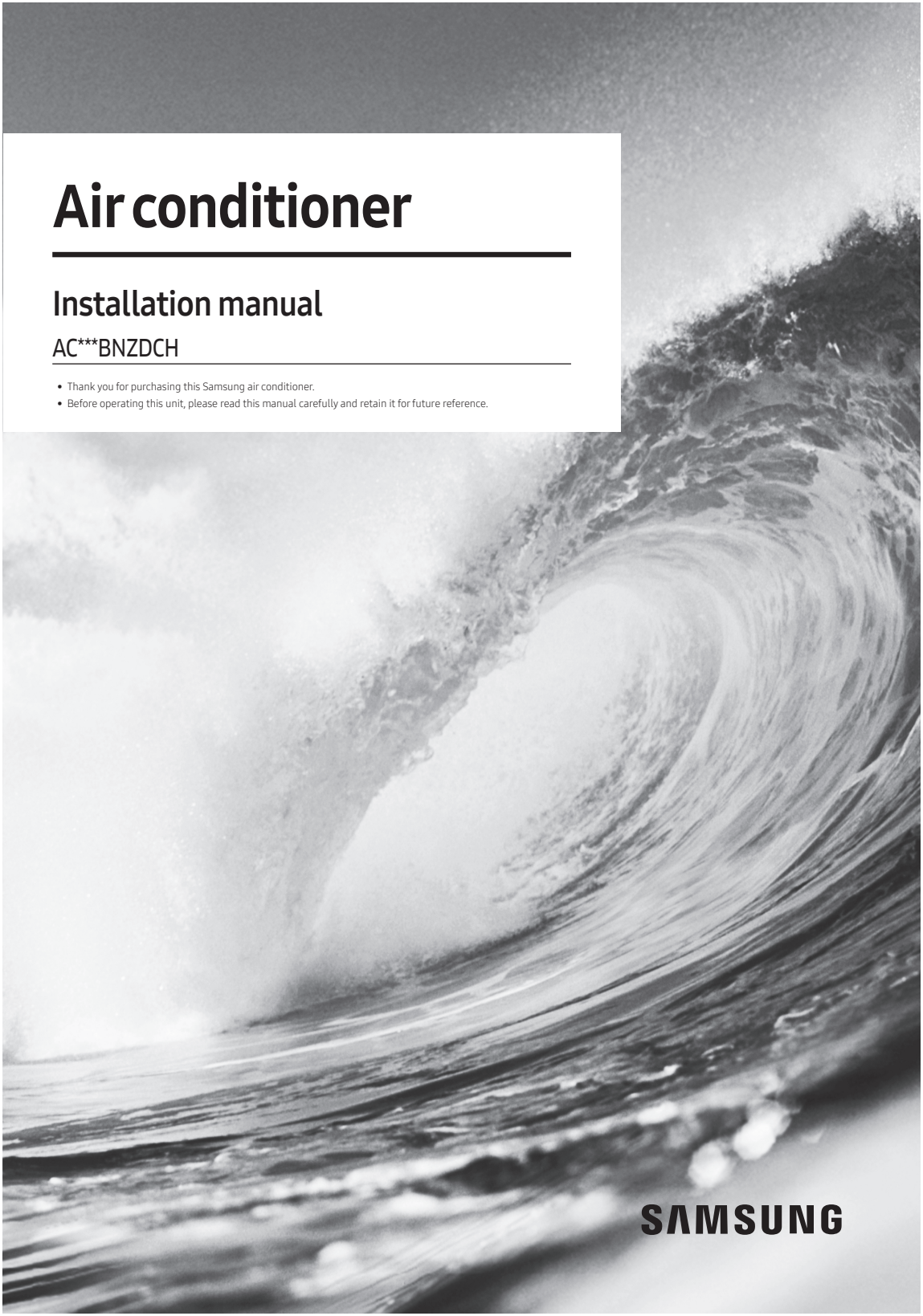
Air conditioner

Installation manual

AC***BNZDCH

- Thank you for purchasing this Samsung air conditioner.
- Before operating this unit, please read this manual carefully and retain it for future reference.



Contents

IMPORTANT – This product has been designed and manufactured to meet ENERGY STAR criteria for energy efficiency when matched with appropriate coil components.
However, proper refrigerant charge and proper air flow are critical to achieve rated capacity and efficiency.
Installation of this product should follow the manufacturer's refrigerant charging and air flow instructions.
Failure to confirm proper charge and airflow may reduce energy efficiency and shorten equipment life.

Safety Precautions

California Proposition 65 Warning (US)

⚠ WARNING : Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

⚠ WARNING

- Always disconnect the air conditioner from the power supply before servicing it or accessing its internal components.
- Verify that installation and testing operations are performed by qualified personnel.
- Verify that the air conditioner is not installed in an easily accessible area.

General information

- Carefully read the content of this manual before installing the air conditioner and store the manual in a safe place in order to be able to use it as reference after installation.
- For maximum safety, installers should always carefully read the following warnings.
- Store the operation and installation manual in a safe location and remember to hand it over to the new owner if the air conditioner is sold or transferred.
- This manual explains how to install an indoor unit with a split system with SAMSUNG units. The use of other types of units with different control systems may damage the units and invalidate the warranty. The manufacturer shall not be responsible for damages arising from the use of non compliant units.
- The manufacturer shall not be responsible for damage originating from unauthorized changes or the improper connection of electric and hydraulic lines. Failure to comply with these instructions or to comply with the requirements set forth in this manual, shall immediately invalidate the warranty.
- The air conditioner should be used only for the applications for which it has been designed: the indoor unit is not suitable to be installed in areas used for laundry.
- Do not use the units if damaged. If problems occur, switch the unit off and disconnect it from the power supply.
- In order to prevent electric shocks, fire or injuries, always stop the unit, disable the protection switch and contact SAMSUNG's technical support if the unit produces smoke, if the power cable is hot or damaged or if the unit is very noisy.
- Always remember to inspect the unit, electric connections, refrigerant tubes and protections regularly. These operations should be performed by qualified personnel only.
- The unit contains moving parts, which should always be kept out of the reach of children.
- Do not attempt to repair, move, alter or reinstall the unit. If performed by unauthorized personnel, these operations may cause electric shocks or files.
- Do not place containers with liquids or other objects on the unit.
- All the materials used for the manufacture and packaging of the air conditioner are recyclable.
- The packing material and exhaust batteries of the remote control (optional) must be disposed of in accordance with current laws.
- The air conditioner contains a refrigerant that has to be disposed of as special waste. At the end of its life cycle, the air conditioner must be disposed of in authorized centers or returned to the retailer so that it can be disposed of correctly and safely.

Installing the unit

IMPORTANT: When installing the unit, always remember to connect first the refrigerant tubes, then the electrical lines. Always disassemble the electric lines before the refrigerant tubes.

- Upon receipt, inspect the product to verify that it has not been damaged during transport. If the product appears damaged, DO NOT INSTALL it and immediately report the damage to the carrier or retailer (if the installer or the authorized technician has collected the material from the retailer.)

Safety Precautions

- After completing the installation, always carry out a functional test and provide the instructions on how to operate the air conditioner to the user.
- Do not use the air conditioner in environments with hazardous substances or close to equipment that release free flames to avoid the occurrence of fires, explosions or injuries.
- The air conditioner should be used only for the applications for which it has been designed: the indoor unit is not suitable to be installed in areas used for laundry.
- Our units must be installed in compliance with the spaces indicated in the installation manual to ensure either accessibility from both sides or ability to perform routine maintenance and repairs. The units' components must be accessible and that can be disassembled in conditions of complete safety either for people or things. For this reason, where it is not observed as indicated into the Installation Manual, the cost necessary to reach and repair the unit (in safety, as required by current regulations in force) with slings, trucks, scaffolding or any other means of elevation won't be considered in-warranty and charged to end user.

Power supply line, fuse or circuit breaker

- Always make sure that the power supply is compliant with current safety standards. Always install the air conditioner in compliance with current local safety standards.
- Always verify that a suitable grounding connection is available.
- Verify that the voltage and frequency of the power supply comply with the specifications and that the installed power is sufficient to ensure the operation of any other domestic appliance connected to the same electric lines.
- Always verify that the cut-off and protection switches are suitably dimensioned.
- Verify that the air conditioner is connected to the power supply in accordance with the instructions provided in the wiring diagram included in the manual.
- Always verify that electric connections (cable entry, section of leads, protections...) are compliant with the electric specifications and with the instructions provided in the wiring scheme. Always verify that all connections comply with the standards applicable to the installation of air conditioners.

⚠ CAUTION

- Make sure that you earth/ground the power cables.
  - Do not connect the earth wire to the gas pipe, water pipe, lighting rod or telephone wire. If earthing is not complete, electric shock or fire may occur.
- Install the circuit breaker.
  - If the circuit breaker is not installed, electric shock or fire may occur.
- Make sure that the condensed water dripping from the drain hose runs out properly and safely.
- Install the power cable and communication cable of the indoor and outdoor unit at least 1m (3.28') away from the electric appliance.
- Install the indoor unit away from lighting apparatus using the ballast.
  - If you use the wireless remote control, reception error may occur due to the ballast of the lighting apparatus.
- Do not install the air conditioner in following places.
  - Place where there is mineral oil or arsenic acid. Resin parts flame and the accessories may drop or water may leak. The capacity of the heat exchanger may reduce or the air conditioner may be out of order.
  - The place where corrosive gas such as sulfurous acid gas generates from the vent pipe or air outlet. The copper pipe or connection pipe may corrode and refrigerant may leak.
  - The place where there is a machine that generates electromagnetic waves. The air conditioner may not operate normally due to control system.
  - The place where there is a danger of existing combustible gas, carbon fiber or flammable dust. The place where thinner or gasoline is handled. Gas may leak and it may cause fire.

General Information

The following list includes important facts and information regarding the electric air handler and its inclusions.

1. Air handler is rated at 230 volts AC at 60 Hertz
2. Air handler size varies by model
3. Two-wire, wired controller operation (only Samsung "N" series wired controllers are compatible).
4. Two wires indoor and outdoor unit communication.
5. Samsung wired controller required
6. Air handlers are equipped with blower for A/C or heat pump operation.
7. The air entering the air handler must be filtered.
8. This air handler is designed for multi position, upflow and horizontal application. (optional down flow kit available)
9. This air handler must not be operated without the outdoor installed.
10. This air handler will not operate without an outdoor unit connected, completing the system.

NOTE This air handler and its components listed on the A/C and heat pump equipment sticker were listed in combination as a system by ETL for the United States and Canada.

- This single place air handler provides the flexibility for installation in any upflow or horizontal application. (optional down flow kit available)
- These models may be used with or without electric heat.
- Only use electric heat that is designed for this unit and provided by Samsung.
- The direct drive, five speed constant torque motors provide a selection of air volume to match the application.
- The unit can be positioned for bottom air return in the upflow position, or air return through the end of the unit in the horizontal position.

Product Inspection

As soon as the air handler is received, it should be inspected for possible damage during transit. If damage is evident, the extent of the damage should be noted on the carrier's freight bill. A separate request for inspection by the carrier's agent should be made in writing. Before installing the air handler you should check the cabinet for screws or bolts which may have loosened in transit. There are no shipping or spacer brackets which need to be removed before startup. See local Distributor for more information. Samsung assumes no liability for freight damage. Also check to be sure all accessories such as heater kits, and coils are available. Installation of these accessories should be accomplished before the air handler is set in place or the connecting of the wiring, electric heat, ducts or piping.

Accessories

The following accessories are supplied with the indoor unit.

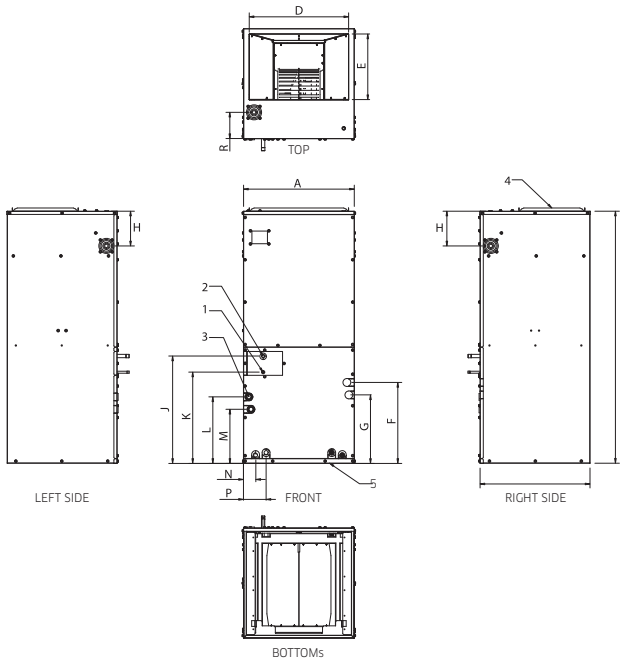
Installation manual	Warranty card
	

Selecting the installation location

Decide the installation location, with the consideration of the following conditions, under user's approval.

- Place where airflow is not disturbed.
- Place on flat surface where the structure can bear the weight and vibration of the indoor unit. (If the structure is not strong enough, indoor unit may fall and be damaged or cause personal injury.)
- Place where sufficient space can be guaranteed for maintenance and other services.
- Place where condensation can be drained easily.
- Place that allows refrigerant pipe connection within allowable distance.
- Place where indoor unit will not be exposed to direct sunlight.
- Place that can keep the distance of at least 3.28 ft (1 m) between power/communication cable and any electronic devices (depending on the circumstances, problem may occur even if you secure 3.28 ft (1 m) of distance).

Dimensions



DIMENSIONAL DATA MULTI-POSITION AIR HANDLER																
MODEL		A	B	C	D	E	F	G	H	J	K	L	M	N	P	R
AC012BNZDCH AC018BNZDCH AC024BNZDCH	inch	17.50	43.00	21.00	15.50	12.50	13.50	11.00	6.75	16.75	14.00	11.00	8.50	2.00	4.00	2.00
	mm	444.50	1092.20	533.40	393.70	317.50	342.90	279.40	171.45	425.45	355.60	279.40	215.90	50.80	101.60	50.80
AC030BNZDCH AC036BNZDCH	inch	21.00	48.00	21.00	19.00	12.50	13.38	13.00	6.75	20.00	17.00	12.75	10.30	2.30	4.35	2.50
	mm	533.40	1219.20	533.40	482.60	317.50	339.73	330.20	171.45	508.00	431.80	323.85	261.62	58.42	110.49	63.50
AC042BNZDCH AC048BNZDCH	inch	24.50	58.75	21.75	19.50	16.25	19.75	17.25	6.75	26.00	23.00	16.75	14.35	2.30	4.35	2.00
	mm	622.30	1492.25	552.45	495.30	412.75	501.65	438.15	171.45	660.40	584.20	425.45	364.49	58.42	110.49	50.80

NOTE: ALL DIMENSION ARE IN INCHES AND ARE APPROXIMATE. ALL DIMENSIONS ARE ROUNDED

No.	Name	Description
1	Liquid pipe connection	**012/018/024** : Φ1/4"(Φ6.35mm) **030/036/042/048** : Φ3/8"(Φ9.52mm)
2	Gas pipe connection	**012/018** : Φ1/2"(Φ12.7mm) **024/030/036/042/048** : Φ5/8"(Φ15.88mm)
3	-	3/4" NPT(Φ19.05mm)
4	-	-
5	-	-

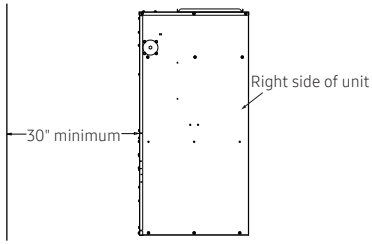
Indoor unit installation

Refrigerant pipe work must be done before installing the indoor unit.

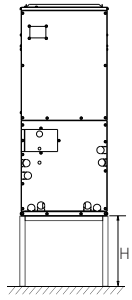
Location

Access for servicing is an important factor in the location of any air handler. Provide a minimum of 30 inches in front of the appliance for access to the control box, heating elements, blower and air filters. This access may be provided by a closet door or by locating the appliance so that a wall or partition is not less than 30 inches from the front access panel. Location is usually predetermined. Refer to figure below. Check with owner's or dealer's installation plans. If location has not been decided, consider the following in choosing a suitable location.

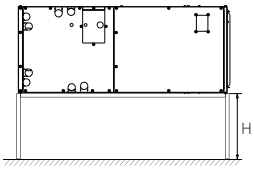
1. Select a location with adequate structural support, space for service access, and clearance for return and supply duct connections.
2. Normal operating sound levels may be objectionable if the air handler is placed directly over or under some rooms such as bedrooms, study, etc.
3. Caution should be taken to locate the unit so that supply and return air ducts are about the same length causing even air distribution of supply and return air to and from the living spaces.
4. Locate appliance where electrical supply wiring can be easily routed to main electrical panel and where electrical wiring will not be damaged.
5. Locate appliance where control wiring can be easily routed to the controller and where the wiring will not be damaged.
6. Locate appliance where refrigerant lines can be easily routed from the evaporator coil to the system.
7. Locate the appliance where condensate lines can be easily routed to an available drain. Be sure to route condensate drain piping so as not to obstruct access to the air filter.
8. The coil is installed in a draw-thru application and will create a negative pressure situation in the condensate drain system. To prevent condensate from being drawn into the blower it is recommended to trap the primary (Main) and secondary (Overflow) drain line. Refer to Drain Pipe and Drain Hose section in these instructions. If the secondary drain is not used, it must be capped. This unit has a connection terminal for drain system monitoring. Refer to Wiring Work section for information regarding connection of field-provided condensate overflow devicesin these instructions.
9. The draw-thru design will cause exterior surface of cabinet to sweat when unit is installed in a non-conditioned space such as an attic or garage. Installer must provide protection such as full size auxiliary drain pan on all units installed in a non-conditioned space to prevent damage from condensation runoff. Some states, cities and counties require additional insulation to be installed on the exterior casing of the air handler to prevent sweating. Refer to the state, city, county or local code for insulation requirement to be sure the installation is in compliance. It is recommended that air handlers installed in non-conditioned spaces be insulated on the exterior of the entire cabinet, including the front access panel with one (1) inch thick fiberglass with the vapor barrier on the outside.
10. Ensure sufficient space for the bottom of the product (H dimension) so that a downward slope of 1/100 can be maintained for drain piping, as described for the intake duct installation and in "Drain pipe installation".



Clearance - Access for service



Vertical installation



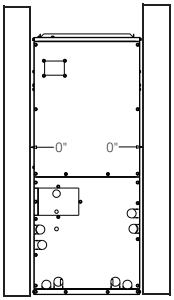
Horizontal installation

This appliance is approved for zero (0) inches clearance to combustible material on any part of the air handler exterior casing and the inlet or outlet ducts providing NO electric heater is being used. There is a one (1) inch clearance on the supply plenum and supply air duct when an electric heater is installed in the appliance. Refer to Table below for clearance to combustibles information.

Top (inches)	Back (inches)	Sides (inches)	Front of unit		Duct (inches)
			Alcove (inches)	Closet (inches)	
0	0	0	30	6	1 *

* when electric heat kit accessory is installed

Return air requirements



Return Air Requirements

In order for the air handler to work properly, a closet or alcove must have a certain total free area opening for the return air.

For A/C and HP Air Handlers 1/3 HP Blower Motor

Minimum 200 in^2 free area opening

- Use Return Grille that can supply sufficient air to ensure proper performance.

For A/C and HP Air Handlers 1/2 HP Blower Motors

- Minimum 250 in^2 free area opening
- Use Return Grille that can supply sufficient air to ensure proper performance.

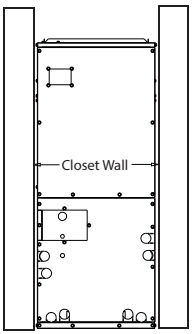
For A/C and HP Air Handlers with Electric Heat use 3/4 HP Blower Motor

- Minimum 390 in^2 free area opening
- Use Return Grille that can supply sufficient air to ensure proper performance.

The return air opening can be located in the floor, on a closet front door or in a side wall above the air handler casing. If opening for the return air is located in the floor, side walls, or closet door anywhere below the appliance casing, a 6 inch minimum clearance between the appliance and the wall or door must be provided on the side where the return is located to provide for proper air flow. The 6 inch minimum clearance is not required if there is a return grille installed above the appliance casing, providing the grille has a sufficient return air opening.

Indoor unit installation

Return air requirements



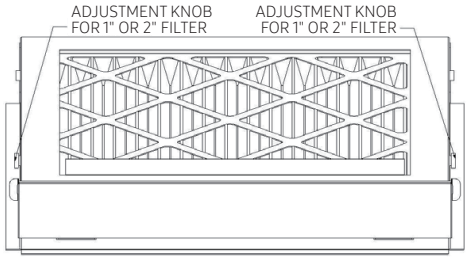
Typical Closet Installations

Provisions shall be made to permit the air in the rooms and the living spaces to return to the air handler. Failure to comply may cause a reduction in the amount of return air available to the blower, causing reduced air flow resulting in improper heating and cooling of the living space. The reduced air may cause the air flow handler to cycle on the limit causing premature heating element failure (if electric heat kits are installed).

Upflow Accessory Filter Box Kit

An accessory filter box kit can be used on the return air end of the air handler when configured in the upflow position. The filter kit is placed over the return plenum in the floor and sealed to the plenum using sealant or caulking material and/or tape. The air handler is placed on top of the return filter box and the return opening sealed to prevent leaks.

NOTE Make sure the flow arrow on the air filter is pointing towards the coil.



Accessory Air Filter Box for 1" or 2" Air Filters. Filter Size Adjustment knob is on both sides.

FILTER BASE ASSEMBLY KIT MODEL NUMBERS - FIELD INSTALLED, PURCHASED SEPARATELY

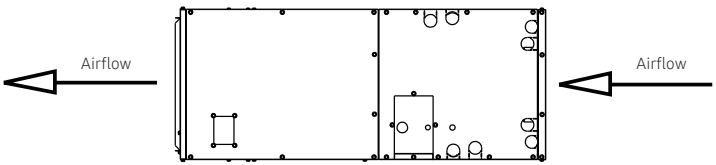
VFB-1 – 16" X 20" X 2" Small Cabinet (12/18/24K)

VFB-2 – 20" X 20" X 2" Medium Cabinet (30/36K)

VFB-3 – 20" X 24" X 2" Large Cabinet (42/48K)

Arrangement:

Unit is shipped from the factory arranged to be installed in an upflow or horizontal left (right to left air flow) position. Horizontal left means when the unit is laid on its side and you are facing the unit, the supply air opening is to the left and the return opening is to the right. These models are field convertible to a horizontal right (left to right) air flow position.



Horizontal left arrangement

Upflow application

In an upflow installation the discharge outlet is at the top. Care should be taken to insure unit is level to permit proper condensate drainage. Normal upflow installation will be in a closet or basement. If installed in a closet, it must have a platform framed in. The platform must have an opening centered in the closet that measures at least 12 inches in height from the floor. A filter frame and filter can be used that covers the opening and is sealed to prevent air by-passing the filter. A filter grille can be used that is located as described in RETURN AIR REQUIREMENTS section. The minimum filter size is shown in the table below.

Standard throw away air filter @ 300 ft/min or less	Pleated Air Filter @ 500 ft/min or less
800 CFM = 20 x 20 x 1	800 CFM = 16 x 16 x 1
1000 CFM = 20 x 25 x 1	1000 CFM = 18 x 20 x 1
1200 CFM = 20 x 30 x 1	1200 CFM = 20 x 20 x 1
1400 CFM = 25 x 30 x 1	1400 CFM = 20 x 20 x 1
1600 CFM = 25 x 30 x 1	1600 CFM = 20 x 25 x 1
1800 CFM = 30 x 30 x 1	1800 CFM = 20 x 30 x 1 or two 20 x 15 x 1
2000 CFM = 30 x 40 x 1 or two 30 x 20 x 1	2000 CFM = 20 x 30 x 1 or two 20 x 15 x 1
2400 CFM = 30 x 40 x 1 or two 30 x 20 x 1	2400 CFM = 25 x 30 x 1 or two 14 x 30 x 1

Another option is to use the Filter Base Accessory Kit. This filter base is placed on the closet floor and secured with screws. The unit is placed on top of the filter base and secured to the base with screws. Use seal strip, tape or calking to seal between the unit and the base.

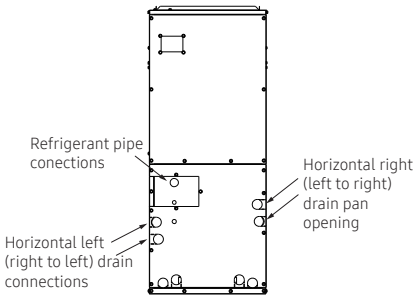
Connect the supply air outlet to a plenum to the top of the unit and secure it with screws. Use a Non-tape sealant such as mastic or an aerosol sealant to seal duct leakage. If installed in a basement, run supply and return duct work in accordance with local codes. Use a Non-tape sealant such as mastic or an aerosol sealant to seal duct leakage.

Indoor unit installation

Horizontal application

Horizontal applications will normally be used in an attic or crawl space. This type of installation requires supply air plenum or duct to be connected to the supply collar and a return air plenum or duct be attached to the unit inlet collar. The supply ducts will be connected to the supply air plenum and routed through the attic to a register in each room. Use a Non-tape sealant such as mastic or an aerosol sealant to prevent leaks in the ducts and the plenum.

The opposite end of the return air duct is attached to a return filter grille housing. The filter grille is usually located in a wall, just below the ceiling or the ceiling in a hallway. Use a Non-tape sealant such as mastic or an aerosol sealant to prevent leaks in the ducts and the plenum.

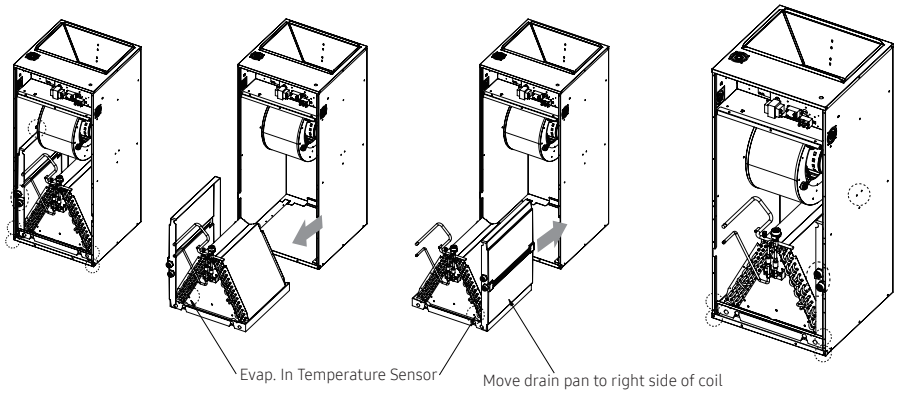


Horizontal right application (left to right)

The unit is shipped to be installed without modification in a right to left configuration. For left to right applications:

1. Remove the unit access panels
2. Remove the cooling coil after disassembling bracket coil and plate.
3. Move the condensate drain pan to the right side of the unit chassis.
4. Move the Evap In temperature sensor to holder of the right side.
5. Reinstall the cooling coil.
6. Connect the condensate drains and refrigerant lines. DRY NITROGEN MUST BE FLOWED THROUGH REFRIGERANT LINES DURING SOLDERING OPERATION.
7. Reinstall unit access panels.

※ In all horizontal applications in which the unit is installed above a finished ceiling and/or living space, it is recommended that a secondary drain pan (field supplied) is installed under the entire unit to avoid damage to the ceiling in the event of condensate overflow.



Closet installation

Prior to installing the air handler make sure holes are cut into the floor for refrigerant tubing, drain line, electrical wiring, and control wiring.

1. Remove the top shipping cover and corner posts.
2. Remove the bottom shipping cover.
3. Remove the blower and control box access panel (door).
4. Remove the coil compartment access panel (door).
5. Place the unit into position by sliding the unit over the duct opening until the opening in the unit lines up with the duct opening in the floor.
6. Secure the unit to the floor by drilling two holes through the air handler base at the left and right front inside corners of the cabinet. Use two screws to secure the unit to the floor.
7. Use calking, sealers, and/or tape to seal between the floor base and the opening on the unit or between the opening on the unit and the duct in the floor.
8. Connect the electrical supply wires and the control wires in the control box.
9. Connect the refrigerant lines to the coil. DRY NITROGEN MUST BE FLOWED THROUGH REFRIGERANT LINES DURING SOLDERING OPERATION.
10. Re-install the coil compartment access panel (door) and secure with the screws that were removed in step 3.
11. Re-install the blower and control box access panel (door) and secure with the screws that were removed in step 2.

Refrigerant piping

Air Handlers with DX type evaporator coils require liquid and suction piping sized in accordance with condensing unit manufacturer's instructions. The evaporator coils have sweat copper connections. Refrigerant lines should be soldered with silver solder or high temperature brazing alloy.

DRY NITROGEN MUST BE FLOWED THROUGH REFRIGERANT LINES DURING SOLDERING OPERATION.

REFER TO OUTDOOR UNIT INSTALLATION MANUALS FOR PRESSURE CHECKING AND VACUUM DRYING PROCEDURES.

There are two refrigerant pipes of differing diameters:

- A smaller one for the liquid refrigerant
- A larger one for the gas refrigerant
- The inside of copper pipe must be clean & have no dust.

Prepare the connecting pipe referring to the list below.

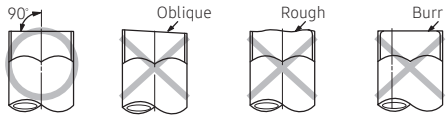
- Refrigerant pipe diameters

Unit : inch(mm)

	AC012/018BNZDCH	AC024BNZDCH	AC030/036/042/048BNZDCH
Liquid pipe	1/4 (6.35)	1/4 (6.35)	3/8 (9.52)
Gas pipe	1/2 (12.7)	5/8 (15.88)	5/8 (15.88)

Cutting the pipes

1. Make sure that you prepared the required tools. (pipe cutter, reamer, aring tool and pipe holder)
2. If you want to shorten the pipe, cut it using a pipe cutter ensuring that the cut edge remains at 90° with the side of the pipe. There are some examples of correctly and incorrectly cut edges below.



Performing leak test & insulation

Leak test

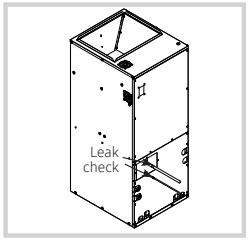
LEAK TEST WITH NITROGEN (before opening valves)

In order to detect basic refrigerant leaks, before recreating the vacuum and recirculating the R-410A, it's responsible of installer to pressurize the whole system with nitrogen (using a pressure regulator) at a pressure above 595 PSI (4.1MPa).

LEAK TEST WITH R-410A (after opening valves)

Before opening valves, discharge all the nitrogen in the system and create vacuum. After opening valves check leaks using a leak detector for refrigerant R-410A.

> **CAUTION** Discharge all the nitrogen to create a vacuum and charge the system



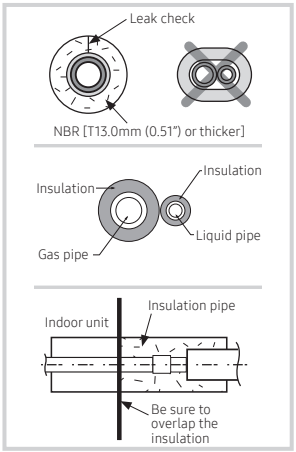
Insulation

Once you have checked that there are no leaks in the system, you can insulate the piping and hose.

1. To avoid condensation problems, place **T13.0mm (0.51") or thicker Acrylonitrile Butadien Rubber** separately around each refrigerant pipe.
   - You can contact the gas side and liquid side pipes but the pipes should not be pressed together tightly.
   - When contacting the gas side and liquid side pipe, use 1 grade thicker insulator.

> **NOTE** Always make the seam of pipes face upwards.

2. Wind insulating tape around the pipes and drain hose avoiding to compress the insulation too much.
3. Finish wrapping insulating tape around the rest of the pipes leading to the outdoor unit.
4. The pipes and electrical cables connecting the indoor unit with the outdoor unit must be fixed to the wall with suitable ducts/straps.



> **CAUTION** All refrigerant connection must be accessible, in order to permit either unit maintenance or removing it completely.

> **CAUTION** Must fit tightly against body without a gap.

Performing leak test & insulation

5. Select the insulation of the refrigerant pipe.
   - Insulate the gas side and liquid side pipe referring to the thickness according to the pipe size.
   - Indoor temperature of 86 °F(30 °C) and humidity of 85% is the standard condition. If install in a high humidity condition,use one grade thicker insulator by referring to the table below. If installing in an unfavorable conditions, use a thicker wall insulation.
   - Insulator's heat-resistance temperature should be more than 248 °F (120 °C).

Pipe	Outer diameter		Insulation Type (Cooling/Heating)				Remarks
			General [30°C (86°F), 85% or below]		High humidity [30°C (86°F), more than 85%]		
			EPDM, NBR				
	mm	inch	mm	inch	mm	inch	
Liquid pipe	6.35~9.52	1/4~3/8	9	3/8	9	3/8	Internal temperature is higher than 248 °F (120 °C)
	12.7~50.8	1/2~2	13	1/2	13	1/2	
Gas pipe	6.35	1/4	13	1/2	19	3/4	
	9.52~25.4	3/8~1	19	3/4	25	1	
	28.58~44.45	1 1/8~1 3/4	19	3/4	32	1 1/4	
	50.8	2	25	1	38	1 1/2	

   - When installing insulation in places and conditions below, use the same insulation that is used for high humidity conditions.

     ‹Geological condition›

     - High humidity places such as shoreline, hot spring, near lake or river, and ridge (when the part of the building is covered by earth and sand.)

     ‹Operation purpose condition›

     - Restaurant ceiling, sauna, swimming pool etc.

     ‹Building construction condition›

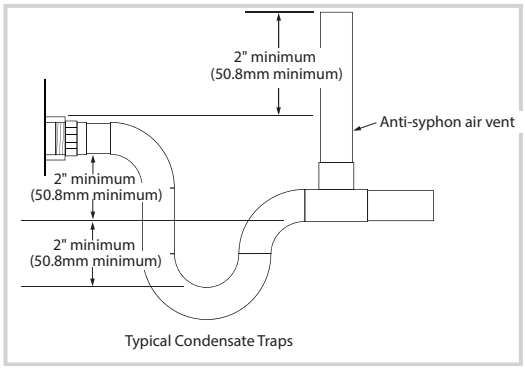
     - The ceiling frequently exposed to moisture and cooling is not covered.
       e.g. The pipe installed at a corridor of a dormitory and studio or near an exit that opens and closes frequently.
     - The place where the pipe is installed is highly humid due to the lack of ventilation system.

Additional refrigerant

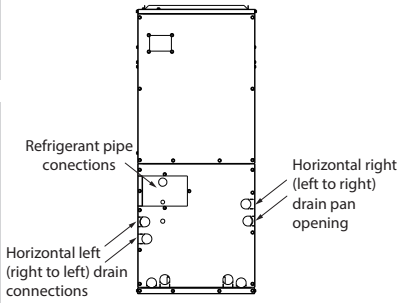
- System refrigerant volume is based on linear feet of liquid line pipe and indoor equipment model/quantity.
- Refer to the outdoor unit installation manuals for information regarding refrigerant volume for system components.

Drain pipe installation

The air handler "A" coil drain pan has two ¾" NPT (Φ19.05mm) female primary and two secondary connections (left or right hand). The horizontal pan has two ¾" NPT (Φ19.05mm) female, one primary and one secondary. Piping from each fitting used is to have 2 inch (50.8mm) minimum trap and each run in such a manner as to provide enough slope for adequate drainage to a visible area. Do not pipe these two fittings together into a common drain. Prime drain with water before operating the unit by pouring water into the condensate pan. Cap unused connections.



Typical Condensate Traps



CAUTION

- Make sure to keep the drain hose from getting tangled or loosened (on the connection part).
- Insulate all condensate pipes connected to the indoor unit to prevent condensation formation. Condensate formation on condensate pipes can lead to property damage and unsafe environment conditions.

When passing the drain hose through the hole drilled in the wall, make sure to avoid following cases.

CAUTION

- Since the draining is of natural drain type, install the drain hose in downward direction.
- If you do not tie the drain hose with a cable tie, leakage may occur
- Drain pipe may get clogged if there is any foreign substances within the drain pan, so you must remove any foreign substances after completing the installation.

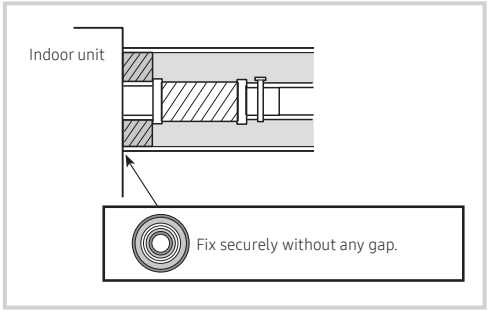
Water leakage test

1. Pour water into the condensate pan.
2. Make sure that draining is done properly by checking end of the drain pipe.
3. If water leakage occurs, make sure the indoor unit is level. Also verify the drain pipe is installed with a downward slope away from the indoor unit.

CAUTION

- After connecting the drain pipe to the indoor unit, you must perform leakage test. If the drain test has not done properly, water may get into the indoor and cause property damage.
- Empty the condensation water in the drain pan before any repair/maintenance service.

Drain pipe insulation



CAUTION

- You must insulate drain pipes.
- Make sure to prevent any gap between the insulation on drain pipe elbows.
- Make sure that insulation is overlapped.

Wiring Work

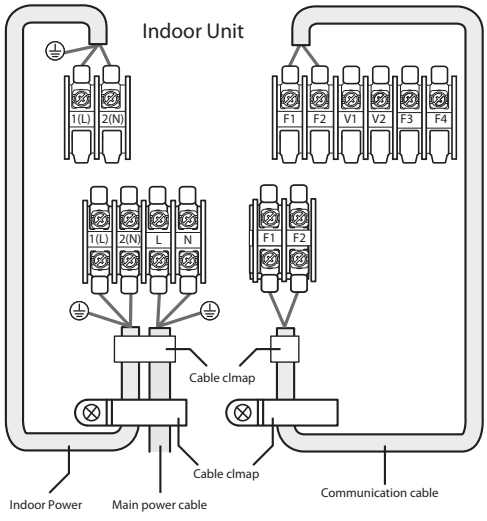
WARNING

- For personal safety be sure to turn the electrical power "OFF" at the main entrance (Home Circuit Breaker Box) and at the unit control box circuit breakers before attempting any service or maintenance operations. Homeowners should never attempt to perform any maintenance which requires opening the air handler control box door.
- This air handler is not equipped with a shield that covers the line voltage electrical supply wires and the circuit breaker connections. Take precautions to prevent accidental electrical shock. Be sure to turn the electrical power "OFF" at the main entrance (Home Circuit Breaker Box) and at the control box circuit breakers before removing the front panel.

Power supply wiring

- The unit internal wiring is complete except for the power supply and control wires.
- The use of cable connectors on incoming power supply wires to relieve any strain on wiring is recommended.
- Follow the steps below to connect the power supply wires.
- Supply voltage is 208/230V, 1ø, 60 Hz.
- If you are installing optional heat kits, refer to the heat kit installation instructions for line voltage connection instructions

Wiring diagram

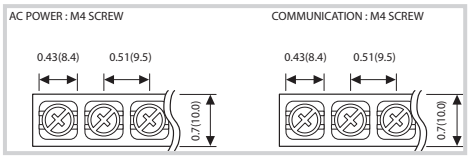


Between Indoor and Outdoor Connection cable Specifications(Common in use)

Indoor Power supply			Communication Cable
Power Supply	Max/Min(V)	Indoor Power cable	
208~230V/60Hz	±10%	0.0039in^2 ↑,3wires (2.5mm^2 ↑,3wires)	0.0012 inch^2 ↑, 2 wires (0.75mm^2↑, 2 wires)

- Selecting wire size must comply with local and national code.
- Power supply cords of parts of appliances for outdoor use shall not be lighter than polychloroprene sheathed flexible cord. (Code designation IEC:60245 IEC 57 / CENELEC: H05RN-F)
- Screws on terminal block must not be unscrewed with the torque less than 12 kgf•cm (0.86 lbf•ft).
- Since it has the external power supply, refer to the outdoor unit installation manual for MAIN POWER.

Terminal Block SPEC (Indoor)

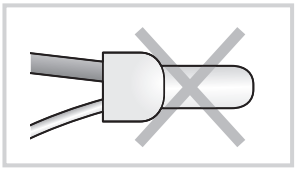


Tightening Torque		
M4	12.0~18.0 (kgf·cm)	0.86~1.3.0 (lbf·ft)

WARNING

In case of extending the electric wire, please DO NOT use a round-shaped pressing socket.

- Incomplete wire connections can cause electric shock or a fire.



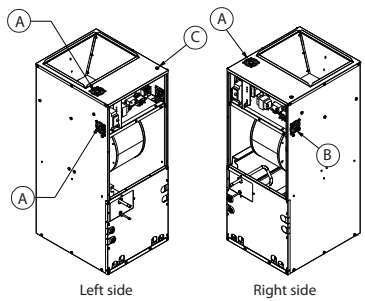
Wiring Work

Single circuit line wiring connections

CAUTION

If an accessory heat kit is installed, power must enter the unit on the top or the top-left side of the unit as shown below (A).

1. Before wiring work, you must turn off all power source.
2. Only copper power cables should be used.
3. Remove the blower and control box access panel (door).
4. Install the cable connectors on the 7/8" diameter holes on the right side of the control box.
5. Insert the wires through the holes in the casing and through the cable connectors.
6. Connect the black supply wire to the L1[1(L)] high voltage connection terminal with compressed ring terminals.
7. Connect the white supply wire to the L2[2(N)] high voltage connection terminal with compressed ring terminals.
8. Connect the green wire to the ground lug near the supply wire connections with a compressed ring terminal and tighten the ground screw. Make sure to leave extra slack in the ground wire to allow service to the unit without disconnecting the ground wire.



A - Power conduit connection opening (must use when installing accessory electric heat kit).

B - Power conduit connection opening (do not use when installing accessory electric heat kit).

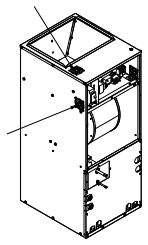
C - Communication wire conduit connection opening

IMPORTANT - All insulation on field wiring must be rated at 140°F (60°C) or higher. Please refer to the wiring diagrams on the air handler or the tables in this manual for more information.

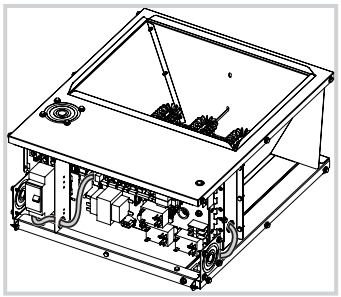
IMPORTANT - Refer to the NEC National Electrical Code (NFPA 70) or the Canadian Electrical Code, Part I (CSA C22.1) and local codes for wiring material requirements.

Power supply wiring with accessory electric heat kit

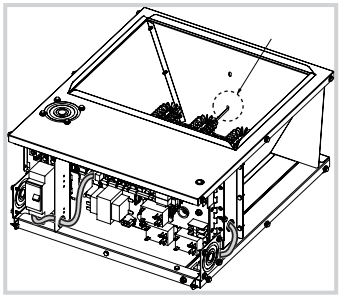
1. Before wiring work, you must turn off all power source.
2. Only copper power cables should be used.
3. Remove the blower and control box access panel (door).
4. Install the cable connectors on the 7/8" diameter holes on the left side of the control box.
5. Connect the included power pigtail leads with ring connectors (included with heat kit) to 1(L) and 2(N) terminals located on the right side of the control box.
6. Route the power pigtail leads through the control box opening pictured below and route to the left side of the control box for connection to the heat breakers in a later step.



Power conduit connection openings



7. Swing the hinged control plate outward exposing the back side of the control box. Remove the screws holding the electric heat kit block off plate. Save the screws.
8. Carefully pass the accessory heating element through the rectangular opening in the discharge of the air handler and secure the heating element with the screws from step 8. Heating element support rod must be seated in the hole on the opposite side of the discharge.



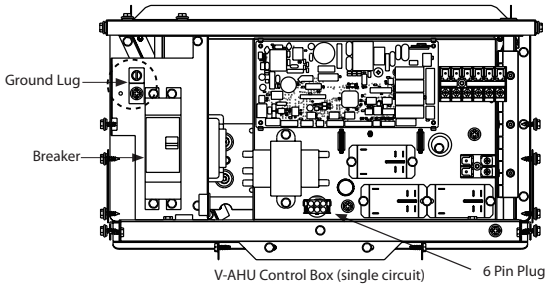
9. Install the breakers at the front-left of the control box.
10. Connect the power pigtail leads that are connected to 1(L) and 2(N) to the bottom of the breakers.
11. Insert the power wires through the holes in the casing and through the cable connectors.
12. In order to use heating function, you need change the installation option code. Set SEG10 to 1. For more information on changing the option code, refer to "Setting an indoor unit installation option".

Power supply wiring with accessory electric heat kit

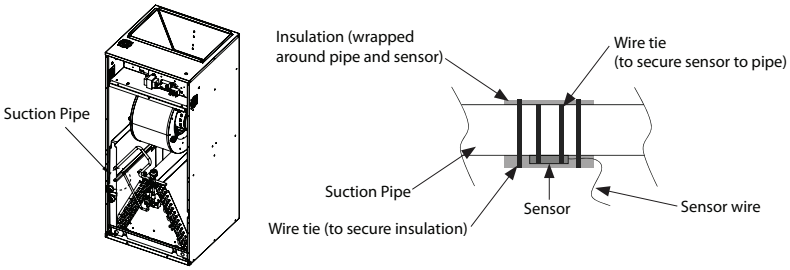
13. Strip ½" of the insulation on the end of each power wire.
14. Connect the black supply wire to the high voltage connection lug on the accessory heat kit breaker.
15. Connect the white supply wire to the other high voltage connection lug on the accessory heat kit breaker.

Wiring Work

16. Connect the green (ground) wire to the ground lug to the left of the accessory heat kit breakers and tighten the ground lug screw. Make sure to leave extra slack in the ground wire to allow service to the unit without disconnecting the ground wire. If the heat kit requires 2 circuits (dual circuit) , both circuit ground wires must be connected to a ground lug (dual circuit kits have two individual ground lugs).



17. Connect the six pin male plug on the electric heater assembly to the six pin female plug mounted at the bottom of the control assembly door.
18. Remove the wiring diagram from the accessory heat kit. Remove the paper that covers the adhesive back and place the electric heat wiring diagram over the wiring diagram located on the blower housing.
19. Route temperature sensor from the accessory electric heat kit to the lower section of the AHU cabinet. Attach the sensor to the bottom of the suction pipe as shown below with included wire ties.



20. Wrap included insulation around the sensor and secure with included wire ties.
21. Remove the breaker opening cover plate on the AHU door and secure the doors to the unit.

NOTE: The electric heat kits are equipped with either one or two circuit breakers. These circuit breakers protect the wiring inside of the AHU in the event of a short circuit. Additionally, these breakers provide a means of disconnecting the power to the unit. The circuit breakers in the AHU's are not meant to protect the branch circuit wiring between the furnace and the building's breaker panel. If sheathed cable is used, refer to NEC National Electrical Code (NFPA 70) or the Canadian Electrical Code, Part I (CSA C22.1) and local codes for additional requirements concerning supply circuit wiring. Electrical data can be found in page 21.

IMPORTANT - All installation on field wiring must be rated at 60°C or higher. Please refer to the wiring diagrams on the furnace or the tables this manual for more information. The 15kW and 20kW models may be connected to a single or dual branch circuit. Refer to the NEC National Electrical Code (NFPA 70) or the Canadian Electrical Code, Part I (CSA C22.1) and local codes for wiring material requirements.

Power supply connections

If the air handler has been installed prior to installing the electric heaters or if an older unit is being replaced, the supply power wires must be checked to make sure the wires are the proper sizes to handle the current load for the heaters. Refer to table below for correct wire size. If the supply power wire size is incorrect, new wires will need to be installed. Follow the instructions "Power supply wiring" on page 20 of these instructions for proper installation.

ELECTRICAL DATA																							
Indoor Unit Model	Electric Heater Data							Minimum Circuit Ampacity (MCA)				Maximum Overcurrent Protection (MOCP)				Minimum Wire Size (AWG)				Short-Circuit Current Rating	
				Amps 208V	Amps 208V	Amps 230V	Amps 230V	208V	208V	230V	230V	208V (3,4)	208V (3,4)	230V (3,4)	230V (3,4)	Circuit 1		Circuit 2		"SCCR"	
	Circuit Qty.	kW (208V)	kW (230V)	Circuit 1	Circuit 2	Circuit 1	Circuit 2	Circuit 1	Circuit 2	Circuit 1	Circuit 2	Circuit 1	Circuit 2	Circuit 1	Circuit 2	167°F (75°C) / 194°F (90°C)	140°F (60°C)	167°F (75°C) / 194°F (90°C)	140°F (60°C)	kA rms symmetrical	V maximum
SMALL CABINET-NOMINAL1.0, 1.5 & 2.0 TONS (0 To 5 Kw)																					
AC012BNZDCH	1	2.25	2.76	10.83	-	11.98	-	15.43	-	16.68	-	20.0	-	20.0	-	#12	#12	-	-	N/A	N/A
AC018BNZDCH	1	2.25	2.76	10.83	-	11.98	-	15.80	-	16.93	-	20.0	-	20.0	-	#12	#12	-	-	N/A	N/A
	1	3.76	4.59	18.06	-	19.97	-	24.83	-	26.91	-	30.0	-	30.0	-	#10	#10	-	-	N/A	N/A
AC024BNZDCH	1	2.25	2.76	10.83	-	11.98	-	16.70	-	17.71	-	20.0	-	20.0	-	#12	#12	-	-	N/A	N/A
	1	3.76	4.59	18.06	-	19.97	-	25.73	-	27.70	-	30.0	-	30.0	-	#10	#10	-	-	N/A	N/A
MEDIUM CABINET-NOMINAL 2.5, 3.0 TONS (0 To10 Kw)																					
AC030BNZDCH	1	3.75	4.59	18.03	-	19.97	-	26.30	-	28.22	-	30.0	-	30.0	-	#10	#10	-	-	N/A	N/A
	1	7.50	9.18	36.06	-	39.93	-	48.83	-	53.17	-	50.0	-	60.0	-	#6	#6	-	-	N/A	N/A
AC036BNZDCH	1	3.76	4.59	18.06	-	19.97	-	27.99	-	29.65	-	30.0	-	30.0	-	#10	#10	-	-	N/A	N/A
	1	7.51	9.18	36.11	-	39.93	-	50.56	-	54.61	-	60.0	-	60.0	-	#4	#4	-	-	N/A	N/A
LARGE CABINET-NOMINAL 4.0, 4.5, 5.0, 6.0 TONS (0 To 20 Kw)																					
AC042BNZDCH	1	3.76	4.59	18.06	-	19.97	-	27.47	-	29.39	-	30.0	-	30.0	-	#10	#10	-	-	N/A	N/A
	1	7.51	9.18	36.11	-	39.93	-	50.04	-	54.35	-	60.0	-	60.0	-	#4	#4	-	-	N/A	N/A
AC048BNZDCH	1	3.76	4.59	18.06	-	19.97	-	28.74	-	30.30	-	30.0	-	35.0	-	#10	#6	-	-	N/A	N/A
	1	7.51	9.18	36.11	-	39.93	-	51.31	-	55.26	-	60.0	-	60.0	-	#4	#4	-	-	N/A	N/A
	2	11.27	13.78	18.06	36.11	19.97	39.93	22.57	51.31	24.96	55.26	30.0	60.0	30.0	60.0	#10	#4	#10	#4	5	240

1. Rated Motor Amps (at DOE External Static Rating Point)
2. Fuse or HACR Breaker
3. Maximum Overcurrent Device, Overcurrent Protection Installed On Breaker Models Are Sized Per MCA
   - To prevent damage, carefully insert the electric heating assembly through the rectangular opening in the front of the discharge opening so the heat element support rod is seated into the hole on the back side of the discharge opening.
   - After installing the electric heater, a one inch clearance must be maintained on all sides of the supply air duct and/or plenum for a minimum of thirty six inches from the air handler discharge opening.

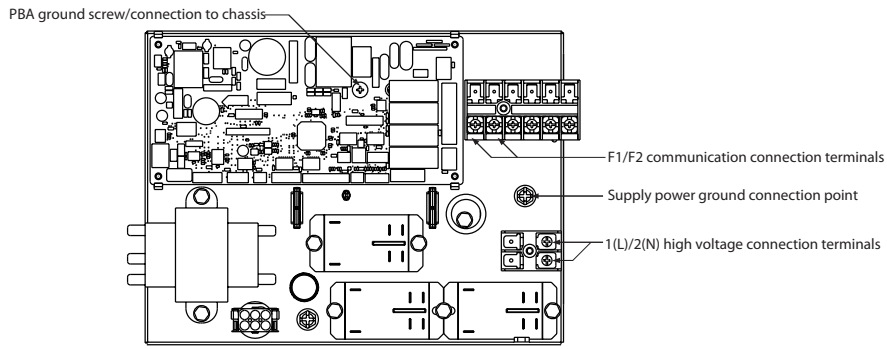
Wiring Work

Communication wiring connections

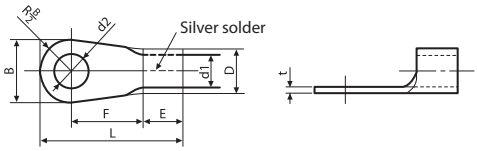
- Communication wires connect through side of air handler.
- Use an approved connector at the cabinet of the unit to prevent pulling or shorting of control wires.

> **ATTENTION**
> - Control wire must be rated for 600V minimum.
> - Control wire insulation must be rated for temperatures up to 90°C.

1. Insert the wires through the holes of the right side on the top casing and through the cable connectors.
2. Connect the communication wires to the F1/F2 connection terminal with compressed ring terminals.
3. Connect F3, F4 (for communication) when installing the wired remote control.



Selecting compressed ring terminal



Nominal dimensions for cable [inch²(mm²)]	Nominal dimensions for screw [inch(mm)]	B		D		d1		E	F	L	d2		t
		Standard dimension [inch(mm)]	Allowance [inch(mm)]	Standard dimension [inch(mm)]	Allowance [inch(mm)]	Standard dimension [inch(mm)]	Allowance [inch(mm)]	Min. [inch(mm)]	Min. [inch(mm)]	Max. [inch(mm)]	Standard dimension [inch(mm)]	Allowance [inch(mm)]	Min. [inch(mm)]
0.0023 (1.5)	0.16(4)	0.26(6.6)	±0.0079 (±0.2)	0.13(3.4)	+0.012(+0.3) -0.0079 (-0.2)	0.067(1.7)	±0.0079 (±0.2)	0.16(4.1)	0.24(6.0)	0.63(16.0)	0.17(4.3)	+0.0079 (+0.2) 0(0)	+0.0079 (+0.2) 0(0)
	0.16(4)	0.31(8.0)											
0.0039 (2.5)	0.16(4)	0.26(6.6)	±0.0079 (±0.2)	0.17(4.2)	+0.012(+0.3) -0.0079 (-0.2)	0.091(2.3)	±0.0079 (±0.2)	0.24(6.0)	0.24(6.0)	0.69(17.5)	0.17(4.3)	+0.0079 (+0.2) 0(0)	+0.0079 (+0.2) 0(0)
	0.16(4)	0.33(8.5)											
0.0062 (4.0)	0.16(4.0)	0.37(9.5)	±0.0079 (±0.2)	0.22(5.6)	+0.012(+0.3) -0.0079 (-0.2)	0.134(3.4)	±0.0079 (±0.2)	0.24(6.0)	0.24(6.0)	0.79(20.0)	0.17(4.3)	+0.0079 (+0.2) 0(0)	+0.0079 (+0.2) 0(0)

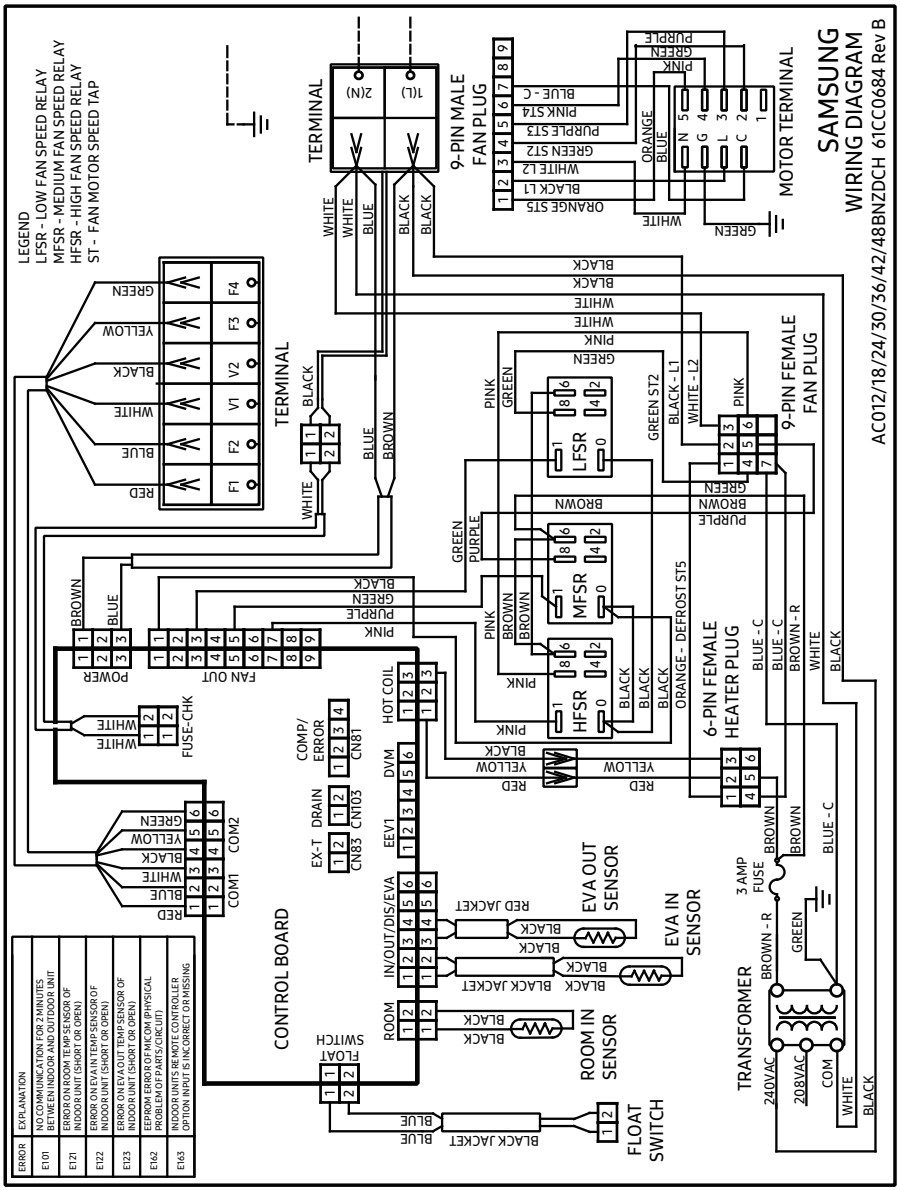
CAUTION

- Select the power cable in accordance with relevant local and national regulations.
- Wire size must comply with local and national code.
- Power supply cords of parts of appliances for outdoor use shall not be lighter than polychloroprene sheathed flexible cord. (Code designation H05RN-F) • You should connect the power cable into the power cable terminal and fasten it with a clamp.
- The unbalanced power must be maintained within 10 % of supply rating among whole indoor units.
- If the power is unbalanced greatly, it may shorten the life of the condenser. If the unbalanced power is exceeded over 10% of supply rating, the indoor unit is protected, stopped and the error mode indicates.
- To protect the product from water and possible shock, you should keep the power cable and the connection cord of the indoor and outdoor units in conduit.
- You must keep the cable in a protective conduit.
- Keep distances of 2" (50 mm) or more between power cable and communication cable.
- Maximum length of power cables are decided within 10% of power drop. If it exceeds, you must consider another power supplying method.
- Use round pressure/crimp terminal for connections to the power terminal block.
- For wiring, use the designated power cable and connect it firmly, then secure to prevent outside pressure being exerted on the terminal board.
- Use an appropriate screwdriver for tightening the terminal screws.
- A screwdriver with a small head will strip the head and make proper tightening impossible.
- Over-tightening the terminal screws may break them.
- See the table below for tightening torque for the terminal screws.

	Tightening torque	
	N•m	lbf•ft
M3.5	0.8~1.2	0.59~0.89
M4	1.2~1.8	0.89~1.33

Wire Diagram

AC012BNZDCH, AC018BNZDCH, AC024BNZDCH, AC030BNZDCH, AC036BNZDCH, AC042BNZDCH, AC048BNZDCH



Selecting motor speed

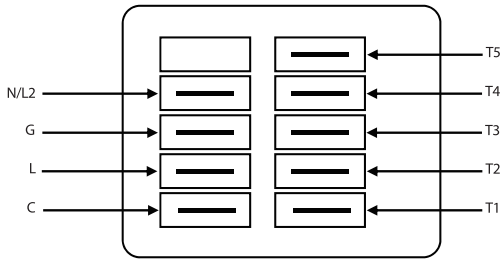
Selecting the Constant Torque Blower Speed

This air handler uses a Constant Torque high efficiency motor. This motor operates on 240 VAC. The motor speed taps are 24 VAC, 0.03 amps, 60 Hz, 1 PH. The speed taps can be adjusted according to installation needs. Table 4 shows the motor lead connection labeling and the connection denitions. See blower tables in later section for airow data.

Total 24 VAC circuit amps are 0.14 amps.

Change Motor Speeds

1. Turn off all electrical supply circuits to the air handler at the main service (House Circuit Breaker) panel.
2. Remove the blower door and switch air handler circuit breaker(s) to "OFF".
3. Disconnect the wire from the isolation relay terminal and reconnect the desired wire to the terminal. The RED wire is high speed. The VIOLET wire is mid speed. The GREEN wire is low speed. The ORANGE wire is electric heat high fan speed. The ORANGE wire must be connected to a speed tap that will provide sufficient airflow for the size of the electric heat kit. Refer to the heat kit installation manuals for minimum CFM for electric heat kit activation.
4. Turn the circuit breakers on and reinstall air handler blower door.
5. Turn on all electrical supply circuits to the air handler at the main service (House Circuit Breaker) panel.
6. When black wire(Standard) is required to be connected to tap 5, the orange wire which originally is connected to tap 5 can be connected to any tap except tap 5.



Terminal	Connection	Default speed tap settings
C	Speed tap common - 24 VAC common	
L	Supply voltage - 240 VAC Line 1	
G	Ground connection	
N/L2	Supply voltage - 240 VAC Line 2	
T1	Low speed tap - 24 VAC input	
T2	Medium-low speed tap - 24 VAC input	"Low" speed
T3	Medium speed tap - 24 VAC input	"Mid" speed
T4	Medium-high speed tap - 24 VAC input	"High" speed
T5	High speed tap - 24 VAC input	High speed for electric heat

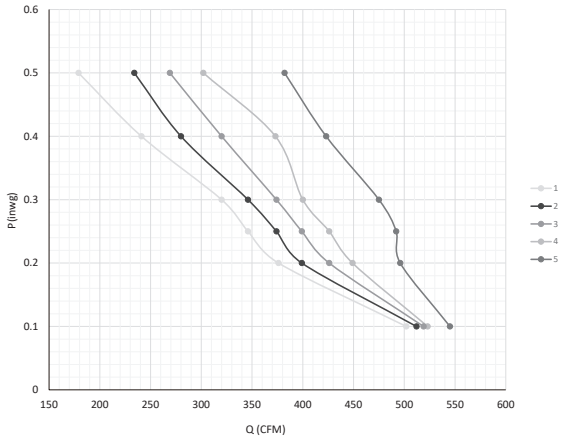
Motor control/voltage taps

Blower CFM tables

AC012BNZDCH

HP : 1/3 Default motor taps : High/Mid/Low = 4/3/2.

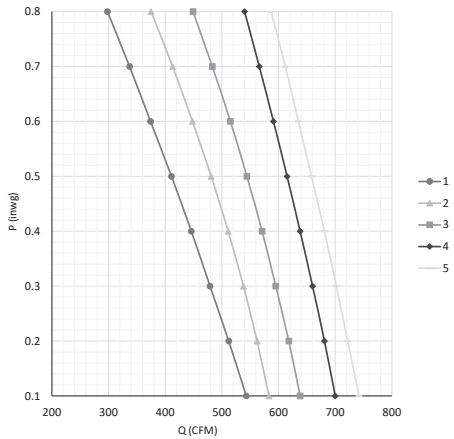
Motor Tap	P(inwg)	CFM	Motor Tap	P(inwg)	CFM
1	0.1	502	4	0.1	523
	0.2	376		0.2	449
	0.25	346		0.25	426
	0.3	320		0.3	400
	0.4	241		0.4	373
	0.5	179		0.5	302
2	0.1	512	5	0.1	545
	0.2	399		0.2	496
	0.25	374		0.25	492
	0.3	346		0.3	475
	0.4	280		0.4	423
	0.5	234		0.5	382
3	0.1	519			
	0.2	426			
	0.25	399			
	0.3	374			
	0.4	320			
	0.5	269			



AC018BNZDCH

HP : 1/3 Default motor taps : High/Mid/Low = 4/3/2.

Motor Tap	P(inwg)	CFM	Motor Tap	P(inwg)	CFM
1	0.1	543	4	0.1	700
	0.2	512		0.2	681
	0.3	479		0.3	660
	0.4	446		0.4	638
	0.5	411		0.5	615
	0.6	374		0.6	591
	0.7	337		0.7	566
	0.8	298		0.8	540
2	0.1	583	5	0.1	742
	0.2	562		0.2	722
	0.3	538		0.3	702
	0.4	511		0.4	681
	0.5	481		0.5	658
	0.6	448		0.6	635
	0.7	413		0.7	612
	0.8	375		0.8	587
3	0.1	638			
	0.2	618			
	0.3	595			
	0.4	571			
	0.5	544			
	0.6	515			
	0.7	483			
	0.8	449			

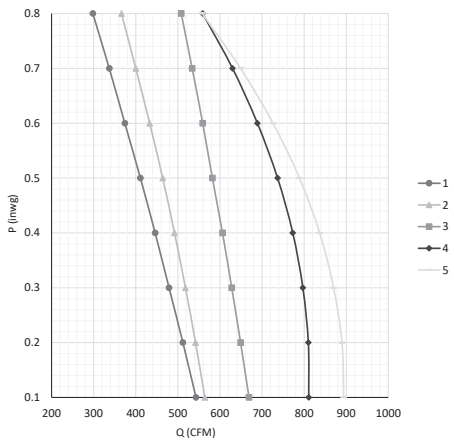


Blower CFM tables

AC024BNZDCH

HP : 1/3 Default motor taps : High/Mid/Low = 4/3/2.

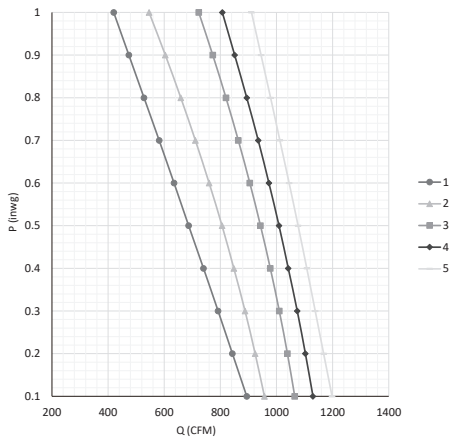
Motor Tap	P(inwg)	CFM	Motor Tap	P(inwg)	CFM
1	0.1	543	4	0.1	811
	0.2	512		0.2	810
	0.3	479		0.3	797
	0.4	446		0.4	773
	0.5	411		0.5	737
	0.6	374		0.6	689
	0.7	337		0.7	630
	0.8	298		0.8	559
2	0.1	564	5	0.1	894
	0.2	542		0.2	890
	0.3	518		0.3	870
	0.4	492		0.4	837
	0.5	464		0.5	789
	0.6	433		0.6	726
	0.7	400		0.7	649
	0.8	366		0.8	558
3	0.1	669			
	0.2	649			
	0.3	628			
	0.4	606			
	0.5	582			
	0.6	559			
	0.7	534			
	0.8	508			



AC030BNZDCH

HP : 1/2 Default motor taps : High/Mid/Low = 4/3/2.

Motor Tap	P(inwg)	CFM	Motor Tap	P(inwg)	CFM
1	0.1	894	4	0.1	1130
	0.2	843		0.2	1103
	0.3	792		0.3	1074
	0.4	740		0.4	1042
	0.5	687		0.5	1009
	0.6	635		0.6	973
	0.7	582		0.7	935
	0.8	528		0.8	894
	0.9	474		0.9	851
	1	420		1	807
2	0.1	957	5	0.1	1198
	0.2	924		0.2	1168
	0.3	888		0.3	1138
	0.4	848		0.4	1108
	0.5	806		0.5	1077
	0.6	760		0.6	1045
	0.7	711		0.7	1012
	0.8	659		0.8	979
	0.9	604		0.9	945
	1	546		1	911
3	0.1	1065			
	0.2	1039			
	0.3	1010			
	0.4	978			
	0.5	943			
	0.6	905			
	0.7	864			
	0.8	820			
	0.9	773			
	1	723			

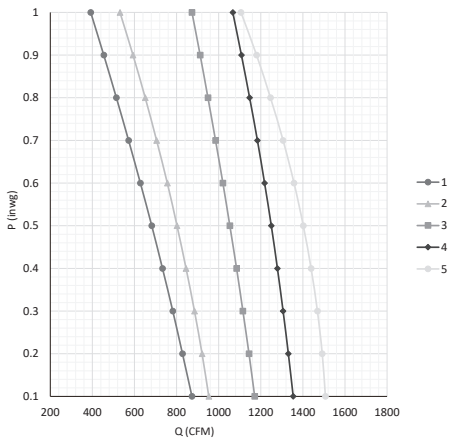


Blower CFM tables

AC036BNZDCH

HP : 1/2Default motor taps:High / Mid /Low = 4/3/2.

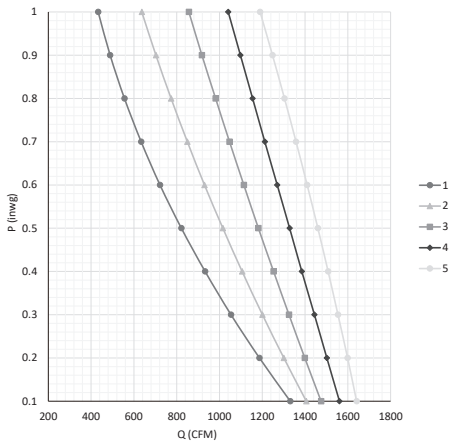
Motor Tap	P(inwg)	CFM	Motor Tap	P(inwg)	CFM
1	0.1	873	4	0.1	1354
	0.2	828		0.2	1331
	0.3	782		0.3	1306
	0.4	733		0.4	1279
	0.5	682		0.5	1250
	0.6	628		0.6	1218
	0.7	572		0.7	1184
	0.8	514		0.8	1147
	0.9	454		0.9	1108
	1	392		1	1067
2	0.1	953	5	0.1	1507
	0.2	921		0.2	1492
	0.3	885		0.3	1469
	0.4	845		0.4	1439
	0.5	802		0.5	1402
	0.6	756		0.6	1358
	0.7	705		0.7	1306
	0.8	651		0.8	1246
	0.9	593		0.9	1180
	1	531		1	1106
3	0.1	1171			
	0.2	1144			
	0.3	1115			
	0.4	1085			
	0.5	1053			
	0.6	1020			
	0.7	985			
	0.8	949			
	0.9	912			
	1	873			



AC042BNZDCH

HP : 1/2Default motor taps:High / Mid /Low = 4/3/2.

Motor Tap	P(inwg)	CFM	Motor Tap	P(inwg)	CFM
1	0.1	1331	4	0.1	1561
	0.2	1187		0.2	1502
	0.3	1054		0.3	1444
	0.4	933		0.4	1385
	0.5	822		0.5	1328
	0.6	722		0.6	1270
	0.7	634		0.7	1212
	0.8	556		0.8	1155
	0.9	489		0.9	1098
	1	433		1	1041
2	0.1	1406	5	0.1	1641
	0.2	1301		0.2	1599
	0.3	1201		0.3	1554
	0.4	1106		0.4	1508
	0.5	1016		0.5	1460
	0.6	930		0.6	1410
	0.7	850		0.7	1358
	0.8	774		0.8	1304
	0.9	703		0.9	1248
	1	637		1	1190
3	0.1	1475			
	0.2	1399			
	0.3	1325			
	0.4	1253			
	0.5	1182			
	0.6	1114			
	0.7	1047			
	0.8	982			
	0.9	918			
	1	857			

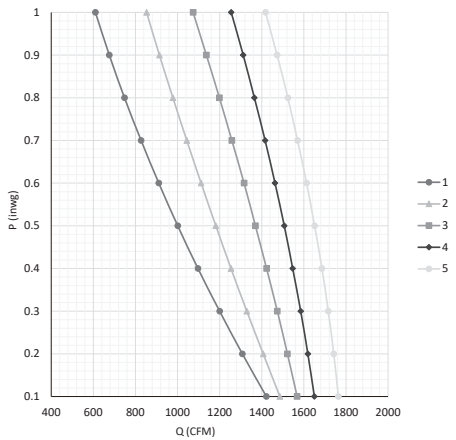


Blower CFM tables

AC048BNZDCH

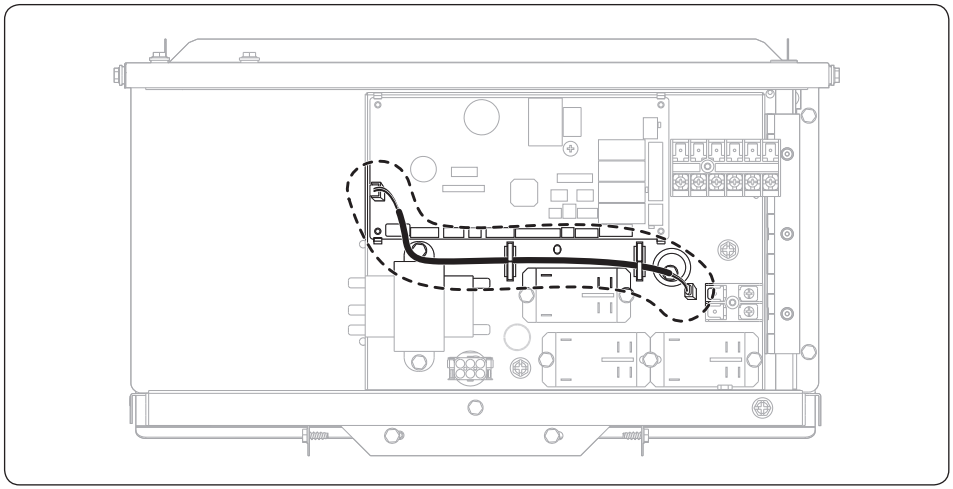
HP : 3/4Default motor taps:High / Mid /Low = 4/3/2.

Motor Tap	P(inwg)	CFM	Motor Tap	P(inwg)	CFM
1	0.1	1422	4	0.1	1650
	0.2	1308		0.2	1619
	0.3	1200		0.3	1585
	0.4	1097		0.4	1547
	0.5	1001		0.5	1507
	0.6	911		0.6	1463
	0.7	827		0.7	1416
	0.8	748		0.8	1365
	0.9	676		0.9	1312
	1	610		1	1255
2	0.1	1486	5	0.1	1764
	0.2	1407		0.2	1742
	0.3	1329		0.3	1716
	0.4	1254		0.4	1686
	0.5	1182		0.5	1651
	0.6	1112		0.6	1613
	0.7	1044		0.7	1570
	0.8	978		0.8	1524
	0.9	914		0.9	1473
	1	853		1	1418
3	0.1	1568			
	0.2	1522			
	0.3	1474			
	0.4	1423			
	0.5	1370			
	0.6	1316			
	0.7	1258			
	0.8	1199			
	0.9	1137			
	1	1074			



Installation

Connecting External Float switch



1. Connect the external float switch to the 2PIN wire (BLK).
2. If the connector types of the external float switch and 2PIN wire do not match, cut off the end of the 2PIN wire before connecting the wire to the external float switch.
3. Set SEG8 for the Install option (02 mode) to '1' or '2'. (Refer to "Setting an indoor unit installation option")

NOTE

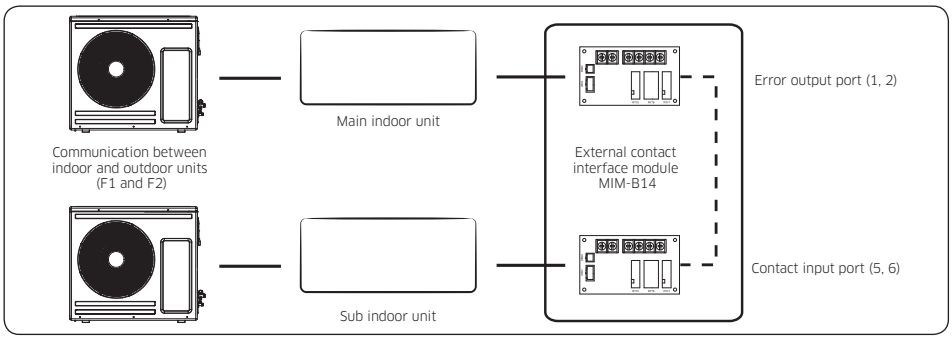
- The External Floating switch is not sold separately by Samsung.

Emergency Temperature Output (ETO) function

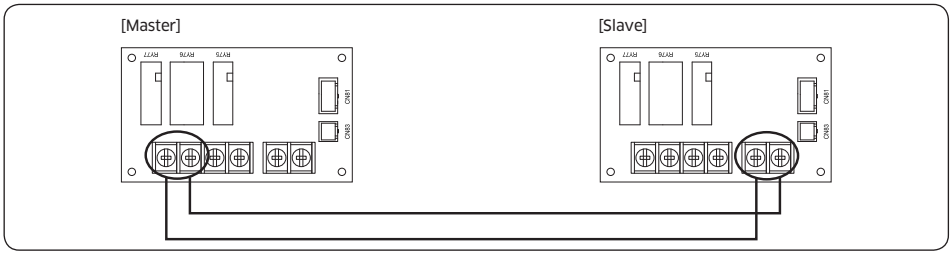
Emergency Temperature Output (ETO) function (for the multi system, this function is not supported.)

CAUTION

- In order to deploy the ETO function, the MIM-B14, an external contact interface module, must be installed in each indoor unit.
  - The ETO is a concept of emergency operation of indoor units. If the indoor unit 1 (main indoor unit) stops because of an error, the indoor unit 2 (sub indoor unit) starts to operate.
  - Basically, the indoor unit 2 operates in the previous mode. [For the first time operation, it starts in 24 °C Auto mode.]
  - To set more detailed operation conditions for the indoor unit 2, use the S-net Pro.



1. Main indoor unit
   - Disable the external contact control (Default).
   - Connect the S-net pro2 to F1 and F2.
   - Enable the ETO function and set the temperature and time.
2. Sub indoor unit
   - (Required) Enable the external contact control (with the installation option SEG14 - Reverse Control).
   - Connect the S-net pro2 to F1 and F2.
   - Enable the entrance control and set the mode, set temperature, and fan speed.



ETO operation specifications

1. Main indoor unit
   - Based on the external contact control settings, the main indoor unit decides whether to generate output when an error (indoor unit stop) occurs.
   - Based on the ETO settings, the main indoor unit decides whether to generate output according to the temperature and time conditions.
2. Sub indoor unit
   - Based on the entrance control settings, the sub indoor unit decides the mode, set temperature, and fan speed when contact inputs are given.

	Enable of ETO	Enable of external contact	Error port output
Main indoor unit	X	X	N/A
	X	O	Output due to an error
	O	X	Output by ETO entrance conditions (temperature / time / error occurrence)
	O	O	Output by ETO entrance conditions (temperature / time / error occurrence) ※ Ready to control the main contact input

	Enable of entrance control	Enable of external contact	Operation when outputting Main
Sub indoor unit	X	X	N/A
	X	O	On with the previous operation conditions
	O	O	On with the entrance control enabled

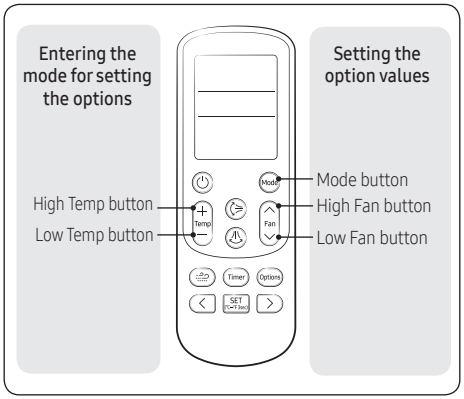
Installation Procedure

Setting the indoor unit addresses and the installation options with wireless remote controller

You cannot set both of the indoor unit addresses and the installation options in a batch: set both of them respectively.
Receiver & display unit must be connected to the indoor unit to set options with the wireless remote control.

Common steps for setting the addresses and options

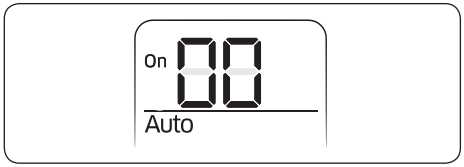
Remote controls



NOTE

- The remote control display and buttons may vary depending on the model.

1. Enter the mode for setting the options:
   a. Remove the batteries from the remote control, and then insert them again.
   b. While holding down the (High Temp) and (Low Temp) buttons simultaneously, insert the batteries into the remote control.
   c. Make sure that you are entered to the mode for setting the options:



2. Set the option values.

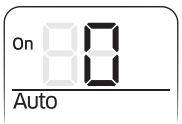
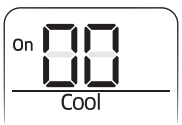
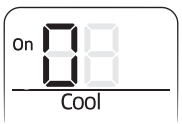
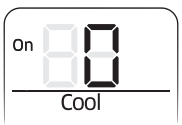
CAUTION

- The total number of available options are 24: SEG1 to SEG24.
- Because SEG1, SEG7, SEG13, and SEG19 are the page options used by the previous remote control models, the modes to set values for these options are skipped automatically.
- Set a 2-digit value for each option pair in the following order: SEG2 and SEG3 → SEG4 and SEG5 → SEG6 and SEG8 → SEG9 and SEG10 → SEG11 and SEG12 → SEG14 and SEG15 → SEG16 and SEG17 → SEG18 and SEG20 → SEG21 and SEG22 → SEG23 and SEG24

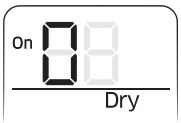
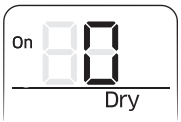
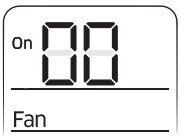
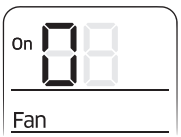
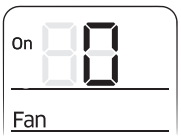
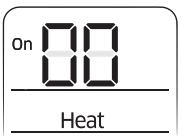
SEG1	SEG2	SEG3	SEG4	SEG5	SEG6
0	X	X	X	X	X
SEG7	SEG8	SEG9	SEG10	SEG11	SEG12
1	X	X	X	X	X
SEG13	SEG14	SEG15	SEG16	SEG17	SEG18
2	X	X	X	X	X
SEG19	SEG20	SEG21	SEG22	SEG23	SEG24
3	X	X	X	X	X

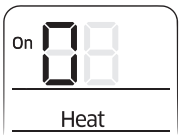
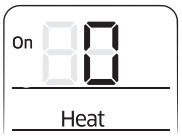
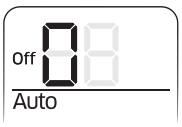
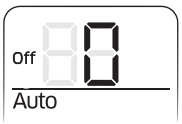
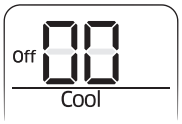
On (SEG1 to SEG12)	Off (SEG13 to SEG24)
	

Take the steps presented in the following table:

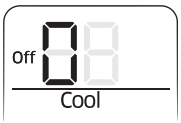
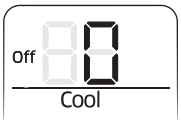
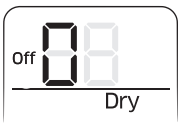
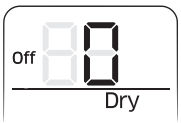
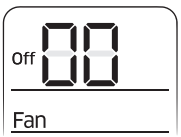
Steps	Remote control display
1. Set the SEG2 and SEG3 values: a. Set the SEG2 value by pressing the Fan (Low Fan) button repeatedly until the value you want to set appears on the remote control display. b. Set the SEG3 value by pressing the Fan (High Fan) button repeatedly until the value you want to set appears on the remote control display. When you press the Fan (Low Fan) or Fan (High Fan) button, values appear in the following order: 0 → 1 → ··· E → F	 SEG2  SEG3
2. Press the Mode (Mode) button. **Cool** and **On** appear on the remote control display.	
3. Set the SEG4 and SEG5 values: a. Set the SEG4 value by pressing the Fan (Low Fan) button repeatedly until the value you want to set appears on the remote control display. b. Set the SEG5 value by pressing the Fan (High Fan) button repeatedly until the value you want to set appears on the remote control display. When you press the Fan (Low Fan) or Fan (High Fan) button, values appear in the following order: 0 → 1 → ··· E → F	 SEG4  SEG5
4. Press the Mode (Mode) button. **Dry** and **On** appear on the remote control display.	

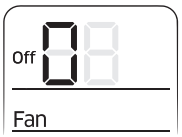
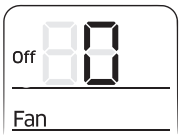
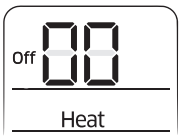
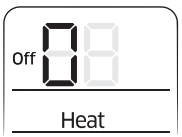
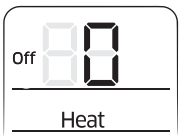
Installation Procedure

Steps	Remote control display
5. Set the SEG6 and SEG8 values: a. Set the SEG6 value by pressing the Fan (Low Fan) button repeatedly until the value you want to set appears on the remote control display. b. Set the SEG8 value by pressing the Fan (High Fan) button repeatedly until the value you want to set appears on the remote control display. When you press the Fan (Low Fan) or Fan (High Fan) button, values appear in the following order: 0 → 1 → ··· E → F	 SEG6  SEG8
6. Press the Mode (Mode) button. **Fan** and **On** appear on the remote control display.	
7. Set the SEG9 and SEG10 values: a. Set the SEG9 value by pressing the Fan (Low Fan) button repeatedly until the value you want to set appears on the remote control display. b. Set the SEG10 value by pressing the Fan (High Fan) button repeatedly until the value you want to set appears on the remote control display. When you press the Fan (Low Fan) or Fan (High Fan) button, values appear in the following order: 0 → 1 → ··· E → F	 SEG9  SEG10
8. Press the Mode (Mode) button. **Heat** and **On** appear on the remote control display.	

Steps	Remote control display
9. Set the SEG11 and SEG12 values: a. Set the SEG11 value by pressing the Fan (Low Fan) button repeatedly until the value you want to set appears on the remote control display. b. Set the SEG12 value by pressing the Fan (High Fan) button repeatedly until the value you want to set appears on the remote control display. When you press the Fan (Low Fan) or Fan (High Fan) button, values appear in the following order: 0 → 1 → ··· E → F	 SEG11  SEG12
10. Press the Mode (Mode) button. **Auto** and **Off** appear on the remote control display.	
11. Set the SEG14 and SEG15 values: a. Set the SEG14 value by pressing the Fan (Low Fan) button repeatedly until the value you want to set appears on the remote control display. b. Set the SEG15 value by pressing the Fan (High Fan) button repeatedly until the value you want to set appears on the remote control display. When you press the Fan (Low Fan) or Fan (High Fan) button, values appear in the following order: 0 → 1 → ··· E → F	 SEG14  SEG15
12. Press the Mode (Mode) button. **Cool** and **Off** appear on the remote control display.	

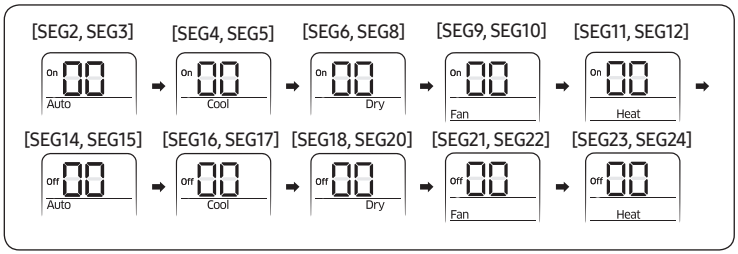
Installation Procedure

Steps	Remote control display
13. Set the SEG16 and SEG17 values: a. Set the SEG16 value by pressing the Fan (Low Fan) button repeatedly until the value you want to set appears on the remote control display. b. Set the SEG17 value by pressing the Fan (High Fan) button repeatedly until the value you want to set appears on the remote control display. When you press the Fan (Low Fan) or Fan (High Fan) button, values appear in the following order: 0 → 1 → ··· E → F	 SEG16  SEG17
14. Press the Mode (Mode) button. **Dry** and **Off** appear on the remote control display.	
15. Set the SEG18 and SEG20 values: a. Set the SEG18 value by pressing the Fan (Low Fan) button repeatedly until the value you want to set appears on the remote control display. b. Set the SEG20 value by pressing the Fan (High Fan) button repeatedly until the value you want to set appears on the remote control display. When you press the Fan (Low Fan) or Fan (High Fan) button, values appear in the following order: 0 → 1 → ··· E → F	 SEG18  SEG20
16. Press the Mode (Mode) button. **Fan** and **Off** appear on the remote control display.	

Steps	Remote control display
17. Set the SEG21 and SEG22 values: a. Set the SEG21 value by pressing the Fan (Low Fan) button repeatedly until the value you want to set appears on the remote control display. b. Set the SEG22 value by pressing the Fan (High Fan) button repeatedly until the value you want to set appears on the remote control display. When you press the Fan (Low Fan) or Fan (High Fan) button, values appear in the following order: 0 → 1 → ··· E → F	 SEG21  SEG22
18. Press the Mode (Mode) button. **Heat** and **Off** appear on the remote control display.	
19. Set the SEG23 and SEG24 values: a. Set the SEG23 value by pressing the Fan (Low Fan) button repeatedly until the value you want to set appears on the remote control display. b. Set the SEG24 value by pressing the Fan (High Fan) button repeatedly until the value you want to set appears on the remote control display. When you press the Fan (Low Fan) or Fan (High Fan) button, values appear in the following order: 0 → 1 → ··· E → F	 SEG23  SEG24

Installation Procedure

3. Check whether the option values that you have set are correct by pressing the (Mode) button repeatedly



4. Save the option values into the indoor unit:

   Point the remote control to the remote control sensor on the indoor unit and then press the (Power) button on the remote control twice. Make sure that this command is received by the indoor unit. When it is successfully received, you can hear a short sound from the indoor unit. If the command is not received, press the (Power) button again.

5. Check whether the air conditioner operates in accordance with the option values you have set:

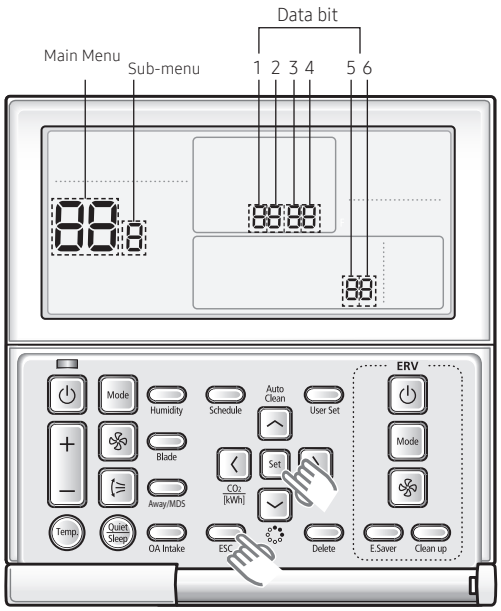
   a. Reset the indoor or outdoor unit.
      - Indoor unit : Press the SET (Set) and Fan (Low Fan) buttons on the remote control simultaneously for 4 seconds.
      - Outdoor unit : Press the K3 button.

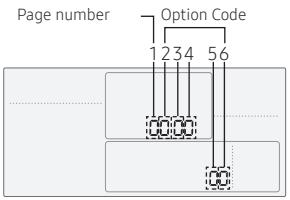
   b. Remove the batteries from the remote control, insert them again, and then press the (Power) button on the remote control.

Installation Procedure

Setting the indoor unit option code with wired remote controller

In order to set the indoor unit option code use the wired remote controller and follow the directions below.





SEG1	SEG2	SEG3	SEG4	SEG5	SEG6
0	✳	✳	✳	✳	✳

Page number

SEG7	SEG8	SEG9	SEG10	SEG11	SEG12
1	✳	✳	✳	✳	✳

Page number

SEG13	SEG14	SEG15	SEG16	SEG17	SEG18
2	✳	✳	✳	✳	✳

Page number

SEG19	SEG20	SEG21	SEG22	SEG23	SEG24
3	✳	✳	✳	✳	✳

Page number

Press the Set and ESC buttons at the same time for more than 3 seconds and then a Main menu will be displayed.

1. Press the ∧ / ∨ button to select 4 and then press > button to enter a Sub-menu setting screen.
2. Press the ∧ / ∨ button to select 2 and then press > button to enter a Indoor unit option code setting screen.

NOTE

- The first digit represents the page number and the remaining five digits are option codes.
- The option code which is currently setting will flicker.

3. Press the ∧ / ∨ button to set the option code in order. Press > button to go to the next page.
4. Press the Set button to save and complete the option setting.
5. Press the ESC button to exit to normal mode.

NOTE

Press the ESC button anytime during setup to exit without setting.

Installation Procedure

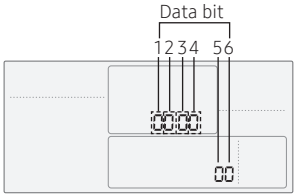
CAUTION

- Option code will not be applied if you don't press the Set
- Setting indoor unit option code is only possible in Master wired remote controller. You can only check the indoor unit option code in Slave wired remote controller.
- Setting indoor unit option code is possible when one indoor unit is connected. If more than 2 indoor units are connected, you can only check the Master indoor unit option code.

Set the indoor unit address and installation option with remote controller option. Set the each option separately since you cannot set the ADDRESS setting and indoor unit installation setting option at the same time. You need to set twice when setting indoor unit address and installation option.

Setting an indoor unit address with wired remote controller

1. Press the Set and ESC buttons at the same time for more than 3 seconds and then a Main menu will be displayed.
2. Press the ^ / v button to select 4 and then press > button to enter a Sub-menu setting screen.
3. Press the ^ / v button to select and then press > button to enter a Indoor unit option code setting screen.



NOTE

- The Main/RMC Address which is currently setting will flicker.
- Data bit 1 and 2 present Indoor unit main address checking.
- Data bit 3 and 4 present Indoor unit main address setting(outdoor unit reset is needed to set).

4. Press the ^ / v button to set the Indoor unit Main/RMC Address.
5. Press the Set button to save and complete the option setting.
6. Press the ESC button to exit to normal mode.

NOTE

- Press the ESC button to save and complete the option setting.
- Address will not be applied if you don't press Set button.
- Setting Main/RMC Address of an Indoor unit is available only with a master wired remote controller.

Setting an indoor unit installation option with wired remote controller

In order to check and set the indoor unit installation option code use the wired remote controller and follow the directions below.

1. Press the Set and ESC buttons at the same time for more than 3 seconds and then a Main menu will be displayed.
2. Press the ∧ / ∨ button to select 4 and then press › button to enter a Sub-menu setting screen.
3. Press the ∧ / ∨ button to select 3 and then press › button to enter a Indoor unit installation option code setting screen.

NOTE

- The first digit represents the page number and the remaining five digits are installation option.
- The total option codes are 24 digits. You can set six digits at a time and it is distinguished by page number (0, 1, 2, 3).

4. Press the ∧ / ∨ button to set the installation option code in order. Press › button to go to the next page.
5. Press the Set button to save and complete the option setting.
6. Press the ESC button to exit to normal mode.

NOTE

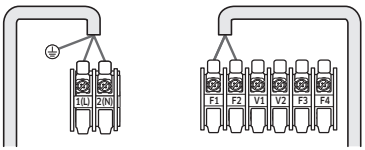
- Press ESC button anytime during setup to exit without setting.
- Option code will not be applied if you don't press Set button.
- Setting Installation option code is available only with a master wired remote controller.
- Setting Installation option code is available when there is one on one connection between a wired remote controller and an indoor unit.

Setting the indoor unit addresses

Option No. for an indoor unit address: 0AXXXX-1XXXXX-2XXXXX-3XXXXX

Before installing an indoor unit, be sure to set an address for the indoor unit by taking the following steps:

1. Make sure that the power is supplied to the indoor unit. If the indoor unit is not plugged in, it must include a power supply.



2. Set an address for each indoor unit using the remote control, according to your air conditioning system plan, by referring to the following table and by following the steps in **"Common steps for setting the addresses and options"** on page **40**.
   - The indoor unit addresses (main and RMC addresses) are set to 0A0000-100000-200000-300000 by default.
   - If indoor units and outdoor units match 1:1, you don't need to set the main address because it is automatically set by the outdoor unit.

Installation Procedure

- If you are using on or off controller, set RMC address.

Option	SEG1		SEG2		SEG3		SEG4	SEG5		SEG6	
Function	Page		Mode		Setting main address			Indoor unit number		Indoor unit number	
Indication and details	Indication	Details	Indication	Details	Indication	Details	Reserved	Indication	Details	Indication	Details
	0		A		0	No main address		0 to 1	Tens digit	0 to 9	Units digit
					1	Main address setting mode					

Option	SEG7		SEG8	SEG9		SEG10	SEG11		SEG12	
Function	Page			Setting RMC address			Group channel (x16)		Group address	
Indication and details	Indication	Details	Reserved	Indication	Details	Reserved	Indication	Details	Indication	Details
	1			0	No RMC address		RMC1	0 to 2	RMC2	0 to F
				1	RMC address setting mode					

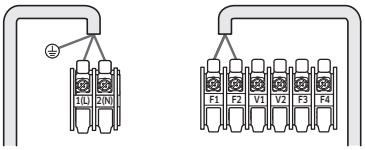
CAUTION

- The main address must be set to a value in the range 0 to 15. If you set other values, communication error will occur.
- If any of SEG5 and SEG6 is set to a value in the range A to F, the main address of the indoor unit does not change.
- If SEG3 is set to 0, the indoor unit maintains the existing main address even if SEG6 is set to a new value.
- If SEG9 is set 0, the indoor unit maintains the existing RMC address even if SEG11 and SEG12 are set to new values.

Setting the installation options in a batch

Option No. for an indoor unit address: 02XXXX-1XXXXX-2XXXXX-3XXXXX

1 Make sure that the power is supplied to the indoor unit. If the indoor unit is not plugged in, it must include a power supply.



2 Set the installation options of indoor units, by referring to the following table and by following the steps in **"Common steps for setting the addresses and options"** on page **40**.

- The installation options of indoor units are set to 020010-100000-200000-300000 by default.
- The SEG20 option, Individual control with remote control, allows you to control multiple indoor units individually by using the remote control.

Installation Procedure

Option	SEG 1		SEG 2		SEG 3	SEG 4			SEG 5		SEG 6
Function	Page		Mode			Use of external room temperature sensor / Minimizing fan operation when thermostat is off [1]			Central control		
						Indication	Details				
	Indication	Details	Indication	Details			Use of external room temperature sensor	Minimizing fan operation when thermostat is off	Indication	Details	
Indication and details	0		2		Reserved	0	Disuse	Disuse	0	Disuse	Reserved
						1	Use	Disuse			
						2	Disuse	Use(Heating)			
						3	Use	Use(Heating)			
						4	Disuse	Use(Cooling)			
						5	Use	Use(Cooling)	1	Use	
						6	Disuse	Use (Cooling/ Heating)			
						7	Use	Use (Cooling/ Heating)			
						8	Disuse	Use (Cooling Ultra low speed)			
						9	Use	Use (Cooling Ultra low speed)			
						A	Disuse	Use (Heating/ Cooling Ultra low speed)			
						B	Use	Use (Heating/ Cooling Ultra low speed)			

Option	SEG 7		SEG 8		SEG 9		SEG 10		SEG 11			SEG 12
Function	Page		Use of drain pump		Use of Hot Coil		Use of Hot auxiliary heater		Controller variables for auxiliary heater			
	Indication	Details	Indication	Details	Indication	Details	Indication	Details	Indication	Details		
										Set temperature for auxiliary heat on	Time delay for auxiliary heat on	
Indication and details	1		0	Disuse	0	Disuse	0	Disuse	0	No temperature offset	No delay	Reserved
									1	No temperature offset	10 minutes	
									2	No temperature offset	20 minutes	
									3	2.7°F(1.5°C)	No delay	
			1	Use			1	Use	4	2.7°F(1.5°C)	10 minutes	
									5	2.7°F(1.5°C)	20 minutes	
									6	5.4°F(3°C)	No delay	
					1	Use			7	5.4°F(3°C)	10 minutes	
									8	5.4°F(3°C)	20 minutes	
									9	8.1°F(4.5°C)	No delay	
			2	Use with 3 minute delay			2	Use (Heater time delay)	A	8.1°F(4.5°C)	10 minutes	
									B	8.1°F(4.5°C)	20 minutes	
									C	10.8°F(6°C)	No delay	
									D	10.8°F(6°C)	10 minutes	
									E	10.8°F(6°C)	20 minutes	

Installation Procedure

Option	SEG 13		SEG 14			SEG 15		SEG 16	SEG 17		SEG 18	
Function	Page		Use of external control			Setting the output of external control			Buzzer control		Maximum filter usage time [2]	
	Indication	Details	Indication	Details		Indication	Details		Indication	Details	Indication	Details
Indication and details	2		0	Disuse	Sub, Existing control	0	Thermo on	Reserved	0	Use of buzzer	2	1000 hours
			1	On/Off								
			2	Off								
			3	Window On/Off								
			4	Disuse	Main, Existing control							
			5	On/Off								
			6	Off								
			7	Window On/Off								
			8	Disuse	Sub, Reverse control	1	Operation On		1	Disuse of buzzer	6	2000 hours
			9	On/Off								
			A	Off								
			B	Window On/Off								
			C	Disuse	Main, Reverse control							
			D	On/Off								
			E	Off								
			F	Window On/Off								

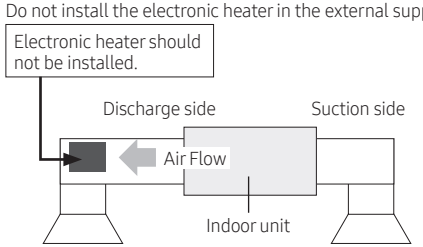
Option	SEG 19		SEG 20		SEG 21		SEG 22	SEG 23	SEG 24
Function	Page		Individual control with remote control [3]		Heating setting compensation [4]				
	Indication	Details	Indication	Details	Indication	Details			
Indication and details	3		0, 1	Indoor1	0	Default	Reserved	Reserved	Reserved
			2	Indoor2	1	3.6°F(2°C)			
			3	Indoor3					
			4	Indoor4	2	9°F(5°C)			

- [1] SEG4
  By SEG4 setting, Minimizing fan operation when thermostat is off.
  - Fan operates for 20 seconds at an interval of 5 minutes in heat mode.
  - Fan stops or operates Ultra low in Cooling when thermostat is off.
- [2] SEG18
  If you set the Maximum filter usage time option to a value other than 2 and 6, it is automatically set to 2 (1000 hours).
- [3] SEG20
  If you set the Individual control with remote control option to a value other than 0 to 4, it is automatically set to 0 (Indoor 1)
- [4] SEG21
  Default value of Heating setting compensation is 3.6°F(2°C).

Final Checks and User Tips

CAUTION

Do not install the electronic heater in the external supply duct connected to the AHU.



To complete the installation, perform the following checks and tests to ensure that the air conditioner operates correctly. Check the followings.

- Strength of the installation site
- Tightness of pipe connection to detect a gas leak
- Electric wiring connections
- Heat-resistant insulation of the pipe
- Drainage
- Earth conductor connection

Providing information for user

After finishing the installation of the air conditioner, you should explain the following to the user. Refer to appropriate pages in the User's Manual.

- How to start and stop the air conditioner
- How to select the modes and functions
- How to adjust the temperature and fan speed
- How to set the timers
- How to clean and replace the filters

NOTE

When you complete the installation successfully, hand over the this Installation Manual and the wired controller installation and user manuals to the user for storage in a handy and safe place.

Troubleshooting

- If an error occurs during the operation, one or more LED flickers and the operation is stopped except the LED.
- If you re-operate the air conditioner, it operates normally at first, then detect an error again.

LED Display on the receiver & display unit

Abnormal conditions	Indicators					Remarks
	Concealed Type					
	GREEN	RED				
	Standard Type					
Power reset	◑	X	X	X	X	
Error of Room sensor in the indoor unit(Open/Short)	X	X	◑	X	X	
Error of EVA-IN,EVA-OUT discharge sensor in the indoor unit(Open/Short)	◑	X	◑	X	X	
Error of Fan motor in the indoor unit	X	X	X	◑	X	
1. Error of Outdoor 2. Thermal Fuse Open Error of Indoor's Terminal Block	X	X	◑	◑	◑	
1. Clogging of outdoor's service valve 2. the refrigerant leakage	◑	X	X	◑	◑	
Detection of the float switch	X	X	X	◑	◑	
1. Error of EEPROM 2. Error of Option setting	◑	◑	◑	◑	◑	
1. Error of Outdoor Temp. sensor 2. Error of Cond Temp. sensor 3. Error of discharge Temp. sensor	◑	X	X	◑	X	

Abnormal conditions	Indicators					Remarks
	Concealed Type					
						
	GREEN	RED				
	Standard Type					
						
1. No communication for 2 minutes between indoor units (Communication error for more than 2 minutes) 2. Indoor unit receiving the communication error from outdoor unit 3. Outdoor unit tracking 3 minutes error 4. When sending the communication error from the outdoor unit, the mismatching of the communication numbers and installed numbers after completion of tracking.(Communication error for more than 2 minutes)	X	X	◑	◑	X	1. Indoor unit error (Display is unrelated with operation) 2. Outdoor unit error (Display is unrelated with operation)

● On ●Flickering X Off

- If you turn off the air conditioner when the LED is flickering, the LED is also turned off.

Appendix

Troubleshooting

Wired remote controller

If an error occurs, TEST is displayed on the wired remote controller. If you would like to see an error code, press the Test button.

Error mode	Contents	Error type
101	Indoor unit communication error	Communication error
108	Duplicated address setting error	Communication error
109	No response error address from indoor unit	Communication error
121	Indoor temperature sensor (open/short error)	Indoor sensor error
122	Indoor unit Eva In sensor (Open/Short)	Indoor sensor error
123	Indoor unit Eva Out sensor (Open/Short)	Indoor sensor error
162	EEPROM error (Hardware)	Indoor EEPROM error
163	EEPROM option error	Indoor EEPROM error
198	Error on thermal fuse of indoor unit (Open)	Indoor Terminal Block error
202	Indoor/outdoor communication error (1 min)	Communication error
203	Communication error between indoor/outdoor INV↔MAIN MICOM (1 min)	Communication error
221	Outdoor temperature sensor error	Outdoor sensor error
231	COND temperature sensor error	Outdoor sensor error
251	[Inverter] Emission temperature sensor error	Outdoor sensor error
403	Detection of Indoor Freezing (when Comp. Stops)	Outdoor unit protection control error
404	Protection of Outdoor Overload (when Comp. Stops)	Outdoor unit protection control error
416	Emission temperature excessively high	Outdoor unit protection control error
422	High pressure blockage error (Refrigerant completely Leakage error)	Self diagnostic error
440	Heating operation blocked	Self diagnostic error

Error mode	Contents	Error type
	Cooling operation blocked	Self diagnostic error
	Outdoor fan 1 error	Self diagnostic error
	[Inverter] Compressor startup error	Outdoor unit protection control error
	[Inverter] Total current error/PFC over current error	Outdoor unit protection control error
	OLP Overheat and Comp. Stop	Outdoor unit protection control error
	[Inverter] IPM over current error	Outdoor unit protection control error
	Compressor V limit error	Outdoor unit protection control error
	DC LINK over/low voltage error	Outdoor unit protection control error
	[Inverter] Compressor rotation error	Outdoor unit protection control error
	[Inverter] Current sensor error	Outdoor unit protection control error
	[Inverter] DC LINK voltage sensor error	Outdoor unit protection control error
	EEPROM Read/Write error	Outdoor unit protection control error
	[Inverter] OTP error	Outdoor unit protection control error
	AC ZERO CROSSING SIGNAL OUT error	Outdoor unit protection control error
	Compressor LOCK error	Outdoor unit protection control error
	Outdoor fan 2 error	Self diagnostic error
	IPM Overheat Error for Outdoor Unit Inverter Comp.	Outdoor unit protection control error
	Gas leak error	Self diagnostic error
	Capacities not matched	Outdoor unit protection control error
	Communication error between the indoor unit and wired remote controller	Wired remote controller error
	Communication error between the Master and Slave wired remote controllers	Wired remote controller error

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