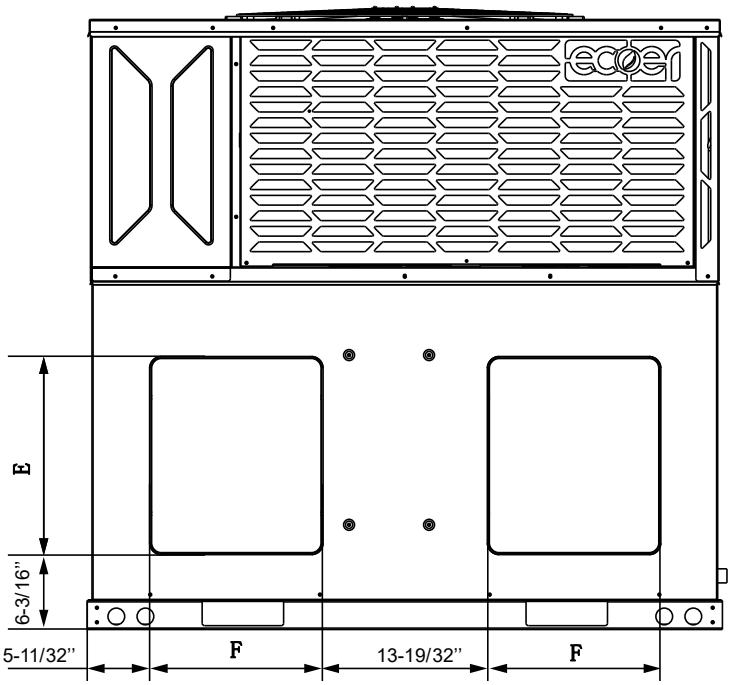


Figure 2.2 Back

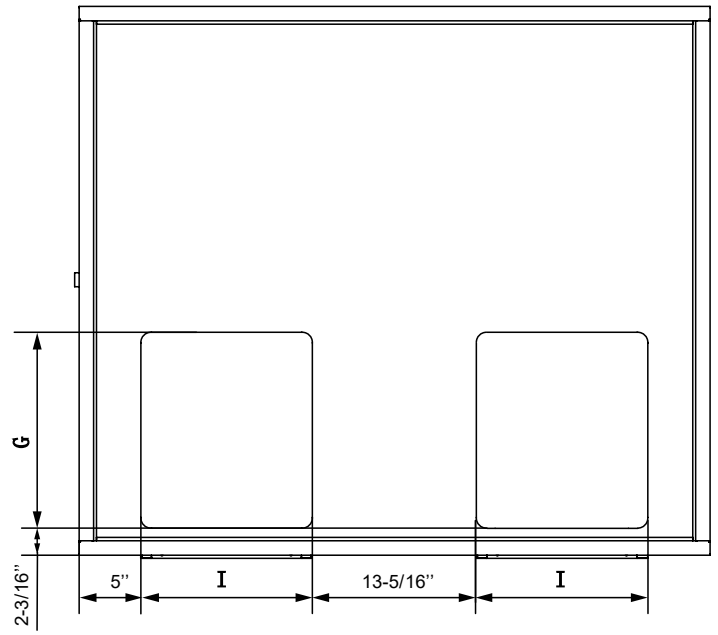


Figure 2.3 Bottom

Model	Dimensions (Inch [mm])			
	E	F	G	I
ERDA19H-60AAA	15-27/32 [402]	13-13/16 [352]	16-3/32 [409]	14-3/32 [358]

Table 2.3 Dimensions - Back and Bottom

2.3 Dimensions - Left and Top

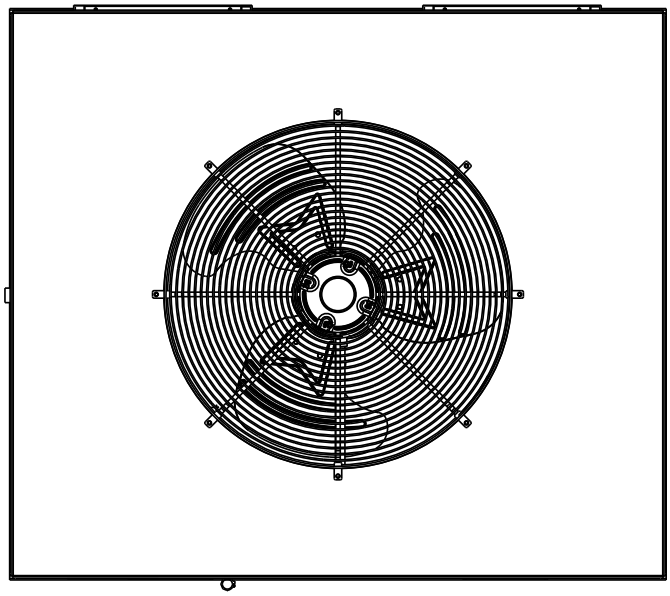


Figure 2.4 Top

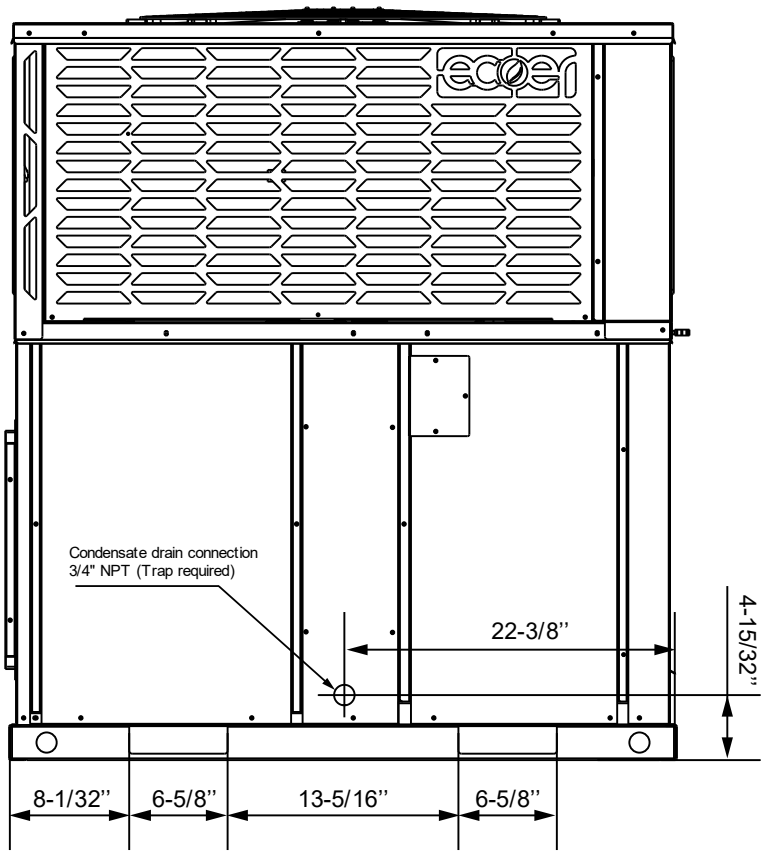


Figure 2.5 Left

3. Installion

3.1 Inspect Units

Units are packaged for shipment to avoid damage during normal transit and handling. It is the receiving party's responsibility to inspect the equipment upon arrival. Any obvious damage to the carton box should be reported on the bill of lading and a claim should be filed with the transportation company, and the factory should be noticed.

All units should be stored in the factory shipping carton with internal packaging in a dry place until installation. Carefully remove the packaging and inspect for hidden damage. Any hidden damage should be recorded and the factory should be notified. The gauge port can be used to check the refrigerant charge has been retained during shipment.

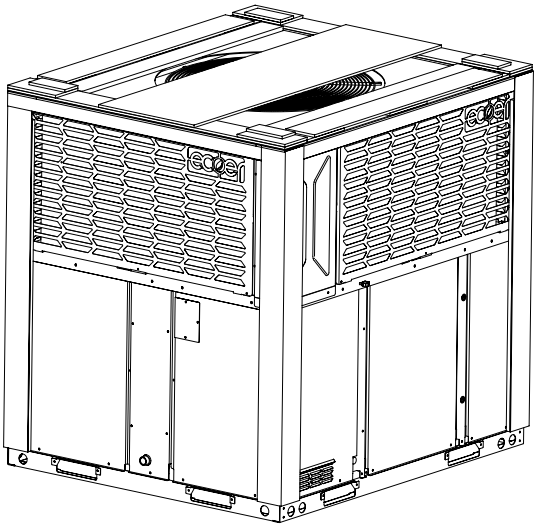


Figure 3.1 Check damage

3.2 Pre-Installation

Before installation, carefully check the following:

1. Unit should be installed in accordance with national and local safety codes, including but not limited to ANSI/NFPS No. 70, local plumbing and wastewater codes and any other applicable codes.
2. For rooftop installation, be sure the structure has enough strength to support the weight of unit. Unit must be installed on a field supplied roof curb or rack and leveled.
3. For ground level installation, a field supplied level slab must be used.
4. Condenser airflow should not be restricted.
5. On applications when a roof curb is used, the unit must be positioned on the curb so the front of the unit is tight against the curb. If the unit is to be mounted on a curb in a downflow application, refer to Figure 3.11, and convert panels prior to rigging and lifting. The panel removal process may require the unit to be on the ground.

3.3 Rigging and Lifting

Exercise care when moving the unit. Do not remove any packaging until the unit is near the place of installation. Rig the unit by attaching chain or cable slings to the lifting holes provided in the base rails. Spreader bars, whose length exceeds the largest dimension across the unit, MUST be used across the top of the unit.

When rigging/lifting the unit, the minimum height between the top of the rigging cables' connection point and top of unit should be 36 inches. Refer to Figure 3.2.

⚠ CAUTION
Before lifting, make sure the unit weight is distributed equally on the rigging cables so it will lift evenly.
All panels must be secured in place when the unit is lifted. The condenser coils should be protected from rigging cable damage with plywood or other suitable material.

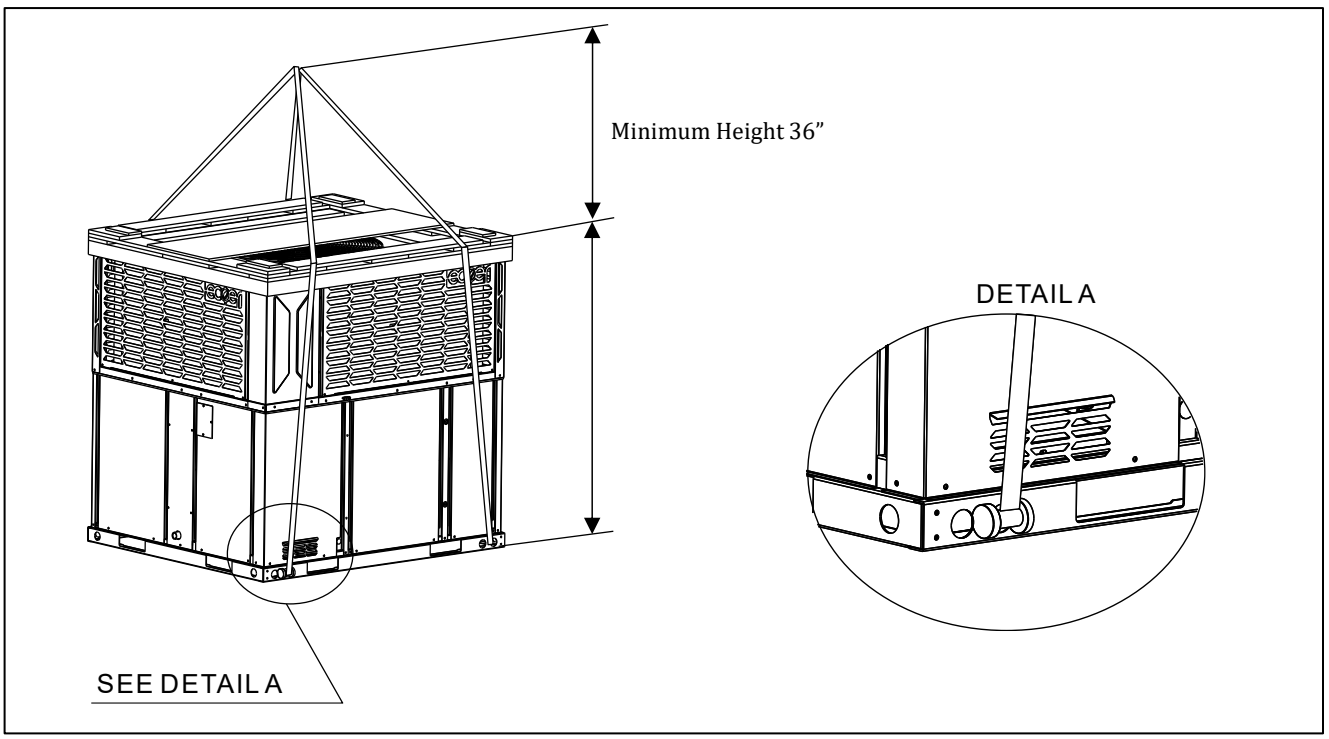


Figure 3.2

3.4 Location Restrictions

Exposure to a corrosive environment may shorten the life of the equipment, corrode metal parts, and/or negatively affect unit performance. Corrosive elements include, but are not limited to: sodium chloride, sodium hydroxide, sodium sulfate, and other compounds commonly found in ocean water, sulfur, chlorine, fluorine, fertilizers, and various chemical contaminants from industry/manufacturing plants. If installed in areas which may exposed to corrosive environments, special attention should be given to the equipment placement and maintenance.

- Lawn sprinklers/waste water should not spray directly on the unit cabinet for prolonged periods.
- In coastal areas: The outdoor unit should be installed at a location that is at least 1000 feet away from the coast and on the side of the building that is farthest from the coast.

Ensure that Condensate Drain side is pitched lower than the opposite side (see Figure 3.3).

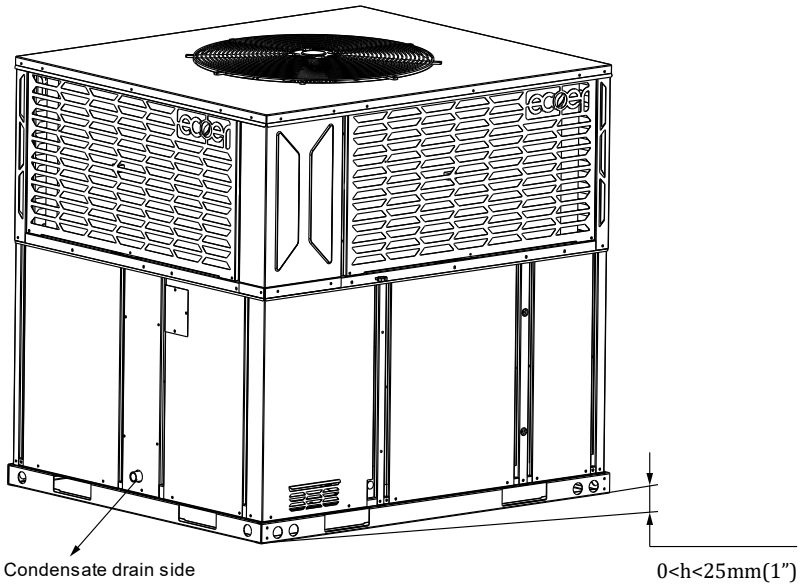


Figure 3.3

Installation Clearance Requirement

Ensure the top discharge area is unrestricted for at least **60 inches** above the unit.

Do not locate condensing unit near bedrooms because normal operational sounds may be annoying. Position unit to allow adequate space for unobstructed airflow, wiring, and serviceability.

Allow a minimum of 12 in. clearance on one side of access panel to a wall and a minimum of 24 in. on the adjacent side of access panel. **Maintain a distance of 24 in. between units.**

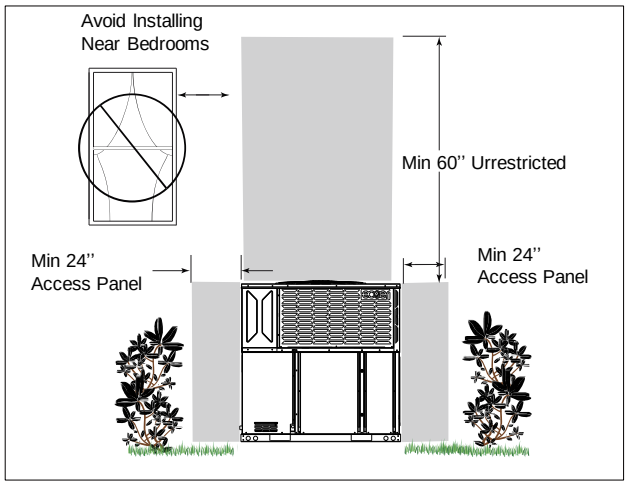


Figure 3.4 Clearance requirement

Position unit so water, snow, or ice from roof or overhang cannot fall directly on unit.

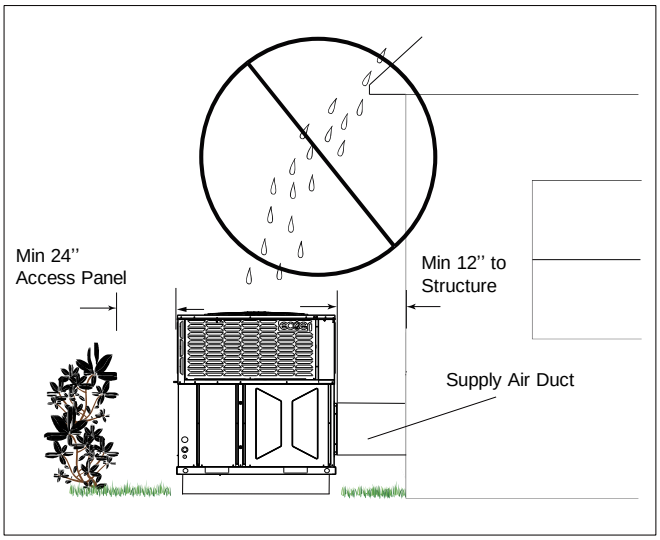


Figure 3.5 Unit location

Cold Climate Considerations

Precautions must be taken for units being installed in areas where snow accumulation and prolonged below-freezing temperatures occur.

Elevate unit per local climate and code requirements.

- Where snowfall is anticipated, raise the unit above the base pad to prevent ice buildup and coil damage.
- If unit must be elevated because of anticipated snowfall, secure unit and elevating stand such that unit and/or stand will not tip over or fall off.

A snow drift barrier should be installed around the unit to prevent a build-up of snow on the unit sides.

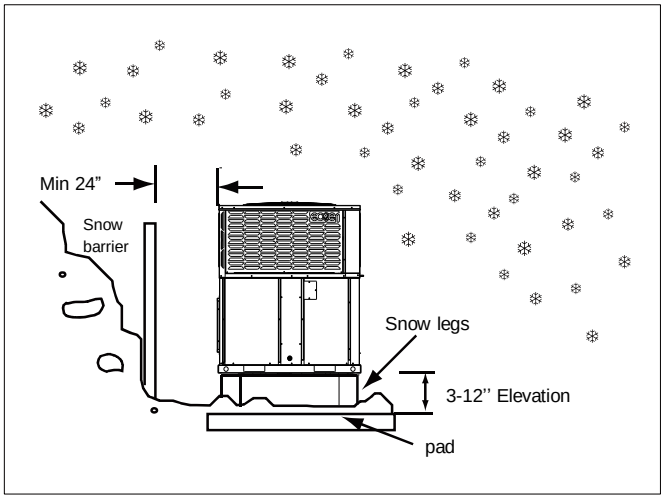


Figure 3.6 Consideration to prevent refreezing

3.5 Rooftop Installation - Curb Mountin

The manufacturer does not supply roof curbs, they must be field supplied. Refer to Figure 3.7 for recommended roof curb dimensions. On applications when a roof curb is used, the unit must be positioned on the curb so the front of the unit is tight against the curb.

The default orientation from the factory is for horizontal airflow. Convert the unit to downflow using the following procedure:

1. Remove sheet metal screws from both the supply air and return air panels.
2. Add foam tape on the perimeter of the non painted side of each panel.
3. Move and re-secure the panels to the downflow location using the sheet metal screws from step 1.

For more information, refer to the Conversion Kit Manual included with each heat pump unit.

Install the field-supplied roof mounting curb according to the Installation Instructions supplied with the curb. Install insulation, cant strips, roofing, and flashing. Ductwork must be attached to curb.

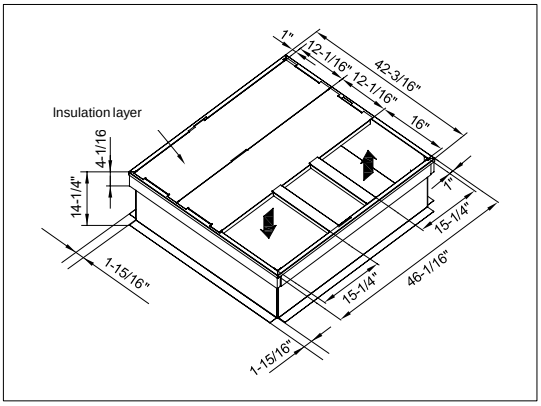
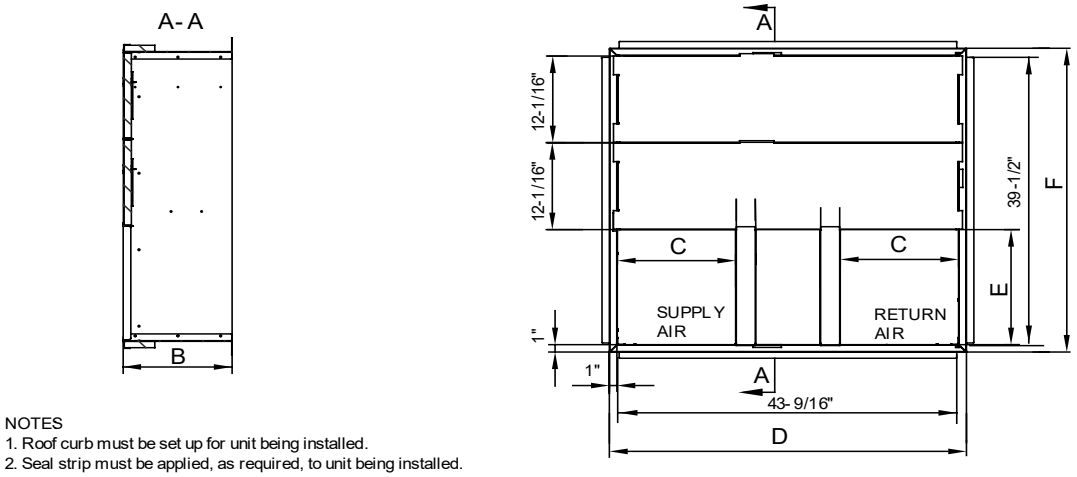


Figure 3.7

Note: For units applied with a roof curb, the minimum clearance may be reduced from 1 inch to 1/2 inch between combustible roof curb material and supply air duct.



NOTES
1. Roof curb must be set up for unit being installed.
2. Seal strip must be applied, as required, to unit being installed.
4. Attach ductwork to curb (flanges of duct rest on curb).
5. Recommended insulated panels: 1 in. (25.4 mm) thick fiberglass 1 lb. density.

Figure 3.8 Roof Curb Details

	B	C	D	E	F
CURB	14-1/4"	14"	46-1/16"	16"	30-5/8"

Table 3.1 Roof Curb Details - inches

⚠ CAUTION

The gasketing of the unit to the roof curb is critical for a water tight seal. Install gasketing material supplied with the field supplied roof curb. Improperly applied gasketing also can result in air leaks and poor unit performance.

The unit must be secured to the curb by installing screws through the bottom of the curb flange and into the unit base rails.
Failure to follow this caution may result in property damage. Ensure there is sufficient clearance for saw blade when cutting the outer horizontal flange of the roof curb so there is no damage to the roof or flashing.

The unit must be secured to the curb by installing screws through the bottom of the curb flange and into the unit base rails.

3.6 Ductwork

Field ductwork must comply with the National Fire Protection Association NFPA 90A, NFPA 90B and any applicable local ordinance(s).

Sheet metal ductwork run in unconditioned spaces must be insulated and covered with a vapor barrier. Fibrous ductwork may be used if constructed and installed in accordance with SMACNA Construction Standard on Fibrous Glass Ducts. Ductwork must comply with National Fire Protection Association as tested by U/L Standard 181 for Class I Air Ducts. Check local codes for requirements on ductwork and insulation.

Duct system must be designed within the range of external static pressure the unit is designed to operate against. It is important that the system airflow be adequate. Make sure supply and return ductwork, grills, special filters, accessories, etc. are accounted for in total resistance. See airflow performance tables in Section 5 of this manual.

Design the duct system in accordance with "ACCA" Manual "D" Design for Residential Winter and Summer Air Conditioning and Equipment Selection. Latest editions are available from: "ACCA" Air Conditioning Contractors of America, 1513 16th Street, N.W., Washington, D.C. 20036. If duct system incorporates flexible air duct, be sure pressure drop information (straight length plus all turns) shown in "ACCA" Manual "D" is accounted for in system.

⚠ WARNING

FIRE HAZARD AND CARBON MONOXIDE

Do not, under any circumstances, connect return ductwork to any other heat producing device such as fireplace insert, stove, etc. Unauthorized use of such devices may result in fire, carbon monoxide poisoning, explosion, personal injury or property damage.

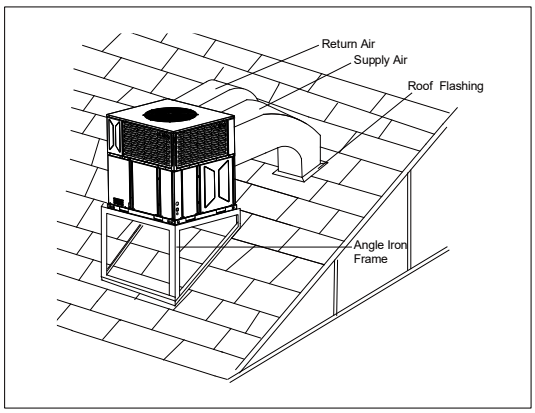


Figure 3.9 Rooftop Installation - Frame Mounting

Note:
If an elbow is included in the plenum close to the unit, it must not be smaller than the dimensions of the supply duct flange on the unit.

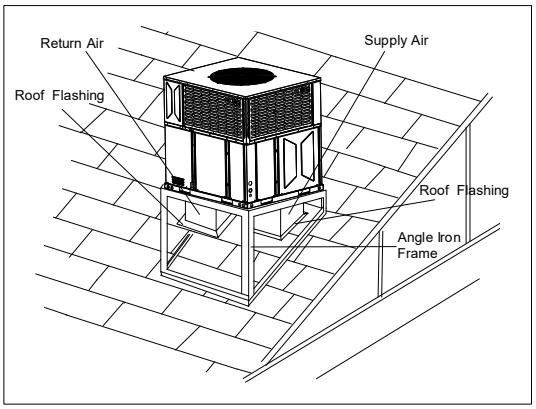


Figure 3.10 Rooftop Installation - Frame Mounting

Note:
Be sure to note supply and return openings. Refer to Figure 2.2 and Figure 2.3 for information concerning supply and return air duct dimensions.

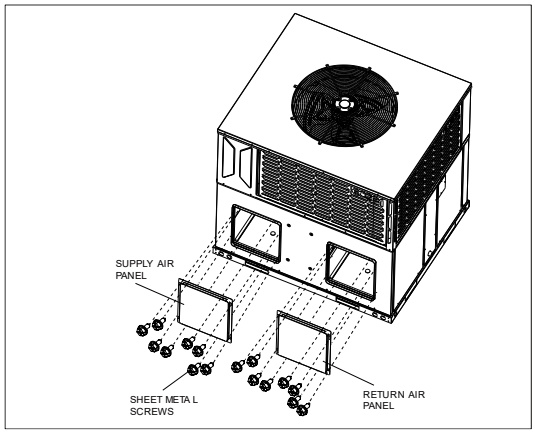


Figure 3.11 Typical Rooftop Downflow Application with Frame

⚠ CAUTION

The front flange on the return duct (if connected to the blower casing) must not be screwed into the area where the power wiring is located. Drills or sharp screw points can damage insulation on wires located inside unit.

When fastening ductwork to the side duct flanges on the unit, insert the screws through the duct flanges only. DO NOT insert the screws through the casing. Outdoor ductwork must be insulated and waterproofed.

3.7 Install Drain Pipe

Unit should be installed in accordance with national and local safety codes, including but not limited to ANSI/NFPS No. 70, local plumbing and wastewater codes and any other applicable codes.

1. Ensure drain lines do not block access to front of the unit. Minimum clearance of 24 inches is required for fi lter, coil or blower removal and service access.
2. Make sure unit is leveled or pitched slightly towards primary drain connection so that water will drain completely from the pan.
3. Do not reduce drain line size to less than connection size provided on condensate drain pan.
4. All drain lines must be pitched downward away from the unit at a minimum of 1/8" per foot of line to ensure proper drainage.
5. Do not connect condensate drain line to a closed or open sewer pipe. Run condensate to an open drain or run line to a safe outdoor area.
6. The drain line should be insulated where necessary to prevent sweating and damage due to condensate forming on the outside surface of the line.
7. Make provisions for disconnecting and cleaning of the primary drain line should it become necessary. Install a 2 inch trap in the primary drain line as close to the unit as possible. Make sure that the top of the trap is below connection to the drain pan to allow complete drainage of pan.

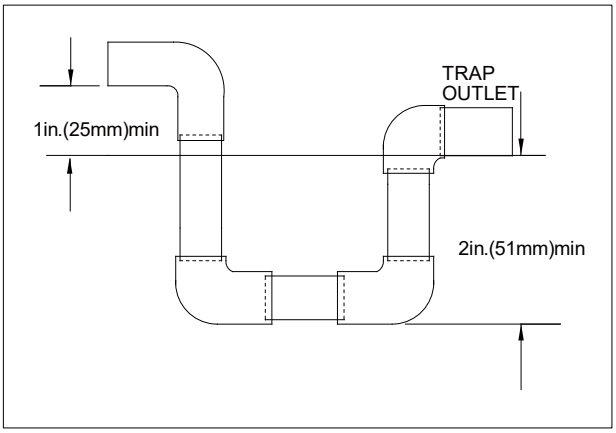


Figure 3.12

Note:
When making drain fitting connections to the drain pan, use a thin layer of Tefl on paste, silicone or Tefl on tape and install by hand tightening.
When making drain fitting connections to drain pan, do not overtighten. Over-tightening fittings can split pipe connections on the drain pan.

3.8 Air Filter (Not Factory-Installed)

Filters and filter racks are not included with the unit and must be field supplied.

An external filter or other means of filtration must be properly sized for a maximum of 300 feet/min. air velocity or what is recommended for the type of filter installed.

Filter application and placement are critical to airflow, which may affect the heating and cooling system performance. Reduced airflow can shorten the life of the system's major components, such as motor, elements, heat relays, evaporator coil or compressor. Consequently, we recommend that the return air duct system have only one filter location. For systems without a return air filter grill, multiple filter grills can be installed at each of the return air openings.

If adding high efficiency filters or electronic air filtration systems, it is very important that the air flow is not reduced. If airflow is reduced the overall performance and efficiency of the unit will be reduced. It is strongly recommended that a professional installation technician is contacted to ensure such filtration systems are installed correctly.

Note:
Do not double filter the return air duct system. Do not filter the supply air duct system. This will change the performance of the unit and reduce airflow.

⚠ WARNING

Do not operate the system without filters. A portion of the dust suspended in the air may temporarily lodge in the duct runs and at the supply registers. Any circulated dust particles could be heated and charred by contact with the air handler elements. This residue could soil ceilings, walls, drapes, carpets and other articles in the house. Soot damage may occur with filters in place, when certain types of candles, oil lamps or standing pilots are burned.

4. Electrical Requirement

Power wiring must comply with National, State and Local codes.

> **⚠ WARNING**
>
> Disconnect all power to unit before installing or servicing. More than one disconnect switch may be required to de-energize the equipment. Hazardous voltage can cause severe personal injury or death.

4.1 Power Wiring

1. It is important that proper electrical power is available for connection to the unit being installed. See the unit nameplate, wiring diagram, and electrical data in the installation instructions for more detailed requirements. Voltage tolerance should not be over 10% from rating voltage.

2. If any of the wiring must be replaced, replacement wiring must be the same type as shown in nameplate, wiring diagram and electrical data sheet.

3. Install a branch circuit disconnect of adequate size to handle starting current, located within sight, and readily accessible to the unit.

4. Electric Heater: If the optional Electric Heat Kit is installed, the unit should be equipped with suitable circuit breakers or fuse. Refer to Table 4.1 and 4.2 for more information. These breaker(s) protect the internal wiring in the event of a short circuit and serve as a disconnect. Circuit breakers installed within the unit do not provide over-current protection of the supply wiring and therefore may be sized larger than the branch circuit protection.

Supply circuit power wiring must be 221 °F minimum copper conductors only. Refer to Table 4.1 and 4.2 for ampacity, wire size and circuit protector requirements. Supply circuit protective devices may be either fuses or "HACR" type circuit breakers.1-3/8" knockouts inside the cabinet are provided for connection of power wiring to electric heater.

Power wiring is connected to the power terminal block in unit electric cabinet. See Electric Heater Kit Installation Instructions for details.

5. See wiring diagram located on inside of control board access panel for proper wiring instructions.

6. In order to get full warranty coverage on the compressor, it's mandatory to install a surge protector to prevent the unit from damaging caused by abnormal electrical spikes.

7. We recommend the Installation of a GFIC (install the GFIC as per your local codes).

4.2 Grounding

The unit must be electrically grounded in accordance with local codes and the National Electric Code (NEC).

Grounding may be accomplished by attaching ground wire(s) to ground lug(s) provided in the unit wiring compartment.

> **⚠ WARNING**
>
> The unit must be permanently grounded. Failure to do so can result in electrical shock causing personal injury or death.

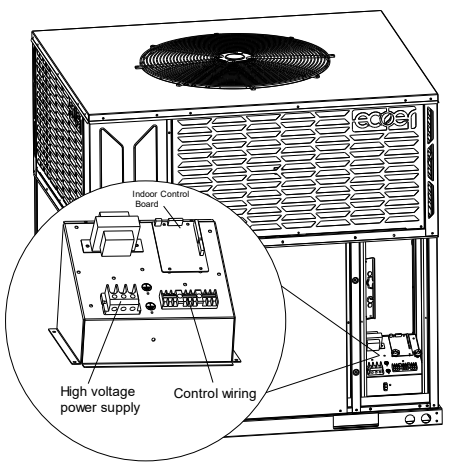


Figure 4.1

4.3 Power Supply

⚠ WARNING
Label all wiring prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.
Any power supply and circuits must be wired and protected in accordance with federal, state and local electrical codes.

HEAT PUMP CIRCUIT(without electric heater)							
Model	Voltage - Phase - Frequency	Compressor		OD Fan Motor	Supply Blower Motor	Unit Circuit	
		RLA (A)	LRA (A)	FLA (A)	FLA (A)	MCA[1] (A)	Max Fuse[2]/ Breaker[3] Size (A)
ERDA19H-60AAA	208/230-1-60	24.0	58.1	2.5	6.0	38.5	50

Table 4.1 Electrical Data Without Electric Heater

1. Minimum Circuit Ampacity.
2. Maximum Over Current Protection per Standard UL 60335.
3. Fuse or HACR circuit breaker size field installed.

* Max Fuse/Breaker Sizes are for electric heater ONLY (dual point electric heat). DOES NOT include breaker size for the unit.

**Max Fuse/Breaker Sizes include breaker size for the unit AND electric heat (single point electric heat).

OPTIONAL HEATER CIRCUIT(without units)							
HEATER KIT MODEL	POWER (KW)	HEATER AMPS (A)		MIN. CIRCUIT AMPS (A)		MAX. FUSE OR BREAKER(HACR) AMPS (A)	
		240V	208V	240V	208V	240V	208V
EHK-05J	5	20.8	18.1	27	23	30	25
EHK-08J	7.5	31.1	27.1	40	34	40	35
EHK-10J	10	41.7	36.2	53	46	60	50
EHK-15J	10+5	41.7+20.8	36.2+18.1	53+27	46+23	60+30	50+25
EHK-20J	10+10	41.7+41.7	36.2+36.2	53+53	46+46	60+60	50+50

Table 4.2 Electrical Data of Electric Heater

Note:
Refer to Electric Heat Kit Installation Manual, some heater kits include fuses from the manufacturer.

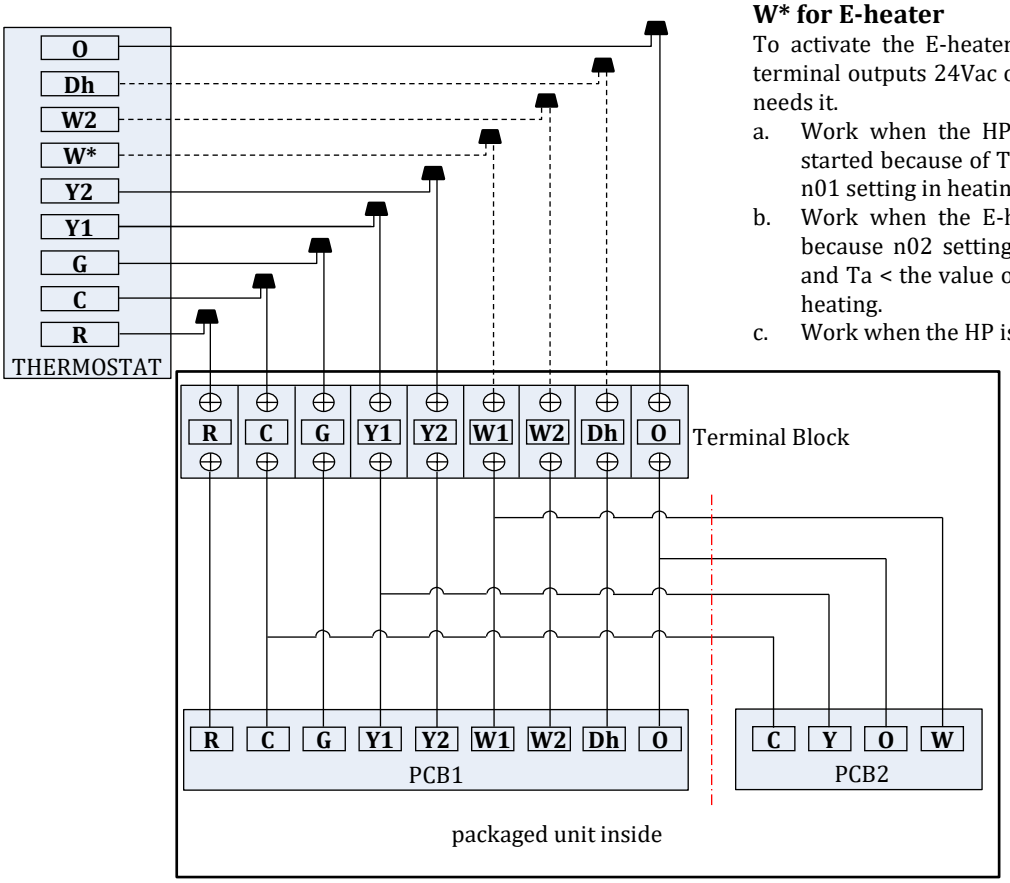
4.4 Low voltage signal wiring

Class 2 low voltage control wiring should not be run in conduit with main power wiring and must be separated from power wiring, unless class 1 wire of proper voltage rating is used.

- Low voltage control wiring should be color-coded 18 AWG. For lengths longer than 150 ft., 16 AWG. wire shall be used and maximum 225 ft.
- Refer to wiring diagrams attached to indoor and outdoor sections to be connected.
- 7/8" knockout hole should be used to route control wires into the unit.
- Make sure separation of control wiring and power wiring has been maintained.

⚠ WARNING

Low voltage control wiring should not be run in conduit with high voltage wiring. Keep distance between the two conduits per local codes.



W* for E-heater

To activate the E-heater. Drive PCB W terminal outputs 24Vac once the system needs it.

a. Work when the HP cannot to be started because of Ta < the value of n01 setting in heating.
b. Work when the E-heater is called because n02 setting is ON (E-Aux) and Ta < the value of n03 setting in heating.
c. Work when the HP is in defrosting.

Figure 4.2

NOTES:

1. Be sure power supply agrees with equipment nameplate.
2. Power wiring and grounding of equipment must comply with local codes.
3. Low voltage wiring to be No. 18 AWG minimum conductor.
4. "------ " means to connect according to site requirements.

* Some thermostats may use W2/AUX for heat pump, if single stage of E-heater, conncet W* and W2 signal wires together.

5. Airflow Performance

Airflow performance data is based on cooling performance with a coil and no filter in place. Check the Performance table for appropriate unit size selection. External static pressure should stay within the minimum and maximum limits shown in the table below in order to ensure proper airflow.

Model	Motor Speed		SCFM / Watts								
			External Static Pressure-Inches W.C.[KPa]								
			0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
			[0]	[.02]	[.05]	[.07]	[.10]	[.12]	[.15]	[.17]	[.20]
60	Tap (5)	SCFM	2075	2014	1970	1925	1884	1841	1784	1723	1673
		Watts	601	605	612	624	635	638	641	643	645
	Tap (4)-factory	SCFM	1874	1832	1792	1748	1705	1660	1617	1570	1516
		Watts	482	470	483	489	501	508	523	538	544
	Tap (3)	SCFM	1694	1618	1571	1515	1474	1423	1373	1318	1255
		Watts	311	321	332	338	349	354	368	381	391
	Tap (2)-factory	SCFM	1424	1372	1317	1262	1206	1147	1066	983	916
		Watts	194	199	223	232	236	240	251	263	277
	Tap (1)	SCFM	1186	1125	1062	1002	921	826	755	687	620
		Watts	118	123	133	141	150	159	168	174	180

Table 5.1

Shaded boxes represent airflow outside the required 300-450cfm/ton at full load.

NOTES: Airflow based upon cooling performance at 230V with no electric heat and no filter. Airflow at 208V is approximately the same as 230V because the multi-tap ECM motor is a constant torque motor. The torque doesn't drop off at the speeds in which the motor operates.

The air distribution system has the greatest effect on airflow. For this reason, the contractor should use only industry-recognized procedures to finish ductwork.
packaged systems require a specified airflow. Each ton of cooling requires between 300 and 450 cubic feet per minute (CFM). Duct design and construction should be carefully done. System performance can be lowered dramatically through bad planning or workmanship. Air supply diffusers must be selected and located carefully. They must be sized and positioned to deliver treated air along the perimeter of the space. Return air grilles must be properly sized to carry air back to the blower as well. Failure to follow these may cause abnormal noise and drafts.
The installers should balance the air distribution system to ensure proper quiet airflow to all rooms in the home. This ensures a comfortable living space. An air velocity meter or airflow hood can give a reading of system CFM.

6. Indoor Blower control function

6.1 Two stage airflow function

Model	Fan speed according to PCB switch				Remark
	Switch		Fan speed		
	SW10-1	SW10-2	Low speed Y1/G/Dh	High speed Y2/W*	
60	OFF	OFF	1	2	/
	OFF	ON	1	3	/
	ON	OFF	2	4	Default
	ON	ON	3	5	/

Table 6.1

The RTi packaged unit supports two stage fan control which requires a two stage thermostat (Y1/Y2). When there is G or Y1 call, the blower motor will turn to low speed. When there is Y2 or W* call, the blower motor will turn to high speed. If connect to single stage thermostat, please jump Y1 and Y2, the unit will only run in high fan speed.

6.2 Auto 4-fan speed function (optional setting)

Model	Fan speed according to PCB switch							Remark
	Switch			Fan speed				
	SW10-1	SW10-2	SW10-4	Low	Low-mid	Mid	High	
60	OFF	OFF	ON	1	1	2	2	/
	OFF	ON	ON	1	2	2	3	/
	ON	OFF	ON	1	2	3	4	Default
	ON	ON	ON	2	3	4	5	/

Table 6.2

The RTi packaged unit supports up to 4 fan speeds. The fan speed will automatically change according to the temperature sensor value and operating status.
This function requires that the DIP switch of SW10-4 need be set to the ON, which is OFF by default.

6.3 Anti-cold airflow delay function in heating (optional setting)

Model	Fan speed according to PCB switch		Remark
	Switch	Fan speed	
	SW10-3	Anti-cold airflow delay	
60	OFF	Disable	Default
	ON	Enalbe	/

Table 6.3

Model	Type	Delay entry meets the conditions	Action	Remark
60	Enter	Heating start or heating operation & The coil temperature is lower than 87℉ & W*=off	Fan motro delayed start,or running low speed when fan motor is on.	/
	Quit	Heating stops， or The coil temperature is more than 95℉, or W*=on	Return to normal fan speed	/

Table 6.4

The RTi packaged unit supports the fan motor delay in heating according to the coil temperature.
This function requires that the DIP switch of SW10-3 need be set to the ON, which is OFF by default.

6.4 Dehumidification function

The RTi packaged unit supports the dehumidification fuction response with ECOER EST02 in cooling. When there is Dh (24v) call from thermostat, the blower motor will turn to low speed.

7. Start-up

Prior to start-up the unit, connect IoT device if equipped with. Refer to IoT IM and Registration Guide via ESS Pro App. At the same time, ensure installation actions have been completed.

1. Set the thermostat to OFF.

Figure 7.1

2. Turn on disconnect switch to apply power to the indoor and outdoor units.

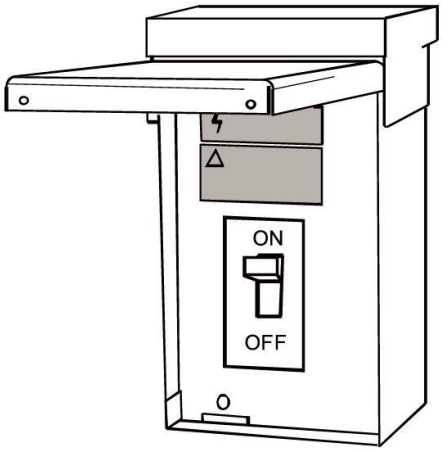


Figure 7.2

3. Wait an hour before starting the unit if the outdoor ambient temperature < 59 ℉.

Figure 7.3

4. Set the thermostat to ON.

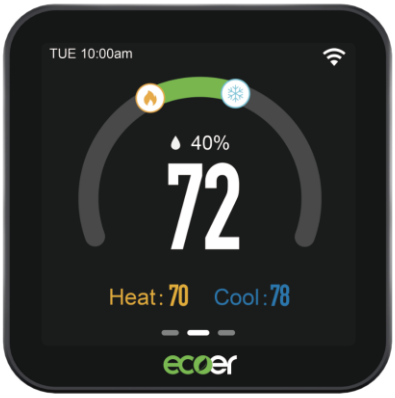


Figure 7.4

NOTE:

It may take up to **45 minutes** in the first time for heating operation to exit start-up control. This is normal function to preheat lubricants in the bottom of compressor.

8. System Charge Adjustment

8.1 Weigh-in method

Weigh-in method can be used for the initial installation, or anytime a system charge needs to be replaced.
Weigh-in method can also be used when power is not available on the job site or the ambient temperature is improper to use refrigerant coefficient and sub-cooling charge method.

When use weigh-in method in heating mode, be sure the compressor discharge superheat (DSH) meets the target value.
Basically, the liquid line sub-cooling (SC) shall not exceed 30℉.

Use **gauge port** to charge the system in heating mode, query live data by BS3 button to calculate DSH (The difference between parameter "11" and "18") or check SC/DSH via ESS Pro App.

Charge amount table

Model	Refrigerant charging
	Factory charge
ERDA19H-60AAA	The data on nameplate

Table 8.1

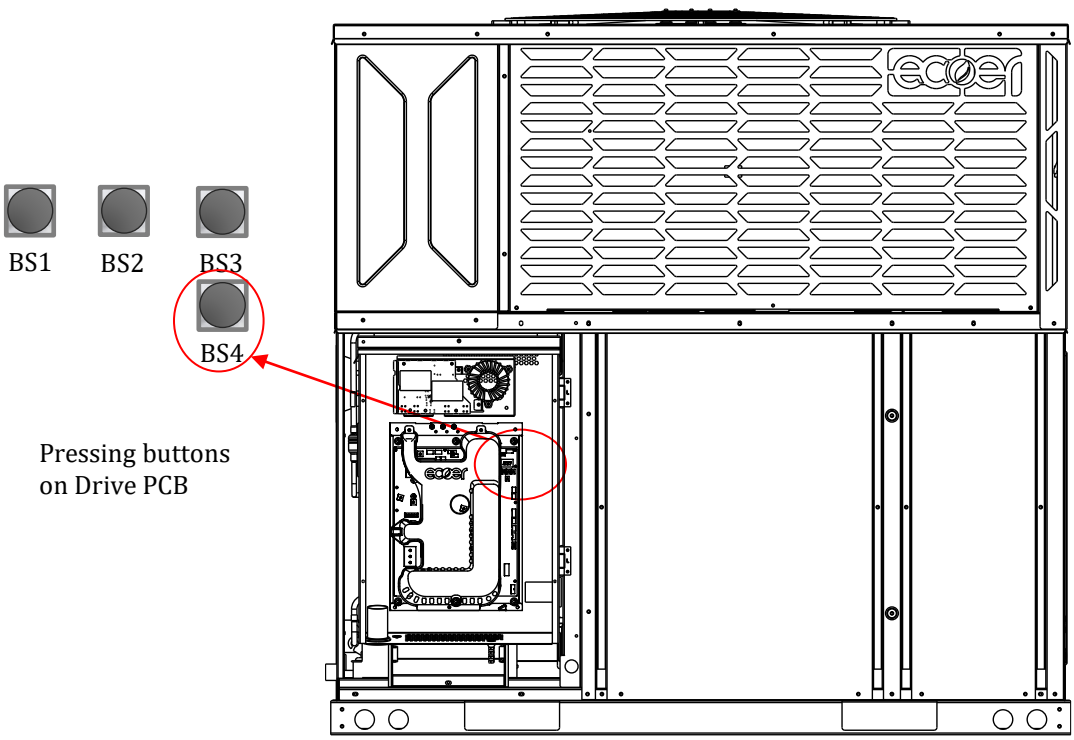


Figure 8.1 Buttons guide

8.2 Auto charge mode

NOTES:

1. This AUTO charge mode is suitable for ambient temperature between 50℉ and 115℉. But for the best results, indoor temperature should be kept between 70℉ and 80℉. For outdoor ambient temperature is below 50℉, use weigh-in charge method only.

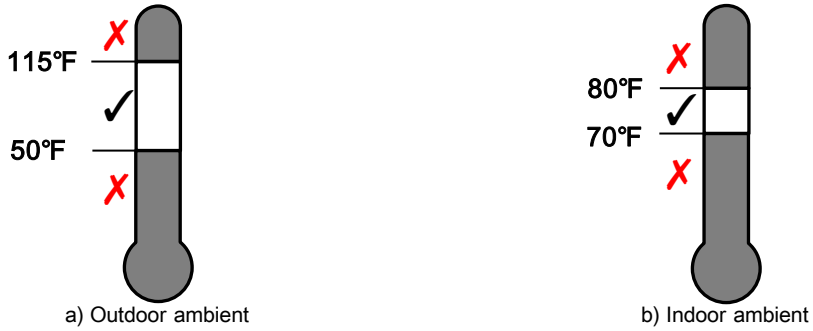


Figure 8.2 Temperature limit for AUTO charge mode

2. Start-up control is enforced to complete prior to activate the AUTO charge mode. It may take 4 to 10 minutes to exit start-up control procedure and fix the compressor speed (RPS).
3. The service valve is usually closed except in charge mode. If you need to know the suction pressure, you can log in to ESS Pro, or read the parameter of "07" from Spot check.

Enter the charge mode

Turn on the power supply for the system, select **cooling mode** at thermostat. Make sure the setting temperature is lower than indoor temperature for at least 5℉ to finish this charge mode ***NOTE1**.
Press and hold BS4 button for five (5) seconds until SEG1 displays blinking 7. After one minute, the system will go into AUTO charge mode *__NOTE2__.

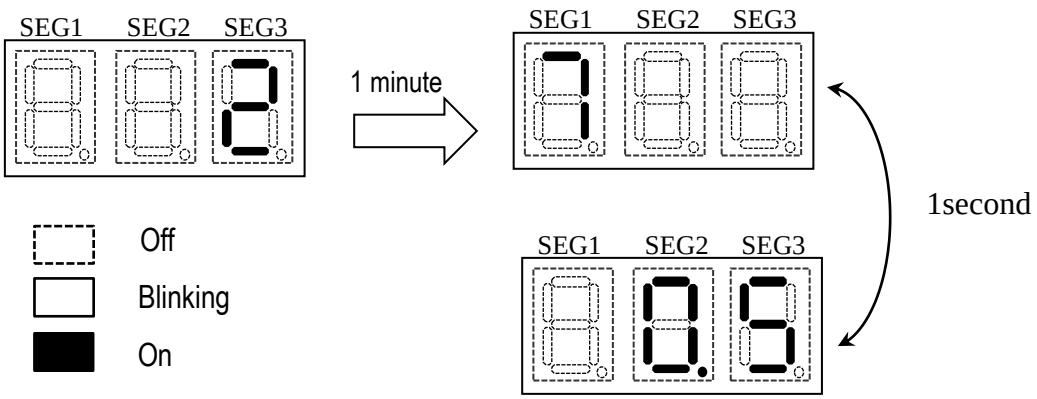
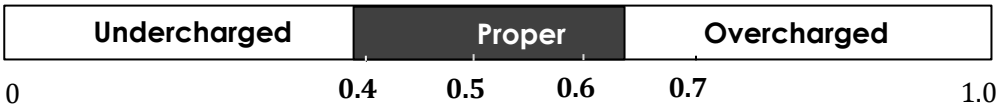


Figure 8.3 LED display in AUTO charge mode

Run the system for 15~20 minutes and check **refrigerant coefficient** number (here short for "X", 0 < X < 1) from the LED display. If X > 0.6, remove refrigerant; or X < 0.4, add more refrigerant. Then wait for 5 minutes to allow system pressure balanced. Check the new coefficient number to make sure you get 0.5-0.6. Basically, 0.4 to 0.6 is acceptable if 7℉ ≤ SSH ≤ 20℉.
When the LED displays "--" for more than 20 minutes, stop charging and check the EEV normal to ensure required compressor suction superheat (Refer to the following page).

Refrigerant coefficient

The refrigerant coefficient is used to evaluate the refrigerant level in the ecoer system.



Use either way below to end AUTO charge mode

Press **BS4 once/** After 2 hours running (Automatically EXIT)/ Turn off the system at thermostat

Fully automatic refrigerant charging:

Refrigerant charging if the unit is undercharged:

1. Connect the refrigerant tank to the service gauge port of the unit and open all the service valves.
2. Power on the system and set the thermostat to the cooling mode.
3. Press and hold the BS4 button for 5 seconds until the display starts blinking "7.".
4. Wait for at least 1 hour, and the system will automatically charge the refrigerant to the appropriate level.
5. Remove the refrigerant tank.

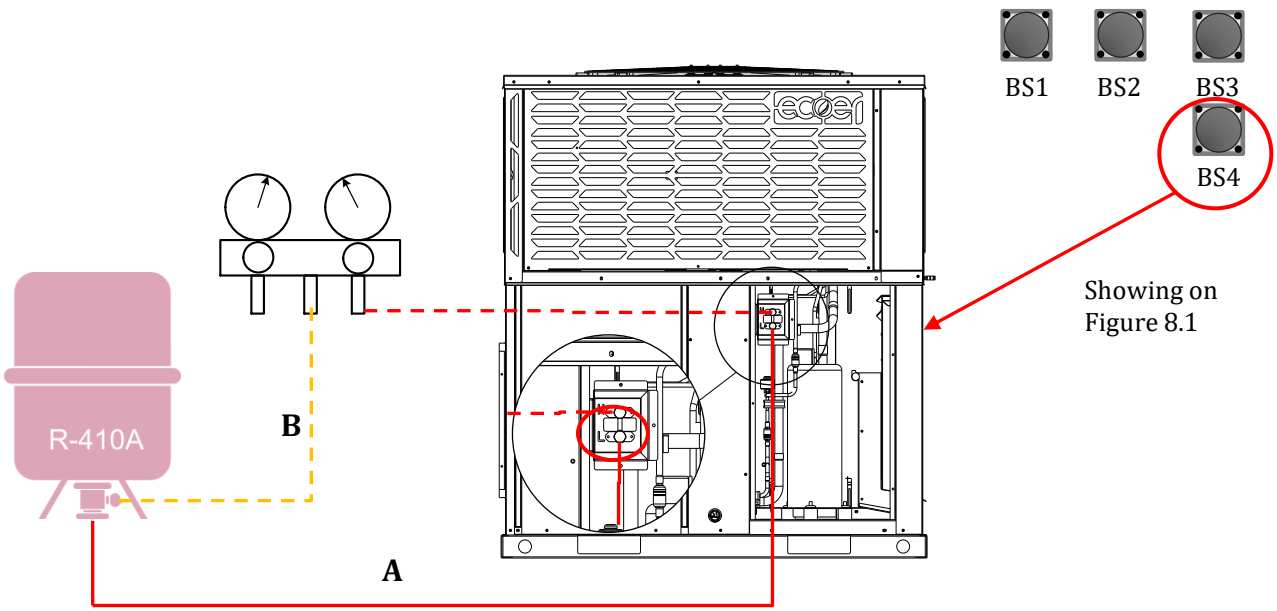


Figure 8.4

Note:

1. Prior to opening the service valves, ensure to purge all the hoses.
2. Make sure to place the refrigerant tank upside down before connecting it.
3. Only one hose (Connection A) is needed for the refrigerant charge. If you want traditional connection, you can also use a pressure gauge (Connection B).

8.3 Sub-cooling check

Refer to the following steps to charge refrigerant by sub-cooling degree in cooling charge mode.

STEP1 CALCULATE SUPERHEAT ON SUCTION LINE

Measured suction line temperature = _____℉

Measured suction line pressure = _____PSIG

Calculated superheat value = _____℉

Note: The temperature is measured on line between Evaporater Coil and Reversing value.

Suction line TEMP (℉)	Final Superheat (℉)							
	8	10	12	14	16	18	20	22
	Suction Gauge Pressure (PSIG)							
40	101	97	93	89	86	82	78	75
42	105	101	97	93	89	86	82	78
44	110	105	101	97	93	89	86	82
46	114	110	105	101	97	93	89	86
48	118	114	110	105	101	97	93	89
50	123	118	114	110	105	101	97	93
52	128	123	118	114	110	105	101	97
54	133	128	123	118	114	110	105	101
56	138	133	128	123	118	114	110	105
58	143	138	133	128	123	118	114	110
60	148	143	138	133	128	123	118	114
62	153	148	143	138	133	128	123	118
64	159	153	148	143	138	133	128	123
66	164	159	153	148	143	138	133	128
68	170	164	159	153	148	143	138	133
70	176	170	164	159	153	148	143	138
72	182	176	170	164	159	153	148	143

Table 8.2 Superheat calculation on suction line

STEP2 CALCULATE SUB-COOLING ON LIQUID LINE

Measured liquid line temperature = _____℉

Measured liquid line pressure = _____PSIG

Calculated sub-cooling value = _____℉

Add refrigerant if calculated sub-cooling value is lower than the designed one. Repeat the steps above.

Note: The temperature is measured on line between Condenser Coil and EEV value.

Liquid line TEMP (℉)	Final Sub-cooling (℉)							
	6	7	8	9	10	11	12	13
	Liquid Gauge Pressure (PSIG)							
55	173	176	179	182	185	188	191	195
60	188	191	195	198	201	204	208	211
65	204	208	211	215	218	221	225	229
70	221	225	229	232	236	239	243	247
75	239	243	247	251	255	259	262	266
80	259	262	266	270	275	279	283	287
85	279	283	287	291	295	300	304	309
90	300	304	309	313	318	322	327	331
95	322	327	331	336	341	346	351	355
100	346	351	355	360	365	370	376	381
105	370	376	381	386	391	397	402	407
110	397	402	407	413	418	424	430	435
115	424	430	435	441	447	453	459	465
120	453	459	465	471	477	483	489	496
125	483	489	496	502	508	515	521	528

Table 8.3 Sub-cooling calculation on liquid service valve

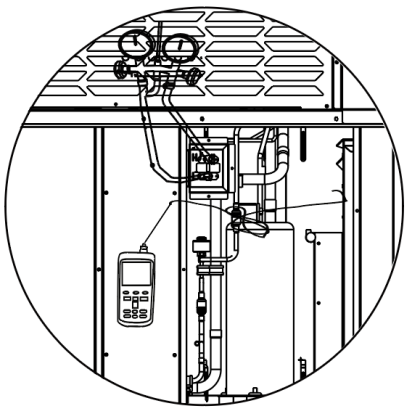


Figure 8.5 Measure the superheat or sub-cooling

Model	Designed sub-cooling degree (SC)
60	12℉ (±2℉)

Table 8.4 Designed sub-cooling degree

STEP3 STABILIZE THE SYSTEM RECORD

1. Wait twenty (20) minutes for the unit to stabilize. When the sub-cooling matches the chart, the system is properly charged.
2. Only the discharge pressure (HP) can be measured, and the suction pressure (LP) is in the normally closed state. It is recommended to confirm the subcooling and superheat (or more parameter) through ESS Pro APP or spot inspection on PCB.

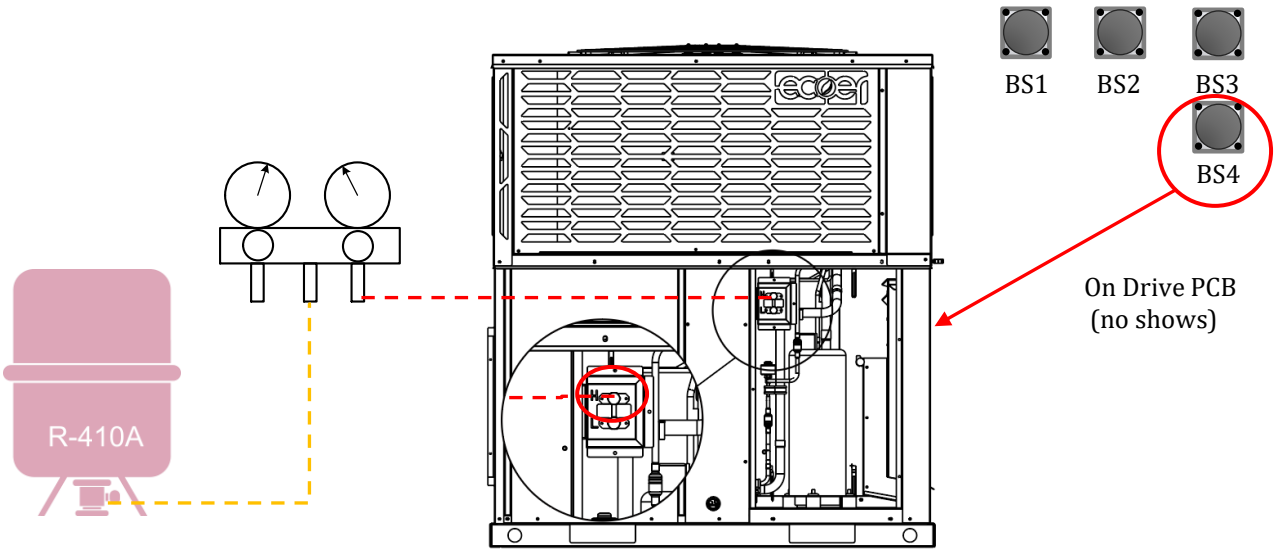


Figure 8.6

packaged unit model	
packaged unit SN	
Measured outdoor ambient temperature	℉
Measured indoor ambient temperature	℉
Discharge gauge pressure	PSIG
Suction gauge pressure (Non-measurement, obtained from the unit)	PSIG
Suction side temperature	℉
Liquid side temperature	℉

Table 8.5

9. System Operation

9.1 Default display

LED on main control board can display the operating status of outdoor unit (ODU).

SEG1: Normally blank, but it displays codes "0 to 9" accordingly if there is damaged sensor and command response.

SEG1 Code	Description
0	Software is updating through IoT device
1	High pressure sensor (HP) fault backup running
2	Low pressure sensor (LP) fault backup running
3	Compressor discharge temperature sensor (TD) fault backup running
4	IPM module temperature sensor (TF) fault backup running
5	Ambient temperature sensor (TA) fault backup running
6	Defrost sensor (TH) fault backup running
7	Compressor suction temperature sensor (TS) fault backup running
8	Liquid line temperature sensor (TL) fault backup running
9	IoT command response

SEG2: Normally blank, but it will display code accordingly as below if outdoor unit is running under limited condition.

SEG2 Code	Description
0	Running under high pressure limit
1	Running under low pressure limit
2	Running under discharge temperature limit
3	Running under IPM module temperature limit
4	Running under compressor current limit

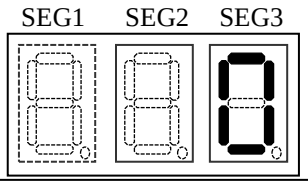
SEG3: It displays outdoor unit's operation mode.

SEG3 Code	Description
0	Stop (Y signal de-energized)
1	Ready to start-up ***NOTE**
2	Cooling
3	Heating
4	Oil return
5	Defrost
6	Manual defrost
7	AUTO charge mode in cooling
8	Pump down

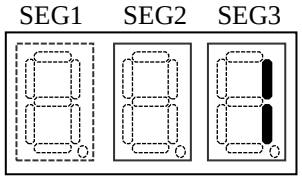
NOTE: Compressor waits three to eight (8) minutes to restart.

Mode list (SEG3 Display)

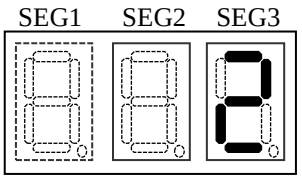
Stop or standby



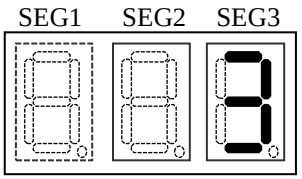
Ready to start-up



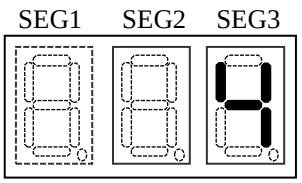
Cooling



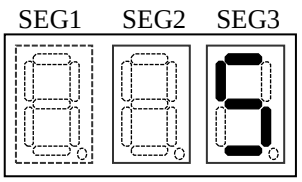
Heating



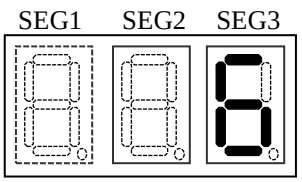
Oil return



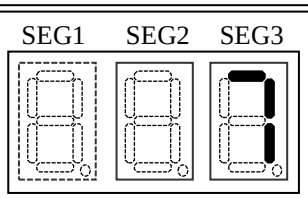
Defrost



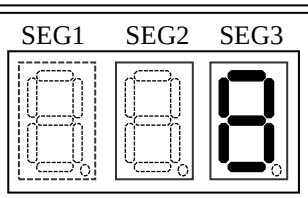
Manual defrost



AUTO charge mode in cooling



Pump down



9.2 Field setting in drive PCB

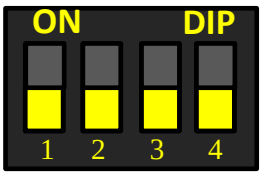
Outdoor condensing units' functions can be applied by dipping switch and pressing buttons.

9.2.1 Setting by dip switches

SW1 Dip switch		Description	
NO.	Setting item	Status	Content
1	Snow Sensor Control	ON	Disable
		OFF (factory)	Enable
2	Capacity selection	ON	2 or 4 Ton
		OFF (factory)	3 or 5 Ton
3	AC only / Heat pump	ON	AC only
		OFF (factory)	Heat pump
4	Command [*a] response for IoT	ON	Disable
		OFF (factory)	Enable

Table 9.1

SW1



Use minor straight screwdriver to dip switch. Must power off the unit for at least two minutes to activate the change.

a. Remote field setting, troubleshooting, software programming etc.

9.2.2 Setting by pressing buttons

Query and setting operation can be done by pressing buttons on main control board.

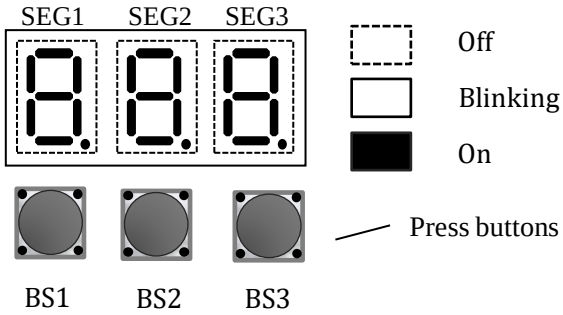


Figure 9.1

BS1: Menu or back button

BS2: UP button

BS3: Spot check and confirm button

Remarks:
Press or tip any directions are valid.

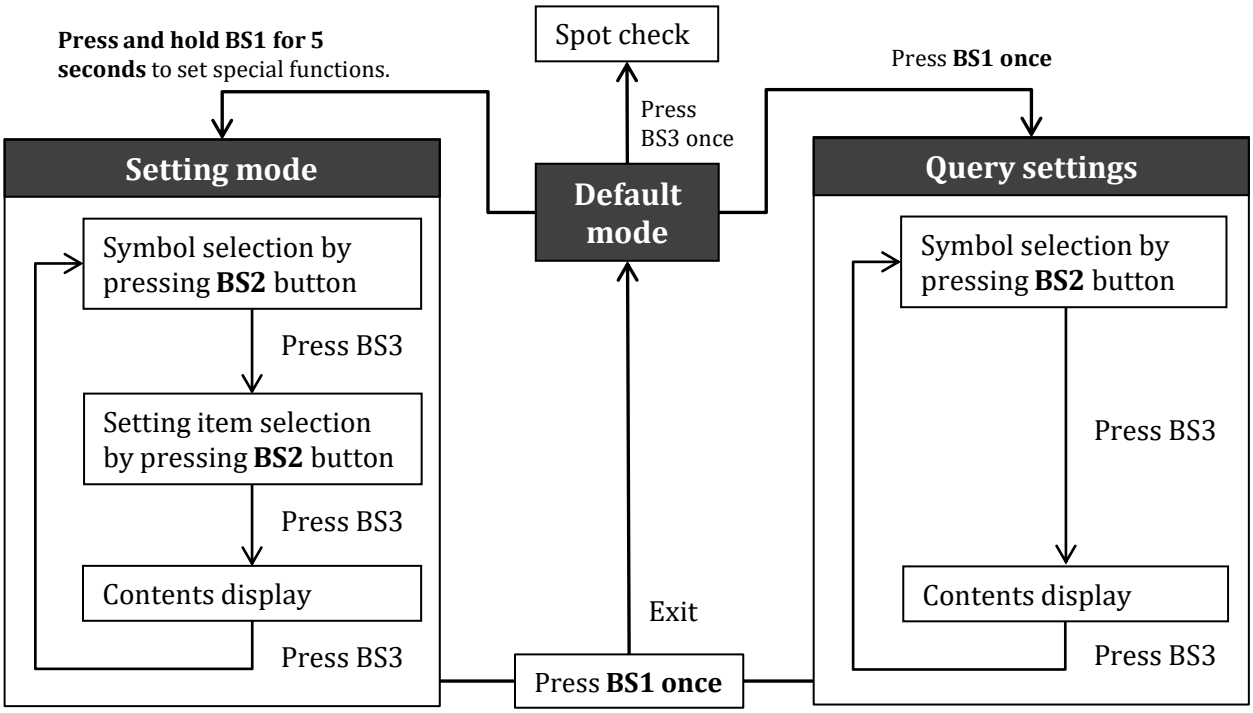
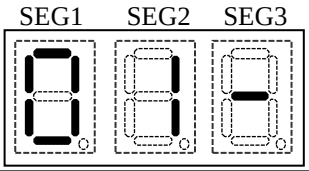


Figure 9.2

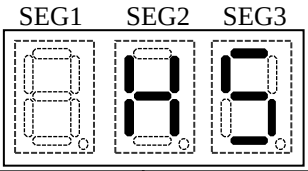
Default mode (Spot check)

System states can be showed on the 7 segments display (LED) of outdoor unit. Press **BS3** button to get the code number and corresponding information with an interval of one second.

Example: Code number



Detailed information



No.	Number content	Example	Description
Default	Refer to default display instructions	902	9: Command/Troubleshooting 0: Running under high pressure limit 2: Cooling mode
01-	Outdoor unit type and capacity	H5	H: Heat pump C: AC only 5: 5Ton
02-	Liquid line sub-cooling	10	10℉
03-	Compressor suction superheat	18	18℉
04-	Compressor speed	56	56RPS
05-	Electronic expansion valve opening	360	360pls
06-	Step of fan	8	The 8th step
07-	Low pressure (LP sensor)	145	145psig
08-	High pressure (HP sensor)	350	350psig
09-	Outdoor ambient temp. (TA)	95	95℉
10-	Compressor suction temp. (TS)	70	70℉
11-	Compressor discharge temp. (TD)	170	170℉
12-	Defrost sensor temp. (TH)	80	80℉
13-	Liquid line temp. (TL)	70	70℉
14-	Inverter module temp. (TF)	150	150℉
15-	Target evaporating temp. (Tes)	43	43℉
16-	Current evaporating temp. (Te)	45	45℉
17-	Target condensing temp. (Tcs)	104	104℉
18-	Current condensing temp. (Tc)	112	112℉
19-	Compressor DC current	10.1	10.1A
20-	Undercharged refrigerant signal	1	0: None 1: Level 1 2: Level 2
21-	Main software version	307	Ver 307
22-	Inverter software version	38	Ver 38
23-	Current fault	E1	Display up to 5 * codes
24-	The last fault	F1	--: none
25-	Fault before the last fault	F2	--: none
26-	Product series	3	3 : RTi series

Remarks: When multi-error codes exist at the same time, each code will be displayed one by one with an interval of one (1) second.

Setting mode

Press and hold **BS1** button for five (5) seconds to enter the parameter setting interface. The latest setting will be taken as the final one.

Symbol	Function	Item	Description
n00	Mode choice	0 (factory)	Normal (Energy Saving) mode
		1	Dry mode *1
		2	High capacity mode *2
n01	Forced heat pump stop when ambient temperature is lower than specified value. Switching to heat by gas furnace or electric heater in cold winter.	0	Stop heat pump when TA<-22°F
		1 (factory)	Stop heat pump when TA<-3°F
		2	Stop heat pump when TA<15 °F
		3	Stop heat pump when TA<30 °F
		4	Stop heat pump when TA<40°F
n02	Indoor second heater for outdoor unit outputs 24VAC at W terminal (CN5).	0 (factory)	ON (Electric auxiliary heater)
		1	OFF (Furnace or Boiler)
n03	Outdoor unit outputs 24VAC at W terminal (CN5) when ambient temperature is lower than specified value to start indoor electric auxiliary heater.	0 (factory)	TA<15°F (24VAC output)
		1	TA<30°F (24VAC output)
		2	TA<40°F (24VAC output)
		3	TA<-3°F (24VAC output)
		4	OFF
n04	Defrost mode setting *3	0	Defrost in heavy snow area
		1 (factory)	Standard mode
		2	Defrost in light snow area
n05	Silent mode setting	0 (factory)	None silent mode
		1	Silent mode (level 1)
		2	Super silent mode (level 2)
		3	Night silent mode (level 1)
		4	Night super silent mode (level 2)
n06	Night silent setting- start time	0	17:00
		1 (factory)	18:00
		2	19:00
		3	20:00
		4	21:00
n07	Night silent setting- end time	0	5:00
		1 (factory)	6:00
		2	7:00
		3	8:00
		4	9:00
n08	Forced defrost	0 (factory)	OFF
		1	ON *4
n18	Production series	3	RTi series

Remarks:

1. The evaporating temperature of evaporation coil can drop down to 28°F.
2. The evaporating temperature of evaporation coil can drop down to 28°F in cooling mode, and the condensing temperature can go up to 125°F in heating mode.
3. Reduce about 10% heating time for heavy snow area, increase about 10% heating time for light snow area.
4. System enters defrost after the heating start-up and an extra five minutes.

9.3 Major components function

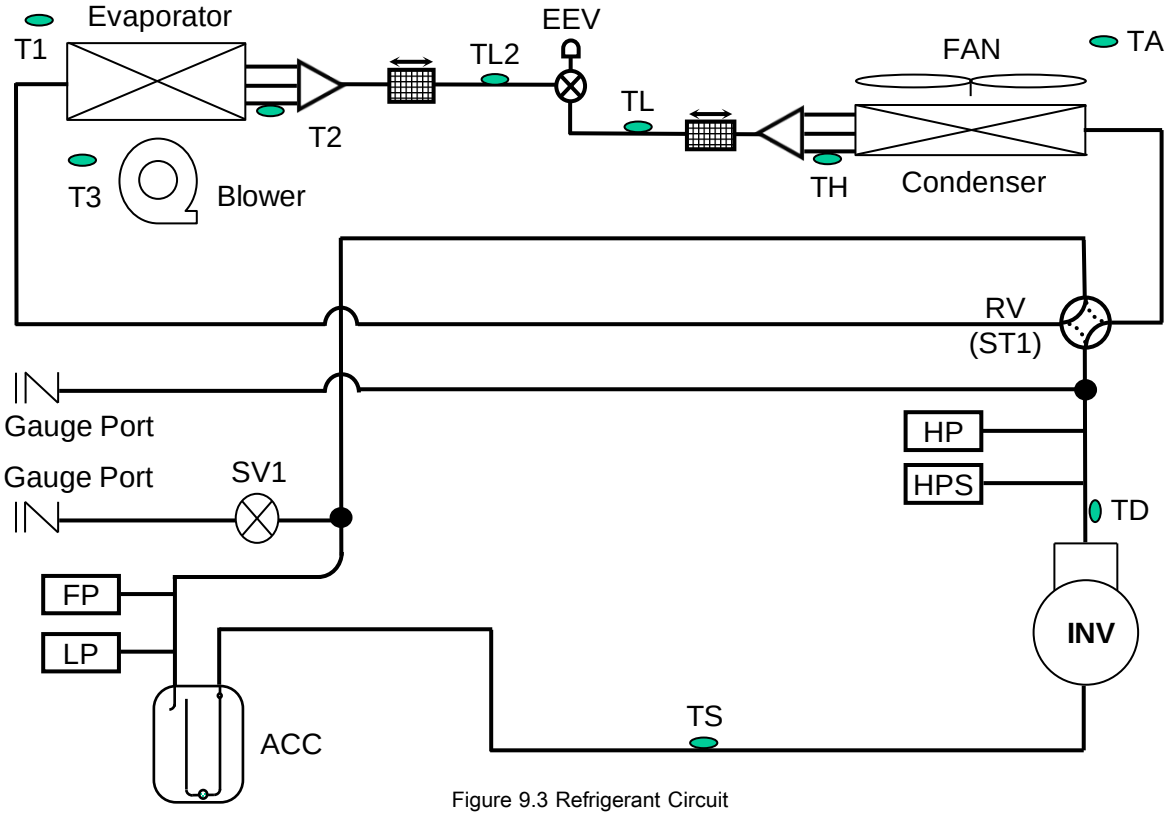


Figure 9.3 Refrigerant Circuit

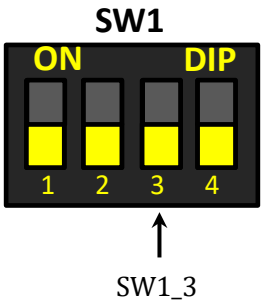
Name	Symbol	Function
Inverter compressor	INV	Adjusts refrigerant flow rate by changing the speed (RPS) based on objective pressure.
High Pressure Switch	HPS	The compressor oil is collected and returned to the compressor.
Outdoor fan	FAN	Outputs heat exchanger capacity by adjusting the motor rotation speed based on operating pressure.
Blower	Blower	Supply airflow to the room.
Electronic expansion valve	EEV	1) Fully open in cooling mode and defrost operation. 2) Control compressor discharge superheat in heating mode.
Reversing valve	RV (ST1)	Switches the operation mode between heating and cooling (including defrost control).
Solenoid valve 1	SV1	(Normally close) Control charging on and off when in charging mode.
Temperature sensor	TH	Uses to control defrost during heating operation.
	TA	Uses to detect outdoor air temperature and control fan speed.
	TS	Uses to detect compressor suction temperature and calculate compressor suction superheat (SSH).
	TL	Uses to detect liquid line temperature and calculate sub-cooling (SC).
	TD	Uses to detect compressor discharge temperature and calculate discharge superheat (DSH).
	T1	The suction airflow temperature.
	T2	The evaporation coil temperature.
	T3	The supply airflow temperature.
High pressure sensor	HP	Uses to detect high pressure.
Low pressure sensor	LP	Uses to detect low pressure.
Accumulator	ACC	Uses to store excess refrigerant.

9.4 Control logic description

9.4.1 Operation mode

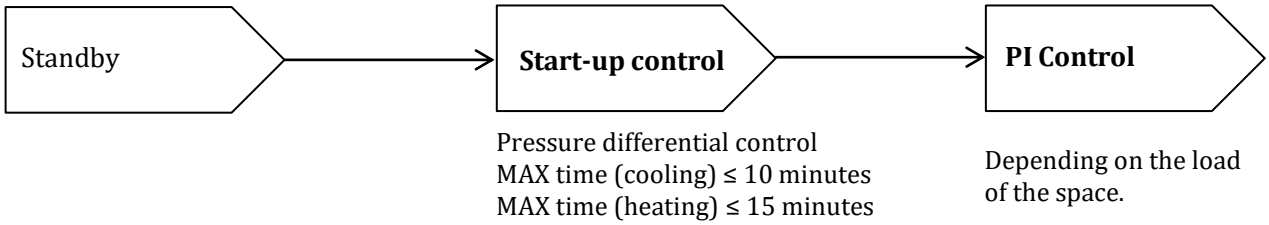
SW1_3=OFF (factory), RTi system uses Y/O/C signal to operate heat pump function.

SW1_3=ON has been set, RTi system uses Y/C signal to run cooling only.



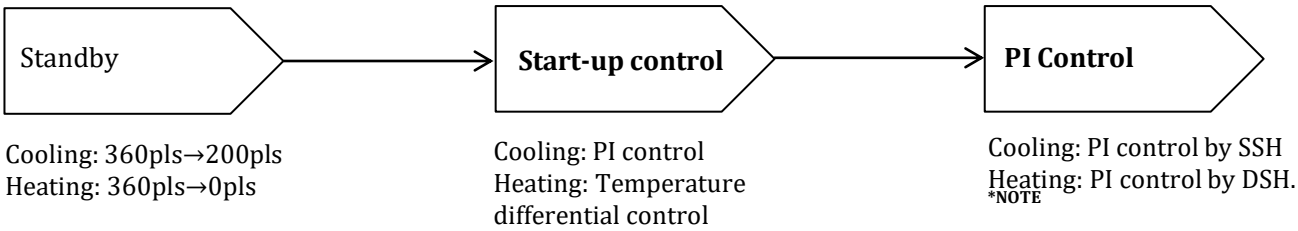
Normal operation:
Compressor control / EEV control / Fan motor control / Protection control
More detailed information can be found on RTi service manual.

9.4.2 Compressor control



Outdoor Capacity	5 Ton
Cooling/Heating Min RPS	18
Cooling Max RPS	76
Heating Max RPS	96

9.4.3 Electronic expansion valve (EEV) control



NOTE:
- **SSH=Suction Supperheat temperature.**
- **DSH=Discharge Supperheat temperature.**

9.4.4 Defrost control

This system carries out demand defrost control if any one of the following conditions satisfy.

I. The calculated temperature difference between ambient temperature (TA) and defrost temperature (TH) is called Delta T. After Delta T is achieved and continues for 5 minutes.

a) TA is between 41℉ and 59℉: TH ≤ 30℉, Delta T = 18℉
b) TA is between 19℉ and 41℉ : TH ≤ 30℉, Delta T = 12~18℉
c) TA is less than 19℉ : TH < 9℉, accumulative compressor run time ≥ 80 minutes

TH back-up running: TA < 59℉ and LP ≤ 90PSIG, accumulative compressor run time ≥ 60 minutes

II. After "Minimum Run Time" (MRT) is achieved.

a) MRT is 3.5 hours if TA is less than 23℉
b) MRT is 2 hours if TA is between 23℉ and 43℉

III. The high pressure drops below 245PSIG for 20 minutes if TA is between 14℉ and 28℉.

EXIT:

Defrost will be terminated once defrost temperature sensor (TH) reaches 64℉ for one (1) minute or the defrost time has exceeded eight (8) minutes.

SETTING:

Defrost mode setting (n04) offers termination options for different geographical conditions.

a) Defrost in heavy snow area will extend defrost for one (1) minute, but reduce the heating time to execute more defrost cycles.
b) Defrost in light snow area will reduce defrost for 30 seconds.

9.4.5 Manual Defrost

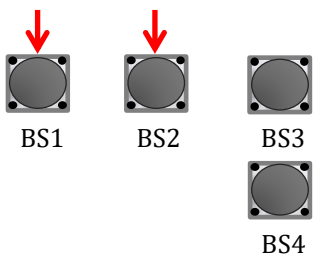
Manual defrosting mode can be used when verifying defrosting or forcing defrosting.

Note: After 5-10 minutes of continuous heating operation, the unit can respond to manual defrosting in time; otherwise, the unit will enter after meeting the requirements.

Enter in either way:

a. n08 setting;

b. Hold on BS1+BS2 for more than 5 seconds, release and wait about 1 minute.,



Exit in either way:

Defrost exit automatically/Heating demand off/Power off

10. Troubleshooting

If the system does not operate properly besides any malfunctions. Check the system based on the following procedures.

Symptoms	Possible causes	Solutions
System does not start-up but the digital tube shows normally	• No 24 VAC for Y signal from thermostat. • Incompatible thermostat	• Be sure Y/O/C wirings are connected correctly and the cooling/heating setting temperature at thermostat is proper • Use other traditional 24VAC thermostats
System operates mode reversely	• Incorrect O/B signal selection	• Choose **O for cooling** at thermostat
System cannot cool well	• Outside temperature is too high • Outside temperature is too low • Dirty air filter or blocked duct • Lack of refrigerant • Refrigerant has been blocked in the condenser coil	• Normal protection control to limit RPS • Ensure the cooling loads • Replace the air filter and eliminate any obstacles. • Check refrigerant amount or any leaks. • Checi the EEV bloaked (Make sure the refrigerant coefficient is 0.6)
System cannot heat well	• Outside temperature is too low but no third-party heat inside • The outdoor coil is dirty or has been covered by heavy snow • Dirty air filter • Lack of refrigerant	• Install auxiliary heat for backup ***Dual-heating** is recommended • Clean the outdoor coil • Replace the air filter • Check refrigerant amount or any leaks

Remarks:
Systems are compatible with most traditional 24VAC thermostats.

⚠ CAUTION
Reversing valve is energized (208/230VAC) in heating mode.

Error codes List for Condensing Unit

Error codes can be inquired by BS3 button, and seen on Ecoer Smart Service Pro App. **Sign in App >Files >Service, refer to RTi service manual for troubleshooting details.**

Code	Description	Legend
P1	High pressure protection	
E1	System locks up when P1 has occurred six times in 3 hours.	Cannot restart *1
P2	Low pressure protection in cooling mode	
E2	System locks up when P2 has occurred six times within 3 hours.	Cannot restart *1
P3	Compressor discharge temperature (TD) protection	
E3	System locks up when P3 has occurred six times within 3 hours.	Cannot restart *1
P4	Compressor discharge temperature (TD) sensor error	
P5	Inverter module temperature (TF) protection	
E5	System locks up when P5 has occurred six times within 3 hours.	Cannot restart *1
P6	Compressor over-current protection	
E6	System locks up when P6 has occurred six times within 3 hours.	Cannot restart *1
P7	Liquid slugging protection	
E7	System locks up when P7 has occurred three times within 5 hours.	Cannot restart *1
P8	Low compressor voltage protection	
E8	System locks up when P8 has occurred three times within an hour.	Cannot restart *1
P9	Incorrect compressor line sequence	Cannot restart *1
PA	DC fan motor over-load protection	Cannot restart *1
F1	Ambient temperature (TA) sensor fault	Backup running*2
F2	Compressor suction temperature (TS) sensor fault	Backup running*2
F3	Liquid line temperature (TL) sensor fault	Backup running*2
F4	Defrost temperature (TH) sensor fault	Backup running*2
F5	Compressor discharge temperature (TD) sensor fault	Backup running*2
F6	Inverter module temperature (TF) sensor fault	Backup running*2
F7	High pressure (HP) sensor fault	Backup running*2
F8	Low pressure (LP) sensor fault	Backup running*2
Fb	Liquid line temperature (TL2) sensor fault	
E4	Communication fault between main chip and INV drive chip	Cannot restart *1
H0	Heavy undercharge limit operation	
H1	Ambient temperature limit operation in cooling	
H2	Ambient temperature limit operation in heating	
H3	Abnormal switch alarm for reversing valve	Alarm
H4	Defrost temperature (TH) sensor error	
H5	EEPROM fault	
H6	Low voltage alarm	
HF	Abnormal function control	Alarm
C0-CC	Compressor INV module protection	
E0	System locks up when C0~CA has occurred three times within an hour.	Cannot restart *1

Remarks:

1. Disconnect power supply switch for 5 minutes to reset, then turn on power supply for the unit.
2. Unit goes to backup running under sensors fault varies from 7 to 120 days. Allow up to two (2) sensors backup running at the same time.

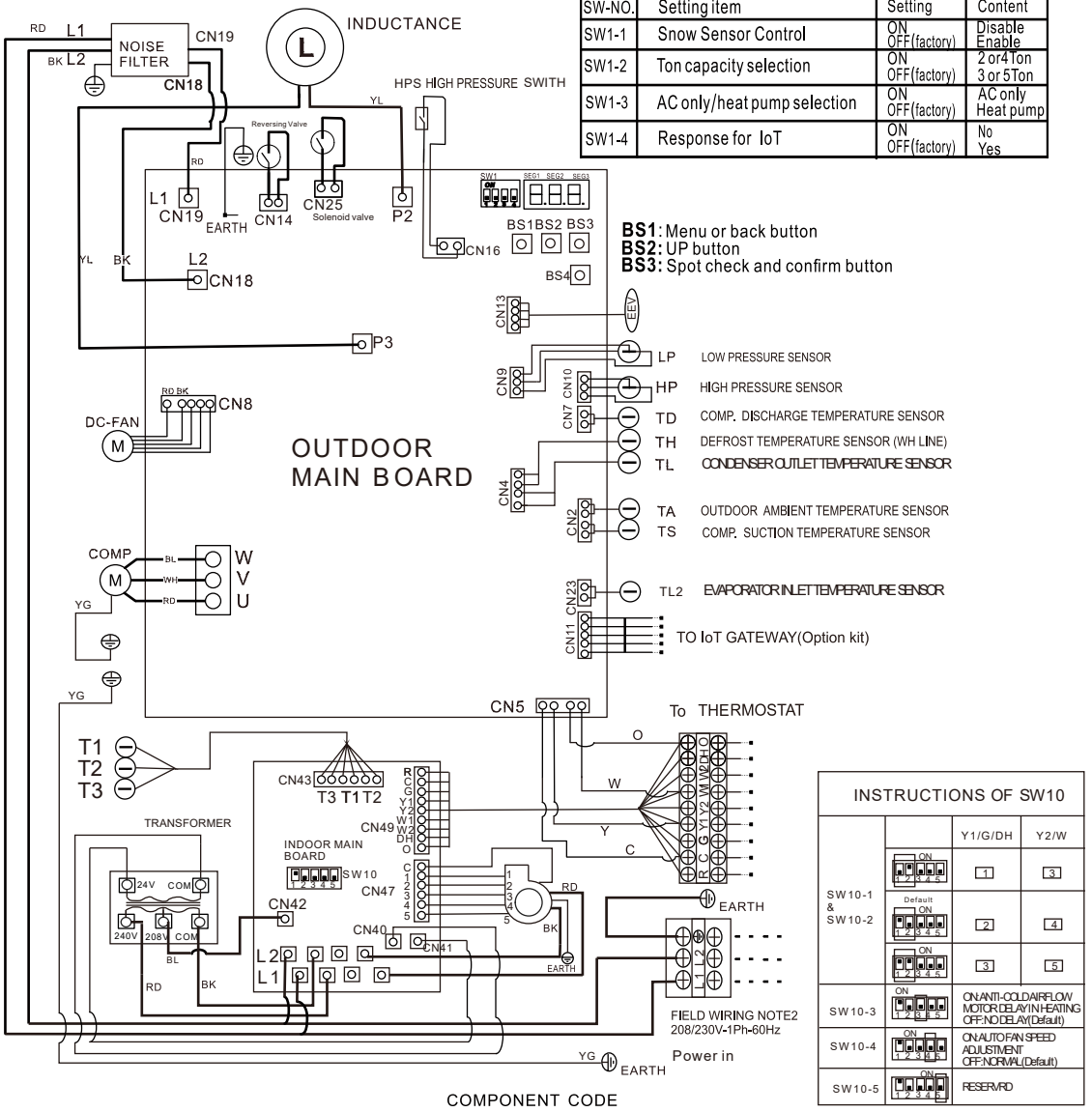
11. Wiring Diagram

WARNING

High Voltage: Disconnect all power before servicing or installing this unit. Multiple power sources may be present. Failure to do so may cause property damage, personal injury, or death.

Wiring is subject to change. Always refer to the wiring diagram or the unit for the most up-to-date wiring.

Dip switch		Description	
SW-NO.	Setting item	Setting	Content
SW1-1	Snow Sensor Control	ON OFF(factory)	Disable Enable
SW1-2	Ton capacity selection	ON OFF(factory)	2 or4Ton 3 or 5Ton
SW1-3	AC only/heat pump selection	ON OFF(factory)	AC only Heat pump
SW1-4	Response for IoT	ON OFF(factory)	No Yes



BS1: Menu or back button
BS2: UP button
BS3: Spot check and confirm button

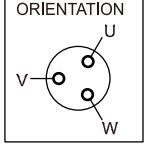
INSTRUCTIONS OF SW10

		Y1/G/DH	Y2/W
SW 10-1 & SW 10-2	ON	1	3
	Default ON	2	4
	ON	3	5
SW10-3	ON	ON:ANTI-COLD AIRFLOW MOTOR DELAY IN HEATING OFF: NO DELAY(Default)	
SW10-4	ON	ON:AUTO FAN SPEED ADJUSTMENT OFF:NORMAL(Default)	
SW10-5	ON	RESERVRD	

THERMISTOR/ TEMPERATURE SENSOR
OUTDOOR FAN MOTOR
HIGH/LOW PRESSURE SENSOR(H/LP)
REVERSING VALVE
EEV ELECTRONIC EXPANSION VALVE
INDOOR FAN MOTOR

NOISELESS EARTH
CONNECTOR
LOW VOLTAGE
HIGH VOLTAGE
HIGH VOLTAGE FIELD
HIGH PRESSURE SWITH

COMPRESSOR TERMINAL ORIENTATION



COLOR CODE:
RD - - - - RED
BR - - - - BROWN
GR - - - - GREEN
BK - - - - BLACK
WH - - - - WHITE
YL - - - - YELLOW
BL - - - - BLUE
OR - - - - ORANGE
GY - - - - GRAY

T1:Return Air Temperture
T2:Evaporator/CoilTemperture
T3:Supply Air Temperture

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