LG
Life's Good

MULTI V™

FLOOR STANDING, CEILING SUSPENDED, AND CONVERTIBLE SURFACE MOUNTED INDOOR UNIT ENGINEERING MANUAL

Cased

Uncased

Floor Standing
7,500 to 24,200 Btu/h

Ceiling Suspended
19,100 and 24,200 Btu/h

Convertible Surface Mounted
9,600 and 12,300 Btu/h

PROPRIETARY DATA NOTICE

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This document is for design purposes only.

A summary list of safety precautions is on page 3.

For more technical materials such as submittals, catalogs, installation, owner's, and service manuals, visit www.lghvac.com.

MULTI V

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TABLE OF SYMBOLS

⚠ DANGER	*This symbol indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.*
⚠ WARNING	*This symbol indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.*
⚠ CAUTION	*This symbol indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.*
Note	*This symbol indicates situations that may result in equipment or property damage accidents only.*
⃠	*This symbol indicates an action should not be completed.*

UNIT NOMENCLATURE

Family
ARN = Multi V Indoor Unit
(Refrigerant R410A)

Type
U = DC Inverter Heat Pump

Indoor Unit Nominal Capacity

05 = 5,000 Btu/h	18 = 18,000 Btu/h	42 = 42,000 Btu/h
07 = 7,000 Btu/h	24 = 24,000 Btu/h	48 = 48,000 Btu/h
09 = 9,000 Btu/h	28 = 28,000 Btu/h	54 = 54,000 Btu/h
12 = 12,000 Btu/h	30 = 30,000 Btu/h	76 = 76,000 Btu/h
15 = 15,000 Btu/h	36 = 36,000 Btu/h	96 = 96,000 Btu/h

Electrical Ratings
3 = 208–230V/60Hz/1Ph

Model

B3 = Ducted (low static - bottom return)	L2 = Ducted (low static)	TL = 2-Way Ceiling Cassette
B4 = Ducted (low static - bottom return)	L3 = Ducted (low static)	TM = 4-Way Ceiling Cassette
B8 = Ducted (high static)	NJ = Vertical/Horizontal Air Handling Unit	TN = 4-Way Ceiling Cassette
BG = Ducted (high static)	NK = Vertical/Horizontal Air Handling Unit	TP = 4-Way Ceiling Cassette
BR = Ducted (high static)	SB = Wall Mounted	TQ = 4-Way Ceiling Cassette
CE = Floor Standing (small frame)	SC = Wall Mounted	TR = 4-Way Ceiling Cassette
CF = Floor Standing (large frame)	TT = 1-Way Ceiling Cassette	VE = Convertible Surface Mounted
L1 = Ducted (low static)	TU = 1-Way Ceiling Cassette	VJ = Ceiling Suspended

Feature
A, C, L, R = Standard*
G = Low Static
U = Uncased

**Plasma filter kit accessories are available separately. Always follow all local, state, and national building codes with the use of this or any product.*

Generation
2 = Second
4 = Fourth
A = Second, Revision A

LATS MULTI V PIPING DESIGN SOFTWARE

The proper design and installation of the refrigerant piping system is a critical element of a Multi V system. Multi V Heat Pump systems require two pipes between components – a liquid line and a vapor line. Multi V Heat Recovery systems require three pipes between the outdoor unit and the heat recovery unit – a liquid line, a low-pressure vapor line, and a high-pressure vapor line. A properly designed refrigerant piping system ensures that refrigerant is delivered to the indoor unit coils for optimal system performance and capacity.

LG Air Conditioner Technical Solution (LATS) software is a total design solution for LG Multi V air conditioning systems. This Windows®-based application assists the design engineer with specifying and sizing outdoor and indoor units (by calculating component capacity based on design conditions), laying out the refrigeration distribution pipe system, checking piping limitations, calculating refrigerant charge, and generating equipment schedules and piping diagrams in (.dxf) format for use on CAD building design drawings.*

* Windows® is a registered mark of Microsoft® Corporation.

To ensure that the refrigerant piping design meets LG's quality standards, a LATS refrigerant piping design must be provided with every Multi V order. Following the installation, if any changes or variations to the design are necessary, a new LATS file must be created and provided to LG prior to system commissioning to ensure the proper pipe size has not changed.

Design Choices

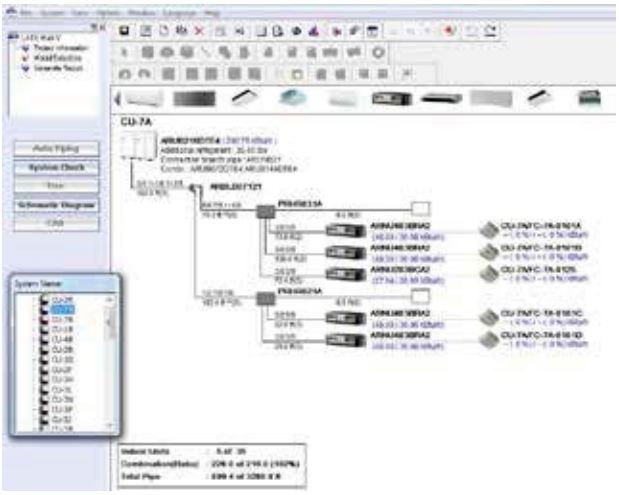
LATS Multi V software is flexible, offering the HVAC system engineer an easy to use Tree mode.

Tree Mode

Using the Tree mode, the engineer can quickly create a one-line schematic drawing of a Multi V system. Integration of the engineered pipe system into the building drawings is done at a later date by the draftsperson using standard drafting software tools.

- Import building loads from an external file (.xls format).
- System components selected using an easy drag and drop process.
- Automatically analyzes and checks the design complies with most piping design limitations.
- Sizes refrigerant piping.
- Generates a system engineering report (.xls format).
- Generates an equipment schedule (.xls or .dxf format).
- Generates a system piping diagram (.dxf format).

Figure 1: Screenshot of LATS Pipe System Design Tool in Tree Mode.



LATS Report

LATS Multi V software generates a report file (.xls format) containing project design parameters, cooling and heating design day system component performance, and capacity data. The report calculates the system combination ratio, calculates the system refrigerant charge, and provides detailed bill of material information including a list of Multi V outdoor units, air handlers, control devices, accessories, refrigerant pipe sizes segregated by building, by system, by pipe size, and by pipe segments.

FLOOR STANDING

Cased

Uncased

FLOOR STANDING

Mechanical Specifications

Casing

Cased

The case is designed to be free standing on the floor against a vertical surface. The backplane of the unit allows secure attachment of the unit to a vertical surface. Supply air is vertical from the top of the unit with a bottom front return through a toe slot at floor level. The supply air opening is covered with an architectural grille. The unit is manufactured using coated metal with an off-white ABS architectural polymeric resin exterior case. Cold surfaces are covered with a coated polystyrene insulating material. Flip open controller access doors cover the controller mounting bays located on both ends of the top panel. A polymeric resin coated metal safety grille is provided behind the removable filters located in the toe space to prevent reach access to the fan wheel.

Uncased

The unit case is designed to be concealed in a field-provided architectural enclosure. The unit case is manufactured using coated metal. Cold surfaces are covered with a coated polystyrene insulating material. The back plane of the unit has two side mounting flanges with bolt holes for hanging the unit on a vertical wall near the floor. Airflow is vertical from the bottom to the top. A polymeric resin coated metal safety grille is provided behind the removable filters located at the return air opening to prevent reach access to the fan wheels.

Fan Assembly and Control

7–15 MBh

The unit has three Sirocco fans mounted on a common shaft and made of high strength ABS HT-700 polymeric resin. The fan shaft is directly driven by a single digitally-controlled inverter fan motor.

18–24 MBh

The unit has two independent fan assemblies consisting of two motors and four fans. Each assembly consists of two Sirocco fans made of high strength ABS HT-700 polymeric resin. Each pair of fans are mounted on a common shaft and driven directly by a single digitally controlled inverter motor.

Fan Motors

The fan motors are a Brushless Digitally Controlled (BLDC) design with permanently lubricated and sealed ball bearings. The fan motor includes thermal, overcurrent and low RPM protection. The fan/motor assembly is mounted in vibration attenuating rubber grommets. The fan impeller is statically and dynamically balanced. The fan speed is controlled using a microprocessor-based direct digital control algorithm that provides a high fan speed in cooling thermal ON and low fan speed in cooling thermal OFF, high fan speed in heating thermal ON and fan off in heating thermal OFF. The fan speeds can be field adjusted between low, medium, and high speeds. The fan speed algorithm provides a field-selectable fixed or auto-speed setting that adjusts fan speed to simulate natural airflow.

Cased

Uncased

Air Filter

Return air is filtered using two (2) removable, washable filters with anti-fungal treatment on the 7-15 MBh models and three (3) removable, washable filters with anti-fungal treatment on the 18-24 MBh models. Access to the filter media is from the return air toe slot located on the front of the unit without removing unit panels.

Microprocessor Control

The unit is provided with an integrated microprocessor-based controller. A temperature thermistor is factory-mounted in the return air stream. The controller is capable of performing functions necessary to operate the system without the use of a separate unit or wall-mounted controller. All unit operation parameters, excluding the operation schedule, are stored in non-volatile memory resident on the unit microprocessor. Operating schedules are stored in select models of the optional unit or wall-mounted, local or central controller. The field-supplied communication cable between the indoor unit(s) and outdoor unit is to be a minimum of 18 AWG, 2 conductor, stranded, and shielded cable (RS-485), terminated via screw terminals on the control boards. The microprocessor control provides the following functions: auto addressing, self-diagnostics, auto restart following power restoration, test run, and will operate the indoor unit using one of five operating modes:

1. Auto Changeover (Heat Recovery only)
2. Heating
3. Cooling
4. Dry
5. Fan Only

For Heat Recovery systems the Auto Changeover setting automatically switches between cooling and heating modes based on room temperature conditions.

For Heat Pump systems, heated or cooled air delivery is dependent upon outdoor unit operating mode.

In Heating mode, the microprocessor control will activate the indoor unit when indoor room temperature falls below set-point temperature and signals the outdoor unit to begin the heating cycle. The indoor unit fan operation is delayed until coil pipe temperature reaches 76ºF. Significant airflow is generated when pipe temperature reaches 80°F. In lieu of factory return air thermistor, screw terminals on the microprocessor circuit board accommodate various models of wall

or unit-mounted local controllers and/or a wall-mounted remote temperature sensor. The unit microprocessor is capable of accepting space temperature readings concurrently or individually from either:

1. Wall or unit mounted wired controller(s)
2. Factory mounted return air thermistor or the optional wall-mounted wired remote temperature sensor

The microprocessor controls space temperature using the value provided by the temperature sensor sensing a space temperature that is farthest away from the temperature set-point. The microprocessor control provides a cooling or heating mode test cycle that operates the unit for 18 minutes without regard to the space temperature. If the system is provided with an optional local or central controller, displayed diagnostic codes are specific, alpha numeric, and provide the service technician with the reason for the code displayed.

Handling Condensate

The unit is designed to provide gravity draining of condensate. LG provides a factory insulated flexible drain hose. If condensate lifts/pumps are needed for the application, they are to be field-provided. Condensate float safety switch connections are available on the main control board for connection of a field supplied float safety switch.

Condensate Drain Pan

The condensate drain pan is constructed of expandable polystyrene resin (EPS).

Coil

The indoor unit coil is constructed with grooved design copper tubes with slit coil fins, two (2) rows, nineteen (19) fins per inch.

Controls Features

- Auto changeover (Heat Recovery only)
- Auto operation
- Auto restart
- External on/off control
- Dual thermistor control
- Dual set-point control*
- Filter life and power consumption display*
- Multiple auxiliary heater applications*
- Fan speed control
- Group control
- Hot start
- Self diagnostics
- Timer (on / off)
- Weekly schedule

**To enable Generation 4 features, outdoor unit DIP Switch No. 3 must be set to ON. Please refer to the Multi V IV, Multi V Water IV , Multi V S Engineering Manual for additional information.*

FLOOR STANDING

General Data

CEA, CFA Cased Units

Table 1: Cased Floor Standing (CEA, CFA) Indoor Unit General Data.

Model No.	ARNU073CEA4	ARNU093CEA4	ARNU123CEA4	ARNU153CEA4	ARNU183CFA4	ARNU243CFA4
Cooling Mode Performance						
Capacity (Btu/h)	7,500	9,600	12,300	15,400	19,100	24,200
Power Input[1] (W)	85	85	85	85	115	115
Heating Mode Performance						
Capacity (Btu/h)	8,500	10,900	13,600	17,100	21,500	27,300
Power Input[1] (W)	85	85	85	85	115	115
Entering Mixed Air						
Cooling Max. (°F WB)	76	76	76	76	76	76
Heating Min. (°F DB)	59	59	59	59	59	59
Unit Data						
Refrigerant Type[2]	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant Control	EEV	EEV	EEV	EEV	EEV	EEV
Sound Pressure[3] dB(A) (H/M/L)	35 / 33 / 31	36 / 34 / 32	37 / 35 / 33	38 / 37 / 35	40 / 37 / 34	43 / 40 / 37
Net Unit Weight (lbs.)	59.5	59.5	59.5	59.5	75.0	75.0
Shipping Weight (lbs.)	68.3	68.3	68.3	68.3	86.0	86.0
Communication Cable[4] (No. x AWG)	2 x 18	2 x 18	2 x 18	2 x 18	2 x 18	2 x 18
Fan						
Type	Sirocco	Sirocco	Sirocco	Sirocco	Sirocco	Sirocco
Motor	2	2	2	2	2	2
Housing	3	3	3	3	4	4
Motor/Drive	Brushless Digitally Controlled / Direct					
Airflow Rate H/M/L (CFM) High Mode (Factory Set)	300 / 265 / 229	335 / 300 / 265	371 / 335 / 300	406 / 353 / 335	565 / 494 / 424	635 / 565 / 494
External Static Pressure (in. wg) High Mode (Factory Set)	0	0	0	0	0	0
Piping						
Liquid Line (in., O.D.)	1/4 Flare	1/4 Flare	1/4 Flare	1/4 Flare	1/4 Flare	3/8 Flare
Vapor Line (in., O.D.)	1/2 Flare	1/2 Flare	1/2 Flare	1/2 Flare	1/2 Flare	5/8 Flare
Condensate Line (in., I.D.)	1	1	1	1	1	1

EEV: Electronic Expansion Valve

Power wiring is field supplied and must comply with the applicable local and national codes.

This unit comes with a dry nitrogen charge.

This data is rated 0 ft above sea level, with 25 ft of refrigerant line per indoor unit and a 0 ft level difference between outdoor and indoor units. All capacities are net with a combination ratio between 95-105%.

Cooling capacity rating obtained with air entering the indoor coil at 80ºF dry bulb (DB) and 67ºF wet bulb (WB) and outdoor ambient conditions of 95ºF dry bulb (DB).

Heating capacity rating obtained with air entering the indoor unit at 70ºF dry bulb (DB) and outdoor ambient conditions of 47ºF dry bulb (DB) and 43ºF wet bulb (WB).

[1]Power Input is rated at high speed.

[2]Take appropriate actions at the end of HVAC equipment life to recover, recycle, reclaim or destroy R410A refrigerant according to applicable regulations (40 CFR Part 82, Subpart F) under section 608 of CAA.

[3]Sound Pressure levels are tested in an anechoic chamber under ISO Standard 3745.

[4]All communication cable to be minimum 18 AWG, 2-conductor, stranded, shielded or unshielded (if shielded, must be grounded to chassis at outdoor unit only) and must comply with applicable and national code.

Table 2: Uncased Floor Standing (CEU, CFU) Indoor Unit General Data.

Model No.	ARNU073CEU4	ARNU093CEU4	ARNU123CEU4	ARNU153CEU4	ARNU183CFU4	ARNU243CFU4
Cooling Mode Performance						
Capacity (Btu/h)	7,500	9,600	12,300	15,400	19,100	24,200
Power Input[1] (W)	85	85	85	85	115	115
Heating Mode Performance						
Capacity (Btu/h)	8,500	10,900	13,600	17,100	21,500	27,300
Power Input[1] (W)	85	85	85	85	115	115
Entering Mixed Air						
Cooling Max. (°F WB)	76	76	76	76	76	76
Heating Min. (°F DB)	59	59	59	59	59	59
Unit Data						
Refrigerant Type[2]	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant Control	EEV	EEV	EEV	EEV	EEV	EEV
Sound Pressure[3] dB(A) (H/M/L)	35 / 33 / 31	36 / 34 / 32	37 / 35 / 33	38 / 37 / 35	40 / 37 / 34	43 / 40 / 37
Net Unit Weight (lbs.)	46.3	46.3	46.3	46.3	58.4	58.4
Shipping Weight (lbs.)	56.2	56.2	56.2	56.2	68.3	68.3
Communication Cable[4] (No. x AWG)	2 x 18	2 x 18	2 x 18	2 x 18	2 x 18	2 x 18
Fan						
Type	Sirocco	Sirocco	Sirocco	Sirocco	Sirocco	Sirocco
Motor	2	2	2	2	2	2
Housing	3	3	3	3	4	4
Motor/Drive	Brushless Digitally Controlled / Direct					
Airflow Rate H/M/L (CFM) High Mode (Factory Set)	300 / 265 / 229	335 / 300 / 265	371 / 335 / 300	406 / 353 / 335	565 / 494 / 424	635 / 565 / 494
External Static Pressure (in. wg) High Mode (Factory Set)	0	0	0	0	0	0
Piping						
Liquid Line (in., O.D.)	1/4 Flare	1/4 Flare	1/4 Flare	1/4 Flare	1/4 Flare	3/8 Flare
Vapor Line (in., O.D.)	1/2 Flare	1/2 Flare	1/2 Flare	1/2 Flare	1/2 Flare	5/8 Flare
Condensate Line (in., I.D.)	1	1	1	1	1	1

EEV: Electronic Expansion Valve

Power wiring is field supplied and must comply with the applicable local and national codes.

This unit comes with a dry nitrogen charge.

This data is rated 0 ft above sea level, with 25 ft of refrigerant line per indoor unit and a 0 ft level difference between outdoor and indoor units. All capacities are net with a combination ratio between 95-105%.

Cooling capacity rating obtained with air entering the indoor coil at 80ºF dry bulb (DB) and 67ºF wet bulb (WB) and outdoor ambient conditions of 95ºF dry bulb (DB).

Heating capacity rating obtained with air entering the indoor unit at 70ºF dry bulb (DB) and outdoor ambient conditions of 47ºF dry bulb (DB) and 43ºF wet bulb (WB).

[1]Power Input is rated at high speed.

[2]Take appropriate actions at the end of HVAC equipment life to recover, recycle, reclaim or destroy R410A refrigerant according to applicable regulations (40 CFR Part 82, Subpart F) under section 608 of CAA.

[3]Sound Pressure levels are tested in an anechoic chamber under ISO Standard 3745.

[4]All communication cable to be minimum 18 AWG, 2-conductor, stranded, shielded or unshielded (if shielded, must be grounded to chassis at outdoor unit only) and must comply with applicable and national code.

FLOOR STANDING

Electrical Data

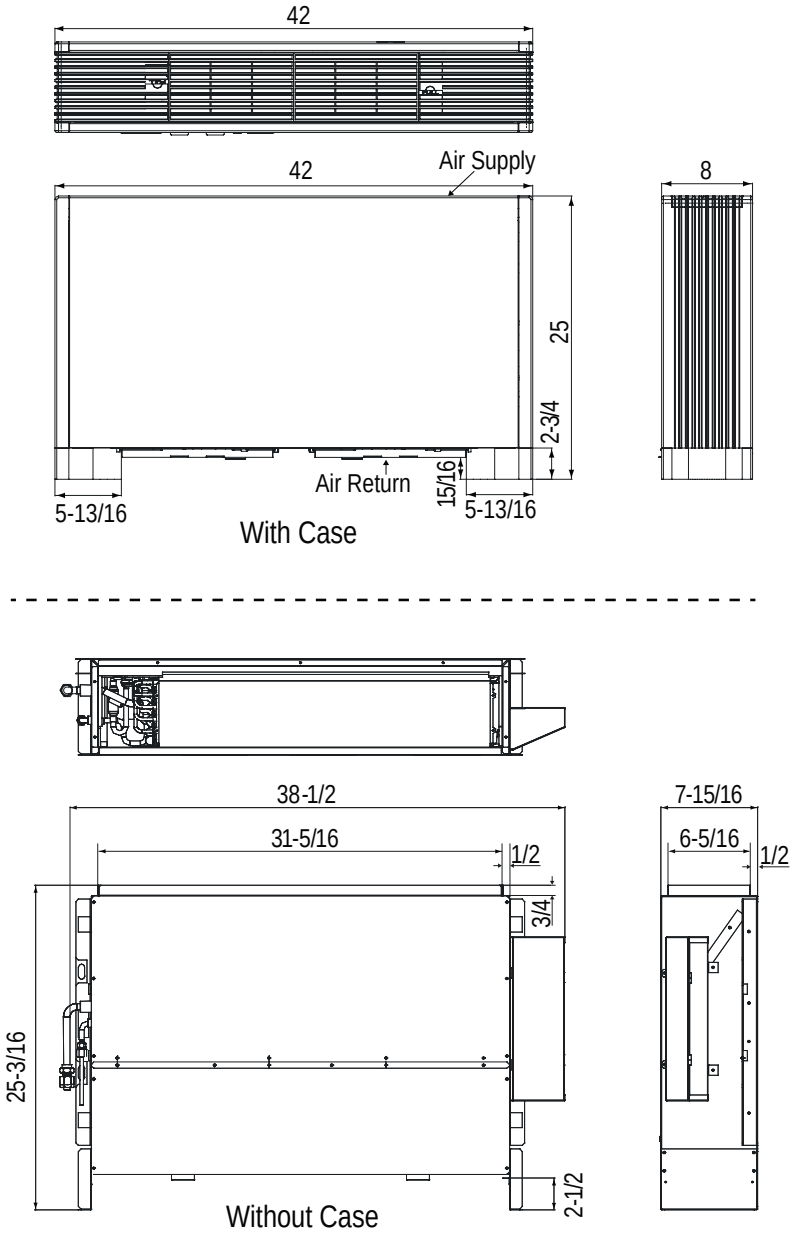
Table 3: Floor Standing (CEA, CFA [Cased]; CEU, CFU [Uncased]) Indoor Unit Electrical Data.

Model	Voltage Range	MCA	MOP	Rated Amps (A)	Power Supply			Power Input (W)	
					Hz	Volts	Phase	Cooling	Heating
CEA / CFA (Cased) Units									
ARNU073CEA4	208-230	1.0	15	0.76	60	208-230	1	85	85
ARNU093CEA4		1.0		0.76				85	85
ARNU123CEA4		1.0		0.76				85	85
ARNU153CEA4		1.0		0.76				85	85
ARNU183CFA4		1.2	15	0.97				115	115
ARNU243CFA4		1.2		0.97				115	115
CEU / CFU (Uncased) Units									
ARNU073CEU4	208-230	1.0	15	0.76	60	208-230	1	85	85
ARNU093CEU4		1.0		0.76				85	85
ARNU123CEU4		1.0		0.76				85	85
ARNU153CEU4		1.0		0.76				85	85
ARNU183CFU4		1.2	15	0.97				115	115
ARNU243CFU4		1.2		0.97				115	115

MCA : Minimum Circuit Ampacity.
MOP : Maximum Overcurrent Protection.

Units are suitable for use on an electrical system where voltage supplied to unit terminals is within the listed range limits.
Select wire size based on the larger MCA value.
Instead of fuse, use the circuit breaker.

Figure 2: ARNU073~153CEA4, ARNU073~153CEU4 Dimensions.



Unit: inches

Note: All measurements have a tolerance of ±1/4 in.

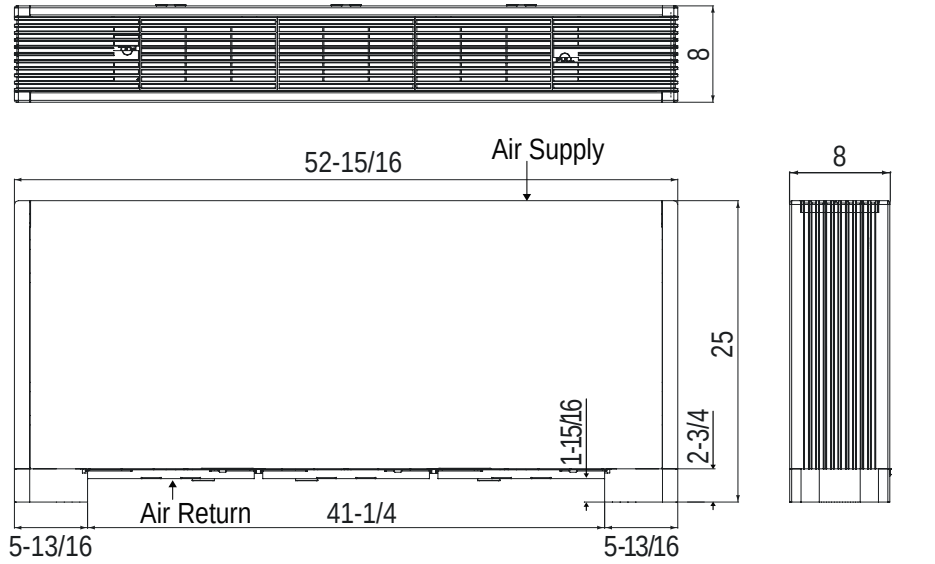
Model	W	H	D
ARNU073CEA4 ARNU093CEA4 ARNU123CEA4 ARNU153CEA4	42	25	8
ARNU073CEU4 ARNU093CEU4 ARNU123CEU4 ARNU153CEU4	38-1/2	25-3/16	7-15/16

FLOOR STANDING

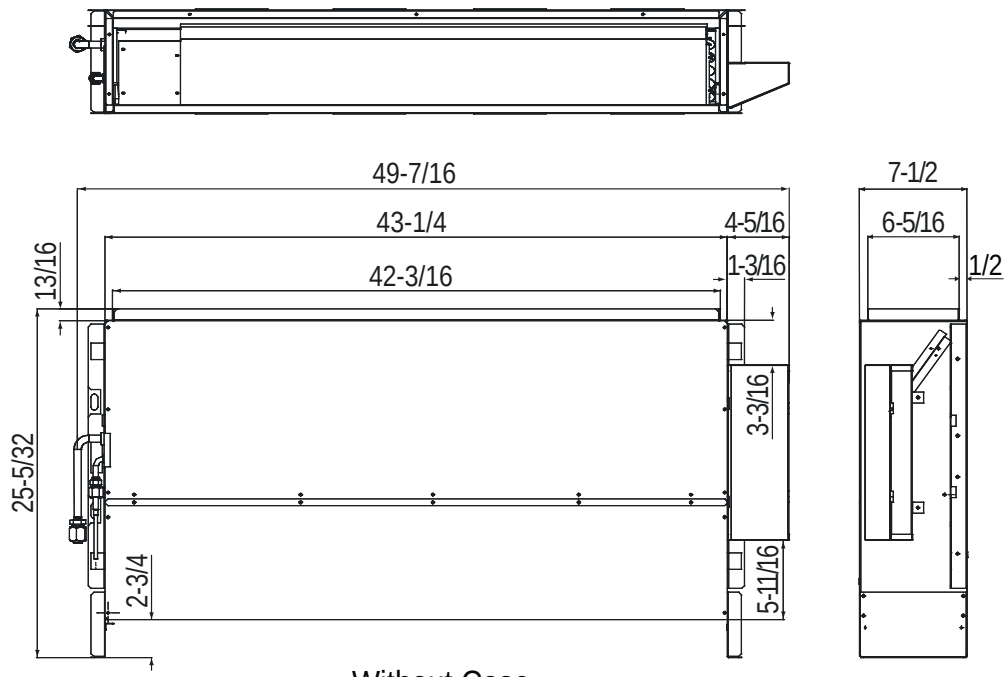
External Dimensions

CFA Cased, CFU Uncased Units

Figure 3: ARNU183-243CFA4, ARNU183-243CFU4 Dimensions.



With Case



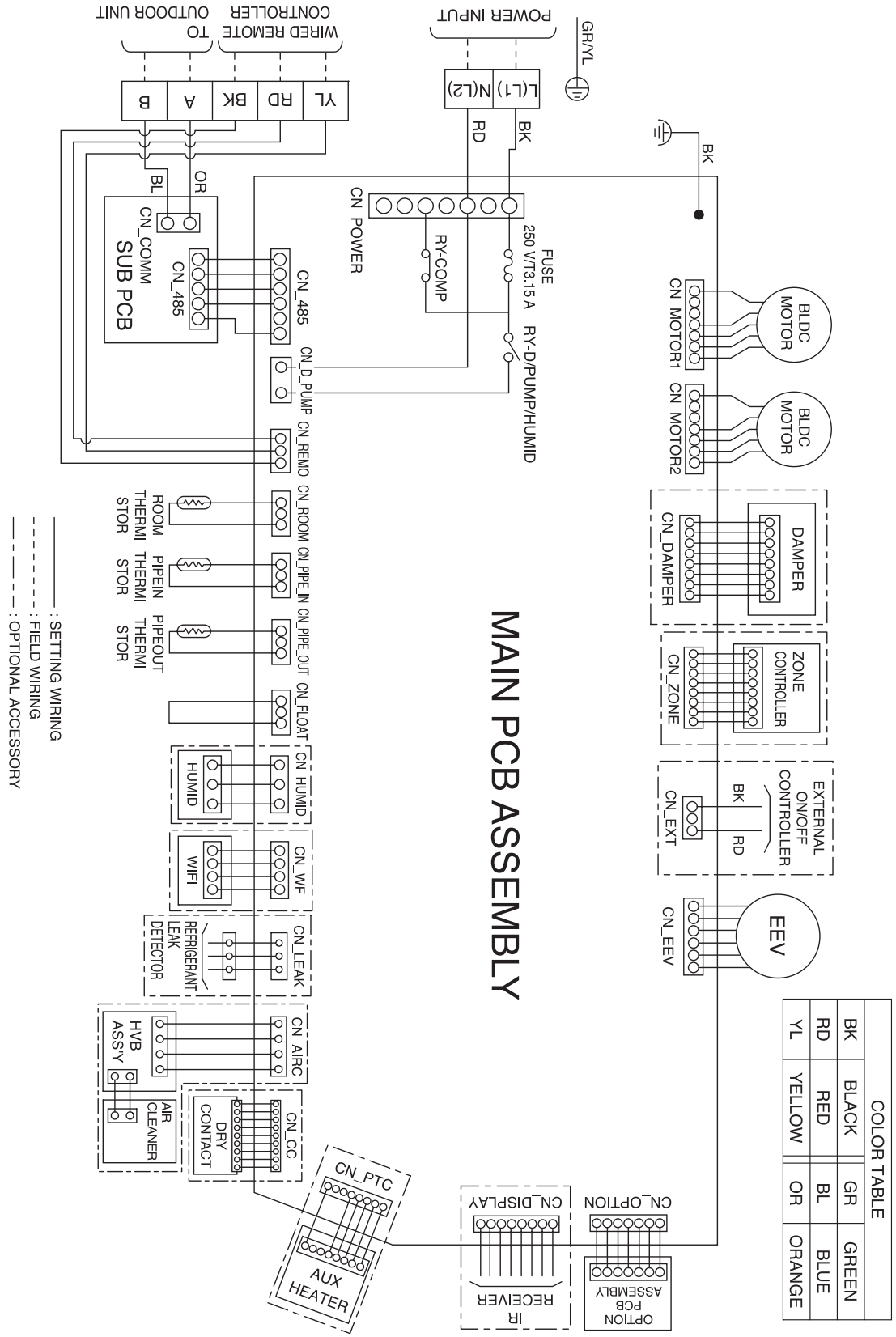
Without Case

Unit: inches

Note: All measurements have a tolerance of ±1/4 in.

Model	W	H	D
ARNU183CFA4 ARNU243CFA4	52-15/16	25	8
ARNU183CFU4 ARNU243CFU4	49-7/16	25-3/16	7-1/2

Figure 4: ARNU073~153CEA4, ARNU183-243CFA4, ARNU073~153CEU4, ARNU183-243CFU4 Wiring Diagram.



FLOOR STANDING

Electrical Wiring Diagram
CEA and CFA Cased, CEU and CFU Uncased Units

Table 4: CEA and CFA Cased, CEU and CFU Uncased Indoor Unit Wiring Diagram Legend.

Terminal	Purpose	Function
CN-POWER	AC Power supply	AC Power line
CN-MOTOR1	Fan motor output	Motor output of BLDC
CN-MOTOR2	Fan motor output	Motor output of BLDC
CN-DAMPER	N / A	N / A
CN-ZONE	Zone controller	Zone controller connection
CN-EXT	External on / off controller	External on / off Controller connection
CN-EEV	EEV Output	EEV control output
CN-OPTION	Optional PCB EPROM	Option PCB connection
CN-DISPLAY	Display	Display of indoor status
CN-PTC	Auxiliary heater	Connection for Auxiliary Heater
CN-CC	Dry contact	Dry Contact connection
CN-AIRC	N / A	N / A
CN-LEAK	Refrigerant leak detector	Refrigerant leak detector connection
CN-WF	N / A	N / A
CN-HUMID	N / A	N / A
CN-FLOAT	Float switch input	Float switch sensing
CN-PIPE/OUT	Discharge pipe sensor	Pipe out thermistor
CN-PIPE/IN	Suction pipe sensor	Pipe in thermistor
CN-ROOM	Room sensor	Room air thermistor
CN-REMO	Wired remote controller	Wired remote control connection
CN-D/PUMP	Drain pump output	AC output for drain pump
CN-485	Communication	Connection between indoor and outdoor units

Table 5: CEA and CFA Cased, CEU and CFU Uncased Indoor Unit DIP Switch Settings.

DIP Switch Setting		Off	On	Remarks
SW3	GROUP CONTROL	Master	Slave	Group control setting using 7-Day Programmable Controller; selects Master / Slave on each indoor unit
SW4	DRY CONTACT MODE	Variable	Auto	Sets operation mode for optional Dry Contact accessory 1. Variable: Auto or Manual Mode can be set through 7-Day Programmable Controller or Wireless Remote Controller (factory default setting is Auto if there is no setting) 2. Auto: For Dry Contact, it is always Auto mode
SW5	CONTINUOUS FAN	Off	On	Selects continuous fan for floor standing indoor units. 1. On: Indoor unit fan will always operate at a set fan speed, except when the system is off, or the outdoor unit is in defrost mode (when the oudoor unit is in defrost mode, the fan will operate at super low fan speed) 2. Off: Indoor unit fan speed can be changed by on / off

***For Gen 4 Multi V floor standing indoor units, DIP switches 1, 2, 6 through 8 must be set to OFF. These DIP switches are used for other models.**
****To enable Generation 4 features, outdoor unit DIP Switch No. 3 must be set to ON. Please refer to the Multi V IV, Multi V Water IV, Multi V S Engineering Manual for additional information.**

Figure 5: CEA and CFA Cased, CEU and CFU Uncased Indoor Unit Refrigerant Flow Diagram.

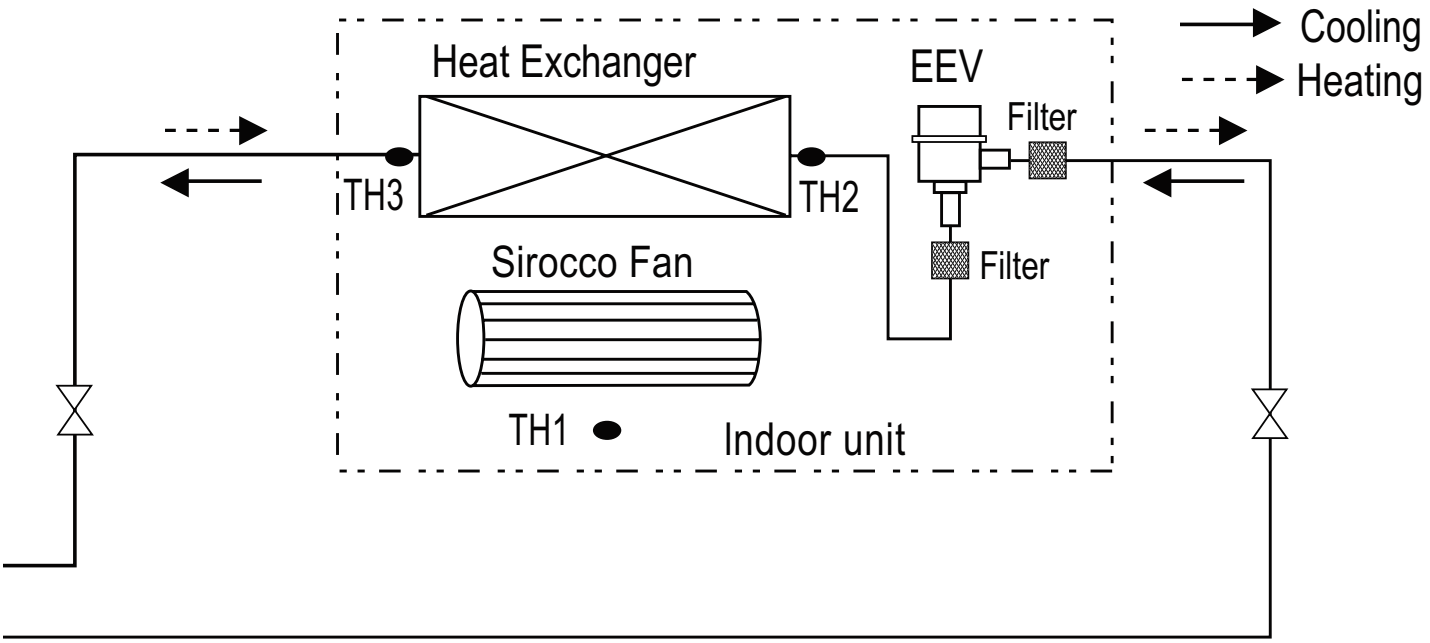


Table 6: CEA and CFA Cased, CEU and CFU Uncased Indoor Unit Refrigerant Pipe Connection Port Diameters.

Model	Liquid (inch)	Vapor (inch)
CEA / CFA (Cased) Units		
ARNU073CEA4	1/4 Flare	1/2 Flare
ARNU093CEA4		
ARNU123CEA4		
ARNU153CEA4		
ARNU183CFA4		
ARNU243CFA4	3/8 Flare	5/8 Flare
CEU / CFU (Uncased) Units		
ARNU073CEU4	1/4 Flare	1/2 Flare
ARNU093CEU4		
ARNU123CEU4		
ARNU153CEU4		
ARNU183CFU4		
ARNU243CFU4	3/8 Flare	5/8 Flare

Table 7: CEA and CFA Cased, CEU and CFU Uncased Indoor Unit Thermistors.

Thermistor	Description
TH1	Return air thermistor
TH2	Pipe in thermistor
TH3	Pipe out thermistor

FLOOR STANDING

External Static Pressure and Air Flow Tables

CEU, CFU Uncased Units

Table 8: CEU Uncased Unit External Static Pressure and Air Flow Table.

Set Value	Static Pressure (in. wg)						
	0	0.04	0.08	0.12	0.16	0.20	0.24
65	197	115	25	-	-	-	-
70	219	138	26	-	-	-	-
75	235	183	52	-	-	-	-
80	257	209	99	-	-	-	-
85	280	236	155	-	-	-	-
90	294	256	181	-	-	-	-
95	320	267	208	-	-	-	-
100	335	281	245	-	-	-	-
105	358	315	268	-	-	-	-
110	377	337	298	-	-	-	-
115	396	359	323	-	-	-	-
120	418	378	349	-	-	-	-
130	459	420	397	-	-	-	-

Table 9: CFU Uncased Unit External Static Pressure and Air Flow Table.

Set Value	Static Pressure (in. wg)						
	0	0.04	0.08	0.12	0.16	0.20	0.24
65	330	227	-	-	-	-	-
70	373	274	-	-	-	-	-
75	408	312	83	-	-	-	-
80	440	377	236	-	-	-	-
85	481	411	261	-	-	-	-
90	508	448	376	129	-	-	-
95	534	481	405	278	89	-	-
100	582	525	458	380	241	-	-
105	611	565	515	412	250	-	-
110	644	595	543	468	382	108	-
115	681	631	584	538	439	243	-
120	709	670	635	574	499	376	92
130	787	743	709	663	602	531	423

1. All static pressure air flow rates are listed in CFM.

2. The tables above show the correlation between air flow rates and external static pressure.

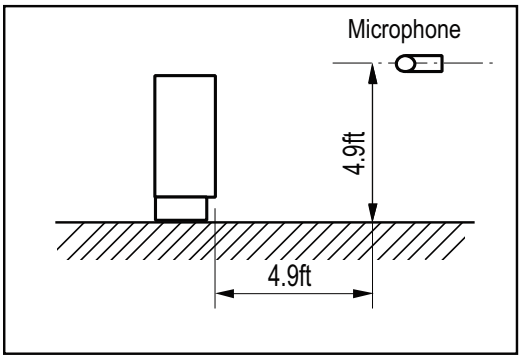
3. The tables above show the available external static pressure range.

Note:

If the external static pressure of the installed indoor unit is less than the lowest value (as mentioned in the table), the indoor unit components can fail.

Sound Pressure Levels

Figure 6: Sound Pressure Measurement Location.



- Measurements are taken 4.9 ft away from the front of the unit.
- Sound pressure levels are measured in dB(A) with a tolerance of ±3.
- Sound pressure levels are tested in an anechoic chamber under ISO Standard 3745.

Operating Conditions:

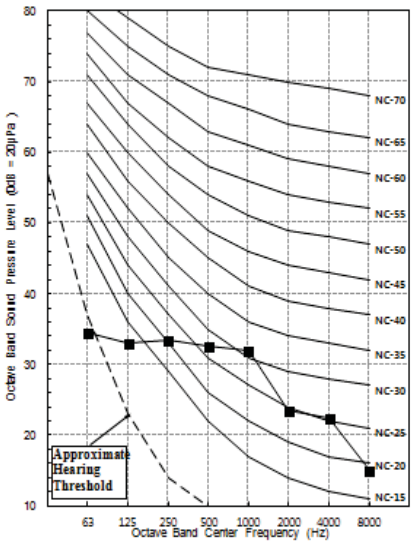
- Power source: 220V/60 Hz
- Sound level will vary depending on a range of factors including the construction (acoustic absorption coefficient) of a particular room in which the unit was installed.

Table 10: Floor Standing Sound Indoor Unit Pressure Levels.

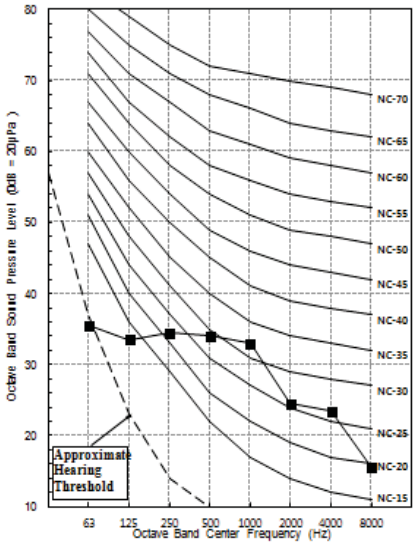
Model	Sound Pressure Levels dB(A)		
	High Fan Speed	Medium Fan Speed	Low Fan Speed
CEA, CFA (Cased) Units			
ARNU073CEA4	35	33	31
ARNU093CEA4	36	34	32
ARNU123CEA4	37	35	33
ARNU153CEA4	38	37	35
ARNU183CFA4	40	37	34
ARNU243CFA4	43	40	37
CEU, CFU (Uncased) Units			
ARNU073CEU4	35	33	31
ARNU093CEU4	36	34	32
ARNU123CEU4	37	35	33
ARNU153CEU4	38	37	35
ARNU183CFU4	40	37	34
ARNU243CFU4	43	40	37

Figure 7: ARNU073CEA4 / CEU4, ARNU093CEA4 / CEU4, and ARNU123CEA4 / CEU4 Sound Pressure Level Diagrams.

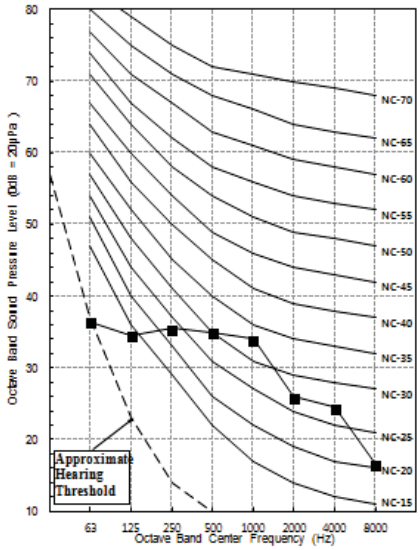
ARNU073CEA4 / ARNU073CEU4



ARNU093CEA4 / ARNU093CEU4



ARNU123CEA4 / ARNU123CEU4



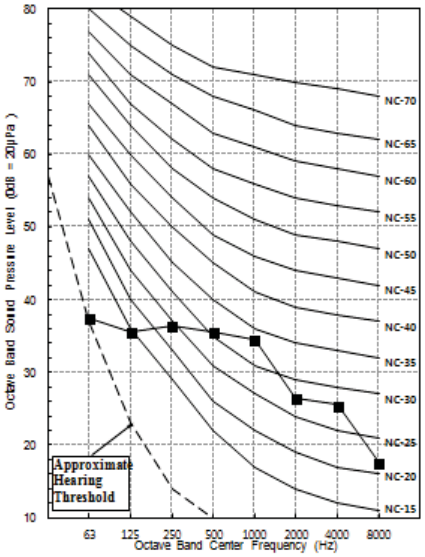
FLOOR STANDING

Acoustic Data

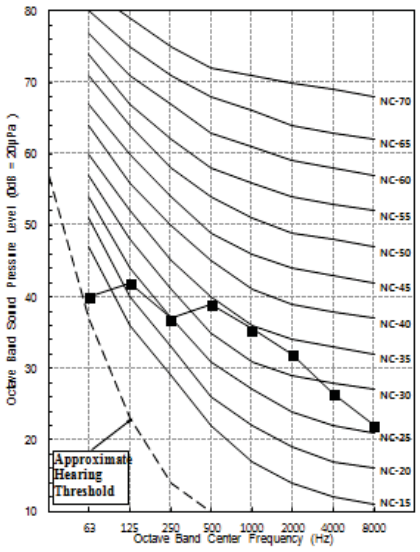
Sound Pressure Levels / Sound Power Levels

Figure 8: ARNU153CEA4 / CEU4, ARNU183CFA4 / CFU4, and ARNU243CFA4 / CFU4 Sound Pressure Level Diagrams.

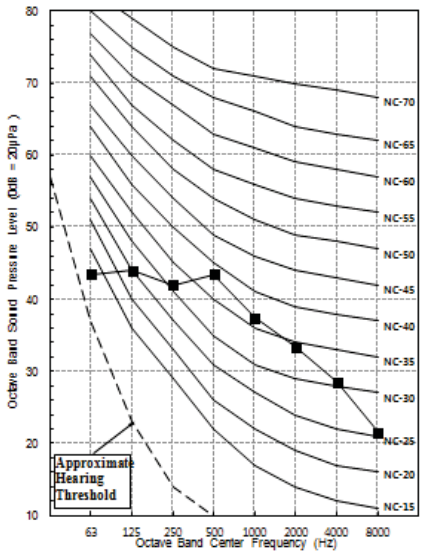
ARNU153CEA4 / ARNU153CEU4



ARNU183CFA4 / ARNU183CFU4



ARNU243CFA4 / ARNU243CFU4



Sound Power Levels

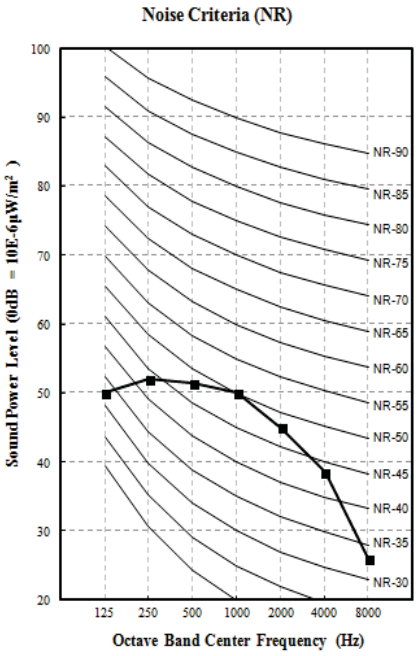
Table 11: Floor Standing Indoor Unit Sound Power Levels.

Model	Sound Power Levels dB(A)
CEA / CFA (Cased) Units	
ARNU073CEA4	54
ARNU093CEA4	55
ARNU123CEA4	57
ARNU153CEA4	59
ARNU183CFA4	60
ARNU243CFA4	61
CEU / CFU (Uncased) Units	
ARNU073CEU4	54
ARNU093CEU4	55
ARNU123CEU4	57
ARNU153CEU4	59
ARNU183CFU4	60
ARNU243CFU4	61

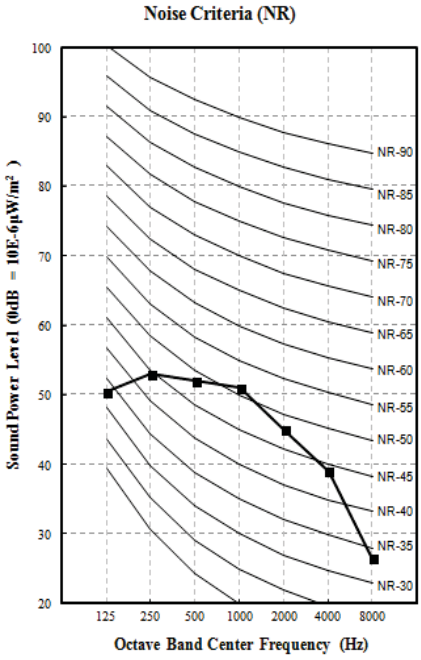
- Data is valid under diffuse field conditions.
- Data is valid under nominal operating conditions.
- Sound power level is measured using rated conditions, and tested in a reverberation room per ISO 3741 standards.
- Sound level will vary depending on a range of factors such as construction (acoustic absorption coefficient) of particular area in which the equipment is installed.
- Reference acoustic intensity: 0dB = 10E-6μW/m^2

Figure 9: ARNU073CEA4 / CEU4, ARNU093CEA4 / CEU4, and ARNU123CEA4 / CEU4 Sound Power Level Diagrams.

ARNU073CEA4 / ARNU073CEU4



ARNU093CEA4 / ARNU093CEU4



ARNU123CEA4 / ARNU123CEU4

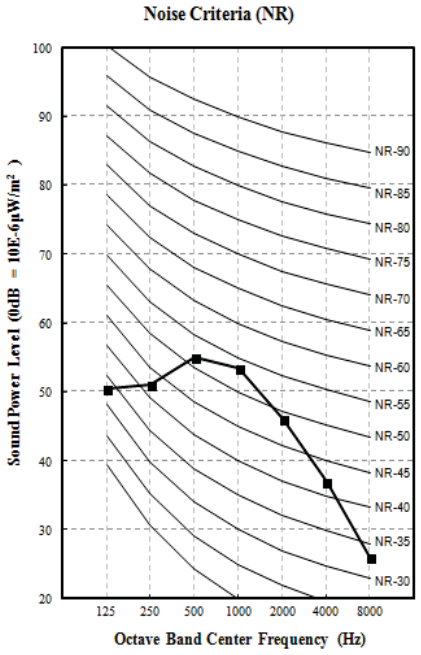
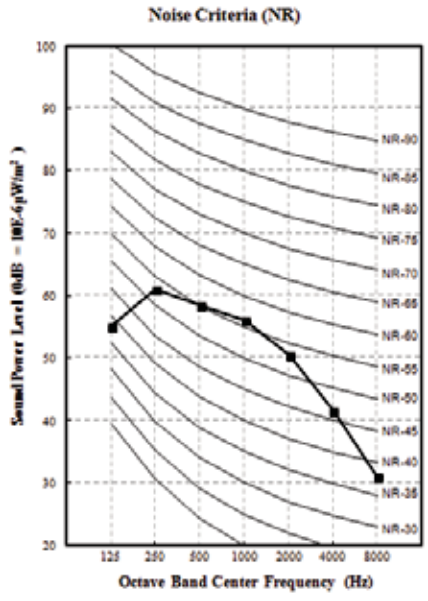
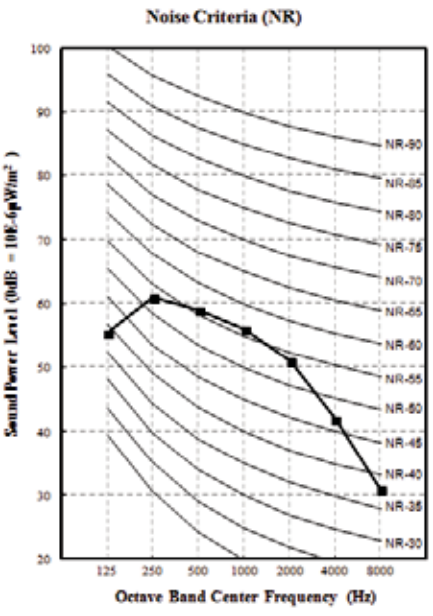


Figure 10: ARNU153CEA4 / CEU4, ARNU183CFA4 / CFU4, and ARNU243CFA4 / CFU4 Sound Pressure Level Diagrams.

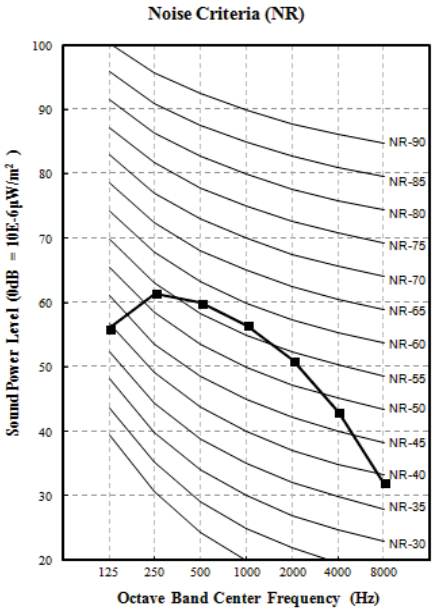
ARNU153CEA4 / ARNU153CEU4



ARNU183CFA4 / ARNU183CFU4



ARNU243CFA4 / ARNU243CFU4



FLOOR STANDING

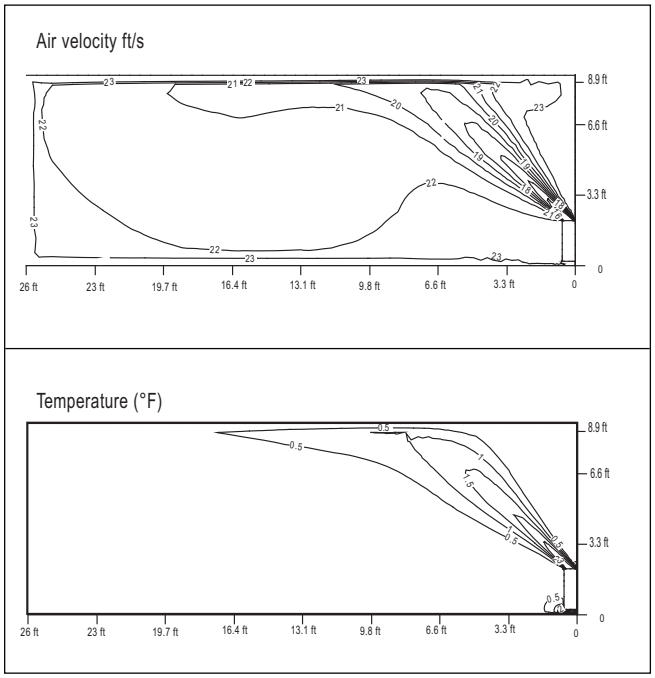
Air Velocity / Temperature Distribution

ARNU073CEA4 / CEU4, ARNU093CEA4 / CEU4

Figure 11: ARNU073CEA4 / ARNU073CEU4.

Cooling

Discharge angle: 45°



Heating

Discharge angle: 60°

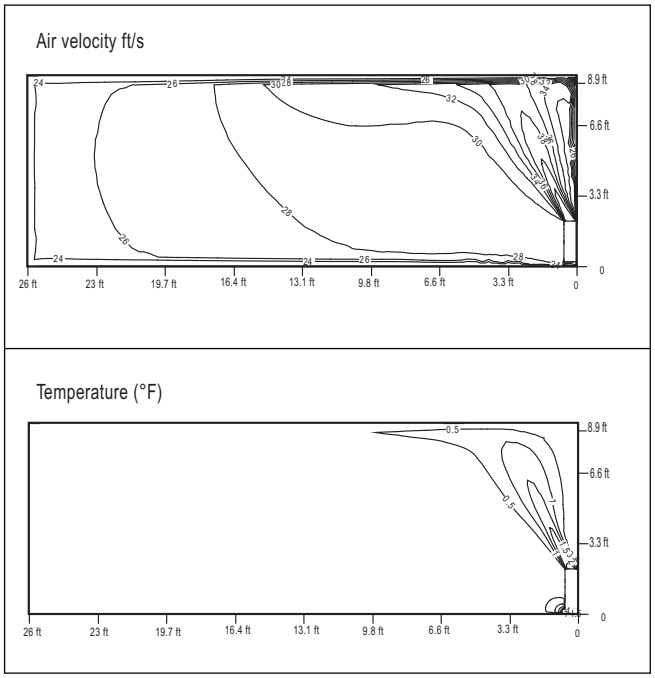
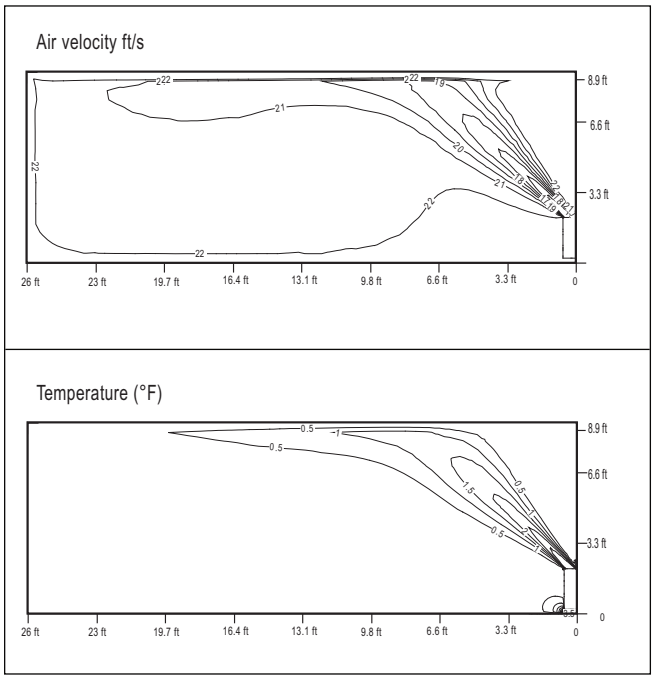


Figure 12: ARNU093CEA4 / ARNU093CEU4.

Cooling

Discharge angle: 45°



Heating

Discharge angle: 60°

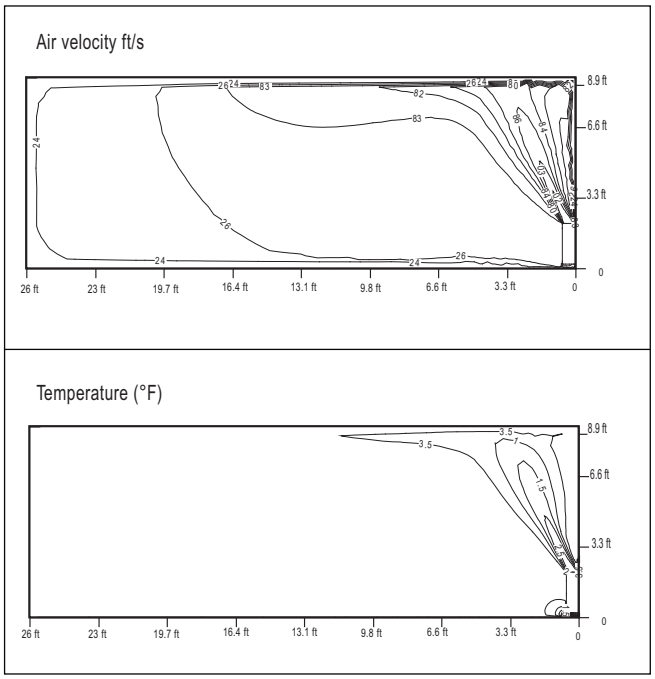
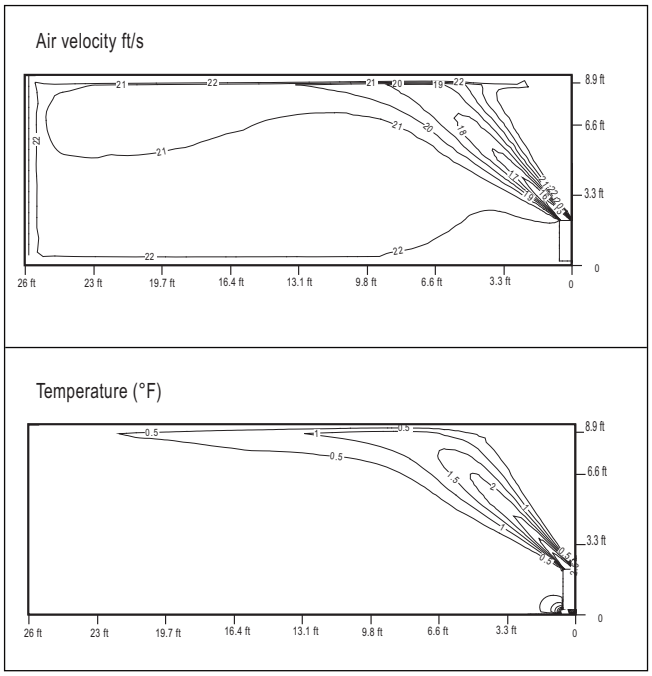


Figure 13: ARNU123CEA4 / ARNU123CEU4.

Cooling

Discharge angle: 45°



Heating

Discharge angle: 60°

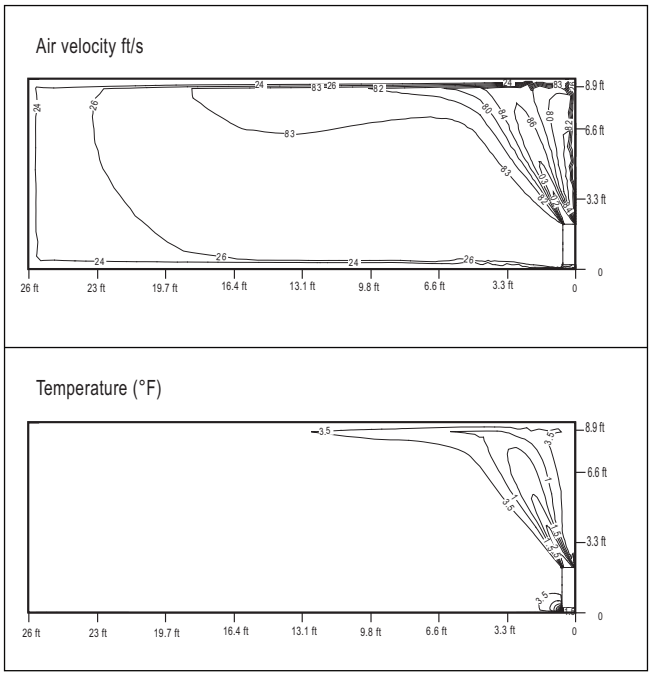
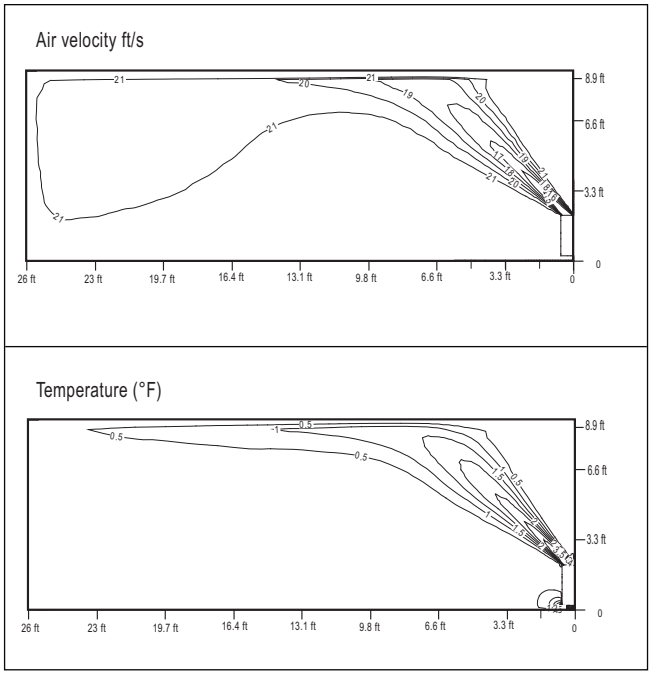


Figure 14: ARNU153CEA4 / ARNU153CEU4.

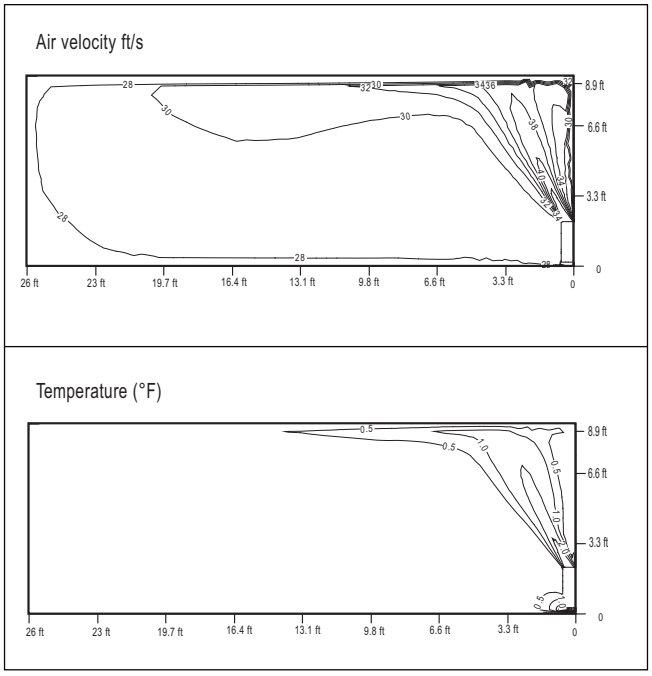
Cooling

Discharge angle: 45°



Heating

Discharge angle: 60°



FLOOR STANDING

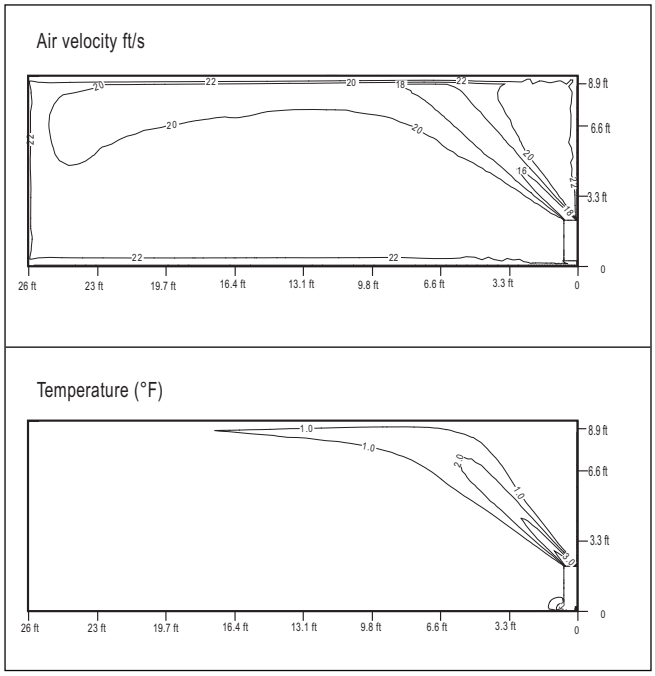
Air Velocity / Temperature Distribution

ARNU183CFA4 / CFU4, ARNU243CFA4 / CFU4

Figure 15: ARNU183CFA4 / ARNU183CFU4.

Cooling

Discharge angle: 45°



Heating

Discharge angle: 60°

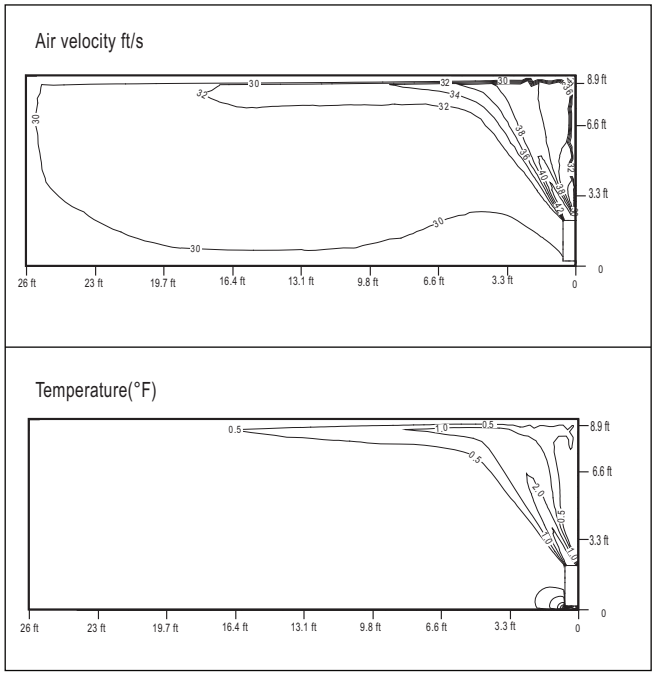
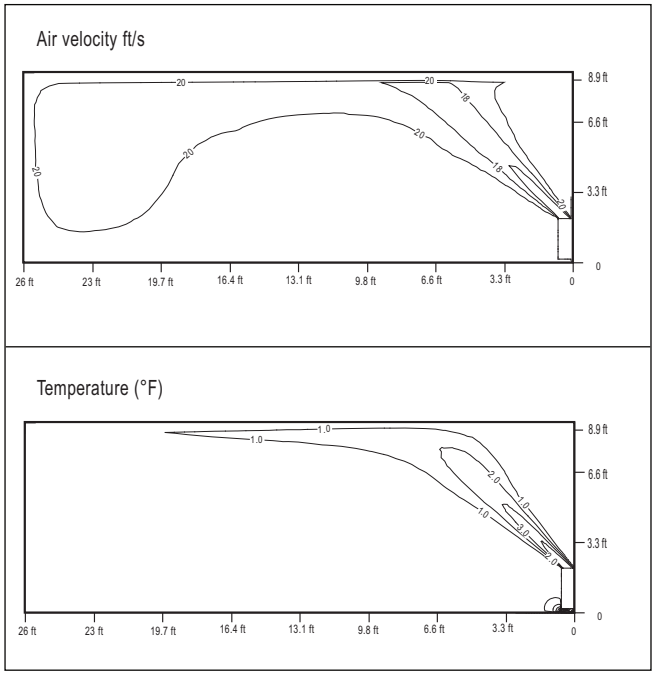


Figure 16: ARNU243CFA4 / ARNU243CFU4.

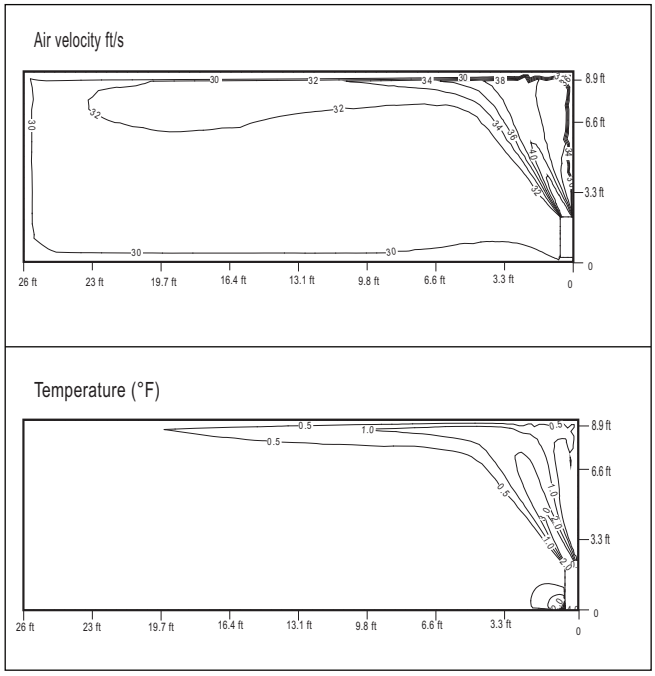
Cooling

Discharge angle: 45°



Heating

Discharge angle: 60°



ARNU073CEA4 / CEU4, ARNU093CEA4 / CEU4, ARNU123CEA4 / CEU4

Table 12: ARNU073CEA4 / ARNU073CEU4, ARNU093CEA4 / ARNU093CEU, ARNU123CEA4 / ARNU123CEU4 Cooling Capacity Table.

Model No. / Capacity Index	Outdoor Air Temp. (°F DB)	Indoor Air Temperature (°F DB / WB)													
		68 / 57		73 / 61		79 / 64		80 / 67		85 / 70		88 / 73		91 / 76	
		TC MBh	SHC MBh	TC MBh	SHC MBh	TC MBh	SHC MBh	TC MBh	SHC MBh	TC MBh	SHC MBh	TC MBh	SHC MBh	TC MBh	SHC MBh
ARNU073CEA4 - ARNU073CEU4 / 7.5	23	5.0	4.1	6.0	4.8	6.8	5.1	7.5	5.4	8.4	5.8	8.9	5.8	9.7	5.7
	25	5.0	4.1	6.0	4.8	6.8	5.1	7.5	5.4	8.4	5.8	8.9	5.8	9.7	5.7
	30	5.0	4.1	6.0	4.8	6.8	5.1	7.5	5.4	8.4	5.8	8.9	5.8	9.7	5.7
	35	5.0	4.1	6.0	4.8	6.8	5.1	7.5	5.4	8.4	5.8	8.9	5.8	9.7	5.7
	40	5.0	4.1	6.0	4.8	6.8	5.1	7.5	5.4	8.4	5.8	8.9	5.8	9.7	5.7
	45	5.0	4.1	6.0	4.8	6.8	5.1	7.5	5.4	8.4	5.8	8.9	5.8	9.7	5.7
	50	5.0	4.1	6.0	4.8	6.8	5.1	7.5	5.4	8.4	5.8	8.9	5.8	9.7	5.7
	55	5.0	4.1	6.0	4.8	6.8	5.1	7.5	5.4	8.4	5.8	8.9	5.8	9.7	5.7
	60	5.0	4.1	6.0	4.8	6.8	5.1	7.5	5.4	8.4	5.8	8.9	5.8	9.6	5.7
	65	5.0	4.1	6.0	4.8	6.8	5.1	7.5	5.4	8.4	5.8	8.9	5.8	9.5	5.6
	70	5.0	4.1	6.0	4.8	6.8	5.1	7.5	5.4	8.4	5.8	8.9	5.8	9.3	5.5
	75	5.0	4.1	6.0	4.8	6.8	5.1	7.5	5.4	8.4	5.8	8.9	5.8	9.1	5.4
	80	5.0	4.1	6.0	4.8	6.8	5.1	7.5	5.4	8.4	5.8	8.7	5.7	8.9	5.4
	85	5.0	4.1	6.0	4.8	6.8	5.1	7.5	5.4	8.3	5.7	8.4	5.5	8.6	5.2
	90	5.0	4.1	6.0	4.8	6.8	5.1	7.5	5.4	8.2	5.6	8.3	5.4	8.4	5.1
	95	5.0	4.1	6.0	4.8	6.8	5.1	**7.5**	**5.4**	8.0	5.6	8.2	5.3	8.3	5.1
	100	5.0	4.1	6.0	4.8	6.8	5.1	7.5	5.4	7.9	5.5	8.0	5.3	8.2	5.0
	105	5.0	4.1	5.7	4.5	6.5	4.9	7.2	5.2	7.4	5.2	7.7	5.1	7.9	4.9
	110	4.8	4.0	5.4	4.3	6.0	4.5	6.8	4.9	6.9	4.9	7.4	4.9	7.7	4.8
ARNU093CEA4 - ARNU093CEU4 / 9.6	23	6.3	5.3	7.7	6.1	8.6	6.5	9.6	6.9	10.8	7.4	11.4	7.4	12.4	7.3
	25	6.3	5.3	7.7	6.1	8.6	6.5	9.6	6.9	10.8	7.4	11.4	7.4	12.4	7.3
	30	6.3	5.3	7.7	6.1	8.6	6.5	9.6	6.9	10.8	7.4	11.4	7.4	12.4	7.3
	35	6.3	5.3	7.7	6.1	8.6	6.5	9.6	6.9	10.8	7.4	11.4	7.4	12.4	7.3
	40	6.3	5.3	7.7	6.1	8.6	6.5	9.6	6.9	10.8	7.4	11.4	7.4	12.4	7.3
	45	6.3	5.3	7.7	6.1	8.6	6.5	9.6	6.9	10.8	7.4	11.4	7.4	12.4	7.3
	50	6.3	5.3	7.7	6.1	8.6	6.5	9.6	6.9	10.8	7.4	11.4	7.4	12.4	7.3
	55	6.3	5.3	7.7	6.1	8.6	6.5	9.6	6.9	10.8	7.4	11.4	7.4	12.4	7.4
	60	6.3	5.3	7.7	6.1	8.6	6.5	9.6	6.9	10.8	7.4	11.4	7.4	12.3	7.3
	65	6.3	5.3	7.7	6.1	8.6	6.5	9.6	6.9	10.8	7.4	11.4	7.4	12.1	7.2
	70	6.3	5.3	7.7	6.1	8.6	6.5	9.6	6.9	10.8	7.4	11.4	7.4	11.9	7.1
	75	6.3	5.3	7.7	6.1	8.6	6.5	9.6	6.9	10.8	7.4	11.4	7.4	11.6	6.9
	80	6.3	5.3	7.7	6.1	8.6	6.5	9.6	6.9	10.8	7.4	11.1	7.3	11.3	6.9
	85	6.3	5.3	7.7	6.1	8.6	6.5	9.6	6.9	10.7	7.4	10.8	7.0	10.9	6.6
	90	6.3	5.3	7.7	6.1	8.6	6.5	9.6	6.9	10.5	7.2	10.6	6.9	10.8	6.5
	95	6.3	5.3	7.7	6.1	8.6	6.5	**9.6**	**6.9**	10.3	7.2	10.5	6.8	10.7	6.5
	100	6.3	5.3	7.7	6.1	8.6	6.5	9.6	6.9	10.1	7.1	10.3	6.8	10.5	6.4
	105	6.3	5.3	7.3	5.8	8.3	6.2	9.2	6.6	9.4	6.6	9.9	6.5	10.1	6.3
	110	6.1	5.1	6.9	5.5	7.7	5.8	8.6	6.2	8.8	6.2	9.4	6.2	9.8	6.1
ARNU123CEA4 - ARNU123CEU / 12.3	23	8.1	6.8	9.8	7.8	11.1	8.3	12.3	8.9	13.8	9.5	14.6	9.4	15.9	9.4
	25	8.1	6.8	9.8	7.8	11.1	8.3	12.3	8.9	13.8	9.5	14.6	9.4	15.9	9.4
	30	8.1	6.8	9.8	7.8	11.1	8.3	12.3	8.9	13.8	9.5	14.6	9.4	15.9	9.4
	35	8.1	6.8	9.8	7.8	11.1	8.3	12.3	8.9	13.8	9.5	14.6	9.4	15.9	9.4
	40	8.1	6.8	9.8	7.8	11.1	8.3	12.3	8.9	13.8	9.5	14.6	9.4	15.9	9.4
	45	8.1	6.8	9.8	7.8	11.1	8.3	12.3	8.9	13.8	9.5	14.6	9.4	15.9	9.4
	50	8.1	6.8	9.8	7.8	11.1	8.3	12.3	8.9	13.8	9.5	14.6	9.4	15.9	9.4
	55	8.1	6.8	9.8	7.8	11.1	8.3	12.3	8.9	13.8	9.5	14.6	9.4	15.9	9.4
	60	8.1	6.8	9.8	7.8	11.1	8.3	12.3	8.9	13.8	9.5	14.6	9.4	15.7	9.4
	65	8.1	6.8	9.8	7.8	11.1	8.3	12.3	8.9	13.8	9.5	14.6	9.4	15.5	9.2
	70	8.1	6.8	9.8	7.8	11.1	8.3	12.3	8.9	13.8	9.5	14.6	9.4	15.3	9.1
	75	8.1	6.8	9.8	7.8	11.1	8.3	12.3	8.9	13.8	9.5	14.6	9.4	14.9	8.9
	80	8.1	6.8	9.8	7.8	11.1	8.3	12.3	8.9	13.8	9.5	14.3	9.4	14.5	8.8
	85	8.1	6.8	9.8	7.8	11.1	8.3	12.3	8.9	13.7	9.4	13.8	9.0	14.0	8.5
	90	8.1	6.8	9.8	7.8	11.1	8.3	12.3	8.9	13.4	9.3	13.5	8.8	13.8	8.4
	95	8.1	6.8	9.8	7.8	11.1	8.3	**12.3**	**8.9**	13.2	9.2	13.4	8.8	13.7	8.3
	100	8.1	6.8	9.8	7.8	11.1	8.3	12.3	8.9	12.9	9.1	13.2	8.7	13.4	8.2
	105	8.1	6.8	9.3	7.4	10.6	8.0	11.8	8.5	12.1	8.5	12.7	8.4	12.9	8.0
	110	7.9	6.6	8.9	7.0	9.8	7.4	11.1	8.0	11.3	8.0	12.1	8.0	12.5	7.8

TC: Total Capacity (MBh); SHC: Sensible Heat Capacity (MBh).

FLOOR STANDING

Cooling Capacity Tables

ARNU153CEA4 / CEU4, ARNU183CFA4 / CFU4, ARNU243CFA4 / CFU4

Table 13: ARNU153CEA4 / ARNU153CEU4, ARNU183CFA4 / ARNU183CFU4, ARNU243CFA4 / ARNU243CFU4 Cooling Capacity Table.

Model No. / Capacity Index	Outdoor Air Temp. (°F DB)	Indoor Air Temperature (°F DB / WB)													
		68 / 57		73 / 61		79 / 64		80 / 67		85 / 70		88 / 73		91 / 76	
		TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
		MBh	MBh	MBh	MBh	MBh	MBh	MBh	MBh	MBh	MBh	MBh	MBh	MBh	MBh
ARNU153CEA4 - ARNU153CEU4 / 15.4	23	10.2	8.5	12.3	9.8	13.9	10.4	15.4	11.1	17.2	11.9	18.3	11.8	19.9	11.8
	25	10.2	8.5	12.3	9.8	13.9	10.4	15.4	11.1	17.2	11.9	18.3	11.8	19.9	11.8
	30	10.2	8.5	12.3	9.8	13.9	10.4	15.4	11.1	17.2	11.9	18.3	11.8	19.9	11.8
	35	10.2	8.5	12.3	9.8	13.9	10.4	15.4	11.1	17.2	11.9	18.3	11.8	19.9	11.8
	40	10.2	8.5	12.3	9.8	13.9	10.4	15.4	11.1	17.2	11.9	18.3	11.8	19.9	11.8
	45	10.2	8.5	12.3	9.8	13.9	10.4	15.4	11.1	17.2	11.9	18.3	11.8	19.9	11.8
	50	10.2	8.5	12.3	9.8	13.9	10.4	15.4	11.1	17.2	11.9	18.3	11.8	19.9	11.8
	55	10.2	8.5	12.3	9.8	13.9	10.4	15.4	11.1	17.2	11.9	18.3	11.8	19.9	11.8
	60	10.2	8.5	12.3	9.8	13.9	10.4	15.4	11.1	17.2	11.9	18.3	11.8	19.7	11.7
	65	10.2	8.5	12.3	9.8	13.9	10.4	15.4	11.1	17.2	11.9	18.3	11.8	19.4	11.5
	70	10.2	8.5	12.3	9.8	13.9	10.4	15.4	11.1	17.2	11.9	18.3	11.8	19.1	11.4
	75	10.2	8.5	12.3	9.8	13.9	10.4	15.4	11.1	17.2	11.9	18.3	11.8	18.6	11.1
	80	10.2	8.5	12.3	9.8	13.9	10.4	15.4	11.1	17.2	11.9	17.9	11.7	18.2	11.1
	85	10.2	8.5	12.3	9.8	13.9	10.4	15.4	11.1	17.1	11.8	17.2	11.2	17.6	10.6
	90	10.2	8.5	12.3	9.8	13.9	10.4	15.4	11.1	16.8	11.6	16.9	11.0	17.2	10.5
	95	10.2	8.5	12.3	9.8	13.9	10.4	**15.4**	**11.1**	16.5	11.5	16.8	11.0	17.1	10.4
	100	10.2	8.5	12.3	9.8	13.9	10.4	15.4	11.1	16.2	11.4	16.5	10.9	16.8	10.3
	105	10.2	8.5	11.7	9.3	13.2	10.0	14.8	10.6	15.1	10.6	15.9	10.5	16.2	10.0
	110	9.9	8.3	11.1	8.8	12.3	9.3	13.9	10.0	14.2	10.0	15.1	10.0	15.7	9.8
ARNU183CFA4 - ARNU183CFU4 / 19.1	23	12.6	10.4	15.3	12.0	17.2	12.8	19.1	13.6	21.4	14.6	22.7	14.4	24.6	14.4
	25	12.6	10.4	15.3	12.0	17.2	12.8	19.1	13.6	21.4	14.6	22.7	14.4	24.6	14.4
	30	12.6	10.4	15.3	12.0	17.2	12.8	19.1	13.6	21.4	14.6	22.7	14.4	24.6	14.4
	35	12.6	10.4	15.3	12.0	17.2	12.8	19.1	13.6	21.4	14.6	22.7	14.4	24.6	14.4
	40	12.6	10.4	15.3	12.0	17.2	12.8	19.1	13.6	21.4	14.6	22.7	14.4	24.6	14.4
	45	12.6	10.4	15.3	12.0	17.2	12.8	19.1	13.6	21.4	14.6	22.7	14.4	24.6	14.4
	50	12.6	10.4	15.3	12.0	17.2	12.8	19.1	13.6	21.4	14.6	22.7	14.4	24.6	14.4
	55	12.6	10.4	15.3	12.0	17.2	12.8	19.1	13.6	21.4	14.6	22.7	14.4	24.6	14.4
	60	12.6	10.4	15.3	12.0	17.2	12.8	19.1	13.6	21.4	14.6	22.7	14.4	24.4	14.3
	65	12.6	10.4	15.3	12.0	17.2	12.8	19.1	13.6	21.4	14.6	22.7	14.4	24.1	14.1
	70	12.6	10.4	15.3	12.0	17.2	12.8	19.1	13.6	21.4	14.6	22.7	14.4	23.7	13.9
	75	12.6	10.4	15.3	12.0	17.2	12.8	19.1	13.6	21.4	14.6	22.7	14.4	23.1	13.6
	80	12.6	10.4	15.3	12.0	17.2	12.8	19.1	13.6	21.4	14.6	22.2	14.4	22.5	13.5
	85	12.6	10.4	15.3	12.0	17.2	12.8	19.1	13.6	21.2	14.4	21.4	13.7	21.8	13.0
	90	12.6	10.4	15.3	12.0	17.2	12.8	19.1	13.6	20.8	14.2	21.0	13.5	21.4	12.8
	95	12.6	10.4	15.3	12.0	17.2	12.8	**19.1**	**13.6**	20.4	14.1	20.8	13.4	21.2	12.7
	100	12.6	10.4	15.3	12.0	17.2	12.8	19.1	13.6	20.1	13.9	20.4	13.3	20.8	12.6
	105	12.6	10.4	14.5	11.4	16.4	12.2	18.3	13.0	18.7	13.0	19.7	12.8	20.1	12.3
	110	12.2	10.1	13.8	10.8	15.3	11.4	17.2	12.2	17.6	12.2	18.7	12.2	19.5	11.9
ARNU243CFA4 - ARNU243CFU4 / 24.2	23	16.0	13.2	19.4	15.2	21.8	16.2	24.2	17.2	27.1	18.5	28.8	18.3	31.2	18.3
	25	16.0	13.2	19.4	15.2	21.8	16.2	24.2	17.2	27.1	18.5	28.8	18.3	31.2	18.3
	30	16.0	13.2	19.4	15.2	21.8	16.2	24.2	17.2	27.1	18.5	28.8	18.3	31.2	18.3
	35	16.0	13.2	19.4	15.2	21.8	16.2	24.2	17.2	27.1	18.5	28.8	18.3	31.2	18.3
	40	16.0	13.2	19.4	15.2	21.8	16.2	24.2	17.2	27.1	18.5	28.8	18.3	31.2	18.3
	45	16.0	13.2	19.4	15.2	21.8	16.2	24.2	17.2	27.1	18.5	28.8	18.3	31.2	18.3
	50	16.0	13.2	19.4	15.2	21.8	16.2	24.2	17.2	27.1	18.5	28.8	18.3	31.2	18.3
	55	16.0	13.2	19.4	15.2	21.8	16.2	24.2	17.2	27.1	18.5	28.8	18.3	31.2	18.3
	60	16.0	13.2	19.4	15.2	21.8	16.2	24.2	17.2	27.1	18.5	28.8	18.3	31.0	18.2
	65	16.0	13.2	19.4	15.2	21.8	16.2	24.2	17.2	27.1	18.5	28.8	18.3	30.5	17.9
	70	16.0	13.2	19.4	15.2	21.8	16.2	24.2	17.2	27.1	18.5	28.8	18.3	30.0	17.6
	75	16.0	13.2	19.4	15.2	21.8	16.2	24.2	17.2	27.1	18.5	28.8	18.3	29.3	17.2
	80	16.0	13.2	19.4	15.2	21.8	16.2	24.2	17.2	27.1	18.5	28.1	18.2	28.6	17.1
	85	16.0	13.2	19.4	15.2	21.8	16.2	24.2	17.2	26.9	18.3	27.1	17.4	27.6	16.5
	90	16.0	13.2	19.4	15.2	21.8	16.2	24.2	17.2	26.4	18.0	26.6	17.1	27.1	16.2
	95	16.0	13.2	19.4	15.2	21.8	16.2	**24.2**	**17.2**	25.9	17.9	26.4	17.0	26.9	16.1
	100	16.0	13.2	19.4	15.2	21.8	16.2	24.2	17.2	25.4	17.6	25.9	16.9	26.4	15.9
	105	16.0	13.2	18.4	14.4	20.8	15.5	23.2	16.5	23.7	16.5	24.9	16.3	25.4	15.6
	110	15.5	12.8	17.4	13.6	19.4	14.4	21.8	15.5	22.3	15.5	23.7	15.5	24.7	15.1

TC: Total Capacity (MBh); SHC: Sensible Heat Capacity (MBh).

Table 14: ARNU073CEA4 / ARNU073CEU4, ARNU093CEA4 / ARNU093CEU4, ARNU123CEA4 / ARNU123CEU4 Heating Capacity Table.

Model No. / Capacity Index	Outdoor Air Temp.		Indoor Air Temperature (°F DB)							
			59	61	64	67	70	73	76	80
	°F DB	°F WB	TC MBh	TC MBh	TC MBh	TC MBh	TC MBh	TC MBh	TC MBh	TC MBh
ARNU073CEA4 - ARNU073CEU4 / 7.5	-4	-4.4	5.7	5.7	5.7	5.7	5.6	5.6	5.6	5.6
	0	-0.4	5.9	5.9	5.9	5.9	5.9	5.8	5.8	5.8
	5.0	4.5	6.6	6.5	6.5	6.5	6.5	6.5	6.5	6.5
	10.0	9.0	6.9	6.9	6.9	6.8	6.8	6.8	6.8	6.8
	15.0	14.0	7.3	7.3	7.3	7.3	7.3	7.3	7.2	7.1
	20.0	19.0	7.7	7.7	7.7	7.7	7.5	7.5	7.4	7.3
	25.0	23.0	8.1	8.1	8.1	8.1	8.1	7.9	7.8	7.7
	30.0	28.0	8.2	8.2	8.2	8.2	8.2	8.1	7.8	7.6
	35.0	32.0	8.5	8.5	8.5	8.5	8.4	8.2	7.8	7.4
	40.0	36.0	8.8	8.8	8.8	8.8	8.5	8.2	7.8	7.4
	45.0	41.0	9.2	9.2	9.2	8.9	8.5	8.2	7.8	7.4
	47.0	43.0	9.5	9.4	9.4	8.9	**8.5**	8.2	7.8	7.4
	50.0	46.0	10.2	9.8	9.4	8.9	8.5	8.2	7.8	7.4
	55.0	51.0	10.4	9.9	9.4	8.9	8.5	8.2	7.8	7.4
	60.0	56.0	10.4	9.9	9.4	8.9	8.5	8.2	7.8	7.4
ARNU093CEA4 - ARNU093CEU4 / 9.6	-4	-4.4	7.3	7.3	7.3	7.3	7.2	7.2	7.2	7.2
	0	-0.4	7.5	7.5	7.5	7.5	7.5	7.4	7.4	7.4
	5.0	4.5	8.5	8.4	8.3	8.3	8.3	8.3	8.3	8.3
	10.0	9.0	8.8	8.8	8.8	8.7	8.7	8.7	8.7	8.7
	15.0	14.0	9.4	9.4	9.4	9.4	9.4	9.4	9.3	9.2
	20.0	19.0	9.9	9.9	9.9	9.9	9.7	9.7	9.5	9.4
	25.0	23.0	10.4	10.4	10.4	10.4	10.4	10.1	10.0	9.9
	30.0	28.0	10.6	10.6	10.6	10.6	10.6	10.4	10.0	9.7
	35.0	32.0	10.9	10.9	10.9	10.9	10.8	10.6	10.0	9.5
	40.0	36.0	11.3	11.3	11.3	11.3	10.9	10.6	10.0	9.5
	45.0	41.0	11.8	11.8	11.8	11.4	10.9	10.6	10.0	9.5
	47.0	43.0	12.2	12.1	12.0	11.4	**10.9**	10.6	10.0	9.5
	50.0	46.0	13.1	12.5	12.0	11.4	10.9	10.6	10.0	9.5
	55.0	51.0	13.3	12.6	12.0	11.4	10.9	10.6	10.0	9.5
	60.0	56.0	13.3	12.6	12.0	11.4	10.9	10.6	10.0	9.5
ARNU123CEA4 - ARNU123CEU / 12.3	-4	-4.4	9.1	9.1	9.1	9.1	9.0	9.0	9.0	9.0
	0	-0.4	9.4	9.4	9.4	9.4	9.4	9.2	9.2	9.2
	5.0	4.5	10.6	10.5	10.3	10.3	10.3	10.3	10.3	10.3
	10.0	9.0	11.0	11.0	11.0	10.9	10.9	10.9	10.9	10.9
	15.0	14.0	11.7	11.7	11.7	11.7	11.7	11.7	11.6	11.4
	20.0	19.0	12.4	12.4	12.4	12.4	12.1	12.1	11.9	11.7
	25.0	23.0	12.9	12.9	12.9	12.9	12.9	12.6	12.5	12.4
	30.0	28.0	13.2	13.2	13.2	13.2	13.2	12.9	12.5	12.1
	35.0	32.0	13.6	13.6	13.6	13.6	13.5	13.2	12.5	11.9
	40.0	36.0	14.1	14.1	14.1	14.1	13.6	13.2	12.5	11.9
	45.0	41.0	14.7	14.7	14.7	14.3	13.6	13.2	12.5	11.9
	47.0	43.0	15.2	15.1	15.0	14.3	**13.6**	13.2	12.5	11.9
	50.0	46.0	16.4	15.6	15.0	14.3	13.6	13.2	12.5	11.9
	55.0	51.0	16.6	15.8	15.0	14.3	13.6	13.2	12.5	11.9
	60.0	56.0	16.6	15.8	15.0	14.3	13.6	13.2	12.5	11.9

TC: Total Capacity (MBh).

FLOOR STANDING

Heating Capacity Tables

ARNU153CEA4 / CEU4, ARNU183CFA4 / CFU4, ARNU243CFA4 / CFU4

Table 15: ARNU153CEA4 / ARNU153CEU4, ARNU183CFA4 / ARNU183CFU4, ARNU243CFA4 / ARNU243CFU4 Heating Capacity Table.

Capacity Index	Outdoor Air Temp.		Indoor Air Temperature (°F DB)							
			59	61	64	67	70	73	76	80
	°F DB	°F WB	TC MBh	TC MBh	TC MBh	TC MBh	TC MBh	TC MBh	TC MBh	TC MBh
ARNU153CEA4 - ARNU153CEU4 / 15.4	-4	-4.4	11.5	11.5	11.5	11.5	11.3	11.3	11.3	11.3
	0	-0.4	11.8	11.8	11.8	11.8	11.8	11.6	11.6	11.6
	5.0	4.5	13.3	13.2	13.0	13.0	13.0	13.0	13.0	13.0
	10.0	9.0	13.9	13.9	13.9	13.7	13.7	13.7	13.7	13.7
	15.0	14.0	14.7	14.7	14.7	14.7	14.7	14.7	14.5	14.4
	20.0	19.0	15.6	15.6	15.6	15.6	15.2	15.2	15.0	14.8
	25.0	23.0	16.2	16.2	16.2	16.2	16.2	15.9	15.7	15.6
	30.0	28.0	16.6	16.6	16.6	16.6	16.6	16.2	15.7	15.2
	35.0	32.0	17.1	17.1	17.1	17.1	16.9	16.6	15.7	14.9
	40.0	36.0	17.8	17.8	17.8	17.8	17.1	16.6	15.7	14.9
	45.0	41.0	18.5	18.5	18.5	18.0	17.1	16.6	15.7	14.9
	47.0	43.0	19.2	19.0	18.8	18.0	17.1	16.6	15.7	14.9
	50.0	46.0	20.6	19.7	18.8	18.0	17.1	16.6	15.7	14.9
	55.0	51.0	20.9	19.8	18.8	18.0	17.1	16.6	15.7	14.9
	60.0	56.0	20.9	19.8	18.8	18.0	17.1	16.6	15.7	14.9
ARNU183CFA4 - ARNU183CFU4 / 19.1	-4	-4.4	14.4	14.4	14.4	14.4	14.2	14.2	14.2	14.2
	0	-0.4	14.8	14.8	14.8	14.8	14.8	14.6	14.6	14.6
	5.0	4.5	16.8	16.6	16.3	16.3	16.3	16.3	16.3	16.3
	10.0	9.0	17.4	17.4	17.4	17.2	17.2	17.2	17.2	17.2
	15.0	14.0	18.5	18.5	18.5	18.5	18.5	18.5	18.3	18.1
	20.0	19.0	19.6	19.6	19.6	19.6	19.1	19.1	18.8	18.5
	25.0	23.0	20.4	20.4	20.4	20.4	20.4	20.0	19.8	19.6
	30.0	28.0	20.9	20.9	20.9	20.9	20.9	20.4	19.8	19.2
	35.0	32.0	21.5	21.5	21.5	21.5	21.3	20.9	19.8	18.8
	40.0	36.0	22.4	22.4	22.4	22.4	21.5	20.9	19.8	18.8
	45.0	41.0	23.2	23.2	23.2	22.6	21.5	20.9	19.8	18.8
	47.0	43.0	24.1	23.9	23.7	22.6	21.5	20.9	19.8	18.8
	50.0	46.0	25.8	24.7	23.7	22.6	21.5	20.9	19.8	18.8
	55.0	51.0	26.3	24.9	23.7	22.6	21.5	20.9	19.8	18.8
	60.0	56.0	26.3	24.9	23.7	22.6	21.5	20.9	19.8	18.8
ARNU243CFA4 - ARNU243CFU4 / 24.2	-4	-4.4	18.3	18.3	18.3	18.3	18.0	18.0	18.0	18.0
	0	-0.4	18.8	18.8	18.8	18.8	18.8	18.6	18.6	18.6
	5.0	4.5	21.3	21.0	20.7	20.7	20.7	20.7	20.7	20.7
	10.0	9.0	22.1	22.1	22.1	21.8	21.8	21.8	21.8	21.8
	15.0	14.0	23.5	23.5	23.5	23.5	23.5	23.5	23.2	22.9
	20.0	19.0	24.8	24.8	24.8	24.8	24.2	24.2	23.9	23.6
	25.0	23.0	25.9	25.9	25.9	25.9	25.9	25.4	25.1	24.8
	30.0	28.0	26.5	26.5	26.5	26.5	26.5	25.9	25.1	24.3
	35.0	32.0	27.3	27.3	27.3	27.3	27.0	26.5	25.1	23.8
	40.0	36.0	28.4	28.4	28.4	28.4	27.3	26.5	25.1	23.8
	45.0	41.0	29.5	29.5	29.5	28.7	27.3	26.5	25.1	23.8
	47.0	43.0	30.6	30.3	30.0	28.7	27.3	26.5	25.1	23.8
	50.0	46.0	32.8	31.4	30.0	28.7	27.3	26.5	25.1	23.8
	55.0	51.0	33.4	31.7	30.0	28.7	27.3	26.5	25.1	23.8
	60.0	56.0	33.4	31.7	30.0	28.7	27.3	26.5	25.1	23.8

TC: Total Capacity (MBh).

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Mechanical Specifications

Casing
The case is designed to mount against the ceiling surface in a horizontal supply air configuration. The return air is from the bottom and supply air is from a single slot on the front of the unit. The unit is manufactured using a coated metal frame covered with an off-white ABS architectural polymeric resin exterior case. Cold surfaces are covered with a coated polystyrene insulating material.

Fan Assembly and Control
The unit has a single, direct driven, Sirocco fan made of high strength ABS HR-2407 polymeric resin. The fan motor is a Brushless Digitally-Controlled (BLDC) design with permanently lubricated and sealed ball bearings. The fan/motor assembly is mounted on vibration attenuating rubber grommets. The fan speed is controlled using a microprocessor-based direct digital control algorithm that provides a minimum of three pre-programmed fan speeds in the Heating and Fan Only modes and four speeds in the Cooling mode. Fan settings are high, medium, and low. The fourth speed in the Cooling mode is a super high setting that runs for 30 minutes at high fan speed. A chaos wind setting provides random change in fan speed. The fan speed algorithm provides a field selectable fixed or auto-speed setting that changes fan speed based on the difference between controller set-point and space temperature.

Air Filter
Return air is filtered with a removable, washable filter. Access to the filter media is through a hinged, spring clip (screwless) return air grille located on the bottom of the unit.

Airflow Guide Vanes
The supply air opening has a single directional slot diffuser with an oscillating motorized guide vane designed to change the angle airflow is supplied. The supply air range of motion is 40° in an up / down direction with the capability of locking the valve in a fixed position. Manually adjustable guide vanes are provided to set the airflow supply air direction from side-to-side.

Microprocessor Controls
The unit is provided with an integrated microprocessor-based controller. The controller is capable of performing functions necessary to operate the system without the use of a wall-mounted controller. A temperature thermistor is factory-mounted in the return air stream. All unit operation parameters, excluding the operating schedule, are stored in non-volatile memory resident on the unit microprocessor. Operating schedules are stored in select models of the optional, wall-mounted, local or central controller. The field-supplied communication cable between the indoor unit(s) and outdoor unit is to be a minimum of 18 AWG, 2 conductor, stranded, and shielded cable (RS-485), terminated via screw terminals on the control boards. The microprocessor control provides the following functions: self-diagnostics, auto restart following power restoration, test run, and will operate the indoor unit using one of five operating modes:

1. Auto Changeover (Heat Recovery only)
2. Heating
3. Cooling
4. Dry
5. Fan Only

For Heat Recovery systems the Auto Changeover setting automatically switches between cooling and heating modes based on room temperature conditions.

For Heat Pump systems, heated or cooled air delivery is dependent upon outdoor unit operating mode. In Heating mode, the microprocessor control will activate the indoor unit when indoor room temperature falls below setpoint temperature and signals the outdoor unit to begin the heating cycle. The indoor unit fan operation is delayed until coil pipe temperature reaches 76ºF. Significant airflow is generated when pipe temperature reaches 80°F. The unit is equipped with an infrared receiver designed to communicate with an LG hand-held remote controller. Pluggable connection sockets on the microprocessor circuit board accommodate various models of wall-mounted local controllers and/or a wall-mounted remote temperature sensor. The unit microprocessor is capable of accepting space temperature readings concurrently or individually from either:

1. Wall-mounted wired controller(s)
2. Factory mounted return air thermistor or the optional wall-mounted wired remote temperature sensor

A single indoor unit has the capability of being controlled by up to two local wired controllers. The microprocessor controls space temperature using the value provided by the temperature sensor sensing a space temperature that is farthest away from the temperature set-point. The microprocessor control provides a Cooling mode test cycle that operates the unit in full Cooling mode for 18 minutes without regard to space temperature. If the system is provided with an optional wall-mounted or central controller, displayed diagnostic codes are specific, alpha numeric, and provide the service technician with a reason for the code displayed.

Handling Condensate
The unit is designed for gravity draining of condensate. LG provides a factory insulated flexible drain hose. If condensate lift/pumps are needed for the application, they are to be field-provided.

Controls Features
- Auto changeover (Heat Recovery only)
- Auto operation
- Auto restart
- Child lock
- Dual thermistor control
- Forced Operation
- Group control
- High ceiling
- Hot start
- Self diagnostics
- Sleep mode
- Timer (on / off)
- Weekly schedule
- Soft dry (dehumidification)
- Auto direction/swing (up / down)
- Manual control direction (left / right)
- Fan speed control
- Chaos wind (random fan speed)
- Jet cool (fast cooling)

Table 16: Ceiling Suspended Indoor Unit General Data.

Type	Ceiling Suspended	
	ARNU183VJA2	ARNU243VJA2
Cooling Mode Performance		
Capacity (Btu/h)	19,100	24,200
Power Input[1] (W)	63	63
Heating Mode Performance		
Capacity (Btu/h)	21,500	27,300
Power Input[1] (W)	63	63
Entering Mixed Air		
Cooling Max (°F WB)	76	76
Heating Min (°F DB)	59	59
Unit Data		
Refrigerant Type[2]	R410A	R410A
Refrigerant Control	EEV	EEV
Sound Pressure[3] dB(A) (H/M/L)	42 / 40 / 37	43 / 41 / 39
Net Unit Weight (lbs)	55	55
Shipping Weight (lbs)	66	66
Communication Cable[4] (No. x AWG)	2 x 18	2 x 18
Fan		
Type	Sirocco	Sirocco
Quantity	1	1
Motor/Drive	Brushless Digitally Controlled / Direct	
Airflow Rate H/M/L (CFM)	565 / 495 / 424	636 / 565 / 495
Piping		
Liquid Line (in., O.D.)	1/4 Flare	3/8 Flare
Vapor Line (in., O.D.)	1/2 Flare	5/8 Flare
Condensate Line (in., I.D.)	5/8	5/8

EEV: Electronic Expansion Valve

Power wiring is field supplied and must comply with the applicable local and national codes.

This unit comes with a dry nitrogen charge.

This data is rated 0 ft above sea level, with 25 ft of refrigerant line per indoor unit and a 0 ft level difference between outdoor and indoor units. All capacities are net with a combination ratio between 95-105%.

Cooling capacity rating obtained with air entering the indoor coil at 80ºF dry bulb (DB) and 67ºF wet bulb (WB) and outdoor ambient conditions of 95ºF dry bulb (DB).

Heating capacity rating obtained with air entering the indoor unit at 70ºF dry bulb (DB) and outdoor ambient conditions of 47ºF dry bulb (DB) and 43ºF wet bulb (WB).

[1]Power Input is rated at high speed.

[2]Take appropriate actions at the end of HVAC equipment life to recover, recycle, reclaim or destroy R410A refrigerant according to applicable regulations (40 CFR Part 82, Subpart F) under section 608 of CAA.

[3]Sound Pressure levels are tested in an anechoic chamber under ISO Standard 3745.

[4]All communication cable to be minimum 18 AWG, 2-conductor, stranded, shielded and must comply with applicable and national code. Ensure the communication cable is properly grounded at the master outdoor unit only. Do not ground the ODU-IDU communication cable at any other point.

Table 17: Ceiling Suspended Indoor Unit Electrical Data.

Model	Voltage Range	MCA	MOP	Rated Amps (A)	Power Supply			Power Input (W)	
					Hz	Volts	Phase	Cooling	Heating
ARNU183VJA2	187-253	0.43	15	0.6	60	208-230V	1	63	63
ARNU243VJA2		0.43	15	0.6				63	63

MCA : Minimum Circuit Ampacity.

MOP : Maximum Overcurrent Protection.

Units are suitable for use on an electrical system where voltage supplied to unit terminals is within the listed range limits.

Select wire size based on the larger MCA value.

Instead of fuse, use the circuit breaker.

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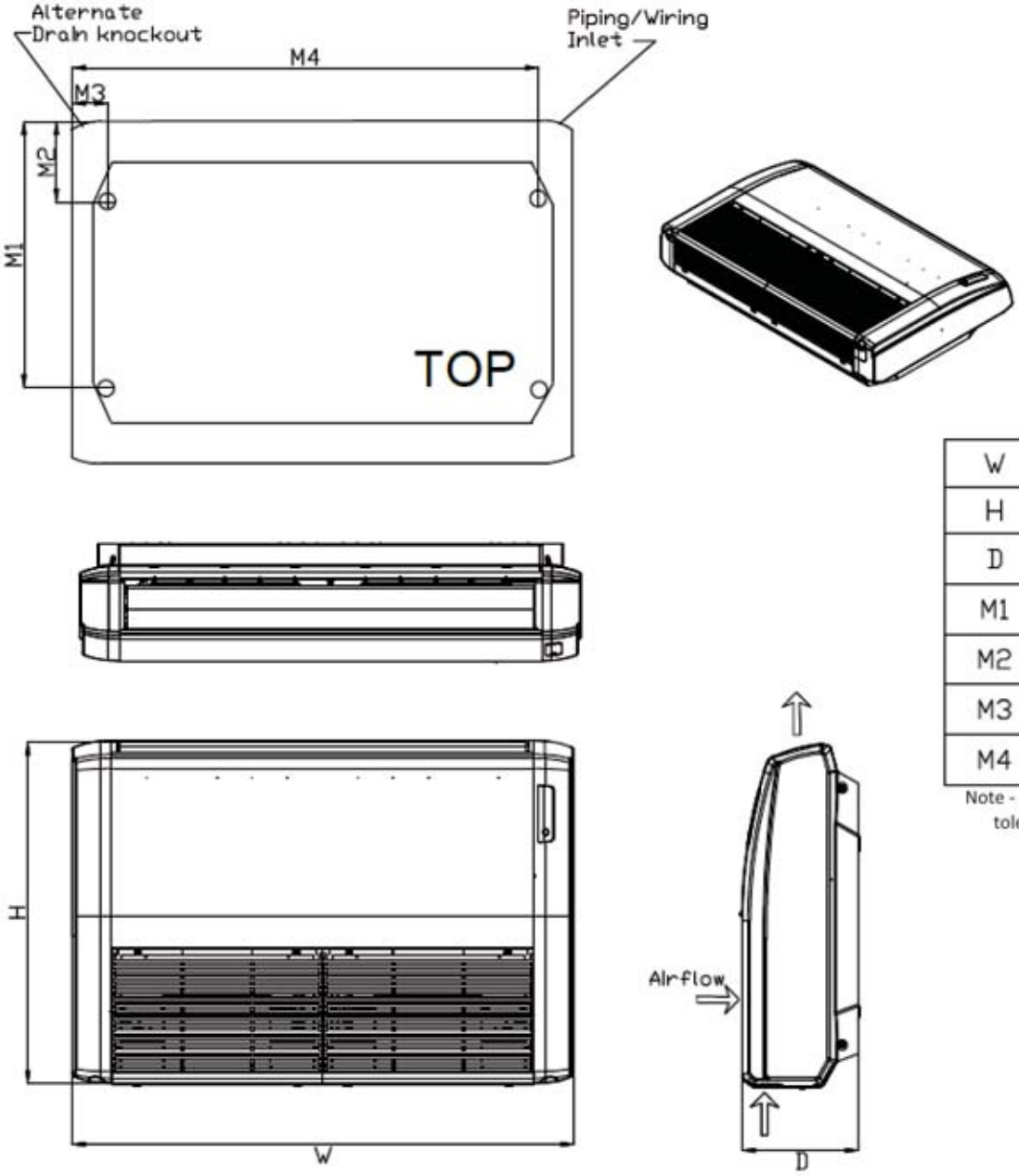
External Dimensions

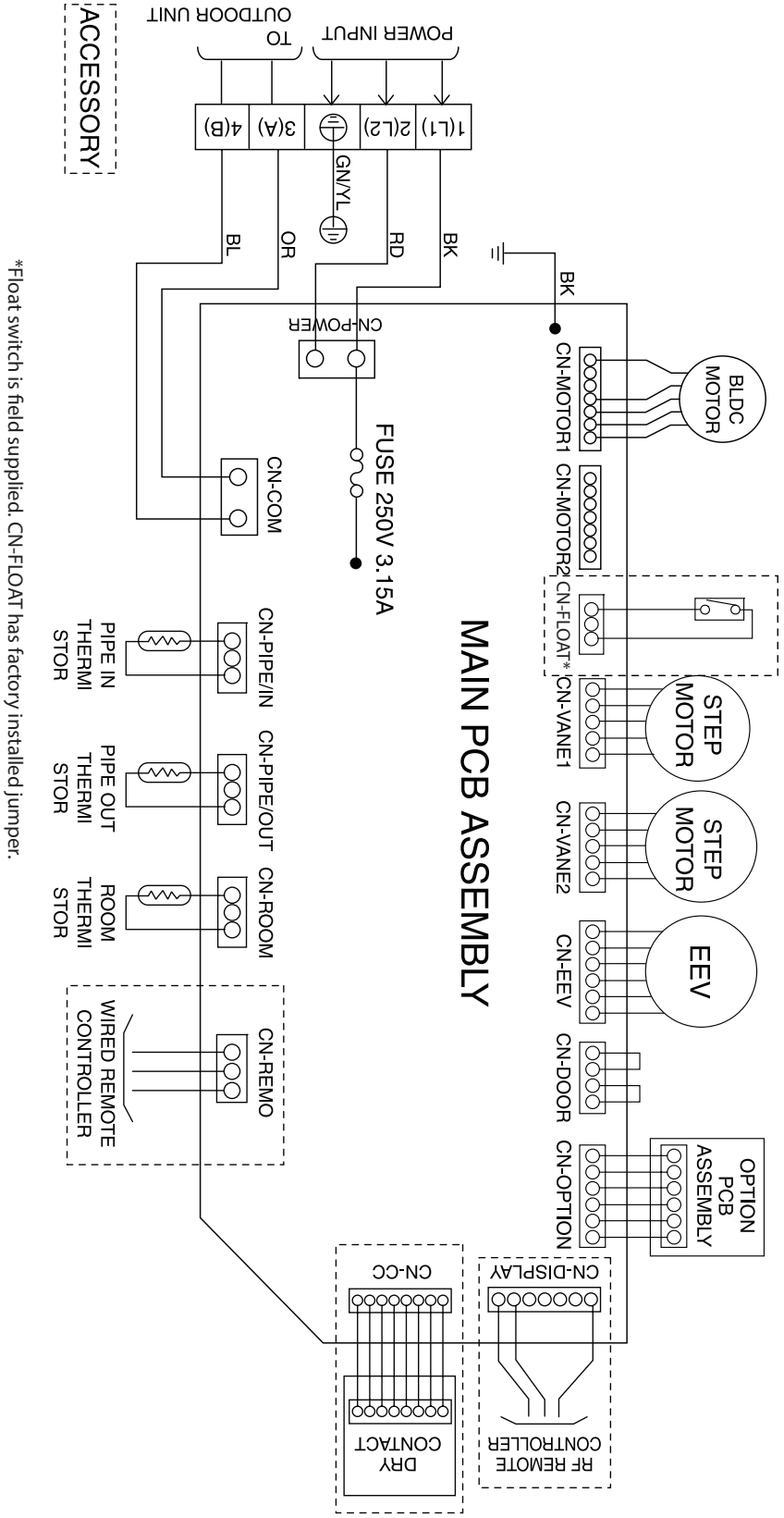
Figure 17: ARNU183VJA2 and ARNU243VJA2 Dimensions.



W	37-3/8"
H	25-5/8"
D	8-11/16"
M1	18-5/8"
M2	6"
M3	1-7/8"
M4	35-1/2"

Note - All dimensions have a tolerance of ± 0.25 in.

Figure 18: ARNU183VJA2 and ARNU243VJA2 Wiring Diagram.



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Electrical Wiring Diagram

Table 18: Ceiling Suspended Indoor Unit Wiring Diagram Legend.

Terminal	Purpose	Function
CN-POWER	AC Power supply	AC Power line
CN-MOTOR1	Fan motor output	Motor output of BLDC
CN-MOTOR2	Fan motor output	Motor output of BLDC
CN-FLOAT	Float switch input	Float switch sensing
CN-VANE1	Step motor	Step motor output
CN-VANE2	Step motor	Step motor output
CN-EEV	EEV Output	EEV control output
CN-DOOR	Door lock switch	Door lock switch line
CN-OPTION	Optional PCB EPROM	Option PCB connection
CN-DISPLAY	Display	Display of indoor status
CN-CC	Dry contact	Dry Contact connection
CN-REMO	Wired remote controller	Wired remote control connection
CN-ROOM	Room sensor	Room air thermistor
CN-PIPE/OUT	Discharge pipe sensor	Pipe out thermistor
CN-PIPE/IN	Suction pipe sensor	Pipe in thermistor
CN-COM	Communication	Communication between indoor and outdoor

Table 19: Ceiling Suspended Indoor Unit DIP Switch Settings.

DIP Switch Setting		Off	On	Remarks
SW3	GROUP CONTROL	Master	Slave	Group control setting using 7-Day Programmable Controller; selects Master / Slave on each indoor unit
SW4	DRY CONTACT MODE	Variable	Auto	Sets operation mode for optional Dry Contact accessory 1. Variable: Auto or Manual Mode can be set through 7-Day Programmable Controller or Wireless Remote Controller (factory default setting is Auto if there is no setting) 2. Auto: For Dry Contact, it is always Auto mode

***For Gen 4 Multi V ceiling suspended indoor units, DIP switches 1, 2, 5 through 8 must be set to OFF. These DIP switches are used for other models.**

Figure 19: Ceiling Suspended Indoor Unit Refrigerant Flow Diagram.

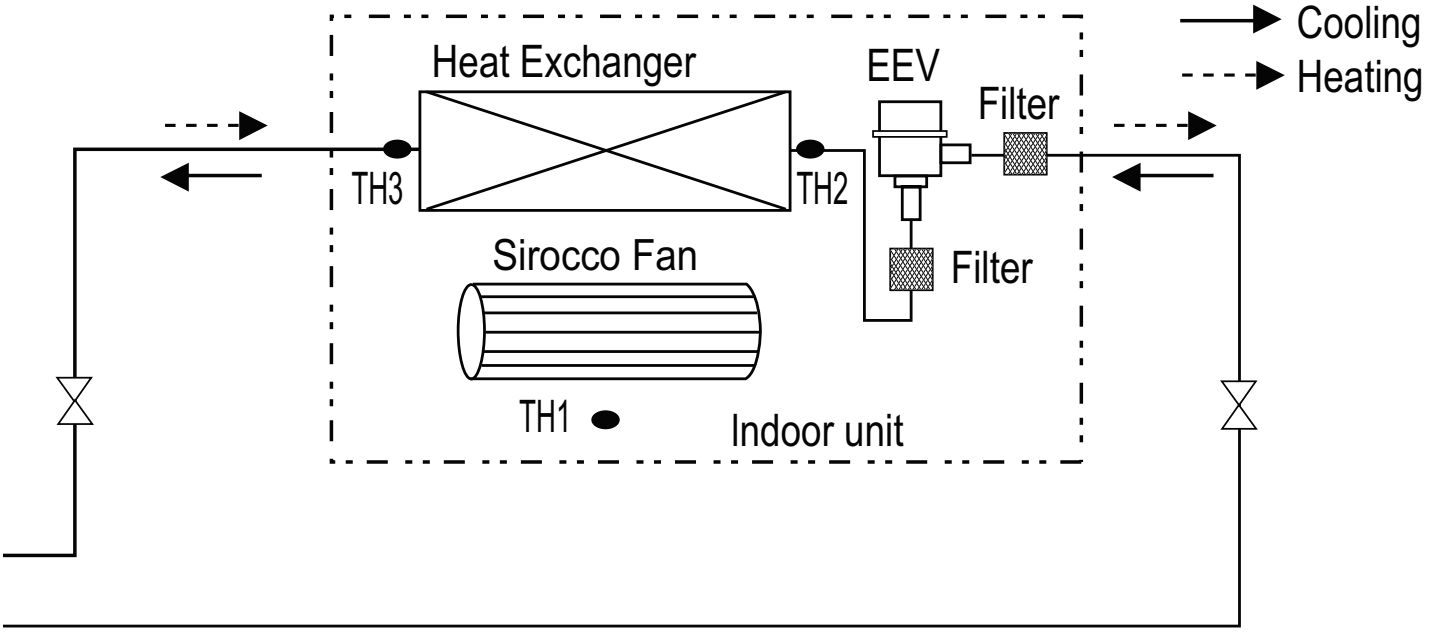

Table 20: Ceiling Suspended Indoor Unit Refrigerant Pipe Connection Port Diameters.

Model	Liquid (inch)	Gas (inch)
ARNU183VJA2	1/4	1/2
ARNU243VJA2	3/8	5/8

Table 21: Ceiling Suspended Indoor Unit Thermistors.

Thermistor	Description
TH1	Return air thermistor
TH2	Pipe in thermistor
TH3	Pipe out thermistor

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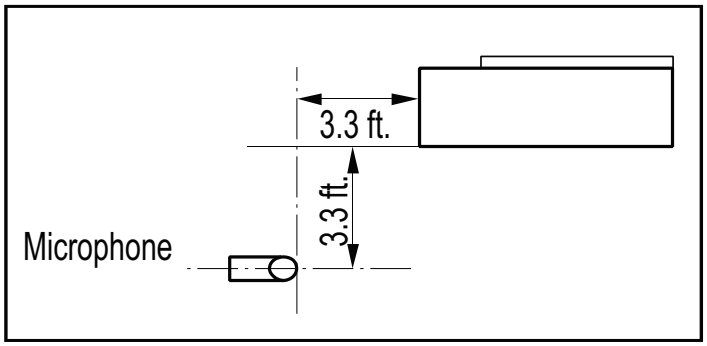
Acoustic Data

Sound Pressure Levels

Figure 20: Sound Pressure Measurement Location.



- Measurements are taken 3.3 ft away from the front of the unit.
- Sound pressure levels are measured in dB(A) with a tolerance of ±3.
- Sound pressure levels are tested in an anechoic chamber under ISO Standard 3745.

Operating Conditions:

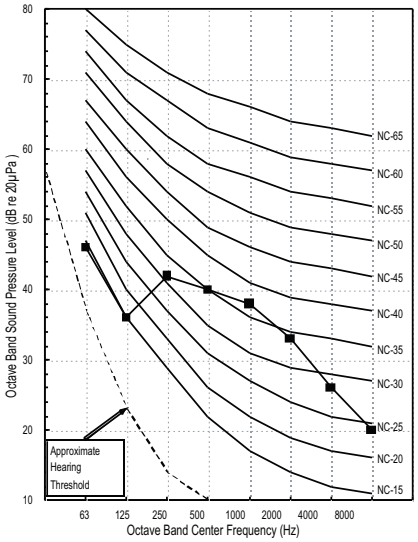
- Power source: 220V/60 Hz
- Sound level will vary depending on a range of factors including the construction (acoustic absorption coefficient) of a particular room in which the unit was installed.

Table 22: Ceiling Suspended Indoor Unit Sound Pressure Levels

Model	Sound Levels dB(A)		
	High Fan Speed	Medium Fan Speed	Low Fan Speed
ARNU183VJA2	42	40	37
ARNU243VJA2	43	41	39

Figure 21: ARNU183VJA2 and ARNU243VJA2 Sound Pressure Level Diagrams.

ARNU183VJA2



ARNU243VJA2

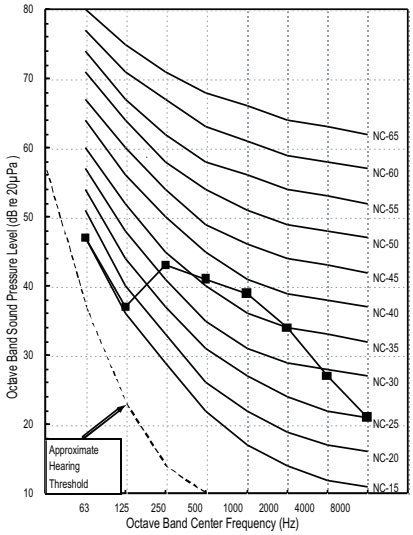
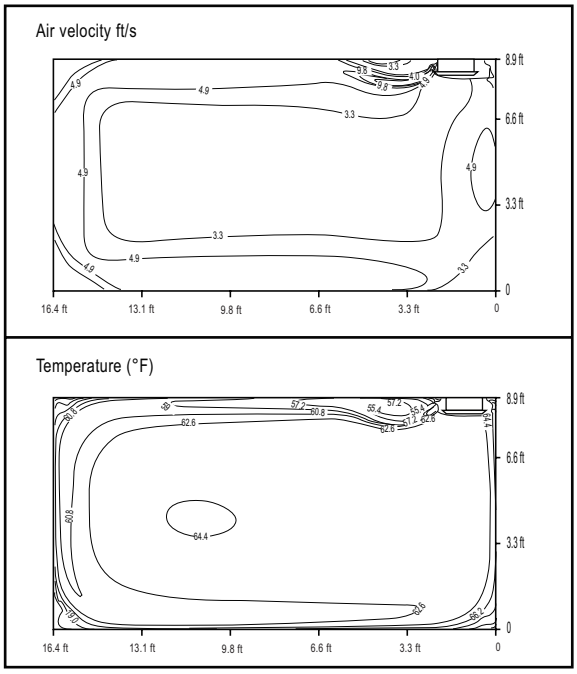


Figure 22: ARNU183VJA2.

Cooling

Discharge angle: 50°



Heating

Discharge angle: 60°

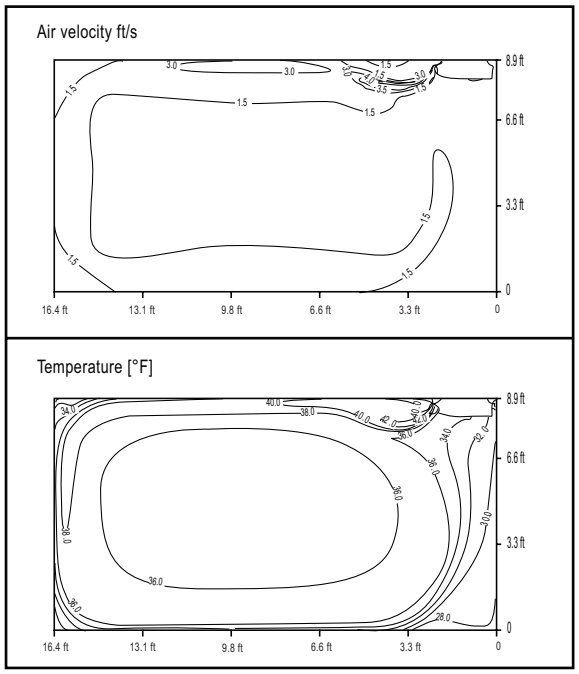
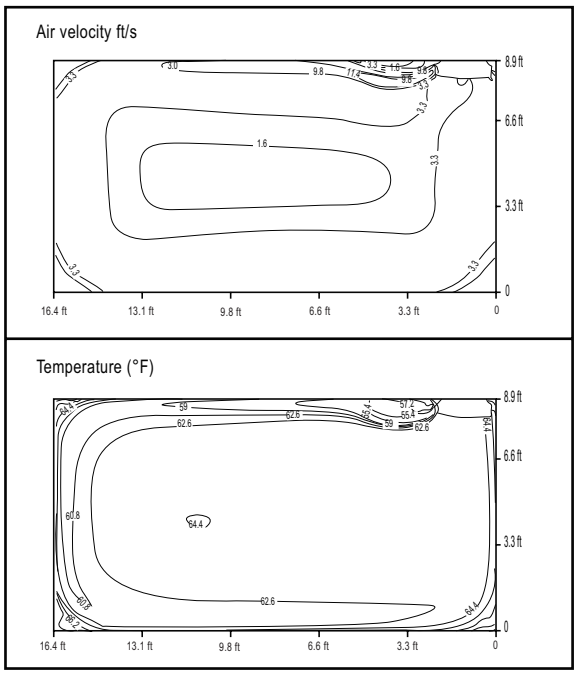


Figure 23: ARNU243VJA2.

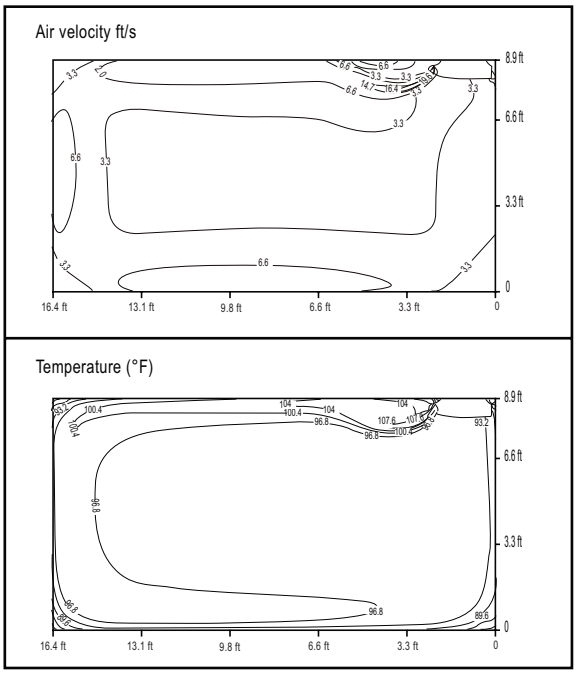
Cooling

Discharge angle: 50°



Heating

Discharge angle: 60°



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Cooling Capacity Tables

ARNU183VJA2, ARNU243VJA2

Table 23: ARNU183VJA2 and ARNU243VJA2 Cooling Capacity Table.

Model No. / Capacity Index	Outdoor Air Temp. (°F DB)	Indoor Air Temperature (°F DB / WB)													
		68 / 57		73 / 61		79 / 64		80 / 67		85 / 70		88 / 73		91 / 76	
		TC MBh	SHC MBh	TC MBh	SHC MBh	TC MBh	SHC MBh	TC MBh	SHC MBh	TC MBh	SHC MBh	TC MBh	SHC MBh	TC MBh	SHC MBh
ARNU183VJA2 / 19.2	23	12.6	10.6	15.3	12.1	17.2	13.0	19.1	13.8	21.4	14.8	22.7	14.6	24.6	14.6
	25	12.6	10.6	15.3	12.1	17.2	13.0	19.1	13.8	21.4	14.8	22.7	14.6	24.6	14.6
	30	12.6	10.6	15.3	12.1	17.2	13.0	19.1	13.8	21.4	14.8	22.7	14.6	24.6	14.6
	35	12.6	10.6	15.3	12.1	17.2	13.0	19.1	13.8	21.4	14.8	22.7	14.6	24.6	14.6
	40	12.6	10.6	15.3	12.1	17.2	13.0	19.1	13.8	21.4	14.8	22.7	14.6	24.6	14.6
	45	12.6	10.6	15.3	12.1	17.2	13.0	19.1	13.8	21.4	14.8	22.7	14.6	24.6	14.6
	50	12.6	10.6	15.3	12.1	17.2	13.0	19.1	13.8	21.4	14.8	22.7	14.6	24.6	14.6
	55	12.6	10.6	15.3	12.1	17.2	13.0	19.1	13.8	21.4	14.8	22.7	14.6	24.6	14.6
	60	12.6	10.6	15.3	12.1	17.2	13.0	19.1	13.8	21.4	14.8	22.7	14.6	24.4	14.5
	65	12.6	10.6	15.3	12.1	17.2	13.0	19.1	13.8	21.4	14.8	22.7	14.6	24.1	14.3
	70	12.6	10.6	15.3	12.1	17.2	13.0	19.1	13.8	21.4	14.8	22.7	14.6	23.7	14.1
	75	12.6	10.6	15.3	12.1	17.2	13.0	19.1	13.8	21.4	14.8	22.7	14.6	23.1	13.8
	80	12.6	10.6	15.3	12.1	17.2	13.0	19.1	13.8	21.4	14.8	22.2	14.6	22.5	13.7
	85	12.6	10.6	15.3	12.1	17.2	13.0	19.1	13.8	21.2	14.6	21.4	13.9	21.8	13.2
	90	12.6	10.6	15.3	12.1	17.2	13.0	19.1	13.8	20.8	14.4	21.0	13.7	21.4	13.0
	95	12.6	10.6	15.3	12.1	17.2	13.0	**19.1**	**13.8**	20.4	14.3	20.8	13.6	21.2	12.9
	100	12.6	10.6	15.3	12.1	17.2	13.0	19.1	13.8	20.1	14.1	20.4	13.5	20.8	12.8
	105	12.6	10.6	14.5	11.5	16.4	12.4	18.3	13.2	18.7	13.2	19.7	13.0	20.1	12.5
	110	12.2	10.2	13.8	10.9	15.3	11.5	17.2	12.4	17.6	12.4	18.7	12.4	19.5	12.1
ARNU243VJA2 / 24.2	23	16.0	13.4	19.4	15.4	21.8	16.4	24.2	17.4	27.1	18.7	28.8	18.6	31.2	18.5
	25	16.0	13.4	19.4	15.4	21.8	16.4	24.2	17.4	27.1	18.7	28.8	18.6	31.2	18.5
	30	16.0	13.4	19.4	15.4	21.8	16.4	24.2	17.4	27.1	18.7	28.8	18.6	31.2	18.5
	35	16.0	13.4	19.4	15.4	21.8	16.4	24.2	17.4	27.1	18.7	28.8	18.6	31.2	18.5
	40	16.0	13.4	19.4	15.4	21.8	16.4	24.2	17.4	27.1	18.7	28.8	18.6	31.2	18.5
	45	16.0	13.4	19.4	15.4	21.8	16.4	24.2	17.4	27.1	18.7	28.8	18.6	31.2	18.5
	50	16.0	13.4	19.4	15.4	21.8	16.4	24.2	17.4	27.1	18.7	28.8	18.6	31.2	18.5
	55	16.0	13.4	19.4	15.4	21.8	16.4	24.2	17.4	27.1	18.7	28.8	18.6	31.2	18.5
	60	16.0	13.4	19.4	15.4	21.8	16.4	24.2	17.4	27.1	18.7	28.8	18.6	31.0	18.4
	65	16.0	13.4	19.4	15.4	21.8	16.4	24.2	17.4	27.1	18.7	28.8	18.6	30.5	18.1
	70	16.0	13.4	19.4	15.4	21.8	16.4	24.2	17.4	27.1	18.7	28.8	18.6	30.0	17.9
	75	16.0	13.4	19.4	15.4	21.8	16.4	24.2	17.4	27.1	18.7	28.8	18.6	29.3	17.5
	80	16.0	13.4	19.4	15.4	21.8	16.4	24.2	17.4	27.1	18.7	28.1	18.4	28.6	17.4
	85	16.0	13.4	19.4	15.4	21.8	16.4	24.2	17.4	26.9	18.5	27.1	17.6	27.6	16.7
	90	16.0	13.4	19.4	15.4	21.8	16.4	24.2	17.4	26.4	18.2	26.6	17.4	27.1	16.4
	95	16.0	13.4	19.4	15.4	21.8	16.4	**24.2**	**17.4**	25.9	18.1	26.4	17.2	26.9	16.3
	100	16.0	13.4	19.4	15.4	21.8	16.4	24.2	17.4	25.4	17.8	25.9	17.1	26.4	16.2
	105	16.0	13.4	18.4	14.6	20.8	15.7	23.2	16.7	23.7	16.7	24.9	16.5	25.4	15.8
	110	15.5	13.0	17.4	13.8	19.4	14.6	21.8	15.7	22.3	15.7	23.7	15.7	24.7	15.3

TC: Total Capacity (MBh); SHC: Sensible Heat Capacity (MBh).

Table 24: ARNU183VJA2 and ARNU243VJA2 Heating Capacity Table.

Model No. / Capacity Index	Outdoor Air Temp.		Indoor Air Temperature (°F DB)							
			59	61	64	67	70	73	76	80
	°F DB	°F WB	TC MBh	TC MBh	TC MBh	TC MBh	TC MBh	TC MBh	TC MBh	TC MBh
ARNU183VJA2 / 19.2	-4	-4.4	14.4	14.4	14.4	14.4	14.2	14.2	14.2	14.2
	0	-0.4	14.8	14.8	14.8	14.8	14.8	14.6	14.6	14.6
	5.0	4.5	16.8	16.6	16.3	16.3	16.3	16.3	16.3	16.3
	10.0	9.0	17.4	17.4	17.4	17.2	17.2	17.2	17.2	17.2
	15.0	14.0	18.5	18.5	18.5	18.5	18.5	18.5	18.3	18.1
	20.0	19.0	19.6	19.6	19.6	19.6	19.1	19.1	18.8	18.5
	25.0	23.0	20.4	20.4	20.4	20.4	20.4	20.0	19.8	19.6
	30.0	28.0	20.9	20.9	20.9	20.9	20.9	20.4	19.8	19.2
	35.0	32.0	21.5	21.5	21.5	21.5	21.3	20.9	19.8	18.8
	40.0	36.0	22.4	22.4	22.4	22.4	21.5	20.9	19.8	18.8
	45.0	41.0	23.2	23.2	23.2	22.6	21.5	20.9	19.8	18.8
	47.0	43.0	24.1	23.9	23.7	22.6	**21.5**	20.9	19.8	18.8
	50.0	46.0	25.8	24.7	23.7	22.6	21.5	20.9	19.8	18.8
	55.0	51.0	26.3	24.9	23.7	22.6	21.5	20.9	19.8	18.8
	60.0	56.0	26.3	24.9	23.7	22.6	21.5	20.9	19.8	18.8
ARNU243VJA2 / 24.2	-4	-4.4	18.3	18.3	18.3	18.3	18.0	18.0	18.0	18.0
	0	-0.4	18.8	18.8	18.8	18.8	18.8	18.6	18.6	18.6
	5.0	4.5	21.3	21.0	20.7	20.7	20.7	20.7	20.7	20.7
	10.0	9.0	22.1	22.1	22.1	21.8	21.8	21.8	21.8	21.8
	15.0	14.0	23.5	23.5	23.5	23.5	23.5	23.5	23.2	22.9
	20.0	19.0	24.8	24.8	24.8	24.8	24.2	24.2	23.9	23.6
	25.0	23.0	25.9	25.9	25.9	25.9	25.9	25.4	25.1	24.8
	30.0	28.0	26.5	26.5	26.5	26.5	26.5	25.9	25.1	24.3
	35.0	32.0	27.3	27.3	27.3	27.3	27.0	26.5	25.1	23.8
	40.0	36.0	28.4	28.4	28.4	28.4	27.3	26.5	25.1	23.8
	45.0	41.0	29.5	29.5	29.5	28.7	27.3	26.5	25.1	23.8
	47.0	43.0	30.6	30.3	30.0	28.7	**27.3**	26.5	25.1	23.8
	50.0	46.0	32.8	31.4	30.0	28.7	27.3	26.5	25.1	23.8
	55.0	51.0	33.4	31.7	30.0	28.7	27.3	26.5	25.1	23.8
	60.0	56.0	33.4	31.7	30.0	28.7	27.3	26.5	25.1	23.8

TC: Total Capacity (MBh).

CONVERTIBLE SURFACE MOUNTED

CONVERTIBLE SURFACE MOUNTED

Mechanical Specifications

Casing

The case is designed to mount against the ceiling surface in a horizontal discharge configuration or on a wall in a vertical discharge configuration. When mounted against the ceiling surface, the return air is from the bottom of the unit. When mounted on a wall, the return air is from the front surface of the unit. The unit is manufactured using a coated metal frame covered with an off-white ABS architectural polymeric resin exterior case. Cold surfaces are covered with a coated polystyrene insulating material.

Fan Assembly and Control

The unit has a single, direct driven, Sirocco fan made of high strength ABS HR-2407 polymeric resin. The fan motor is a Brushless Digitally-Controlled (BLDC) design with permanently lubricated and sealed ball bearings. The fan/motor assembly is mounted on vibration attenuating rubber grommets. The fan speed is controlled using a microprocessor-based direct digital control algorithm that provides a minimum of three pre-programmed fan speeds in the Heating and Fan Only modes and four speeds in the Cooling mode. Fan settings are high, medium, and low. The fourth speed in the Cooling mode is a super high setting that runs for 30 minutes at high fan speed. A chaos wind setting provides random change in fan speed. The fan speed algorithm provides a field-selectable fixed or auto-speed setting that changes fan speed based on the difference between controller set-point and space temperature.

Air Filter

Return air is filtered with a removable, washable filter. Access to the filter media is through a hinged, spring clip (screwless) return air grille located on the front/bottom of the unit.

Airflow Guide Vanes

The discharge opening has a single directional slot diffuser with an oscillating motorized guide vane designed to change the angle airflow is discharged. The discharge range of motion is 40° in an up/down direction with the capability of locking the vane in a fixed position. Manually adjustable guide vanes are provided to set the airflow discharge direction from side-to-side.

Microprocessor Controls

The unit is provided with an integrated microprocessor-based controller. The controller is capable of performing functions necessary to operate the system without the use of a wall-mounted controller. A temperature thermistor is factory-mounted in the return air stream. All unit operation parameters, excluding the operating schedule, are stored in non-volatile memory resident on the unit microprocessor. Operating schedules are stored in select models of the optional, wall-mounted, local or central controller. The field-supplied communication cable between the indoor unit(s) and outdoor unit is to be a minimum of 18 AWG, 2 conductor, stranded and shielded cable (RS-485), terminated via screw terminals on the control boards. The microprocessor control provides the following functions: self-diagnostics, auto restart following power restoration, test run, and will operate the indoor unit using one of five operating modes:

1. Auto Changeover (Heat Recovery only)
2. Heating
3. Cooling
4. Dry
5. Fan Only

For Heat Recovery systems the Auto Changeover setting automatically switches between cooling and heating modes based on room temperature conditions.

For Heat Pump systems, heated or cooled air delivery is dependent upon outdoor unit operating mode.

In Heating mode, the microprocessor control will activate the indoor unit when indoor room temperature falls below setpoint temperature and signals the outdoor unit to begin heating cycle. The indoor unit fan operation is delayed until coil pipe temperature reaches 76ºF. Significant airflow is generated when pipe temperature reaches 80°F. The unit is equipped with an infrared receiver designed to communicate with an LG hand-held remote controller. In lieu of factory return air thermistor, pluggable connection sockets on the microprocessor circuit board accommodate various models of wall-mounted local controllers and/or a wall-mounted remote temperature sensor. The unit microprocessor is capable of accepting space temperature readings concurrently or individually from either:

1. Wall-mounted wired controller(s)
2. Factory mounted return air thermistor or the optional wall-mounted wired remote temperature sensor

A single indoor unit has the capability of being controlled by up to two local wired controllers. The microprocessor controls space temperature using the value provided by the temperature sensor sensing a space temperature that is farthest away from the temperature set-point. The microprocessor control provides a Cooling mode test cycle that operates the unit for 18 minutes without regard to space temperature. If the system is provided with an optional wall-mounted or central controller, displayed diagnostic codes are specific, alphanumeric, and provide the service technician with a reason for the code displayed.

Handling Condensate

The unit is designed for gravity draining of condensate. LG provides a factory insulated flexible drain hose. If condensate lift/ pumps are needed for the application, they are to be field-provided.

Controls Features

- Auto changeover (Heat Recovery only)
- Auto operation
- Auto restart
- Child lock
- Dual thermistor control
- External static pressure control
- Hot start
- Self diagnostics
- Timer (on / off)
- Weekly schedule
- Soft dry (dehumidification)

Table 25: Convertible Surface Mounted Indoor Unit General Data.

Type	Convertible Surface Mounted	
	ARNU093VEA2	ARNU123VEA2
Cooling Mode Performance		
Capacity (Btu/h)	9,600	12,300
Power Input[1] (W)	30	30
Heating Mode Performance		
Capacity (Btu/h)	10,900	13,600
Power Input[1] (W)	30	30
Entering Mixed Air		
Cooling Max (°F WB)	76	76
Heating Min (°F DB)	59	59
Unit Data		
Refrigerant Type[2]	R410A	R410A
Refrigerant Control	EEV	EEV
Sound Pressure[3] dB(A) (H/M/L)	36 / 32 / 28	38 / 36 / 30
Net Unit Weight (lbs)	31	31
Shipping Weight (lbs)	42	42
Communication Cable[4] (No. x AWG)	2 x 18	2 x 18
Fan		
Type	Cross Flow	Cross Flow
Quantity	1	1
Motor/Drive	Brushless Digitally Controlled / Direct	
Airflow Rate H/M/L (CFM)	268 / 243 / 219	325 / 268 / 244
Piping		
Liquid Line (in., O.D.)	1/4 Flare	1/4 Flare
Vapor Line (in., O.D.)	1/2 Flare	1/2 Flare
Condensate Line (in., I.D.)	5/8	5/8

EEV: Electronic Expansion Valve

Power wiring is field supplied and must comply with the applicable local and national codes.

This unit comes with a dry nitrogen charge.

This data is rated 0 ft above sea level, with 25 ft of refrigerant line per indoor unit and a 0 ft level difference between outdoor and indoor units. All capacities are net with a combination ratio between 95-105%.

Cooling capacity rating obtained with air entering the indoor coil at 80ºF dry bulb (DB) and 67ºF wet bulb (WB) and outdoor ambient conditions of 95ºF dry bulb (DB).

Heating capacity rating obtained with air entering the indoor unit at 70ºF dry bulb (DB) and outdoor ambient conditions of 47ºF dry bulb (DB) and 43ºF wet bulb (WB).

[1]Power Input is rated at high speed.

[2]Take appropriate actions at the end of HVAC equipment life to recover, recycle, reclaim or destroy R410A refrigerant according to applicable regulations (40 CFR Part 82, Subpart F) under section 608 of CAA.

[3]Sound Pressure levels are tested in an anechoic chamber under ISO Standard 3745.

[4]All communication cable to be minimum 18 AWG, 2-conductor, stranded, shielded and must comply with applicable and national code. Ensure the communication cable is properly grounded at the master outdoor unit only. Do not ground the ODU-IDU communication cable at any other point.

Table 26: Convertible Surface Mounted Indoor Unit Electrical Data.

Model	Voltage Range	MCA	MOP	Rated Amps (A)	Power Supply			Power Input (W)	
					Hz	Volts	Phase	Cooling	Heating
ARNU093VEA2	187-253	0.22	15	0.15	60	208-230V	1	30	30
ARNU123VEA2		0.22	15	0.15				30	30

MCA : Minimum Circuit Ampacity.

MOP : Maximum Overcurrent Protection.

Units are suitable for use on an electrical system where voltage supplied to unit terminals is within the listed range limits.

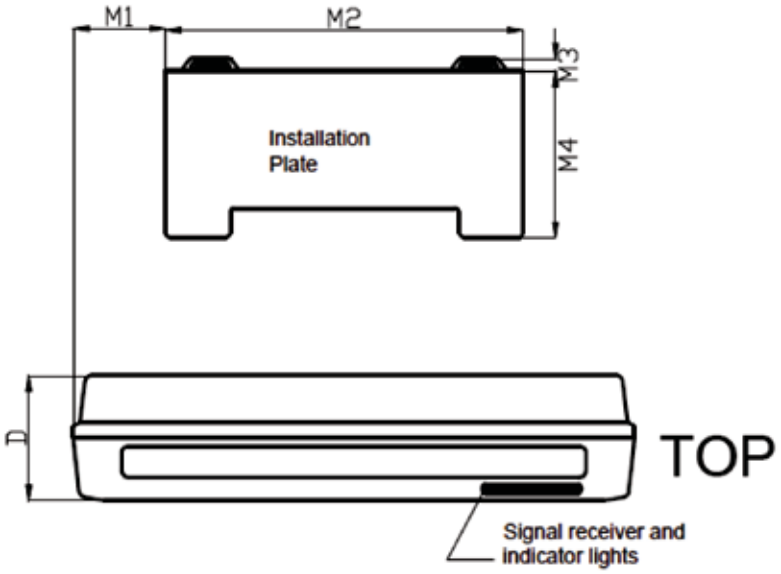
Select wire size based on the larger MCA value.

Instead of fuse, use the circuit breaker.

CONVERTIBLE SURFACE MOUNTED

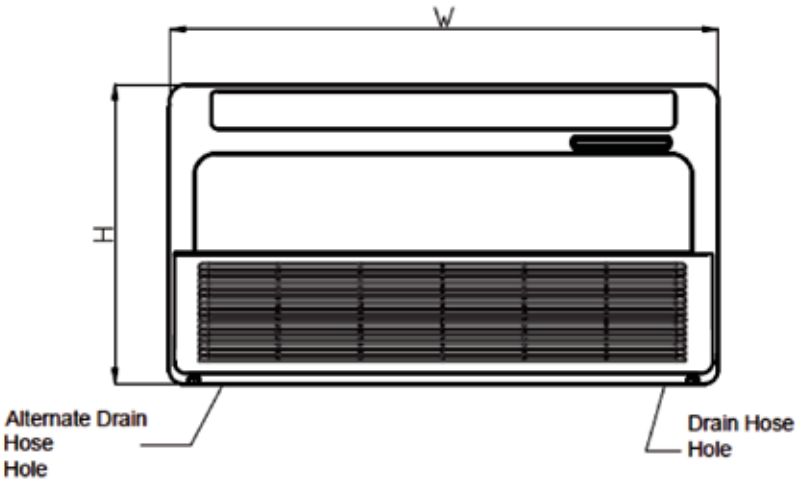
External Dimensions

Figure 24: ARNU093VEA2 and ARNU123VEA2 Dimensions.



W	35-7/16"
H	19-5/16"
D	7-7/8"
M1	6-3/16"
M2	23-1/8"
M3	3/8"
M4	10-3/8"

Note - All dimensions have a tolerance of ± 0.25 in.



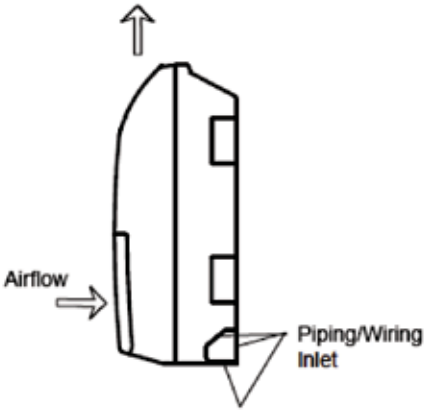
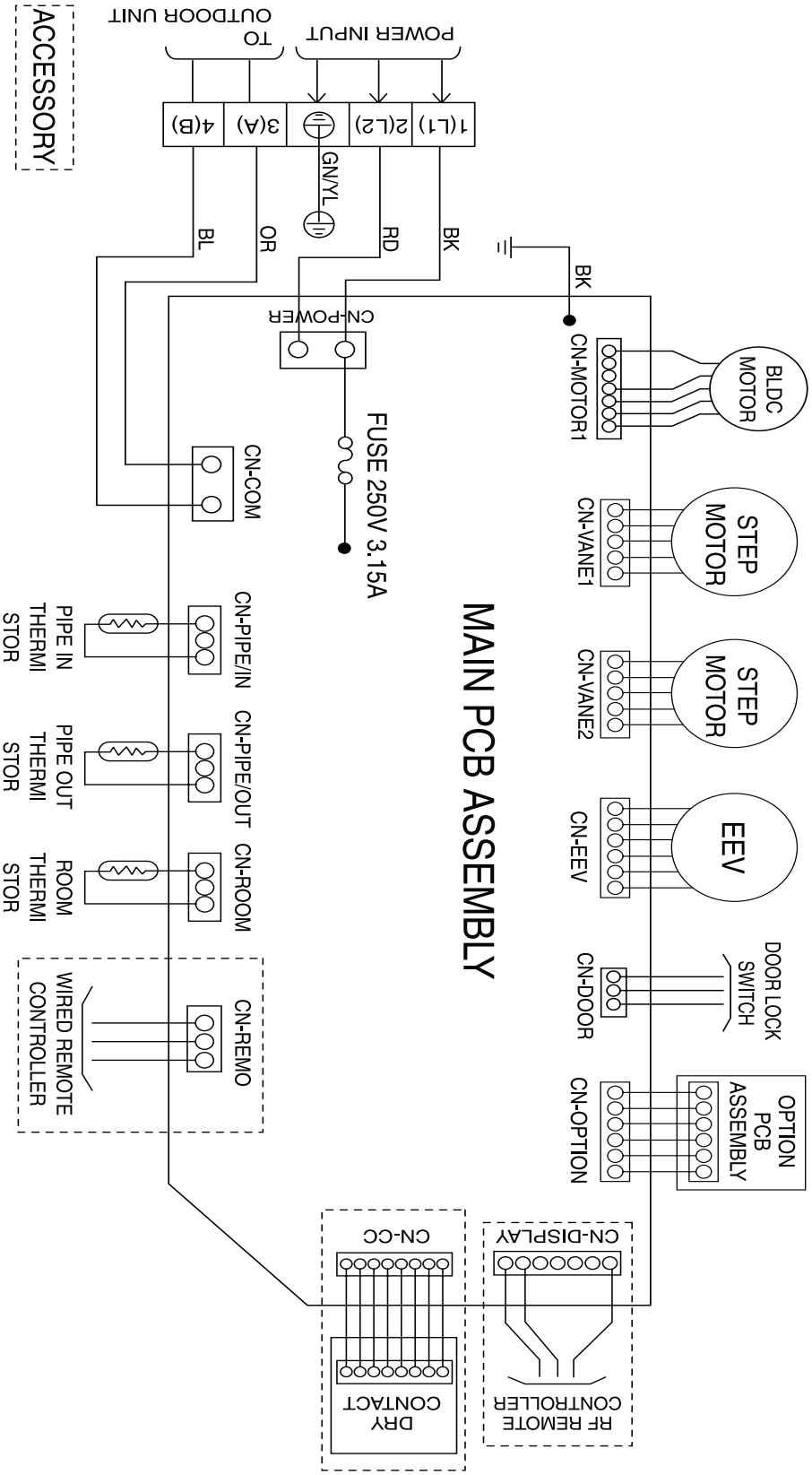


Figure 25: ARNU093VEA2 and ARNU123VEA2 Wiring Diagram.



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Electrical Wiring Diagram

Table 27: Convertible Surface Mounted Indoor Unit Wiring Diagram Legend.

Terminal	Purpose	Function
CN-POWER	AC Power supply	AC Power line
CN-MOTOR	Fan motor output	Motor output of BLDC
CN-VANE1	Step motor	Step motor output
CN-VANE2	Step motor	Step motor output
CN-EEV	EEV Output	EEV control output
CN-DOOR	Door lock switch	Door lock switch line
CN-OPTION	Optional PCB EPROM	Option PCB connection
CN-DISPLAY	Display	Display of indoor status
CN-CC	Dry contact	Dry Contact connection
CN-REMO	Wired remote controller	Wired remote control connection
CN-ROOM	Room sensor	Room air thermistor
CN-PIPE/OUT	Discharge pipe sensor	Pipe out thermistor
CN-PIPE/IN	Suction pipe sensor	Pipe in thermistor
CN-COM	Communication	Communication between indoor and outdoor

Table 28: Convertible Surface Mounted Indoor Unit DIP Switch Settings.

DIP Switch Setting		Off	On	Remarks
SW3	GROUP CONTROL	Master	Slave	Group control setting using 7-Day Programmable Controller; selects Master / Slave on each indoor unit
SW4	DRY CONTACT MODE	Variable	Auto	Sets operation mode for optional Dry Contact accessory 1. Variable: Auto or Manual Mode can be set through 7-Day Programmable Controller or Wireless Remote Controller (factory default setting is Auto if there is no setting) 2. Auto: For Dry Contact, it is always Auto mode
SW5	EXTRA 1	Ceiling (Default)	Floor	N/A

***For Gen 4 Multi V convertible surface indoor units, DIP switches 1, 2, 5 through 8 must be set to OFF. These DIP switches are used for other models.**

Figure 26: Convertible Surface Mounted Indoor Unit Refrigerant Flow Diagram.

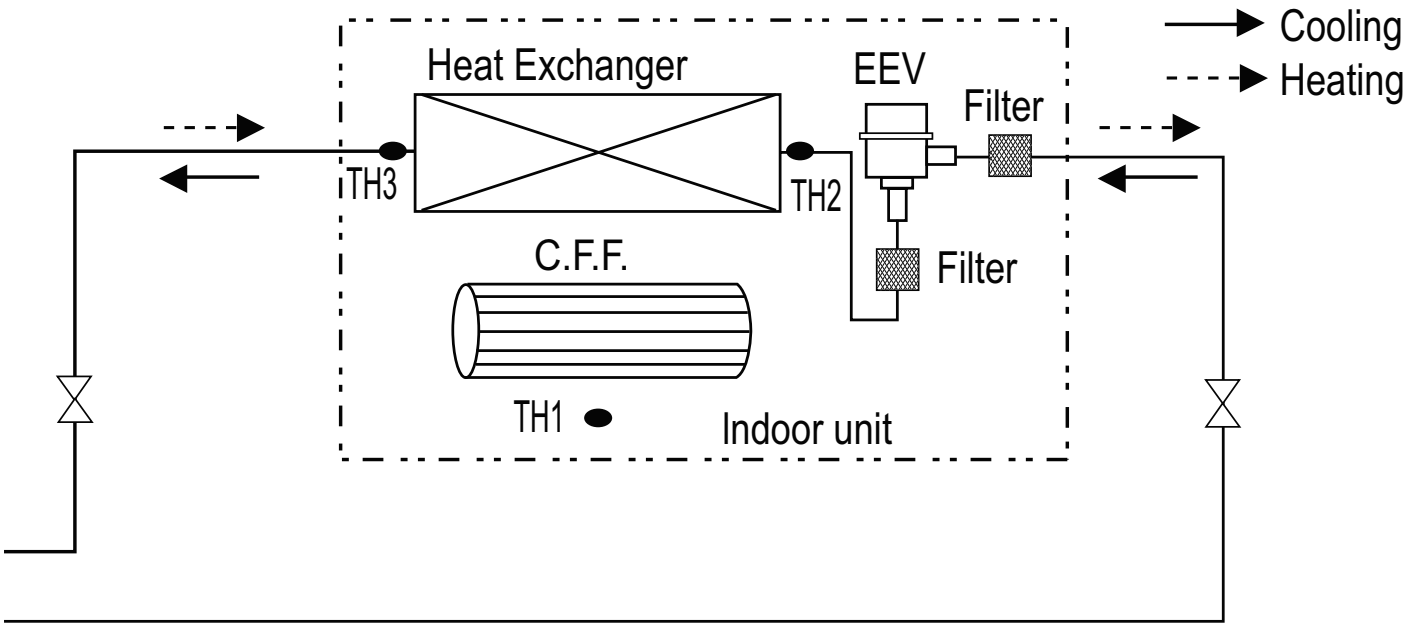


Table 29: Convertible Surface Mounted Indoor Unit Refrigerant Pipe Connection Port Diameters.

Model	Liquid (inch)	Gas (inch)
ARNU093VEA2	1/4	1/2
ARNU123VEA2	1/4	1/2

Table 30: Convertible Surface Mounted Indoor Unit Thermistors.

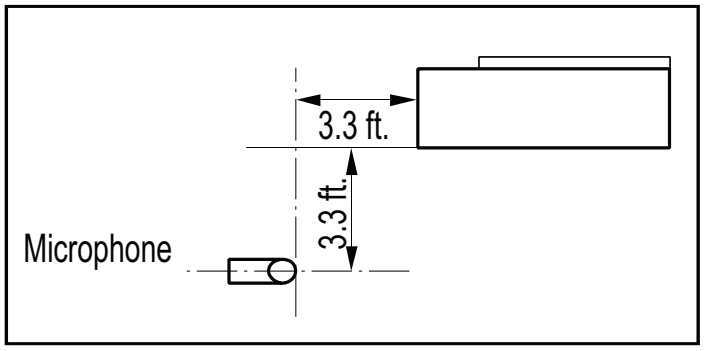
Thermistor	Description
TH1	Return air thermistor
TH2	Pipe in thermistor
TH3	Pipe out thermistor

CONVERTIBLE SURFACE MOUNTED

Acoustic Data

Sound Pressure Levels

Figure 27: Sound Pressure Measurement Location.



- Measurements are taken 3.3 feet away from the front of the unit.
- Sound pressure levels are measured in dB(A) with a tolerance of ±3.
- Sound pressure levels are tested in an anechoic chamber under ISO Standard 3745.

Operating Conditions:

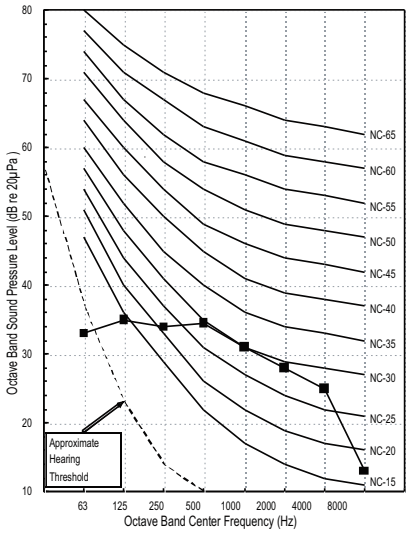
- Power source: 220V/60 Hz
- Sound level will vary depending on a range of factors including the construction (acoustic absorption coefficient) of a particular room in which the unit was installed.

Table 31: Convertible Surface Mounted Indoor Unit Sound Pressure Levels.

Model	Sound Levels dB(A)		
	High Fan Speed	Medium Fan Speed	Low Fan Speed
ARNU093VEA2	36	32	28
ARNU123VEA2	38	36	30

Figure 28: ARNU093VEA2 and ARNU123VEA2 Sound Pressure Level Diagrams.

ARNU093VEA2



ARNU123VEA2

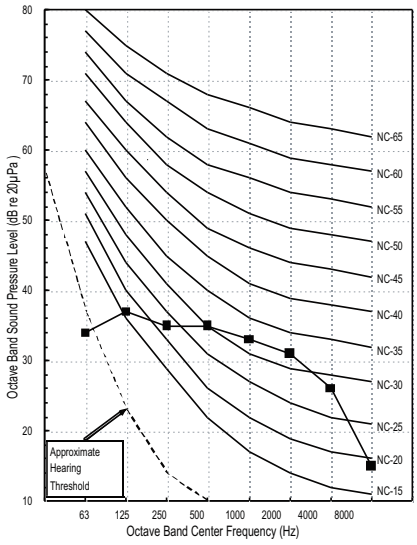
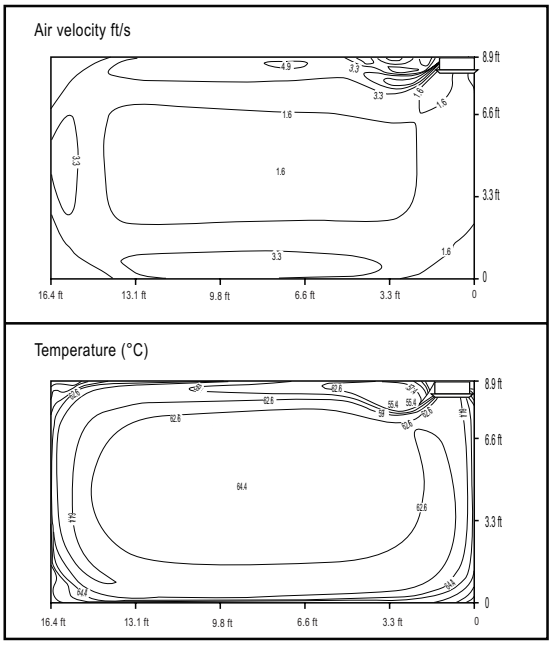


Figure 29: ARNU093VEA2.

Ceiling

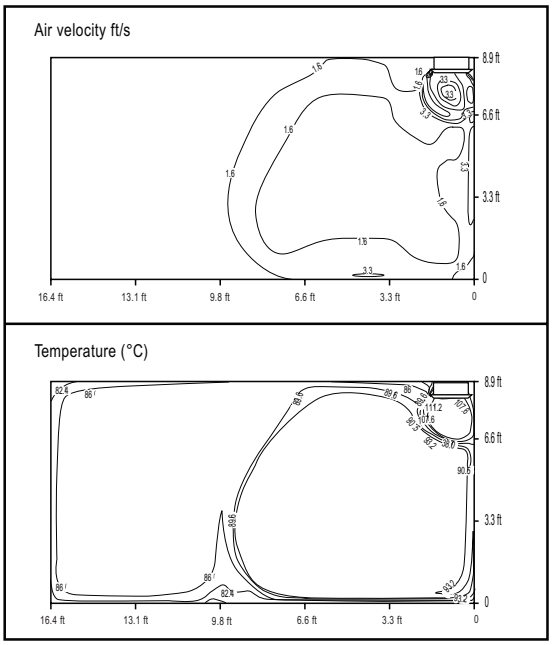
Cooling

Discharge angle:50°



Heating

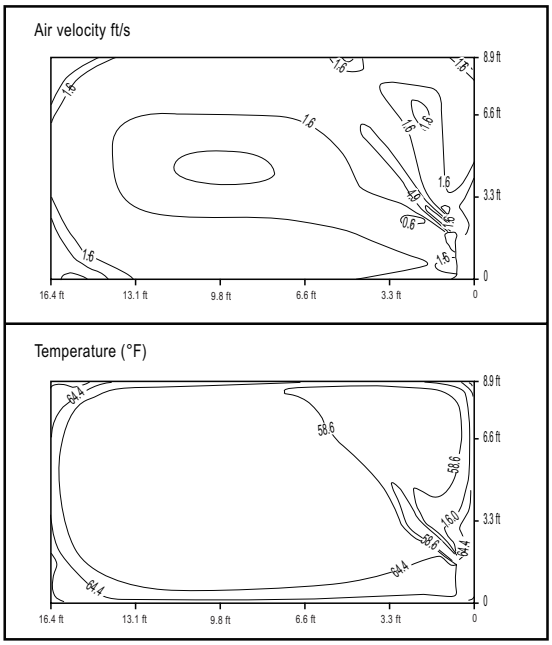
Discharge angle: 60°



Floor

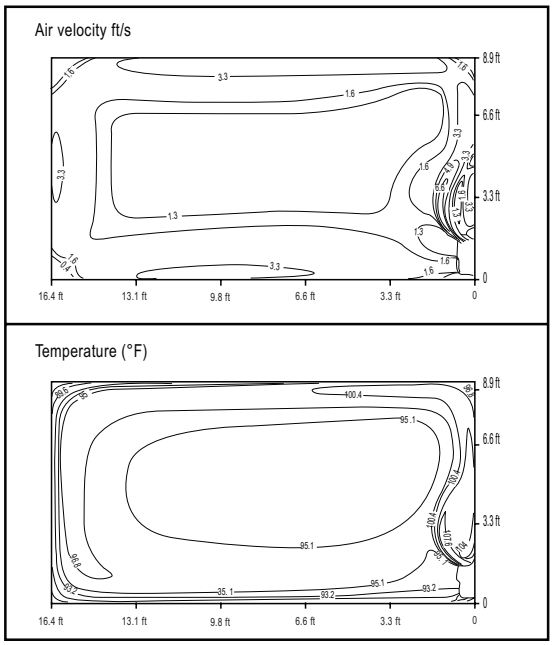
Cooling

Discharge angle: 50°



Heating

Discharge angle: 60°



CONVERTIBLE SURFACE MOUNTED

Air Velocity / Temperature Distribution

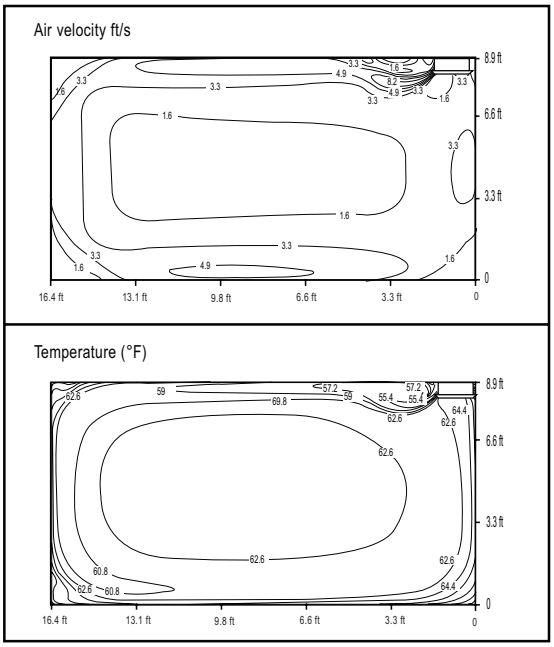
ARNU123VEA2

Figure 30: ARNU123VEA2.

Ceiling

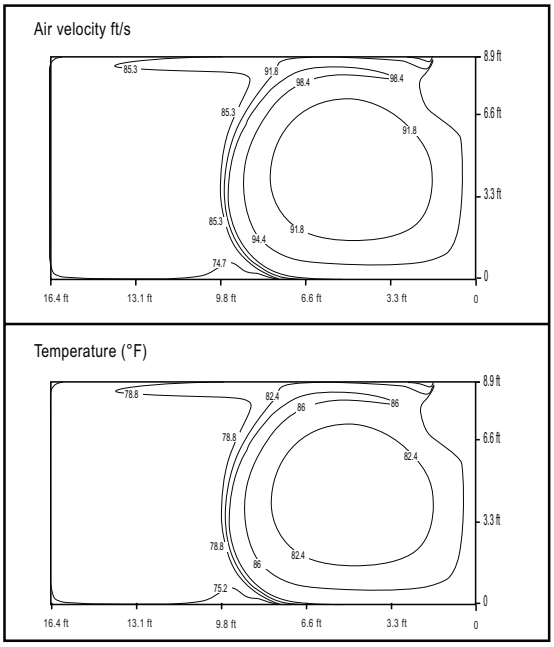
Cooling

Discharge angle: 50°



Heating

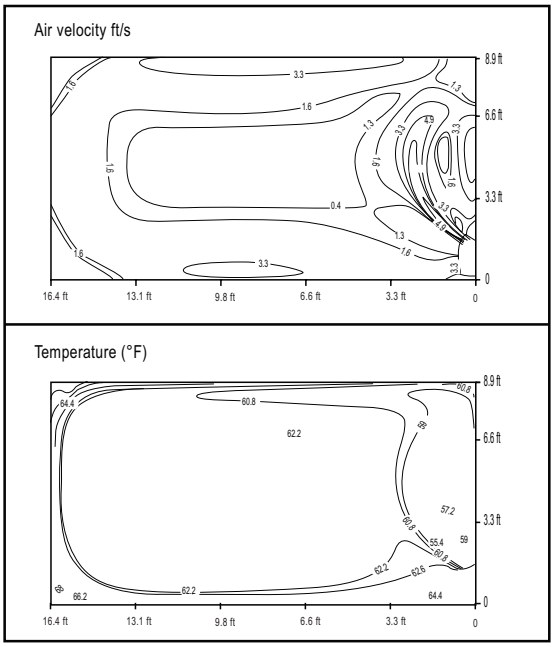
Discharge angle: 60°



Floor

Cooling

Discharge angle: 50°



Heating

Discharge angle: 60°

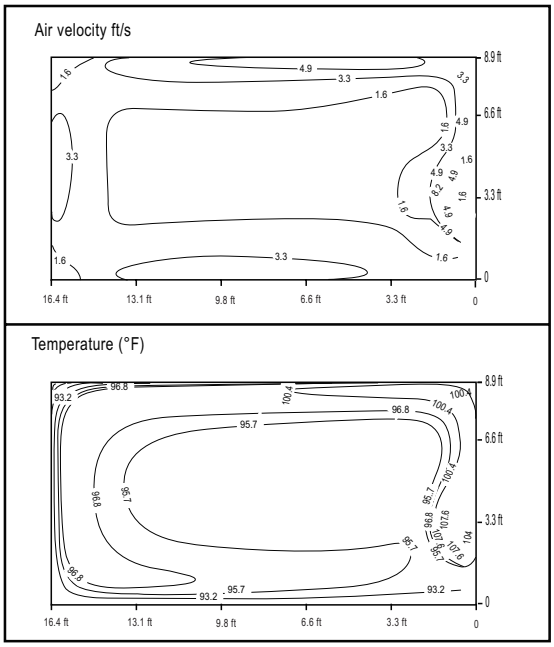


Table 32: ARNU093VEA2 and ARNU123VEA2 Cooling Capacity Table.

Model No. / Capacity Index	Outdoor Air Temp. (°F DB)	Indoor Air Temperature (°F DB / WB)													
		68 / 57		73 / 61		79 / 64		80 / 67		85 / 70		88 / 73		91 / 76	
		TC MBh	SHC MBh	TC MBh	SHC MBh	TC MBh	SHC MBh	TC MBh	SHC MBh	TC MBh	SHC MBh	TC MBh	SHC MBh	TC MBh	SHC MBh
ARNU093VEA2 / 9.6	23	6.3	5.2	7.7	6.0	8.6	6.4	9.6	6.8	10.8	7.3	11.4	7.3	12.4	7.2
	25	6.3	5.2	7.7	6.0	8.6	6.4	9.6	6.8	10.8	7.3	11.4	7.3	12.4	7.2
	30	6.3	5.2	7.7	6.0	8.6	6.4	9.6	6.8	10.8	7.3	11.4	7.3	12.4	7.2
	35	6.3	5.2	7.7	6.0	8.6	6.4	9.6	6.8	10.8	7.3	11.4	7.3	12.4	7.2
	40	6.3	5.2	7.7	6.0	8.6	6.4	9.6	6.8	10.8	7.3	11.4	7.3	12.4	7.2
	45	6.3	5.2	7.7	6.0	8.6	6.4	9.6	6.8	10.8	7.3	11.4	7.3	12.4	7.2
	50	6.3	5.2	7.7	6.0	8.6	6.4	9.6	6.8	10.8	7.3	11.4	7.3	12.4	7.2
	55	6.3	5.2	7.7	6.0	8.6	6.4	9.6	6.8	10.8	7.3	11.4	7.3	12.4	7.3
	60	6.3	5.2	7.7	6.0	8.6	6.4	9.6	6.8	10.8	7.3	11.4	7.3	12.3	7.2
	65	6.3	5.2	7.7	6.0	8.6	6.4	9.6	6.8	10.8	7.3	11.4	7.3	12.1	7.1
	70	6.3	5.2	7.7	6.0	8.6	6.4	9.6	6.8	10.8	7.3	11.4	7.3	11.9	7.0
	75	6.3	5.2	7.7	6.0	8.6	6.4	9.6	6.8	10.8	7.3	11.4	7.3	11.6	6.8
	80	6.3	5.2	7.7	6.0	8.6	6.4	9.6	6.8	10.8	7.3	11.1	7.2	11.3	6.8
	85	6.3	5.2	7.7	6.0	8.6	6.4	9.6	6.8	10.7	7.3	10.8	6.9	10.9	6.5
	90	6.3	5.2	7.7	6.0	8.6	6.4	9.6	6.8	10.5	7.1	10.6	6.8	10.8	6.4
	95	6.3	5.2	7.7	6.0	8.6	6.4	**9.6**	**6.8**	10.3	7.1	10.5	6.7	10.7	6.4
	100	6.3	5.2	7.7	6.0	8.6	6.4	9.6	6.8	10.1	7.0	10.3	6.7	10.5	6.3
	105	6.3	5.2	7.3	5.7	8.3	6.1	9.2	6.5	9.4	6.5	9.9	6.5	10.1	6.2
	110	6.1	5.1	6.9	5.4	7.7	5.7	8.6	6.1	8.8	6.1	9.4	6.1	9.8	6.0
ARNU123VEA2 / 12.3	23	8.1	6.7	9.8	7.7	11.1	8.2	12.3	8.7	13.8	9.4	14.6	9.3	15.9	9.3
	25	8.1	6.7	9.8	7.7	11.1	8.2	12.3	8.7	13.8	9.4	14.6	9.3	15.9	9.3
	30	8.1	6.7	9.8	7.7	11.1	8.2	12.3	8.7	13.8	9.4	14.6	9.3	15.9	9.3
	35	8.1	6.7	9.8	7.7	11.1	8.2	12.3	8.7	13.8	9.4	14.6	9.3	15.9	9.3
	40	8.1	6.7	9.8	7.7	11.1	8.2	12.3	8.7	13.8	9.4	14.6	9.3	15.9	9.3
	45	8.1	6.7	9.8	7.7	11.1	8.2	12.3	8.7	13.8	9.4	14.6	9.3	15.9	9.3
	50	8.1	6.7	9.8	7.7	11.1	8.2	12.3	8.7	13.8	9.4	14.6	9.3	15.9	9.3
	55	8.1	6.7	9.8	7.7	11.1	8.2	12.3	8.7	13.8	9.4	14.6	9.3	15.9	9.3
	60	8.1	6.7	9.8	7.7	11.1	8.2	12.3	8.7	13.8	9.4	14.6	9.3	15.7	9.2
	65	8.1	6.7	9.8	7.7	11.1	8.2	12.3	8.7	13.8	9.4	14.6	9.3	15.5	9.1
	70	8.1	6.7	9.8	7.7	11.1	8.2	12.3	8.7	13.8	9.4	14.6	9.3	15.3	9.0
	75	8.1	6.7	9.8	7.7	11.1	8.2	12.3	8.7	13.8	9.4	14.6	9.3	14.9	8.7
	80	8.1	6.7	9.8	7.7	11.1	8.2	12.3	8.7	13.8	9.4	14.3	9.2	14.5	8.7
	85	8.1	6.7	9.8	7.7	11.1	8.2	12.3	8.7	13.7	9.3	13.8	8.8	14.0	8.4
	90	8.1	6.7	9.8	7.7	11.1	8.2	12.3	8.7	13.4	9.1	13.5	8.7	13.8	8.2
	95	8.1	6.7	9.8	7.7	11.1	8.2	**12.3**	**8.7**	13.2	9.1	13.4	8.6	13.7	8.2
	100	8.1	6.7	9.8	7.7	11.1	8.2	12.3	8.7	12.9	8.9	13.2	8.6	13.4	8.1
	105	8.1	6.7	9.3	7.3	10.6	7.9	11.8	8.4	12.1	8.4	12.7	8.3	12.9	7.9
	110	7.9	6.5	8.9	6.9	9.8	7.3	11.1	7.9	11.3	7.9	12.1	7.9	12.5	7.7

TC: Total Capacity (MBh); SHC: Sensible Heat Capacity (MBh).

CONVERTIBLE SURFACE MOUNTED

Heating Capacity Tables

ARNU093VEA2, ARNU123VEA2

Table 33: ARNU093VEA2 and ARNU123VEA2 Heating Capacity Table.

Model No. / Capacity Index	Outdoor Air Temp.		Indoor Air Temperature (°F DB)							
			59	61	64	67	70	73	76	80
	°F DB	°F WB	TC MBh	TC MBh	TC MBh	TC MBh	TC MBh	TC MBh	TC MBh	TC MBh
ARNU093VEA2 / 9.6	-4	-4.4	7.3	7.3	7.3	7.3	7.2	7.2	7.2	7.2
	0	-0.4	7.5	7.5	7.5	7.5	7.5	7.4	7.4	7.4
	5.0	4.5	8.5	8.4	8.3	8.3	8.3	8.3	8.3	8.3
	10.0	9.0	8.8	8.8	8.8	8.7	8.7	8.7	8.7	8.7
	15.0	14.0	9.4	9.4	9.4	9.4	9.4	9.4	9.3	9.2
	20.0	19.0	9.9	9.9	9.9	9.9	9.7	9.7	9.5	9.4
	25.0	23.0	10.4	10.4	10.4	10.4	10.4	10.1	10.0	9.9
	30.0	28.0	10.6	10.6	10.6	10.6	10.6	10.4	10.0	9.7
	35.0	32.0	10.9	10.9	10.9	10.9	10.8	10.6	10.0	9.5
	40.0	36.0	11.3	11.3	11.3	11.3	10.9	10.6	10.0	9.5
	45.0	41.0	11.8	11.8	11.8	11.4	10.9	10.6	10.0	9.5
	47.0	43.0	12.2	12.1	12.0	11.4	**10.9**	10.6	10.0	9.5
	50.0	46.0	13.1	12.5	12.0	11.4	10.9	10.6	10.0	9.5
	55.0	51.0	13.3	12.6	12.0	11.4	10.9	10.6	10.0	9.5
	60.0	56.0	13.3	12.6	12.0	11.4	10.9	10.6	10.0	9.5
ARNU123VEA2 / 12.3	-4	-4.4	9.1	9.1	9.1	9.1	9.0	9.0	9.0	9.0
	0	-0.4	9.4	9.4	9.4	9.4	9.4	9.2	9.2	9.2
	5.0	4.5	10.6	10.5	10.3	10.3	10.3	10.3	10.3	10.3
	10.0	9.0	11.0	11.0	11.0	10.9	10.9	10.9	10.9	10.9
	15.0	14.0	11.7	11.7	11.7	11.7	11.7	11.7	11.6	11.4
	20.0	19.0	12.4	12.4	12.4	12.4	12.1	12.1	11.9	11.7
	25.0	23.0	12.9	12.9	12.9	12.9	12.9	12.6	12.5	12.4
	30.0	28.0	13.2	13.2	13.2	13.2	13.2	12.9	12.5	12.1
	35.0	32.0	13.6	13.6	13.6	13.6	13.5	13.2	12.5	11.9
	40.0	36.0	14.1	14.1	14.1	14.1	13.6	13.2	12.5	11.9
	45.0	41.0	14.7	14.7	14.7	14.3	13.6	13.2	12.5	11.9
	47.0	43.0	15.2	15.1	15.0	14.3	**13.6**	13.2	12.5	11.9
	50.0	46.0	16.4	15.6	15.0	14.3	13.6	13.2	12.5	11.9
	55.0	51.0	16.6	15.8	15.0	14.3	13.6	13.2	12.5	11.9
	60.0	56.0	16.6	15.8	15.0	14.3	13.6	13.2	12.5	11.9

TC: Total Capacity (MBh).

APPLICATION GUIDELINES

Selecting the Best Location

General Do's

- Place the unit where air circulation will not be blocked.
- Place the unit where drainage can be obtained easily and to minimize the length of the condensate drain piping.
- Place the unit where noise prevention is taken into consideration.
- Ensure there is sufficient supply air and maintenance space.
- Locate the indoor unit in a location where it can be easily connected to the outdoor unit / heat recovery unit.

Specific Floor Standing Indoor Unit Do's

- Place the unit in a location that can easily bear a load exceeding four times the weight of the floor standing unit.
- Place the unit where it will be level.

Specific Ceiling Suspended Indoor Unit Do's

- Ensure that the clearance between the wall(s) and the ceiling suspended indoor unit is more than 27-9/16 inches.

Specific Convertible Surface Indoor Unit Do's

- Ensure that the clearance between the wall and the unit is more than 7-7/8 inches.
- Install the unit as low as possible on the wall, allowing a minimum of 1-15/16 inches from the floor.

General Don'ts

- *Avoid installing the unit near high-frequency generators.*
- *Do not install the unit near a doorway.*
- *The unit should not be installed near a heat or steam source, or where considerable amounts of oil, iron powder, or flour are used. (These materials may generate condensate, cause a reduction in heat exchanger efficiency, or the drain to malfunction. If this is a potential problem, install a ventilation fan large enough to vent out these materials.)*

WARNING

The unit should not be installed where sulfuric acid and flammable or corrosive gases are generated, vented into, or stored. There is risk of fire, explosion, and physical injury or death.

The unit may be damaged, may malfunction, and / or will not operate as designed if installed in any of the conditions listed.

Note:

If the unit is installed near a body of water, the installation parts are at risk of being corroded. Appropriate anti-corrosion methods should be taken for the unit and all installation parts.

Installing in an Area Exposed to Unconditioned Air

In some installation applications, areas (floors, walls) in some rooms may be exposed to unconditioned air (room may be above or next to an unheated garage or storeroom). To countermeasure:

- Verify that carpet is or will be installed (carpet may increase the temperature by three [3] degrees).
- Add insulation between the floor joists.
- Install radiant heat or another type of heating system to the floor.

Figure 31: Selecting the Best Location / Minimum Clearance Requirements — Floor Standing Indoor Units.

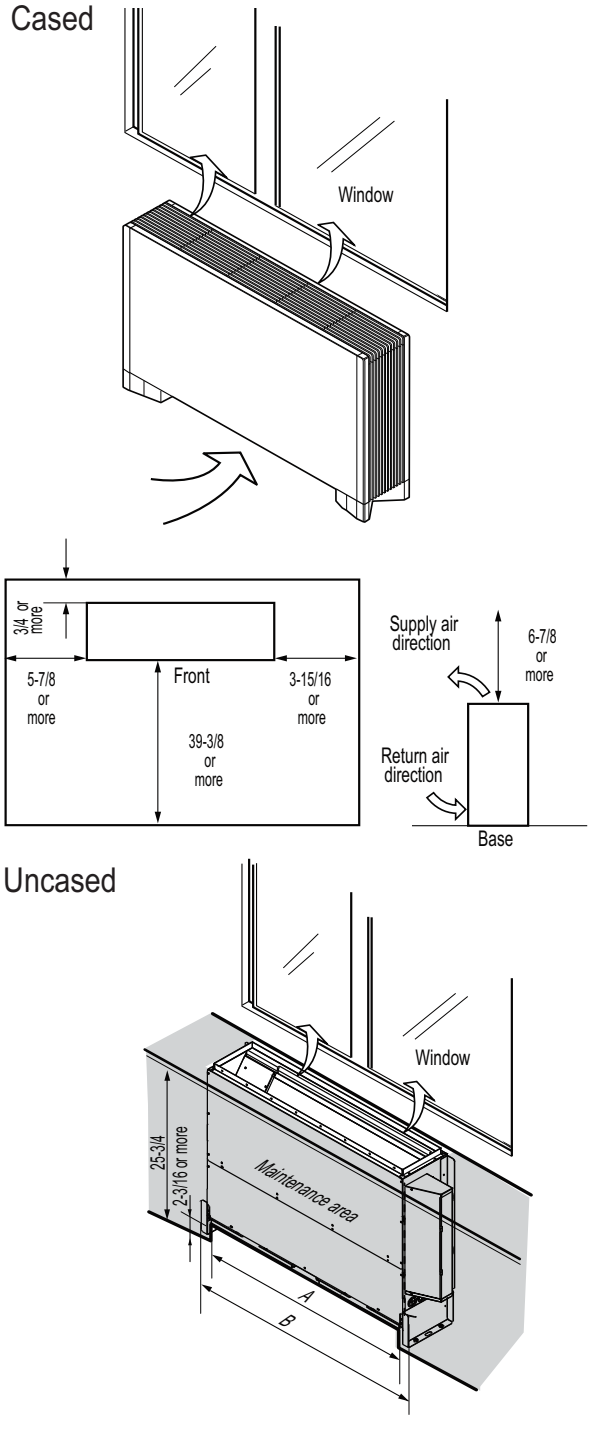


Table 34: Floor Standing Minimum Maintenance Requirements.

Indoor Unit	A (Inch)	B (Inch)
Floor Standing Cased and Uncased CEA / CEU Frames	≥31	≥42-1/2
Floor Standing Cased and Uncased CFA / CFU Frames	≥42	≥53-1/2

Figure 32: Selecting the Best Location / Minimum Clearance Requirements — Ceiling Suspended Indoor Units.

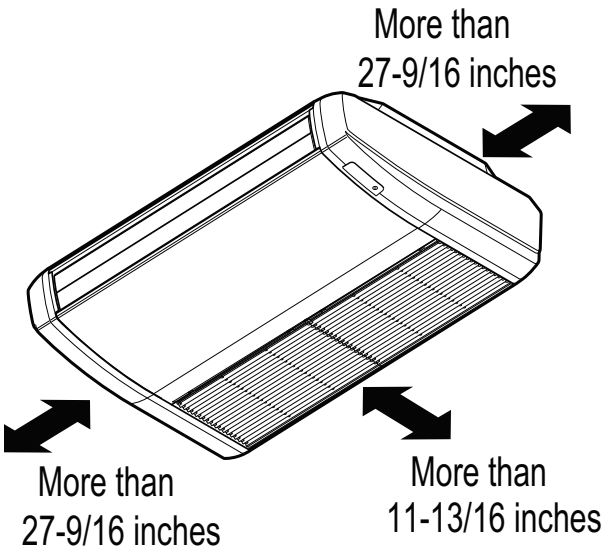
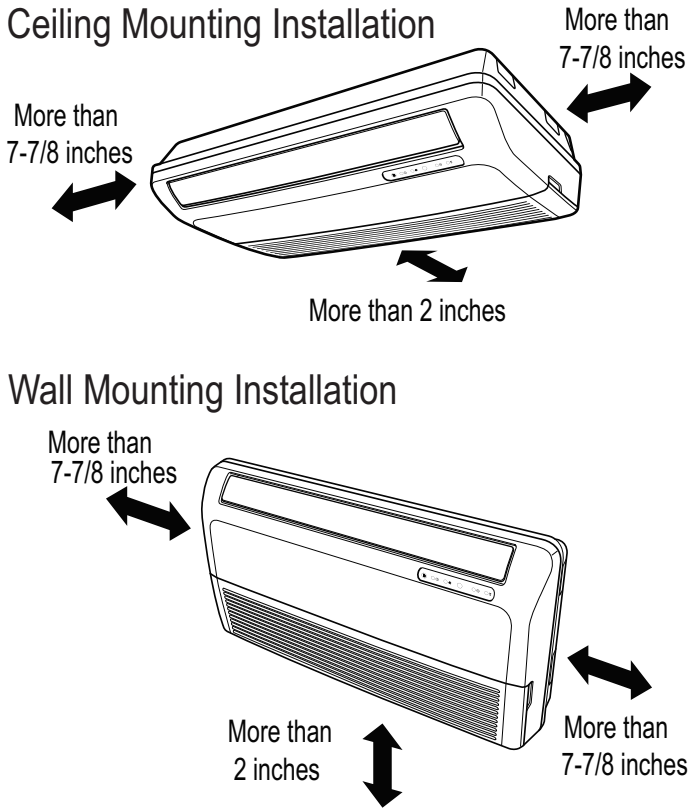


Figure 33: Selecting the Best Location / Minimum Clearance Requirements — Convertible Surface Indoor Units.



General Mounting - Floor Standing Indoor Units

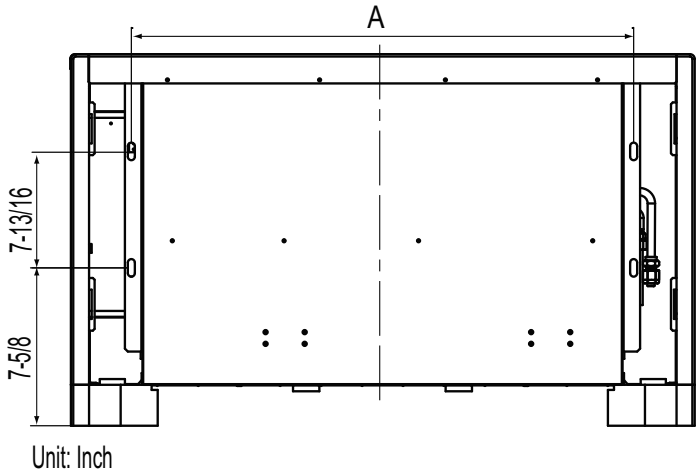
1. To provide stabilization, floor standing indoor units need to be secured to a wall. Ensure the wall is strong enough to bear the weight of the unit. If necessary, reinforce the wall before installing the unit.
2. Mark the appropriate location on the wall for the holes, then drill the holes.

Table 35: Location of the Wall Bolts for Floor Standing Indoor Units.

Type	A (Inch)
Floor Standing Cased and Uncased CEA / CEU Frames	33-3/4
Floor Standing Cased and Uncased CFA / CFU Frames	44-3/4

3. Apply the installation mount and install the Floor Standing indoor unit.

Figure 34: Bolt Pitch for Floor Standing Indoor Units.



Note:

- *The unit requires a minimum clearance of 3-15/16 below the unit for air intake.*
- *Verify that the floor standing indoor unit is level so that drainage flows smoothly. If there is an incline, water may leak.*
- *Depending on the shape and type of the wall surface, the indoor unit operating sound may be louder.*

General Ceiling Mounting - Ceiling Suspended and Convertible Surface Indoor Units

1. Prepare four (4) hanging bolts (each bolt length should be the same length).
2. Select and mark the areas where the hanging bolts and the piping access holes should be placed on the ceiling.
3. Drill the holes. Add the washers and regular nuts to the hanging bolts. Insert the anchor nuts into the ceiling, then firmly mount the suspension bolts to the anchor nuts.
4. Tighten the washers and regular nuts to lock the hanging bolts to the ceiling.
5. Secure the hangers on the indoor units to the hanging bolts using nuts, washers, and spring washers.
6. Measure for level. Adjust the angle as necessary by tightening and / or loosening the hanging bolts.
7. Adjust the slope by tightening and / or loosening the hanging bolts. The indoor unit should have a slight incline so it will drain easily. The incline should be less than or equal to 1°, or between 3/8 - 3/4 inch in drain direction.

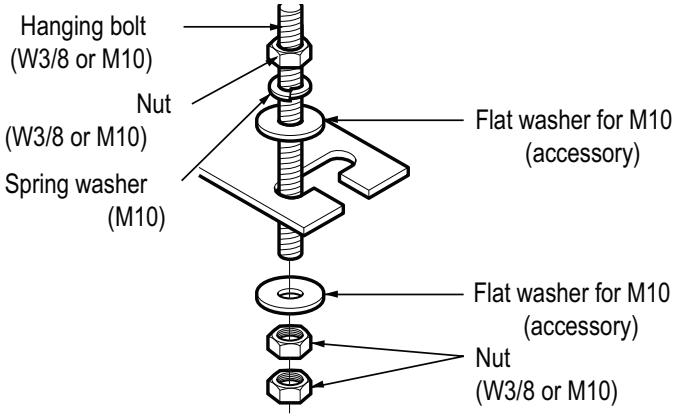
⚠WARNING

Do not damage power wiring during installation. There is risk of electric shock, which may result in physical injury or death.

Note:

Do not damage power wiring during installation. There is a risk of equipment malfunction, which may result in property damage.

Figure 36: Close Up of Hanging Bolt Installation.



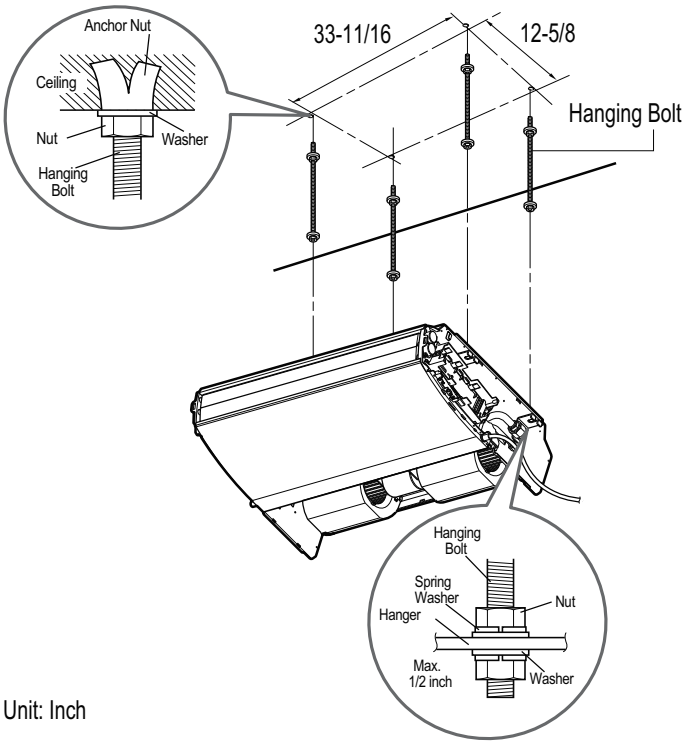
The following parts are field supplied:

- Hanging bolt - W-3/8" or 1/2"
- Nut - W-3/8" or M10
- Spring washer - M10
- Flat washer - M10
- Anchor Nut

⚠WARNING

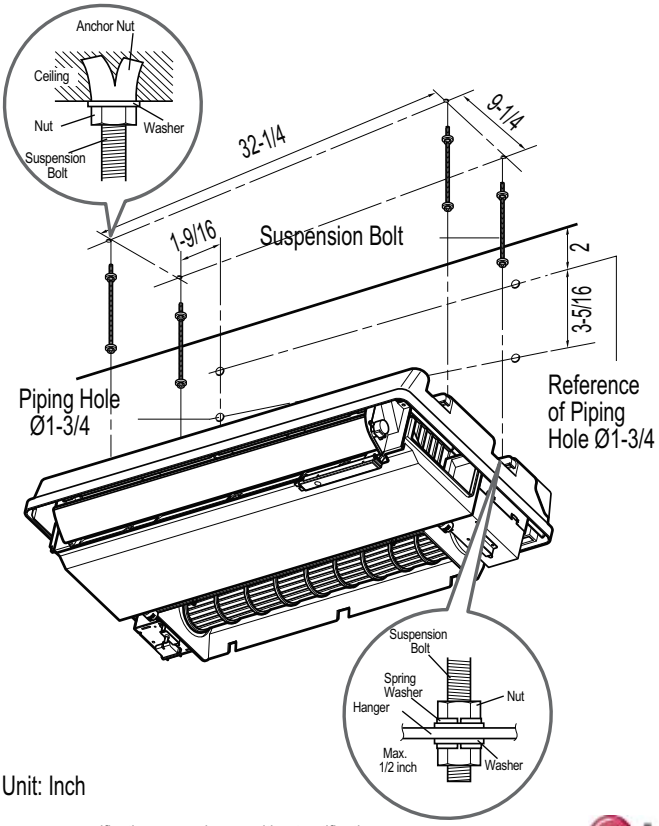
The threaded rod hangers (bolts) and hardware must be securely tightened to prevent the unit from falling from its installation location. There is a risk of personal injury from falling equipment.

Figure 35: Ceiling Mounting for Ceiling Suspended Indoor Units.



Unit: Inch

Figure 37: Ceiling Mounting for Convertible Surface Indoor Units.



Unit: Inch

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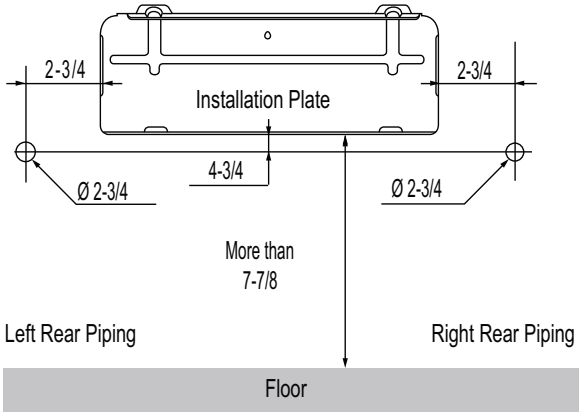
General Wall Mounting - Convertible Surface Indoor Units

The wall you select should be strong and solid enough to prevent vibration.

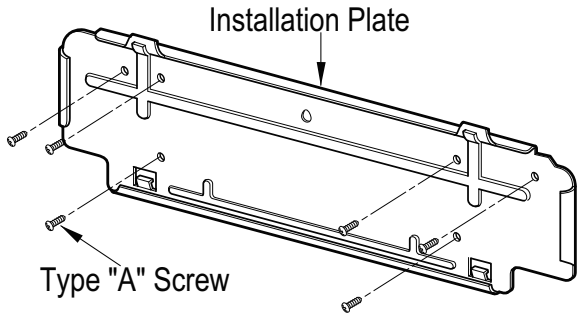
1. Select and mark the areas where the screws and piping access holes should be placed on the wall. Mark a center line.
2. Mount the mounting plate on the wall with type “A” screws. If mounting the unit on a concrete wall, use anchor bolts.
3. Align the mounting plate horizontally. Use the center line as a guide. Verify with a level.

Figure 38: Mounting Plate Location for Convertible Surface Indoor Units.



Unit: Inch

Figure 39: Securing the Mounting Plate.



⚠ WARNING

Do not damage power wiring during installation. There is risk of electric shock, which may result in physical injury or death.

Note:

Do not damage power wiring during installation. There is a risk of equipment malfunction, which may result in property damage.

Figure 40: Floor Standing Indoor Unit with Gravity Drain and Down Slope.

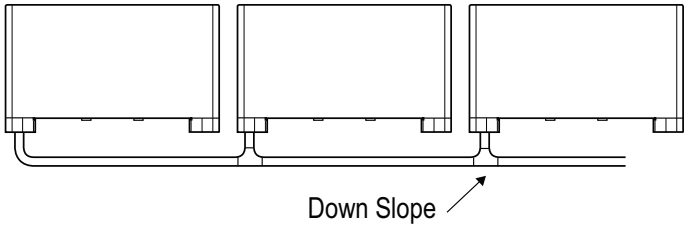


Figure 41: Ceiling Suspended and Convertible Surface (Ceiling Mounted Installation) Indoor Unit with Gravity Drain and Down Slope.

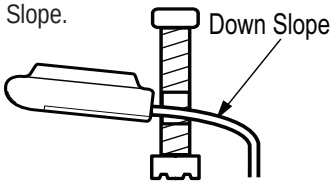
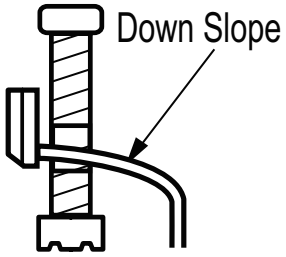


Figure 42: Convertible Surface (Wall Mounted Installation) Indoor Unit with Gravity Drain and Down Slope.



General Drain Piping Information

Indoor units generate water during cooling operation, therefore, how to properly handle this condensation must be considered. Floor standing, ceiling suspended, and convertible surface indoor units apply the gravity drain method, but a field-supplied condensate pump can be installed (optional, sold separately).

Depending on the location of the indoor unit, condensation can be drained directly to the outside of the building, or a common indoor unit drainage piping system can be installed. When the bottom surface of the indoor unit is at an elevation below the receiving building drain line connection, install an inverted trap at the top of the condensate pump discharge riser before connection to the building drain pipe.

When the receiving drain line is mounted horizontal, connect the inverted trap to the top half of the pipe. The connection point of the inverted trap to the building drain pipe should always be to the top half of the pipe and should never be over 45° either side of the upper most point of the horizontal building drain line.

If connecting to a vertical drain line or plumbing system vent line, connect the IDU condensate pump discharge line using a Y-45 fitting with the double end of the Y-45 fitting facing up. When connecting to a vertical drain line include an inverted trap at the top of the IDU condensate pump discharge riser before connection to the Y-45 fitting.

Drain Hose

Floor standing, ceiling suspended, and convertible surface units have a built-in drain hose. If necessary, the drain hose can be extended.

Drain Piping

- Drain piping must have down slope (1/50 to 1/100).
- Any holes through the ceilings, walls, etc., must be large enough to accommodate the drain piping and insulation.
- To prevent reversal flow, do not provide up and down slope.
- Do not exert extra force on the drain port on the indoor unit during drain piping connection.

Table 36: Indoor Unit Drain Piping Specifications.

Indoor Unit	Drain Type	Drain Pipe Diameter (ID, in.)
Floor Standing	Gravity	Ø1
Ceiling Suspended		Ø5/8
Convertible Surface		

Drain Leak Test

A leak test should be performed 24 hours after the drainage system has been installed.

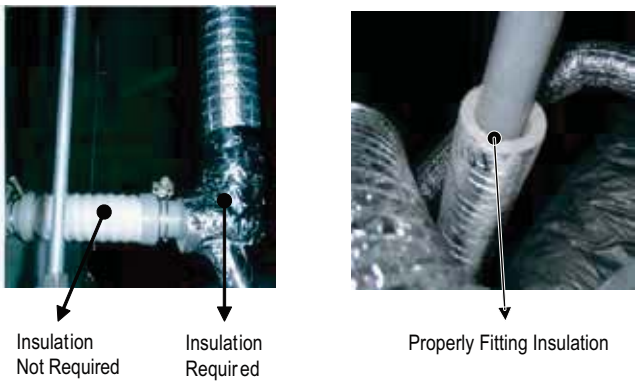
Drain Pipe Insulation

To prevent condensate from forming on the drain piping, field-supplied 5/16 inch thick polyethylene insulation should be properly installed.

Note:

Ensure the indoor unit, refrigerant piping, power wiring / communication cables, and drain piping is properly supported with anchor bolts and clamp hangers positioned at 3.3 to 4.9 foot intervals.

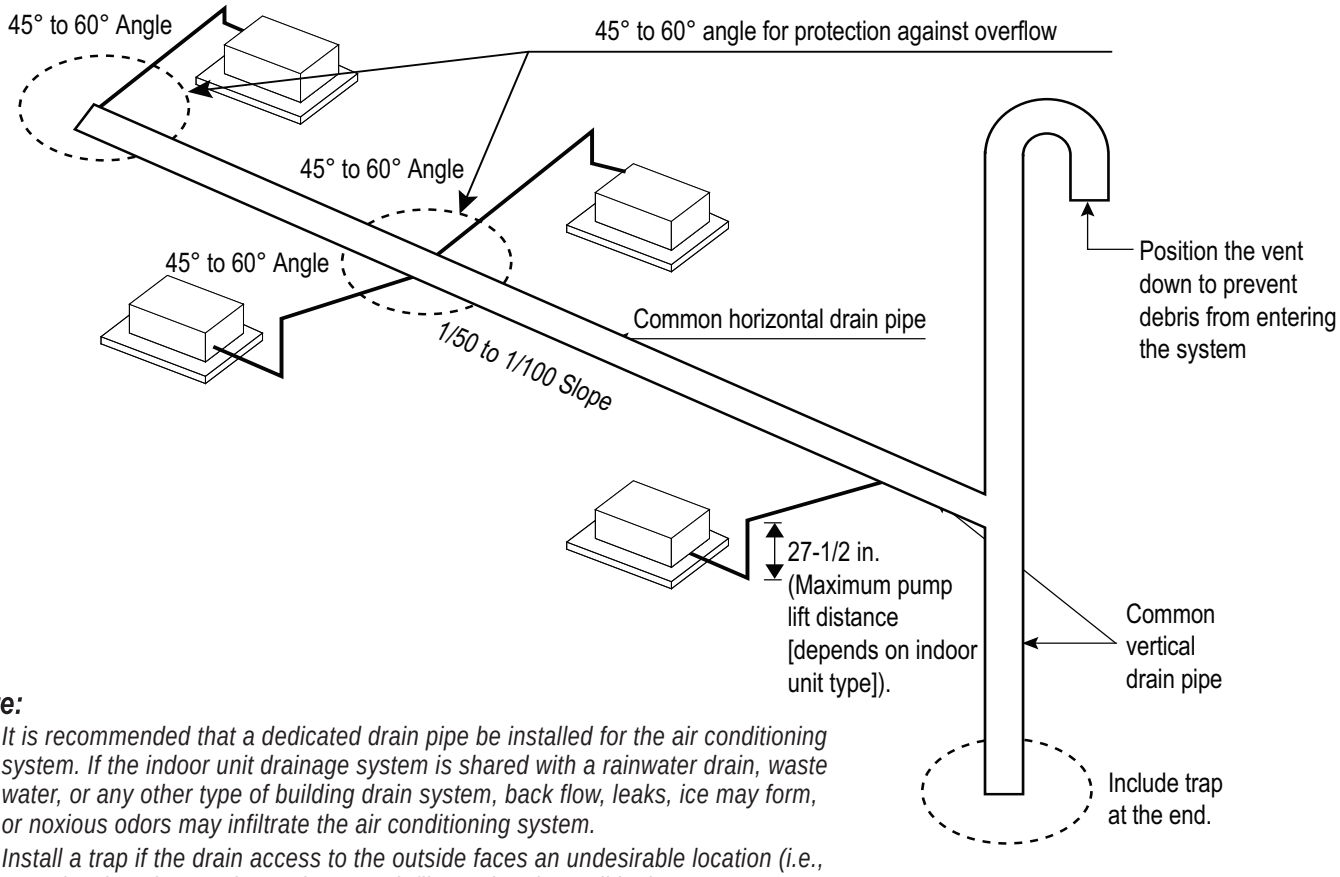
Figure 43: Properly Insulating the Drainage Piping.



Common Indoor Unit Drainage System

It is usual work practice to connect individual indoor unit drain pipes to one common indoor unit drainage system. The diameter of the common vertical drain pipe should be as large as necessary. The diameter of the horizontal pipe should be the same or larger than the vertical drain pipe. To avoid property damage in the event of the primary drain becoming clogged, and to optimize drain system performance, it may be prudent to install a secondary drain line. Design the drain system to plan for winter operation (condensate line may freeze up if condensate does not properly drain away). Drain all generated condensate from the external condensate pan to an appropriate area. Install a trap in the condensate lines as near to the indoor unit coil as possible. To prevent overflow, the outlet of each trap should be positioned below its connection to the condensate pan. All traps should be primed, insulated, and leak tested if located above an inhabited space.

Figure 44: Example of a Common Indoor Unit Drainage System.



Note:

- *It is recommended that a dedicated drain pipe be installed for the air conditioning system. If the indoor unit drainage system is shared with a rainwater drain, waste water, or any other type of building drain system, back flow, leaks, ice may form, or noxious odors may infiltrate the air conditioning system.*
- *Install a trap if the drain access to the outside faces an undesirable location (i.e., sewer), otherwise, noxious odors may infiltrate the air conditioning system.*

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General Power Wiring / Communications Cable Guidelines

- Follow manufacturer's circuit diagrams displayed on the inside of the control box cover.
- Have a separate power supply for the indoor units.
- Provide a circuit breaker switch between the power source and the indoor unit.
- Confirm power source specifications.
- Confirm that the electrical capacity is sufficient.
- Starting current must be maintained ±10 percent of the rated current marked on the name plate.
- Confirm wiring / cable thickness specifications:
  - Power wiring is field supplied. Wire size is selected based on the larger MCA value, and must comply with the applicable local and national codes.
  - Communication cable must be a minimum of 18 AWG, two-conductor, stranded, shielded, and must comply with the applicable local and national codes. Ensure the communication cable is properly grounded at the master outdoor unit only. Do not ground the ODU-IDU communication cable at any other point.
- It is recommended that a circuit breaker is installed, especially if conditions could become wet or moist.
- Include a disconnect in the power wiring system, add an air gap contact separation of at least 1/8 inch in each active (phase) conductor.
- Any openings where the field wiring enters the cabinet must be completely sealed.

⚠ WARNING

- *Terminal screws may loosen during transport. Properly tighten the terminal connections during installation or risk electric shock, physical injury or death.*
- *Loose wiring may cause the wires to burnout or the terminal to overheat and catch fire. There is a risk of electric shock, physical injury or death.*

Note:

- *Terminal screws may loosen during transport. Properly tighten the terminal connections during installation or risk equipment malfunction or property damage.*
- *Loose wiring may cause unit malfunction, the wires to burnout or the terminal to overheat and catch fire. There is a risk of equipment malfunction or property damage.*

A voltage drop may cause the following problems:

- *Magnetic switch vibration, fuse breaks, or disturbance to the normal function of an overload protection device.*
- *Compressor will not receive the proper starting current.*

Power Wiring and Communications Cable Connections

1. Insert the power wiring / communications cable from the outdoor unit or heat recovery unit (Heat Recovery systems only) using the designated path in the indoor unit.
2. Connect each wire to its appropriate terminal on the indoor unit control board. Verify that the color and terminal numbers from the outdoor unit or heat recovery unit (Heat Recovery systems only) wiring match the color and terminal numbers on the indoor unit.
3. Secure the power wiring / communications cable.

Figure 45: Location of Power Wiring / Communications Cable Terminals in Floor Standing Indoor Units.

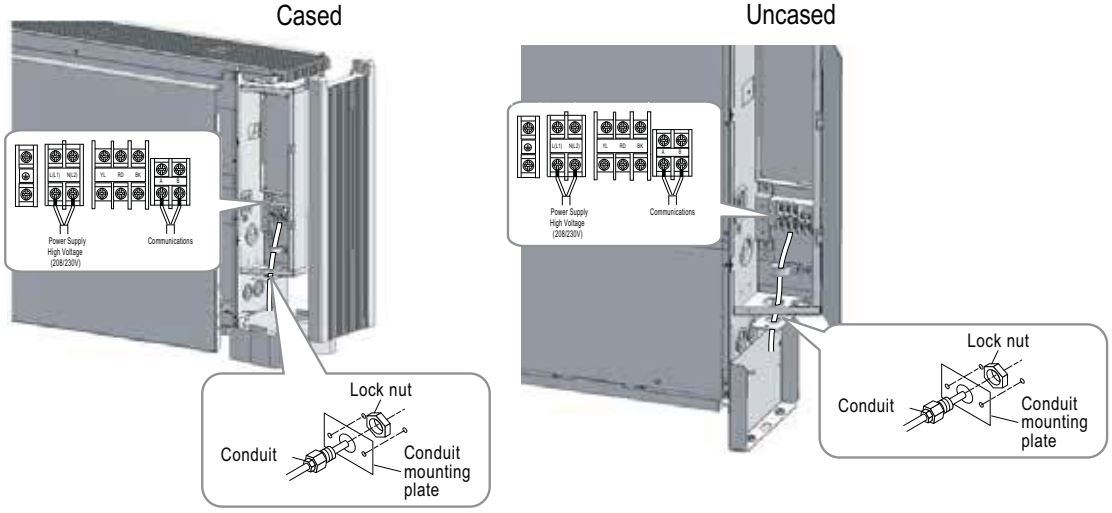


Figure 46: Location of Power Wiring / Communications Cable Terminals in Ceiling Suspended Indoor Units.

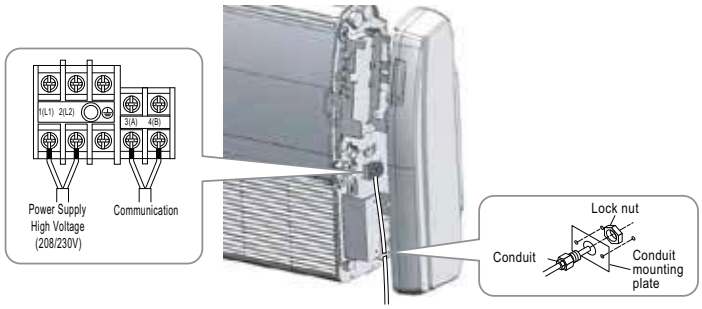


Figure 47: Location of Power Wiring / Communications Cable Terminals in Convertible Surface Indoor Units.

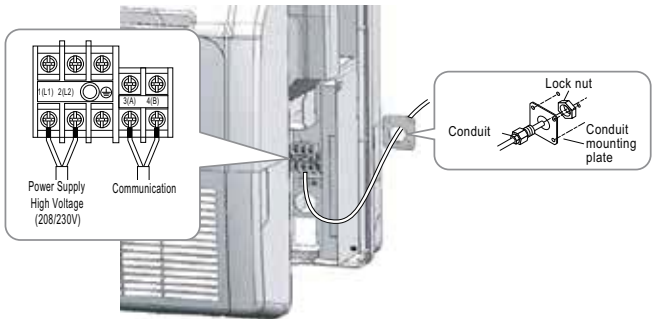


Figure 48: Simplified View of Indoor Unit Terminal Connections—Floor Standing.

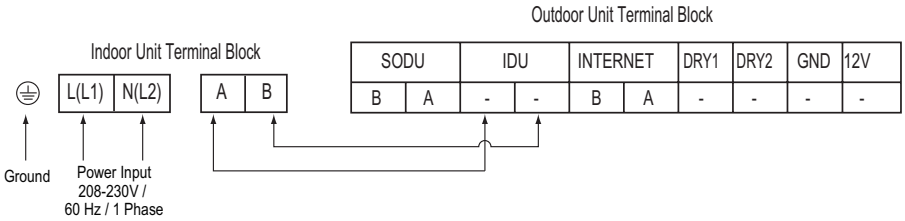


Figure 49: Simplified View of Indoor Unit Terminal Connections—Ceiling Suspended.

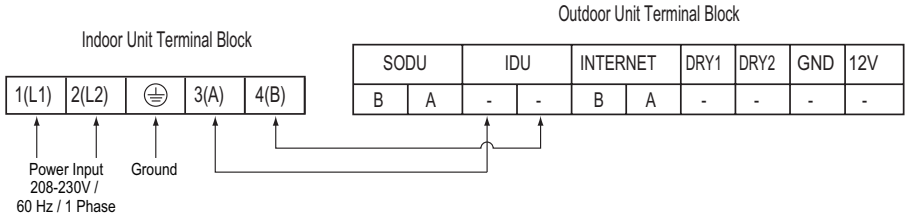
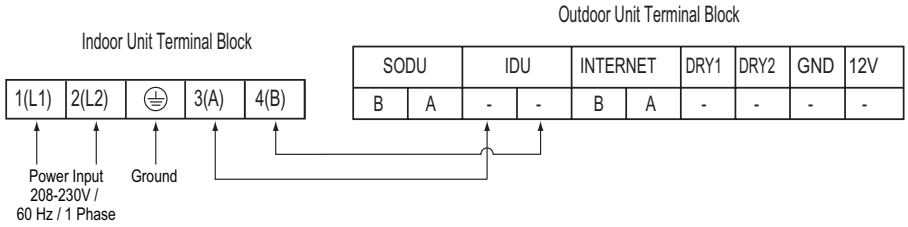


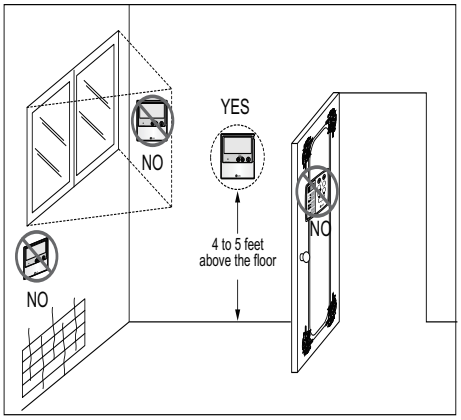
Figure 50: Simplified View of Indoor Unit Terminal Connections—Convertible Surface.



Wired Controller Placement

Floor standing, ceiling suspended, and convertible surface indoor units can be used with various wired controllers (optional; sold separately). Wired controllers include a sensor to detect room temperature. To maintain comfort levels in the conditioned space, the wired controller must be installed in a location away from direct sunlight, high humidity, and where it could be directly exposed to cold air. Controller must be installed four (4) to five (5) feet above the floor where its LED display can be read easily, in an area with good air circulation, and where it can detect an average room temperature.

Figure 51: Proper Location for the Wired Controller.



⃠ Do not install the wired controller near or in:

- Drafts or dead spots behind doors and in corners
- Hot or cold air from ducts
- Radiant heat from the sun or appliances
- Concealed pipes and chimneys
- An area where temperatures are uncontrolled, such as an outside wall

ACRONYMS

Table 37: Acronym Table.

ABS	Acrylonitrile Butadiene Styrene	IDU	Indoor Unit
AC	Air Conditioner/Alternate Current	kW	Kilowatts
ACP	Advanced Control Platform	in Aq	inches water
AHU	Air Handling Unit	ISO	International Standards Organization
ASHRAE	American Society of Heating, Refrigeration, and Air Conditioning	LATS	LG Air Conditioning Technical Solution software
ASTM	American Society for Testing and Materials	LED	Light Emitting Diode
AWG	American Wire Gauge	LEED	Leadership in Energy and Environmental Design
AWHP	Air-to-Air Water Heat Pump	MBh	Thousands BTUs per hour
BLDC	Brushless Digitally-Controlled	MCA	Minimum Circuit Ampacity
BTL	BACnet® Testing Laboratories	mm	Millimeter
Btu/h	British Thermal Unit per Hour	MOP	Maximum Overcurrent Protection
CAA	Clean Air Act	OD	Outside Diameter
CFM	Cubic Feet per Minute	ODU	Outdoor Unit
CFR	Code of Federal Regulations	PI	Power Input
DB	Dry Bulb	PTAC	Packaged Terminal Air Conditioner
dB(A)	Decibels with “A” frequency weighting	SHC	Sensible Heat Capacity
DPST	Double-Pole Single Throw	SMACNA	Sheet Metal & Air Conditioning Contractors' National Association
DX	Direct expansion	RPM	Revolutions per Minute
EEV	Electric Expansion valve	TC	Total Capacity
EPDM	Ethylene Propylene Diene M-Class Rubber	USD	United States Dollar
EMF	Electromagnetic Field	UL	Underwriters Laboratories
ESP	External Static Pressure	V	Voltage
ETL	Electric Testing Laboratories	VAV	Variable Air Volume
GND	Ground	VRF	Variable Refrigerant Flow
H/M/L	High/Medium/Low	W	Watts
HVAC	Heating, Ventilating and Air Conditioning	WB	Wet Bulb
Hz	Hertz	wg	Water Gauge
ID	Inside Diameter		

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