R32 MULTI V™

FLOOR STANDING INDOOR UNIT ENGINEERING MANUAL

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

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

PROPRIETARY DATA NOTICE

This document, as well as all reports, illustrations, data, information, and other materials are the property of LG Electronics U.S.A., Inc., and are disclosed by LG Electronics U.S.A., Inc. only in confidence. This document is for design purposes only.

A summary list of safety precautions is on page 6.

For more technical materials such as submittals, outdoor unit engineering manuals, installation, service, product data performance, installation, owner's, service manuals, as well as catalogs, visit www.lghvac.com.

TABLE OF CONTENTS

LG AIR CONDITIONER TECHNICAL SOLUTION (LATS)

MULTI V™

LG Air Conditioner Technical Solution (LATS) Software

A properly designed and installed refrigerant piping system is critical to the optimal performance of LG air-conditioning systems. To assist engineers, LG offers, free of charge, LG Air Conditioner Technical Solution (LATS) software—a total design solution for LG air conditioning systems. Contact your LG Rep for the best software program for your application.

NOTICE

To reduce the risk of designing an improper applied system or one that will not operate correctly, LG requires that LATS software be used on all projects.

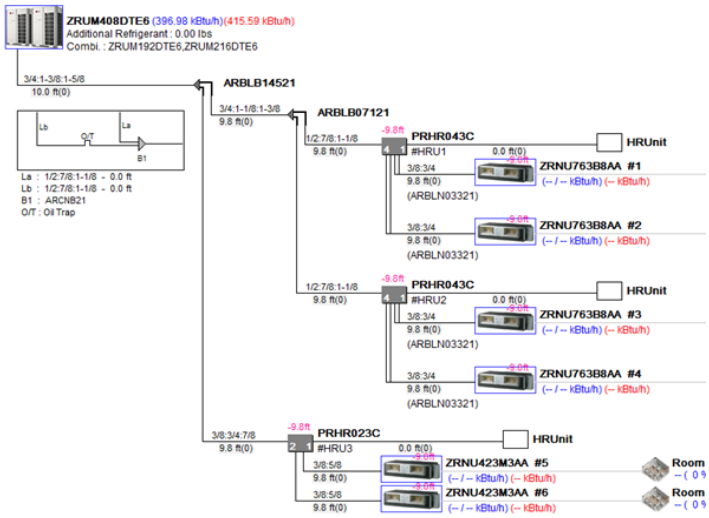
Formats

LATS is available to LG customers in two user interfaces: LATS HVAC and LATS Revit. Both LATS formats are available through www.myLGHVAC.com, or contact an LG Sales Representative.

LATS HVAC is a Windows®-based application that aids engineers in designing LG Variable Refrigerant Flow (VRF), Multi F / Multi F MAX, Single-Zone, DOAS, and Energy Recovery Ventilator (ERV) systems.

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

Figure 1: LATS Example (Tree Diagram; Illustrative Purposes Only. System will Vary Depending On Modell).



LATS Revit integrates the LG LATS program with Revit® software**. It permits engineers to layout and validate LG VRF, Multi F / Multi F MAX, Single-Zone, and DOAS directly into Revit drawings.

***Revit® is a registered mark of Autodesk, Inc.*

Features

All LG product design criteria have been loaded into the program, making LATS simple to use: double click or drag and drop the component choices. Build systems in Tree Mode where the refrigerant system can be viewed. Switch to a Schematic diagram to see the electrical and communications wiring.

LATS software permits the user to input region data, indoor and outdoor design temperatures, modify humidity default values, zoning, specify type and size of outdoor units and indoor units, and input air flow and external static pressure (ESP) for ducted indoor units.

The program can also:

- Import building loads from a separate Excel file.
- Present options for outdoor unit auto selection.
- Automatically calculate component capacity based on design conditions for the chosen region.
- Verify if the height differences between the various system components are within system limits.
- Provide the correct size of each refrigerant piping segment and LG Y-Branches and Headers.
- Adjust overall piping system length when elbows are added.
- Check for component piping limitations and flag if any parameters are broken.
- Factor operation and capacity for defrost operation.
- Calculate refrigerant charge, noting any additional trim charge.
- Suggest accessories for indoor units and outdoor units.
- Run system simulation.

NOTICE

Features depend on which LATS program is being used, and the type of system being designed. Contact your LG representative for the best software program for your application.

NOTICE

Any field changes, such as re-routing, shortening or lengthening a pipe segment, adding or eliminating elbows and/or fittings, re-sizing, adding, or eliminating indoor units, changing the mounting height, or moving the location of a device or fitting during installation must be done with caution and ALWAYS VERIFIED in LATS SOFTWARE BEFORE supplies are purchased or installed. Doing so will lead to a more profitable installation, reduce the potential for rework, and will reduce the potential for multiple visits to the job site to complete the system set up.

LG

LATS Generates a Complete Project Report

LATS software also generates a report containing project design parameters, cooling and heating design data, system component performance, and capacity data. The report includes system combination ratio and refrigerant charge calculations; and provides detailed bill of material, including outdoor units, indoor units, control devices, accessories, refrigerant pipe sizes segregated by building, by system, by pipe size, and by pipe segments. LATS can generate an Excel GERP report that can be imported into the LG SOPS pricing and ordering system.

Proper Design to Install Procedure

LG encourages a two report design-to-install-procedure. After the design engineer determines building / zone loads and other details, the engineer opens the LATS program and inputs the project's information. When the design is complete, the "Auto Piping" and "System Check" functions must be used to verify piping sizes, limitations, and if any design errors are present. If errors are found, engineers must adjust the design, and run Auto Piping and System Check again. When the design passes the checks, then the engineer prints out a project "Shop Drawing" (LATS Tree Diagram) and provides it to the installing contractor. The contractor must follow the LATS Tree Diagram when building the piping system, but oftentimes the design changes on the building site:

- Architect has changed location and/or purpose of room(s).
- Outdoor unit cannot be placed where originally intended.
- Structural elements prevent routing the piping as planned.
- Air conditioning system conflicts with other building systems (plumbing, gas lines, etc.).

The contractor must mark any deviation from the design on the Shop Drawing, including as-built straight lines and elbows. This "Mark Up" drawing must be returned to the design engineer or Rep, who must input contractor changes into the LATS file. (Copy the original LATS software file, save and rename as a separate file, and modify all piping lengths by double-clicking on each length and editing information.) Like the shop drawing, the Auto Piping and System Check must also be run on this new "As Built" drawing. The design engineer or Rep must then provide the final As Built file to the contractor. The Mark Up version must be compared to the As Built version for:

- Differences in pipe diameter(s). If incorrect diameters have been installed, the piping must be changed out. If pipe diameters have changed, check if Y-Branches will also need to be changed.
- Changes to outdoor unit and indoor unit capacities. Capacities changes will impact line length changes.
- Additional refrigerant charge quantity ("Trim Charge"). Trim charge will change if piping lengths and diameters change. The As Built version must reflect installed piping lengths to ensure correct trim charge.

All documents submitted by the contractor, as well as the Shop Drawing and the As Built Drawing files must be provided for commissioning purposes. Model and serial numbers for all system components must also be submitted. If the steps previously detailed are not followed, and all documents are not provided to the commissioning agent, the project runs the risk of not being commissioned and voiding any limited warranty LG offers on the equipment.

NOTICE

Features depend on which LATS program is being used, and the type of system being designed. Contact your LG representative for the best software program for your application.

TABLE OF SYMBOLS

	*Indicates that this appliance uses a flammable refrigerant. If the refrigerant leaks and is exposed to an external ignition source, there is a risk of fire.*
DANGER	*Indicates a hazardous situation that, if not avoided, WILL RESULT IN DEATH OR SERIOUS INJURY.[1]*
WARNING	*Indicates a hazardous situation that, if not avoided, COULD RESULT IN DEATH OR SERIOUS INJURY.[1]*
CAUTION	*Indicates a hazardous situation that, if not avoided, COULD RESULT IN MINOR OR MODERATE INJURY.[1]*
NOTICE	*Indicates information considered important, but not hazard-related; indicates situations that may result in equipment or property damage accidents.[1]*
	*This symbol indicates an action that should not be performed.*

[1]Signal words, symbols, and definitions taken from American National Standards Institute (ANSI) Z535.6. See https://www.ansi.org/ for more information.

R32 Refrigerant

LG Electronic split system heating and air conditioning (HVAC) products now contain R32 refrigerant. While R32 refrigerant is slightly flammable, it has a higher efficiency, a lower Global Warming Potential (GWP) value, and is more environmentally friendly than R410A.
R32 Ozone Depletion Potential (ODP) Value: 0.
R32 Global Warming Potential (GWP) Value: 675.

The amount of refrigerant depends on outdoor unit to indoor unit configuration. All refrigerant piping system components (copper piping, joints, and other fittings) must be selected and installed to conform with Refrigeration Safety Regulation standards. Use LG Air Conditioner Technical Solution (LATS) Software to verify the refrigerant amount needed for each installation.

WARNING

- *This HVAC system contains fluorinated greenhouse gases in the form of R32 refrigerant. ⃠ Do not leak refrigerant gas into the atmosphere.*
- *Only use R32 as the refrigerant in these HVAC systems. If other substances are added, it may cause an explosion.*
- *R32 refrigerant is slightly flammable. When handled properly, it does not leak. If the refrigerant leaks in the installation area and comes in contact with a flame, it may generate a fire and / or harmful gas.*
- *If a leak occurs, immediately turn off any combustion devices, ventilate the installation area, and contact the dealer / contractor where the HVAC unit was purchased. ⃠ Do not operate the unit until the refrigerant leaked is repaired.*

CAUTION

- *Piping wall thickness must comply with all applicable local, state, and federal regulations for the design pressures listed by the manufacturer. ⃠ Unapproved piping must not be used.*
- *To prevent piping from softening, ⃠ do not heat the piping more than necessary.*

UNIT NOMENCLATURE

Family
ZRN = Multi V Indoor Unit
(Refrigerant R32)

Type
U = 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

Chassis

B8 = Ducted (high static)	NA = Vertical/Horizontal Air Handling Unit	TA = 4-Way Ceiling Cassette
CE = Floor Standing (small frame)	NB = Vertical/Horizontal Air Handling Unit	TQ = 4-Way Ceiling Cassette
CF = Floor Standing (large frame)	NC = Vertical/Horizontal Air Handling Unit	TR = 4-Way Ceiling Cassette
L1 = Ducted (low static)	SF = Wall Mounted / Art Cool™ Gallery	
L2 = Ducted (low static)	SJ = Wall Mounted / Art Cool Mirror	
L3 = Ducted (low static)	SK = Wall Mounted / Art Cool Mirror	
MA = Ducted (mid static)	SR = Wall Mounted / Standard	
M2 = Ducted (mid / high static)	TC = 1-Way Ceiling Cassette	
M3 = Ducted (mid / high static)	TS = 2-Way Ceiling Cassette	

Feature

A, B, C, D, L = Standard, Cased	R = Mirror
G = Low Static	U = Uncased
K = High Static	Z = Outside Air Intake Unit

Series
Indoor Units with Refrigerant Sensor

ADDITIONAL REFRIGERANT CHARGE

MULTI V™

Table 1: Additional Refrigerant Charge (lbs. per feet).

Model Name	Capacity (kBtu/h)[1,2]																
	5	7	9	12	15	18	21	24	28	30	36	42	48	54	60	76	96
ZRNU**3TC*A		0.42	0.42	0.42		0.42											
ZRNU**3TS*A						0.62		0.62									
ZRNU**3TR(TQ)*A	0.33	0.33	0.46	0.46	0.57	0.57											
ZRNU**3TA*A		1.23	1.23	1.23	1.23	1.23		1.23	1.23		1.23	1.23	1.23				
ZRNU**3L*GA		0.26	0.26	0.37	0.37	0.37		0.49									
ZRNU**3MA*A		0.40	0.40	0.40	0.40	0.40		0.60									
ZRNU**3M2*A		0.64	0.64	0.64	0.64	0.64		0.64	0.95		0.95	0.95					
ZRNU**3M3*A									1.10				1.10	1.10			
ZRNU**3B8*A											1.83	1.83	1.83	1.83		1.83	1.83
ZRNU**3NA(NB,NC)*A				0.86		0.86		0.86		0.86	1.68	1.68	1.68	1.68	1.68		
ZRNU**3SJ(SK,SR)*A	0.44	0.44	0.44	0.44	0.44	0.51		0.51		1.08	1.08						
ZRNU**3V1(V2)*A						0.97		0.97			1.46		1.46				
ZRNU**3CE(CF)*A		0.31	0.31	0.31	0.31	0.68		0.68									
ZRNH**3K2(K3)*A												1.46				1.83	2.91

[1]CF (Ref.) = Correction Factor for Refrigerant Charge.

[2]For refrigerant charge purposes, consider only the liquid line; ignore the vapor line(s).

LG

PRODUCT DATA

Cased

Uncased

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.

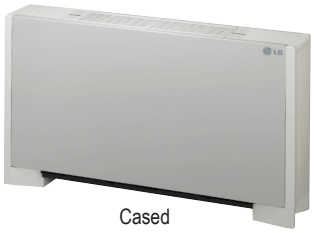
18–24 MBh

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.

Figure 2: Floor Standing Indoor Units.



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.

Refrigerant Leak Detection

The indoor unit contains an R32 refrigerant leak sensor. The sensor is designed to control optional refrigerant piping shutoff valves if a leak is detected. Shutoff valve units are available as a separate LG accessory or included as components in LG Heat Recovery Unit accessories. The sensor can enable four individual controller displayed error codes for leak detection (CH230), sensor fault (CH228), 6 months life remaining (CH227) and end of life (CH229).

Table 2: Refrigerant Leak Sensor Specifications.

Item	Specification
Refrigerant	R32
Detection Concentration	5,000 ppm
Power Supply	DC 5V
Operating Temperature	-25 to +140°F
Lifetime	10 years

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
- R32 leak detection Sensor

GENERAL DATA

CEAA, CFAA Cased Units

Table 3: Floor Standing Cased Floor Standing (CEAA, CFAA) Indoor Unit General Data.

Model No.	ZRNU073CEAA	ZRNU093CEAA	ZRNU123CEAA	ZRNU153CEAA	ZRNU183CFAA	ZRNU243CFAA
Cooling Mode Performance						
Capacity (Btu/h)	7,500	9,600	12,300	15,400	19,100	24,200
Max Power Input[1] (W)	85	85	85	85	115	115
L/M/H Power Input at Factory Default (W)	14 / 17 / 24	17 / 24 / 30	24 / 30 / 36	28 / 35 / 44	29 / 41 / 54	41 / 54 / 84
Heating Mode Performance						
Capacity (Btu/h)	8,500	10,900	13,600	17,100	21,500	27,300
Max Power Input[1] (W)	85	85	85	85	115	115
L/M/H Power Input at Factory Default (W)	14 / 17 / 24	17 / 24 / 30	24 / 30 / 36	28 / 35 / 44	29 / 41 / 54	41 / 54 / 84
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]	R32	R32	R32	R32	R32	R32
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
Sound Power[4] dB(A) (H)	54	55	57	59	60	61
Net Unit Weight (lbs.)	59.6	59.6	59.6	59.6	75.0	75.0
Shipping Weight (lbs.)	68.3	68.3	68.3	68.3	86.0	86.0
Communication Cable[5] (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	1/4 Flare
Vapor Line (in., O.D.)	3/8 Flare	3/8 Flare	3/8 Flare	3/8 Flare	1/2 Flare	1/2 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.

All capacities are net with a combination ratio between 95-105%.

Rated capacity is certified under AHRI Standard 1230. Ratings are subject to change without notice. Current certified rating are available at www.ahridirectory.org.

[1]Max power input is rated at maximum setting value.

[2]Take appropriate actions at the end of HVAC equipment life to recover, recycle, reclaim or destroy R32 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]Sound Power levels are tested in a reverberation room under ISO Standard 3741.

[4]All communication cable to be minimum 18 AWG, 2-conductor, twisted, stranded, shielded and must comply with 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.

Table 4: Floor Standing Uncased Floor Standing (CEUA, CFUA) Indoor Unit General Data.

Model No.	ZRNU073CEUA	ZRNU093CEUA	ZRNU123CEUA	ZRNU153CEUA	ZRNU183CFUA	ZRNU243CFUA
Cooling Mode Performance						
Capacity (Btu/h)	7,500	9,600	12,300	15,400	19,100	24,200
Max Power Input[1] (W)	85	85	85	85	115	115
L/M/H Power Input at Factory Default (W)	14 / 17 / 24	17 / 24 / 30	24 / 30 / 36	28 / 35 / 44	29 / 41 / 54	41 / 54 / 84
Heating Mode Performance						
Capacity (Btu/h)	8,500	10,900	13,600	17,100	21,500	27,300
Max Power Input[1] (W)	85	85	85	85	115	115
L/M/H Power Input at Factory Default (W)	14 / 17 / 24	17 / 24 / 30	24 / 30 / 36	28 / 35 / 44	29 / 41 / 54	41 / 54 / 84
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]	R32	R32	R32	R32	R32	R32
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
Sound Power[4] dB(A) (H)	54	55	57	59	60	61
Net Unit Weight (lbs.)	46.3	46.3	46.3	46.3	58.5	58.5
Shipping Weight (lbs.)	56.2	56.2	56.2	56.2	68.3	68.3
Communication Cable[5] (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	1/4 Flare
Vapor Line (in., O.D.)	3/8 Flare	3/8 Flare	3/8 Flare	3/8 Flare	1/2 Flare	1/2 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.

All capacities are net with a combination ratio between 95-105%.

Rated capacity is certified under AHRI Standard 1230. Ratings are subject to change without notice. Current certified rating are available at www.ahridirectory.org.

[1]Max power input is rated at maximum setting value.

[2]Take appropriate actions at the end of HVAC equipment life to recover, recycle, reclaim or destroy R32 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]Sound Power levels are tested in a reverberation room under ISO Standard 3741.

[4]All communication cable to be minimum 18 AWG, 2-conductor, twisted, stranded, shielded and must comply with 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.

Table 5: Floor Standing (CEAA, CFAA [Cased]; CEUA, CFUA [Uncased]) Indoor Unit Electrical Data.

Model	Voltage Range	MCA	MOP	Rated Amps (A)	Power Supply			Power Input (W)		
					Hz	Volts	Phase	Max. Cooling	Max. Heating	L / M / H at Factory Default
CEAA / CFAA (Cased) Units										
ZRNU073CEAA	187-253	0.9	15	0.76	60	208-230	1	85	85	14 / 17 / 24
ZRNU093CEAA		0.9	15	0.76				85	85	17 / 24 / 30
ZRNU123CEAA		0.9	15	0.76				85	85	24 / 30 / 36
ZRNU153CEAA		0.9	15	0.76				85	85	28 / 35 / 44
ZRNU183CFAA		1.35	15	0.97				115	115	29 / 41 / 54
ZRNU243CFAA		1.35	15	0.97				115	115	41 / 54 / 84
CEUA / CFUA (Uncased) Units										
ZRNU073CEUA	187-253	0.9	15	0.76	60	208-230	1	85	85	14 / 17 / 24
ZRNU093CEUA		0.9	15	0.76				85	85	17 / 24 / 30
ZRNU123CEUA		0.9	15	0.76				85	85	24 / 30 / 36
ZRNU153CEUA		0.9	15	0.76				85	85	28 / 35 / 44
ZRNU183CFUA		1.35	15	0.97				115	115	29 / 41 / 54
ZRNU243CFUA		1.35	15	0.97				115	115	41 / 54 / 84

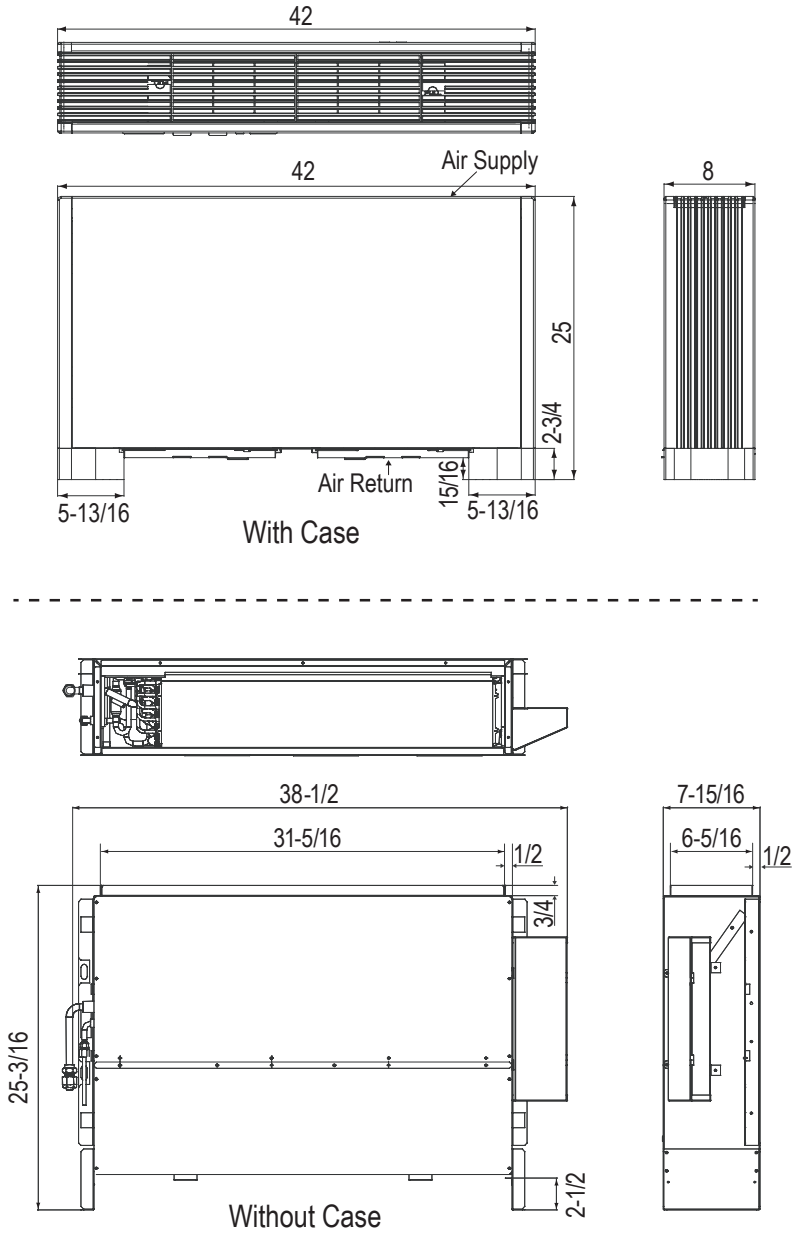
MCA : Minimum Circuit Ampacity.
MOP : Maximum Overcurrent Protection.

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 a fuse, use the circuit breaker.
Maximum power input is rated at maximum setting valve.

DIMENSIONS

CEAA Cased, CEUA Uncased Units

Figure 3: ZRNU073~153CEAA (Cased), ZRNU073~153CEUA (Uncased) Dimensions.



Model	W	H	D
ZRNU073CEAA ZRNU093CEAA ZRNU123CEAA ZRNU153CEAA	42	25	8
ZRNU073CEUA ZRNU093CEUA ZRNU123CEUA ZRNU153CEUA	38-1/2	25-3/16	7-15/16

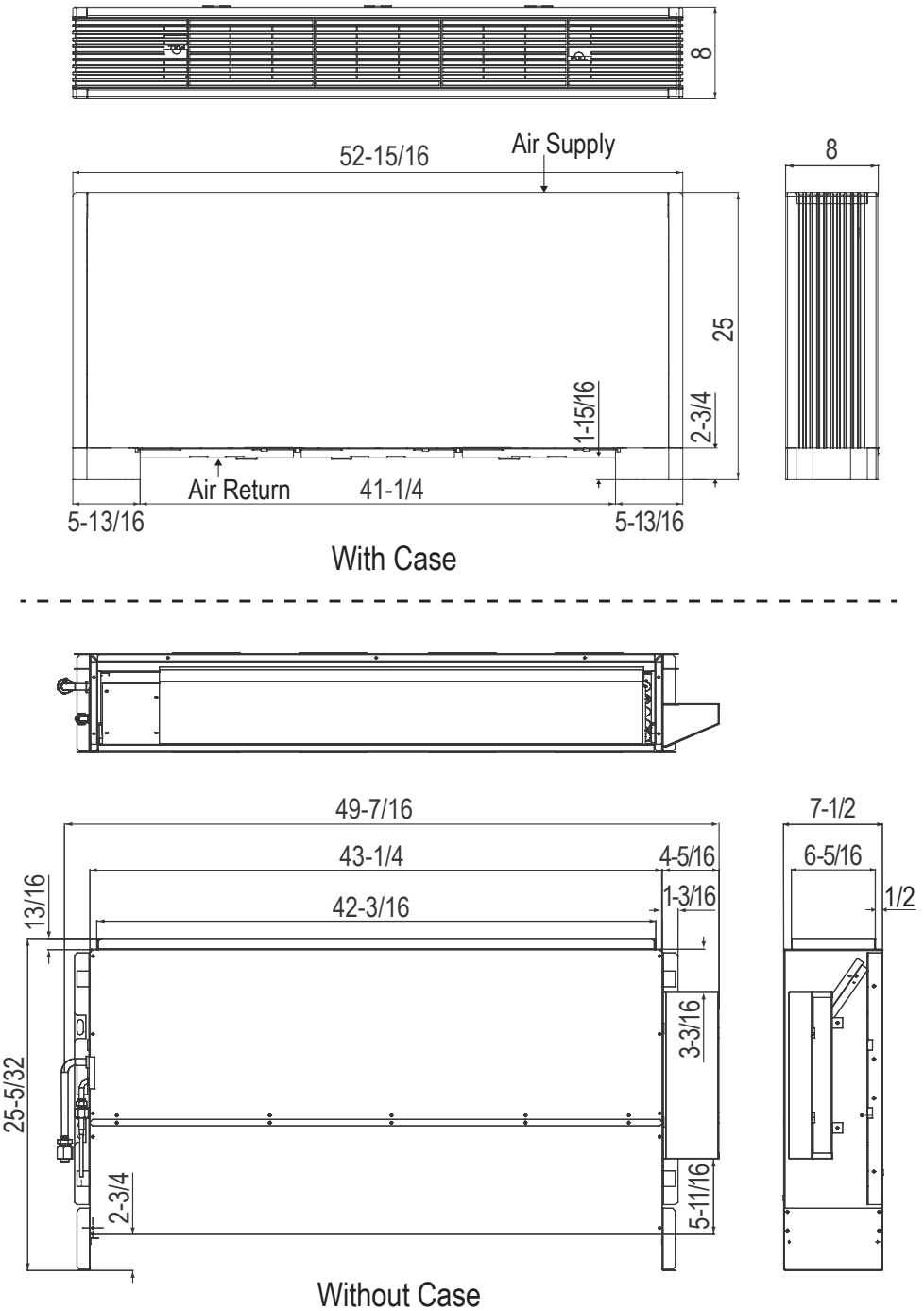
Unit: inches

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

DIMENSIONS

CFAA Cased, CFUA Uncased Units

Figure 4: ZRNU183~243CFAA (Cased), ZRNU183~243CFUA (Uncased) Dimensions.

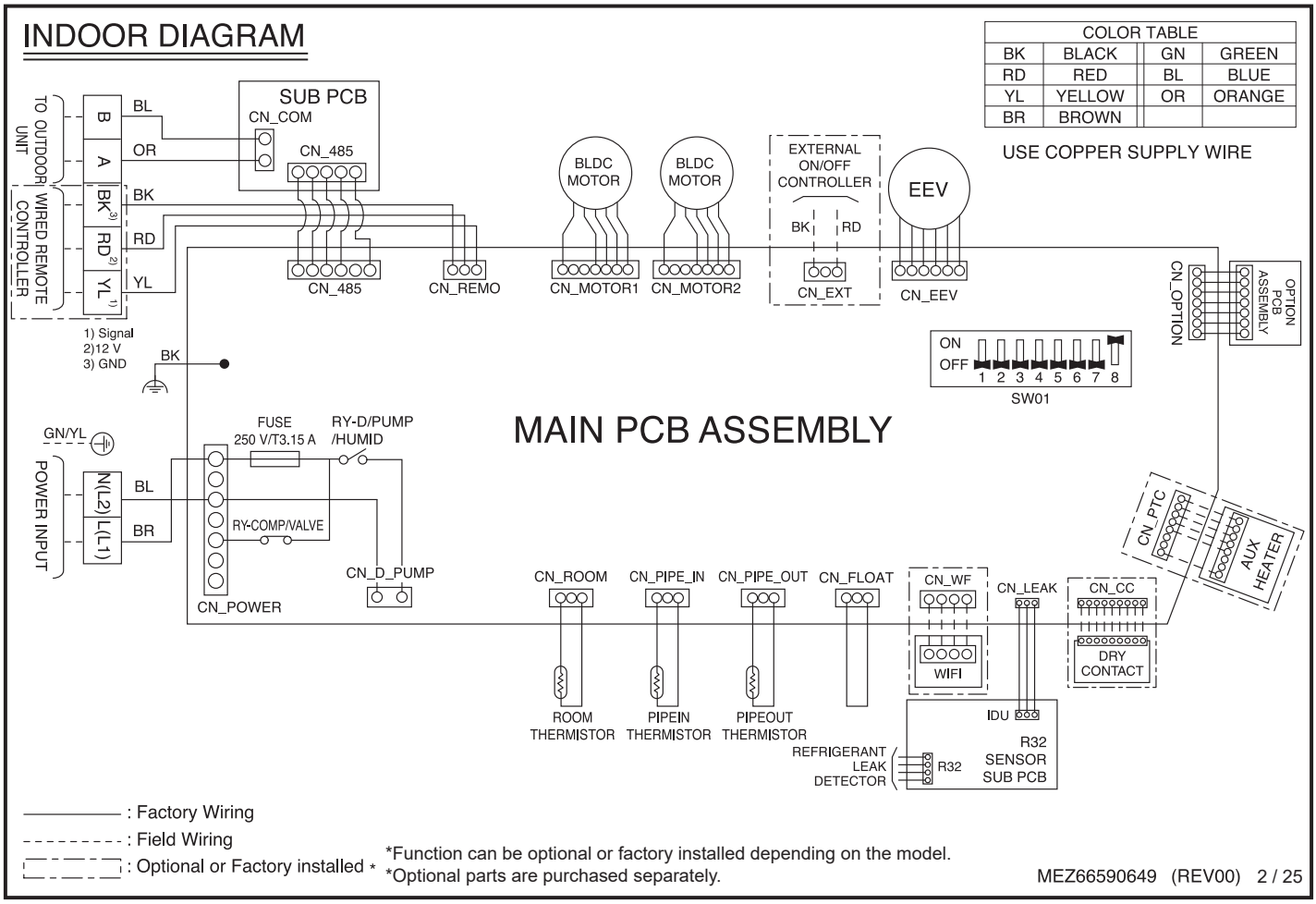


Model	W	H	D
ZRNU183CFAA ZRNU243CFAA	52-15/16	25	8
ZRNU183CFUA ZRNU243CFUA	49-7/16	25-3/16	7-1/2

Unit: inches

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

Figure 5: Floor Standing (CEAA, CFAA [Cased]; CEUA, CFUA [Uncased]) Indoor Unit Wiring Diagram.



WIRING DIAGRAM

CEAA and CFAA Cased, CEUA and CFUA Uncased Units

Table 6: Floor Standing CEAA and CFAA Cased, CEUA and CFUA Uncased Indoor Unit Wiring Diagram Legend.

Terminal	Purpose	Function
CN_485	Communication	Connection between indoor and outdoor units
CN_REMO	Remote controller	Remote control connection
CN_MOTOR1	Fan motor output	Motor output of BLDC
CN_MOTOR2	Fan motor output	Motor output of BLDC
CN_EXT	External on/off controller	External on/off controller connection
CN_EEV	EEV output	EEV control output
CN_OPTION	Option PCB (EEPROM)	Option PCB connection
CN_PTC	Auxiliary heater	Auxiliary heater connection
CN_CC	Dry Contact	Connection to Dry Contact (Optional)
CN_LEAK	Leak sensor	Leak sensor connection
CN_WF	Wi-Fi module	Wi-Fi module connection
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_D_PUMP	Drain pump output	AC output for drain pump
CN_POWER	AC Power supply	AC power line input for indoor controller

*If a Third-Party Dry Contact and an LG internal heater or an LG Auxiliary Heater Kit is installed, supplemental heat capability cannot be controlled by the Third-Party Thermostat.

Table 7: Floor Standing CEAA and CFAA Cased, CEUA and CFUA Uncased Indoor Unit DIP Switch Settings.

DIP Switch Setting		Off	On	Remarks
SW3	GROUP CONTROL	Main	Sub	Group control setting using 7-Day Programmable Controller; selects Main / Sub 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.
SW8	LEAK DETECTION SYSTEM	Off	On	Selection of Installed or Not Installed. By default, SW8 is set on ON. Keep this setting

DIP switches 1, 2, 5, 6, 7 must be set to OFF and 8 must be ON.

REFRIGERANT FLOW DIAGRAM

CEAA and CFAA Cased, CEUA and CFUA Uncased Units

Figure 6: Floor Standing (CEAA, CFAA [Cased]; CEUA, CFUA [Uncased]) Indoor Unit Refrigerant Flow Diagram.

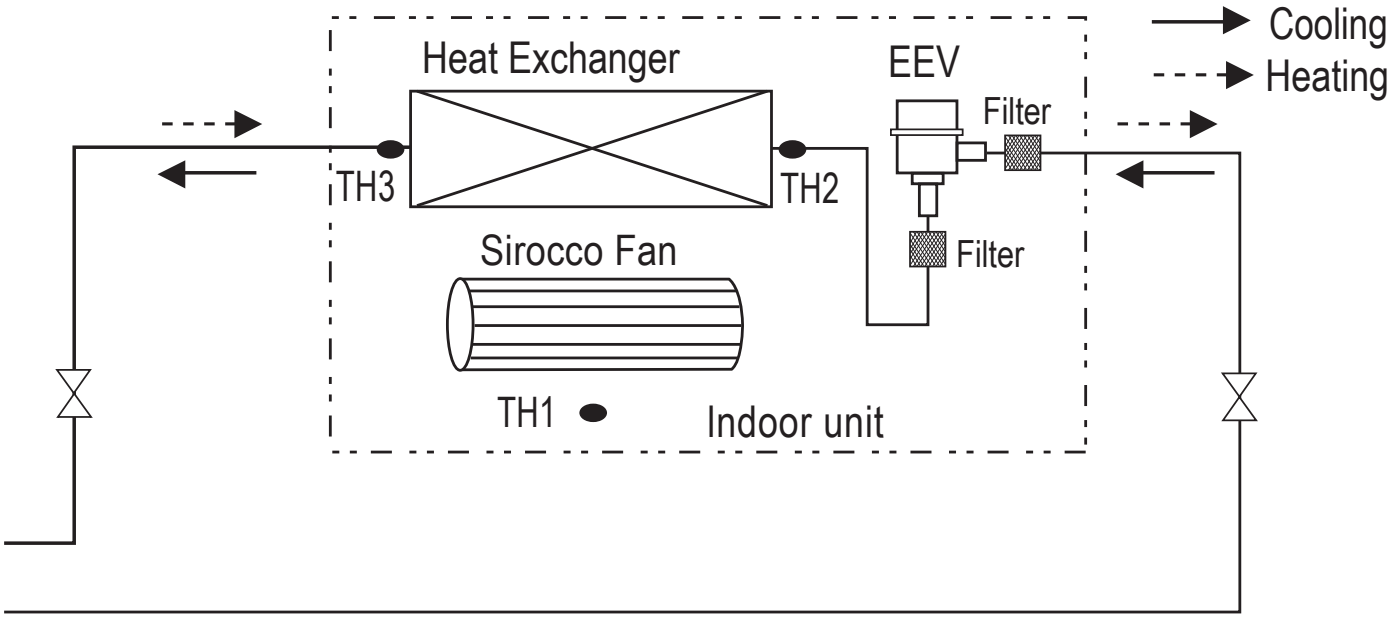


Table 8: Floor Standing (CEAA, CFAA [Cased]; CEUA, CFUA [Uncased]) Indoor Unit Refrigerant Pipe Connection Port Diameters.

Model	Liquid (inch)	Vapor (inch)
CEAA / CFAA (Cased) Units		
ZRNU073CEAA	1/4 Flare	3/8 Flare
ZRNU093CEAA		
ZRNU123CEAA		
ZRNU153CEAA		
ZRNU183CFAA		1/2 Flare
ZRNU243CFAA		
CEUA / CFUA (Uncased) Units		
ZRNU073CEUA	1/4 Flare	3/8 Flare
ZRNU093CEUA		
ZRNU123CEUA		
ZRNU153CEUA		
ZRNU183CFUA		1/2 Flare
ZRNU243CFUA		

Table 9: Floor Standing (CEAA, CFAA [Cased]; CEUA, CFUA [Uncased]) Indoor Unit Thermistors.

Thermistor	Description
TH1	Return Aiir Thermistor
TH2	Pipe In Thermistor
TH3	Pipe Out Thermistor

EXTERNAL STATIC PRESSURE AND AIR FLOW TABLES

CEUA and CFUA Uncased Units

Table 10: CEUA 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 11: CFUA 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

NOTICE

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.

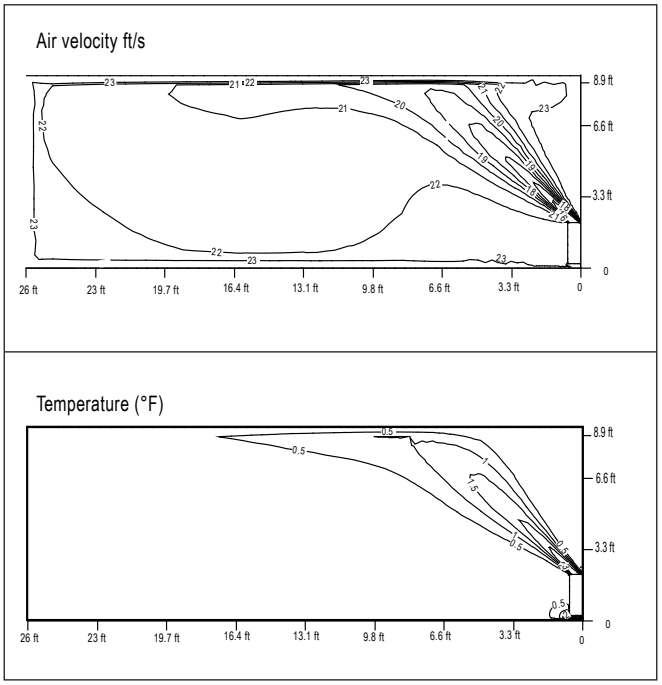
AIR VELOCITY / TEMPERATURE DISTRIBUTION

CEAA and CFAA Cased, CEUA and CFUA Uncased Units

Figure 7: ZRNU073CEAA (Cased) / ZRNU073CEUA (Uncased).

Cooling

Discharge angle: 45°



Heating

Discharge angle: 60°

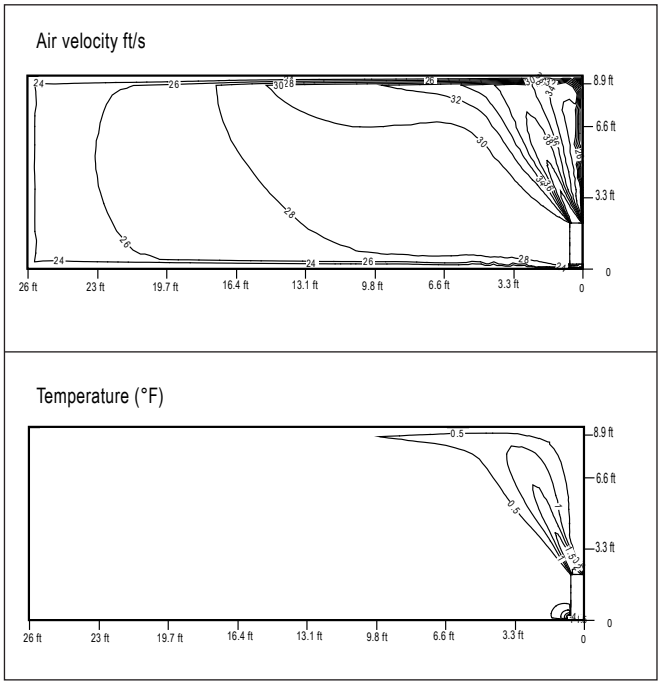
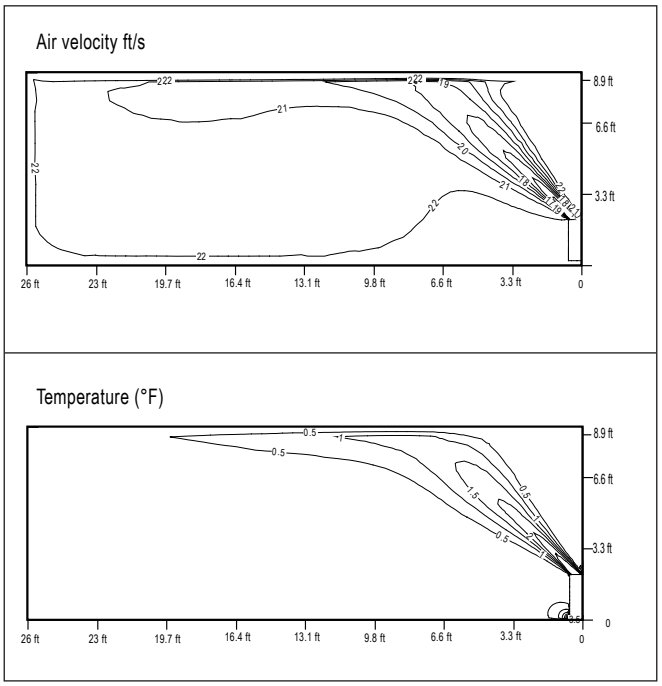


Figure 8: ZRNU093CEAA (Cased) / ZRNU093CEUA (Uncased).

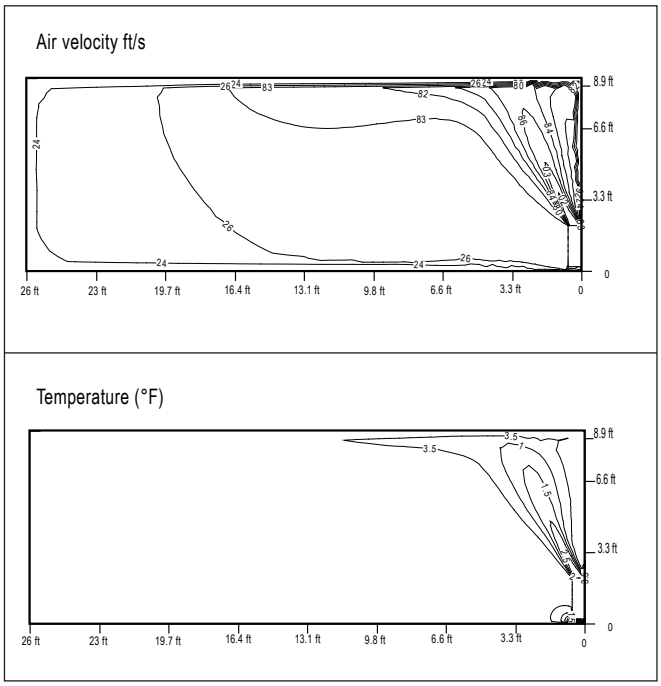
Cooling

Discharge angle: 45°



Heating

Discharge angle: 60°



Product Data

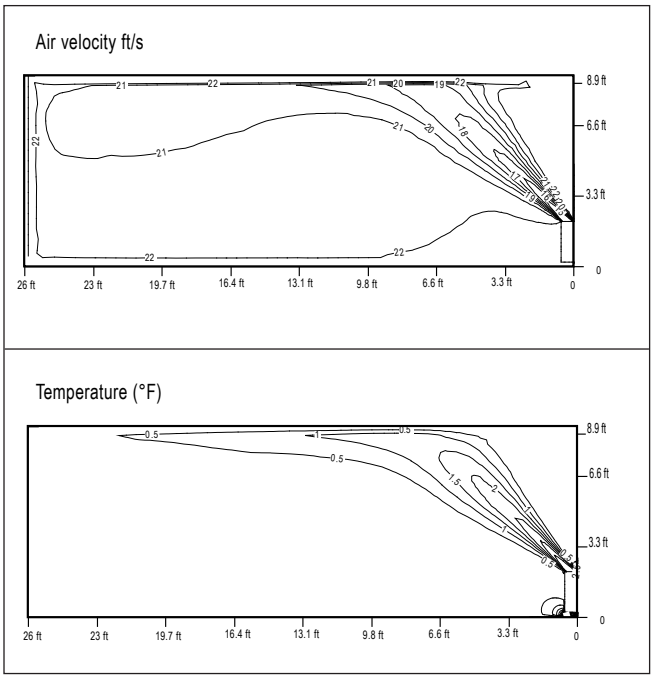
AIR VELOCITY / TEMPERATURE DISTRIBUTION

CEAA and CFAA Cased, CEUA and CFUA Uncased Units

Figure 9: ZRNU123CEAA (Cased) / ZRNU123CEUA (Uncased).

Cooling

Discharge angle: 45°



Heating

Discharge angle: 60°

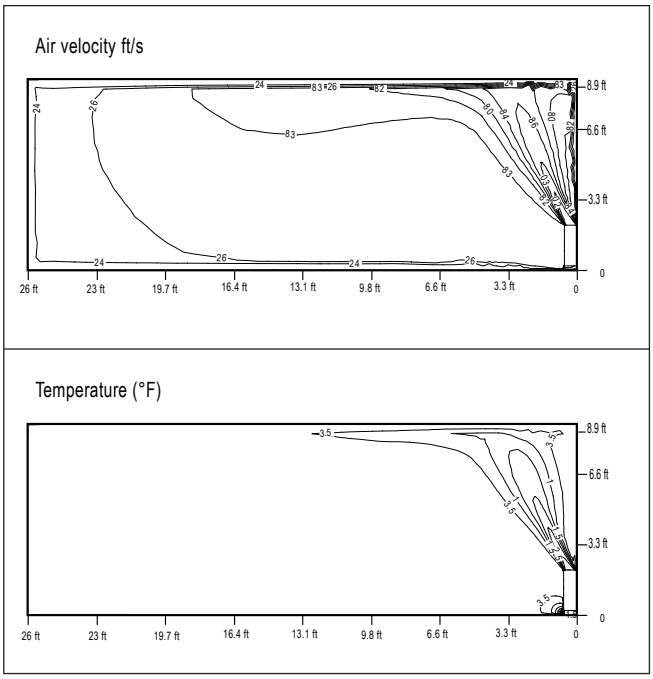
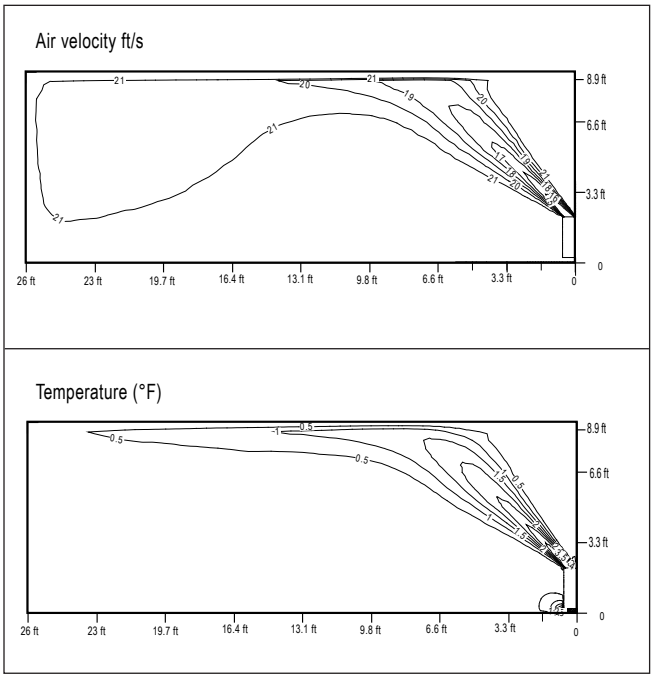


Figure 10: ZRNU153CEAA (Cased) / ZRNU153CEUA (Uncased).

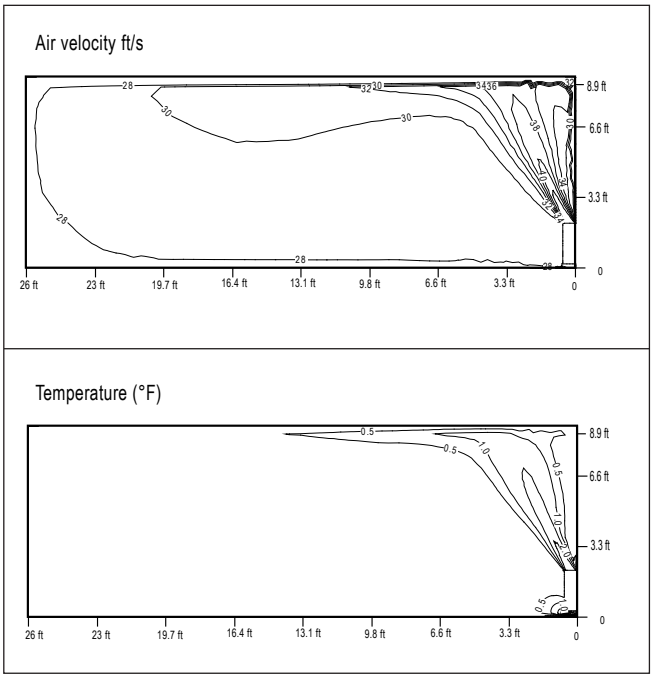
Cooling

Discharge angle: 45°



Heating

Discharge angle: 60°



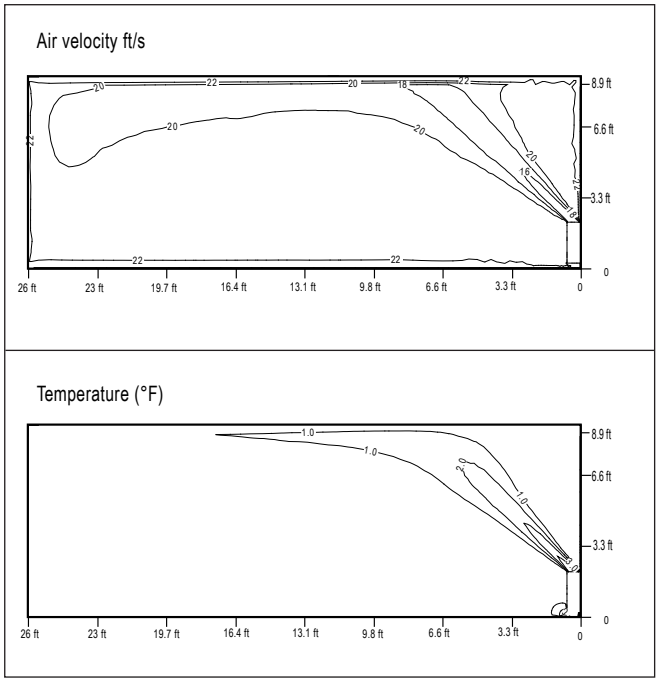
AIR VELOCITY / TEMPERATURE DISTRIBUTION

CEAA and CFAA Cased, CEUA and CFUA Uncased Units

Figure 11: ZRNU183CFAA (Cased) / ZRNU183CFUA (Uncased).

Cooling

Discharge angle: 45°



Heating

Discharge angle: 60°

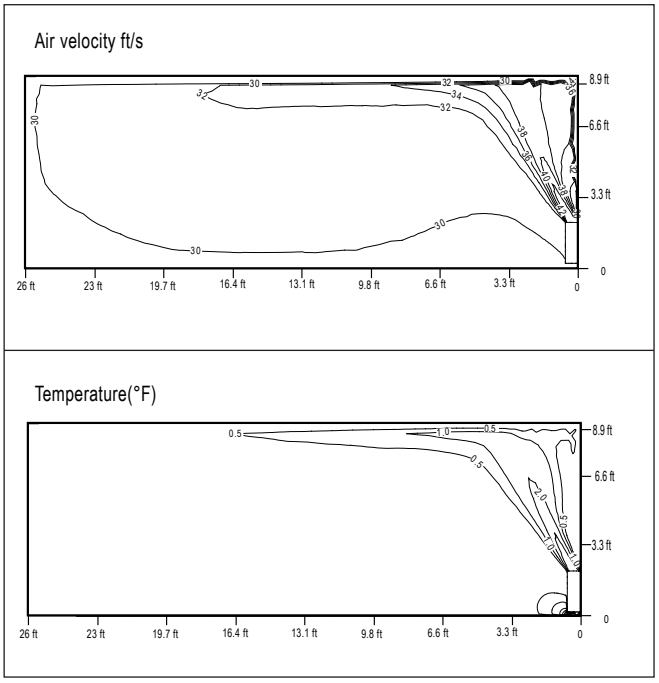
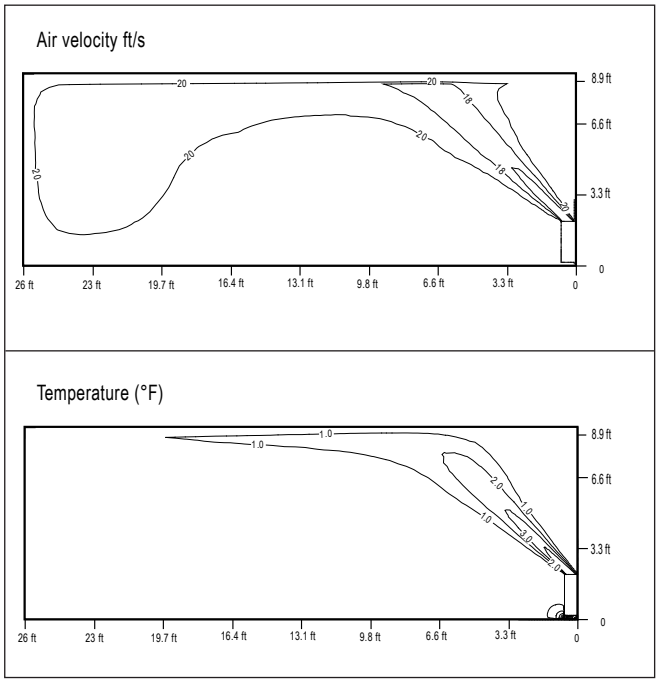


Figure 12: ZRNU243CFAA (Cased) / ZRNU243CFUA (Uncased).

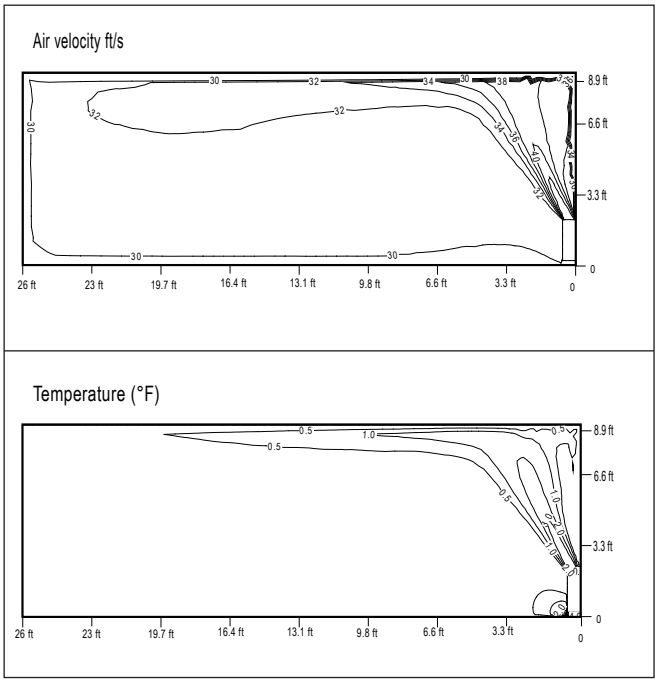
Cooling

Discharge angle: 45°



Heating

Discharge angle: 60°

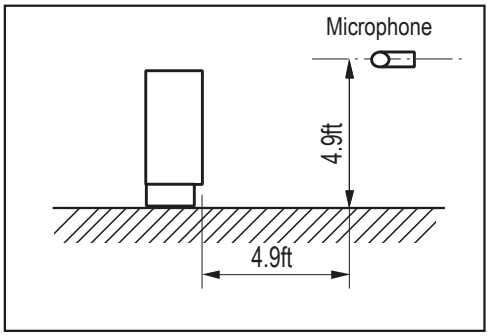


ACOUSTIC DATA

Sound Pressure Levels

CEAA and CFAA Cased, CEUA and CFUA Uncased Units

Figure 13: Floor Standing Indoor Unit 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.
- Data is valid under nominal operating conditions.
- Sound pressure levels are tested in an anechoic chamber under ISO Standard 3745.
- Reference acoustic pressure: 0dB = 20μPa.

Operating Conditions:

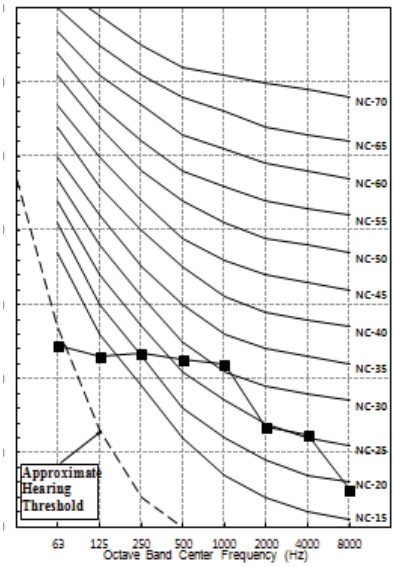
- Power source: 220V/60 Hz
- Sound level will vary depending on a range of factors including the construction (acoustic absorption coefficient) of a particular room in which the unit was installed.

Table 12: Floor Standing Indoor Unit Sound Pressure Levels.

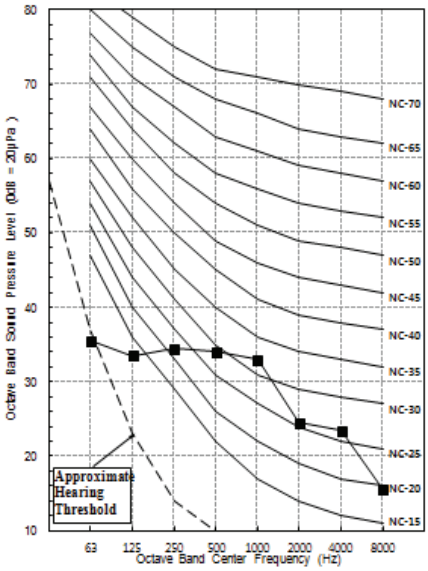
Model	Sound Pressure Levels dB(A)		
	High Fan Speed	Medium Fan Speed	Low Fan Speed
CEAA / CFAA (Cased) Units			
ZRNU073CEAA	35	33	31
ZRNU093CEAA	36	34	32
ZRNU123CEAA	37	35	33
ZRNU153CEAA	38	37	35
ZRNU183CFAA	40	37	34
ZRNU243CFAA	43	40	37
CEUA / CFUA (Uncased) Units			
ZRNU073CEUA	35	33	31
ZRNU093CEU4	36	34	32
ZRNU123CEUA	37	35	33
ZRNU153CEUA	38	37	35
ZRNU183CFUA	40	37	34

Figure 14: ZRNU073CEAA / CEUA, ZRNU093CEAA / CEUA4, and ZRNU123CEAA / CEUA Sound Pressure Level Diagrams.

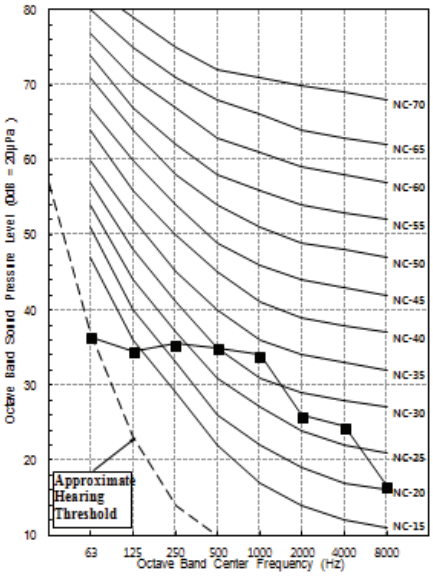
ZRNU073CEAA / ZRNU073CEUA



ZRNU093CEAA / ZRNU093CEUA



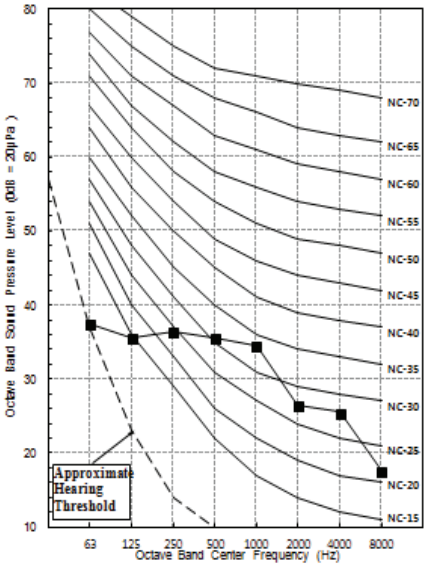
ZRNU123CEAA / ZRNU123CEUA



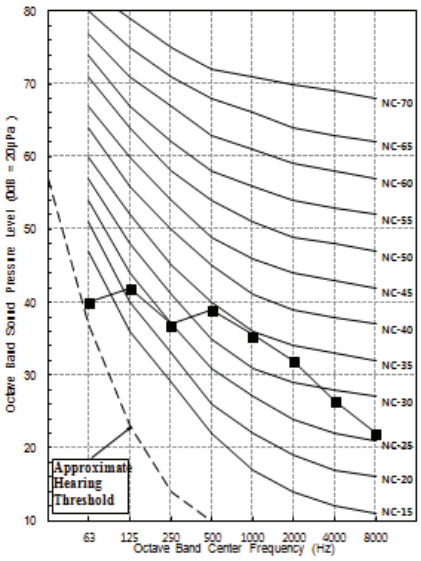
CEAA and CFAA Cased, CEUA and CFUA Uncased Units

Figure 15: ZRNU153CEAA / CEUA, ZRNU183CFAA / CFUA, and ZRNU243CFAA / CFUA Sound Pressure Level Diagrams.

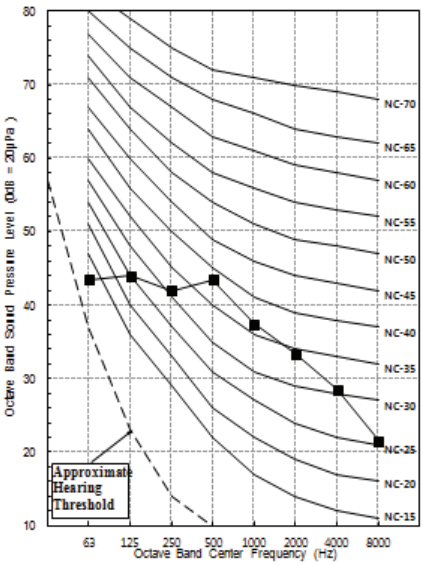
ZRNU153CEAA / ZRNU153CEUA



ZRNU183CFAA / ZRNU183CFUA



ZRNU243CFAA / ZRNU243CFUA



ACOUSTIC DATA

Sound Power Levels

CEAA and CFAA Cased, CEUA and CFUA Uncased Units

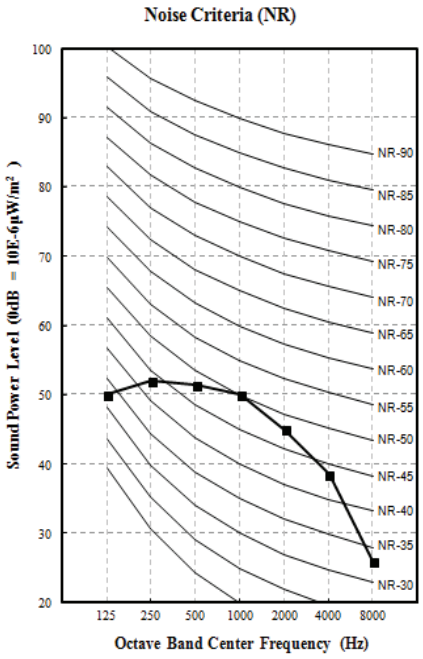
Table 13: Floor Standing Indoor Unit Sound Power Levels.

Model	Sound Power Levels dB(A)
	High
CEAA / CFAA (Cased) Units	
ZRNU073CEAA	54
ZRNU093CEAA	55
ZRNU123CEAA	57
ZRNU153CEAA	59
ZRNU183CFAA	60
ZRNU243CFAA	61
CEUA / CFUA (Uncased) Units	
ZRNU073CEUA	54
ZRNU093CEU4	55
ZRNU123CEUA	57
ZRNU153CEUA	59
ZRNU183CFUA	60
ZRNU243CFUA	61

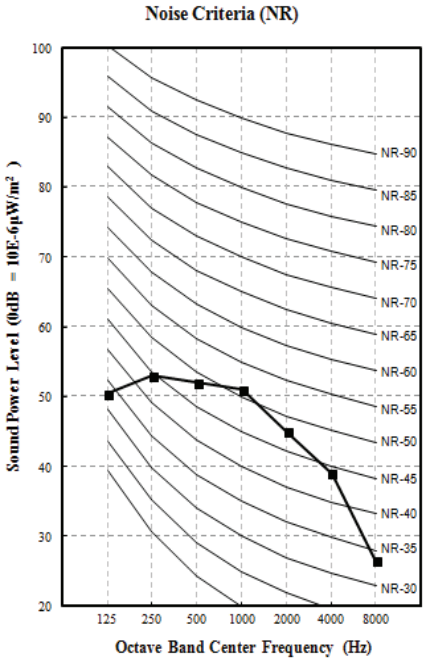
- Data is valid under diffuse field conditions.
- Data is valid under nominal operating conditions.
- Sound power level is measured using rated conditions and tested in a reverberation chamber under ISO Standard 3741.
- Sound level will vary depending on a range of factors such as construction (acoustic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

Figure 16: ZRNU073CEAA / CEUA, ZRNU093CEAA / CEUA, and ZRNU123CEAA / CEUA Sound Power Level Diagrams.

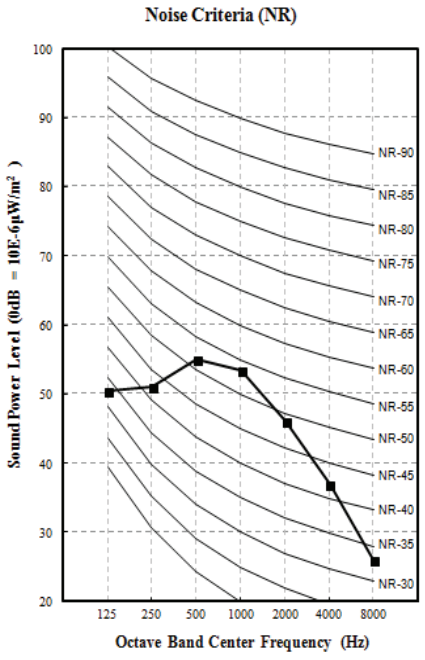
ZRNU073CEAA / ZRNU073CEUA



ZRNU093CEAA / ZRNU093CEUA



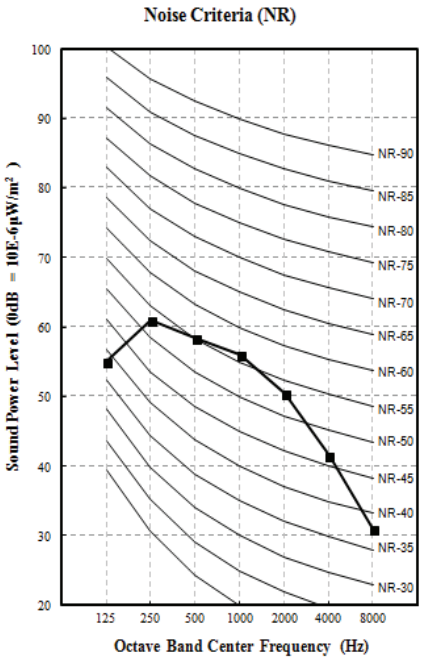
ZRNU123CEAA / ZRNU123CEUA



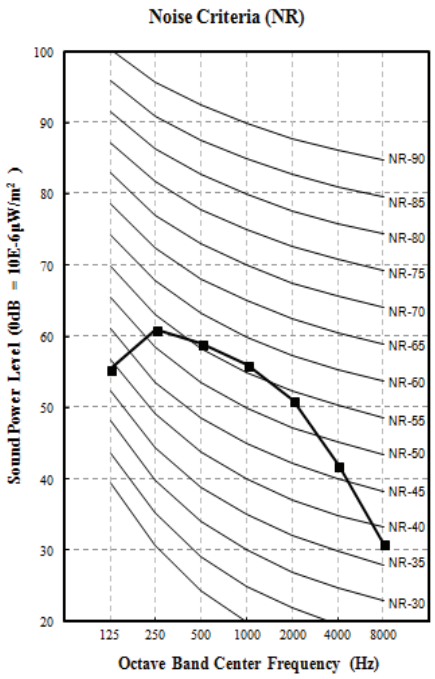
CEAA and CFAA Cased, CEUA and CFUA Uncased Units

Figure 17: ZRNU153CEAA / CEUA, ZRNU183CFAA / CFUA, and ZRNU243CFAA / CFUA Sound Pressure Level Diagrams.

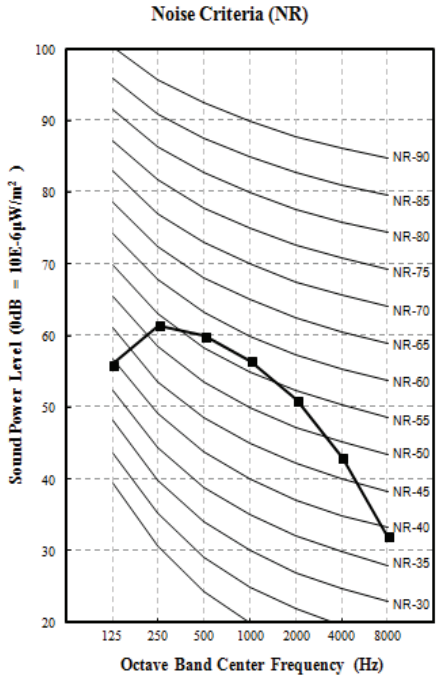
ZRNU153CEAA / ZRNU153CEUA



ZRNU183CFAA / ZRNU183CFUA



ZRNU243CFAA / ZRNU243CFUA



CAPACITY TABLES

Cooling Capacity Table

Table 14: Floor Standing (CEAA, CFAA [Cased]; CEUA, CFUA [Uncased]) Indoor Unit 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
CEAA / CFAA (Cased) Units															
ZRNU073CEAA / 7.5	95	4.9	4.1	6.0	4.8	6.8	5.1	7.5	5.4	8.0	5.6	8.2	5.3	8.3	5.0
ZRNU093CEAA / 9.6	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	10.6	6.4
ZRNU123CEAA / 12.3	95	8.1	6.8	9.8	7.9	11.1	8.4	12.3	8.9	13.2	9.3	13.4	8.8	13.6	8.3
ZRNU153CEAA / 15.4	95	10.1	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
ZRNU183CFAA / 19.1	95	12.6	10.4	15.3	12.0	17.2	12.8	19.1	13.6	20.5	14.1	20.9	13.5	21.2	12.7
ZRNU243CFAA / 24.2	95	15.9	13.1	19.4	15.2	21.8	16.1	24.2	17.2	25.9	17.9	26.4	17.0	26.8	16.0
CEUA / CFUA (Uncased) Units															
ZRNU073CEUA / 7.5	95	4.9	4.1	6.0	4.8	6.8	5.1	7.5	5.4	8.0	5.6	8.2	5.3	8.3	5.0
ZRNU093CEUA / 9.6	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	10.6	6.4
ZRNU123CEUA / 12.3	95	8.1	6.8	9.8	7.9	11.1	8.4	12.3	8.9	13.2	9.3	13.4	8.8	13.6	8.3
ZRNU153CEUA / 15.4	95	10.1	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
ZRNU183CFUA / 19.1	95	12.6	10.4	15.3	12.0	17.2	12.8	19.1	13.6	20.5	14.1	20.9	13.5	21.2	12.7

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

Cooling range with the Low Ambient Baffle Kit (sold separately) installed on the outdoor unit(s) is -9.9°F to +122°F, and is achieved only when all indoor units are operating in cooling mode. Does not impact heat recovery system synchronous operating range.

The System Combination Ratio must be between 50–130%.

Rated capacity is certified under AHRI Standard 1230. Ratings are subject to change without notice. Current certified ratings are available at www.ahridirectory.org.

For outdoor unit performance data, see the respective outdoor unit performance data manuals on https://lghvac.com/commercial.

CAPACITY TABLES

Heating Capacity Table

Table 15: Floor Standing (CEAA, CFAA [Cased]; CEUA, CFUA [Uncased]) Indoor Unit 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	TC	TC	TC	TC	TC	TC	TC
CEAA / CFAA (Cased) Units										
ZRNU073CEAA / 7.5	47	43	9.5	9.4	9.4	8.9	8.5	8.3	7.8	7.4
ZRNU093CEAA / 9.6	47	43	12.2	12.1	12.0	11.5	10.9	10.6	10.0	9.5
ZRNU123CEAA / 12.3	47	43	15.2	15.1	15.0	14.3	13.6	13.2	12.5	11.9
ZRNU153CEAA / 15.4	47	43	19.2	19.0	18.8	18.0	17.1	16.6	15.7	15.0
ZRNU183CFAA / 19.1	47	43	24.1	23.9	23.7	22.6	21.5	20.9	19.8	18.8
ZRNU243CFAA / 24.2	47	43	30.6	30.3	30.0	28.7	27.3	26.5	25.1	23.9
CEUA / CFUA (Uncased) Units										
ZRNU073CEUA / 7.5	47	43	9.5	9.4	9.4	8.9	8.5	8.3	7.8	7.4
ZRNU093CEUA / 9.6	47	43	12.2	12.1	12.0	11.5	10.9	10.6	10.0	9.5
ZRNU123CEUA / 12.3	47	43	15.2	15.1	15.0	14.3	13.6	13.2	12.5	11.9
ZRNU153CEUA / 15.4	47	43	19.2	19.0	18.8	18.0	17.1	16.6	15.7	15.0
ZRNU183CFUA / 19.1	47	43	24.1	23.9	23.7	22.6	21.5	20.9	19.8	18.8
ZRNU243CFUA / 24.2	47	43	30.6	30.3	30.0	28.7	27.3	26.5	25.1	23.9

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

The System Combination Ratio must be between 50–130%.

Rated capacity is certified under AHRI Standard 1230. Ratings are subject to change without notice. Current certified ratings are available at www.ahridirectory.org.

For outdoor unit performance data, see the respective outdoor unit performance data manuals on https://lghvac.com/commercial.

APPLICATION GUIDELINES

Selecting the Best Location

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.
- 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.

⃠ Do Not's

- *Avoid installing the unit near high-frequency generators.*
- *Do not install the unit near a doorway.*
- *The unit must not be installed near a heat or steam source, or where considerable amounts of oil, iron powder, or flour are used. (These materials will 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 must 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 will be damaged, will malfunction, and / or will not operate as designed if installed in any of the conditions listed.

NOTICE

- *Indoor units (IDUs) must not be placed in an environment where the IDUs will be exposed to harmful volatile organic compounds (VOCs) or in environments where there is improper air make up or supply or inadequate ventilation. If there are concerns about VOCs in the environment where the IDUs are installed, proper air make up or supply and/ or adequate ventilation must be provided. Additionally, in buildings where IDUs will be exposed to VOCs consider a factory-applied epoxy coating to the fan coils for each IDU.*
- *If the unit is installed near a body of water, the installation parts are at risk of corroding. Appropriate anti-corrosion methods must be taken for the unit and all installation parts.*

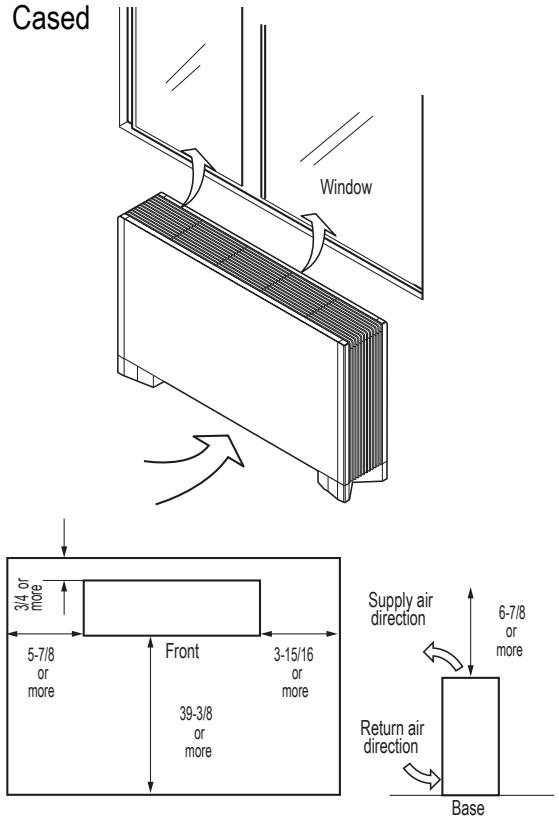
Installing in an Area Exposed to Unconditioned Air

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

- Verify that carpet is or will be installed (carpet will 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 18: Selecting the Best Location / Minimum Clearance Requirements: Floor Standing Cased and Uncased Indoor Units.

Cased



Uncased

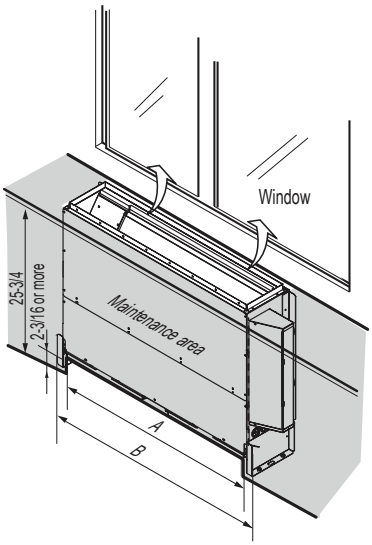


Table 16: Floor Standing Cased and Uncased Indoor Unit Minimum Maintenance Requirements.

Indoor Unit	A (Inch)	B (Inch)
Cased and Uncased CEAA / CEUA Frames	≥31	≥42-1/2
Cased and Uncased CFAA / CFUA Frames	≥42	≥53-1/2

General Mounting

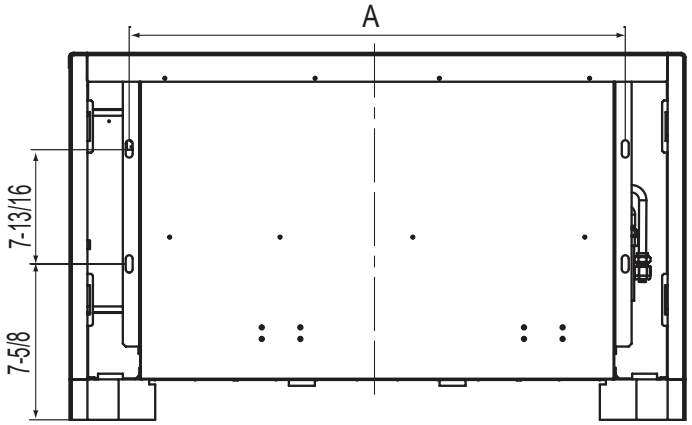
1. To provide stabilization, floor standing indoor units need to be secured to a wall. Ensure the wall is strong enough to bear the weight of the unit. If necessary, reinforce the wall before installing the unit.
2. Mark the appropriate location on the wall for the holes, then drill the holes.

Table 18: Location of the Wall Bolts for Floor Standing Indoor Units.

Indoor Unit	A (Inch)
Floor Standing Cased and Uncased CEAA / CEUA Frames	33-3/4
Floor Standing Cased and Uncased CFAA / CFUA Frames	44-3/4

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

Figure 20: Bolt Pitch for Floor Standing Indoor Units.



NOTICE

- *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 will leak.*
- *Depending on the shape and type of the wall surface, the indoor unit operating sound will be louder.*

General Drain Piping Information

Indoor units generate water during cooling operation, therefore, how to properly handle this condensation must be considered. Floor standing 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.

Figure 19: Floor Standing Indoor Unit with Gravity Drain and Down

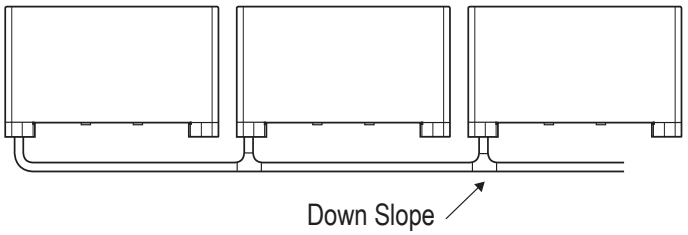


Table 17: Floor Standing Indoor Unit Drain Piping Specifications.

Indoor Unit	Drain Type	Drain Pipe Diameter (ID, in.)
Floor Standing	Gravity	Ø1

Drain Hose

NOTICE

All condensate piping is to be installed per applicable local codes. Avoid any contact with building sewer lines and vent lines.

Floor standing indoor units have a built in drain hose. If necessary, the drain hose can be extended. 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 drain pipe must always be to the top half of the pipe and must never be over 45° either side of the upper most point of the horizontal drain line.

If connecting to a vertical drain line, connect the indoor unit 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 indoor unit condensate pump discharge riser before connection to the Y-45 fitting.

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.
- The outside diameter of the drain connection on the indoor unit is 1-1/4 inches.
- Drain piping material is polyvinyl chloride pipe (1 inch).

NOTICE

- ⃠ *To prevent reversal flow, do not install with an up / down slope.*
- ⃠ *Do not exert extra force on the drain port on the indoor unit during drain piping connection.*

Drain Leak Test

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

Drain Pipe Insulation

Install field supplied polyethylene foam insulation 5/16 inch thick or greater on the flexible drain pipe and position snugly against the indoor unit.

NOTICE

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

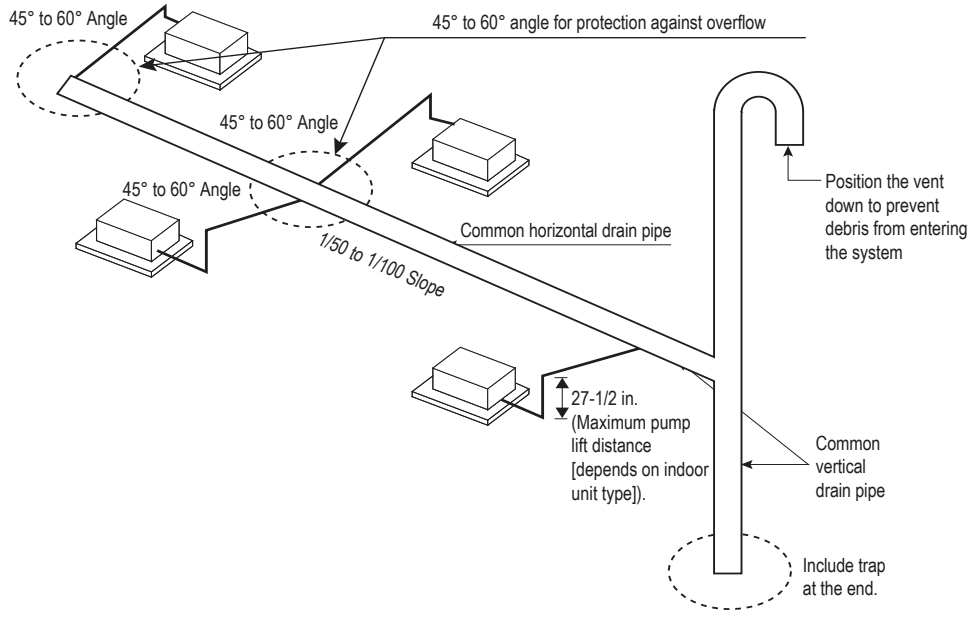
Common Indoor Unit Drainage System

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 must be as large as necessary. The diameter of the horizontal pipe must 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 must be positioned below its connection to the condensate pan. All traps must be primed, insulated, and leak tested.

Figure 21: Example of a Common Indoor Unit Drainage System.



NOTICE

- *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.*

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 between main ODU to IDUs / HRUs to be 18 AWG, 2-conductor, twisted, stranded, shielded. Ensure the communication cable shield is properly grounded to the main ODU chassis only. ⃠ Do not ground the ODU to IDUs / HRUs communication cable at any other point. Wiring must comply with all applicable local and national codes.
- 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 unit the wires to burnout or the terminal to overheat and catch fire. There is a risk of electric shock, physical injury or death.*

NOTICE

- *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) through the access hole of the indoor unit (ground wire must be longer than the other wires / cables) and to the control board using the designated path. If a control board cover is present, detach it.

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 to the control board. If a control board cover is present, reattach it.

Figure 22: Location of Power Wiring / Communications Cable Terminals in Floor Standing Indoor Units.

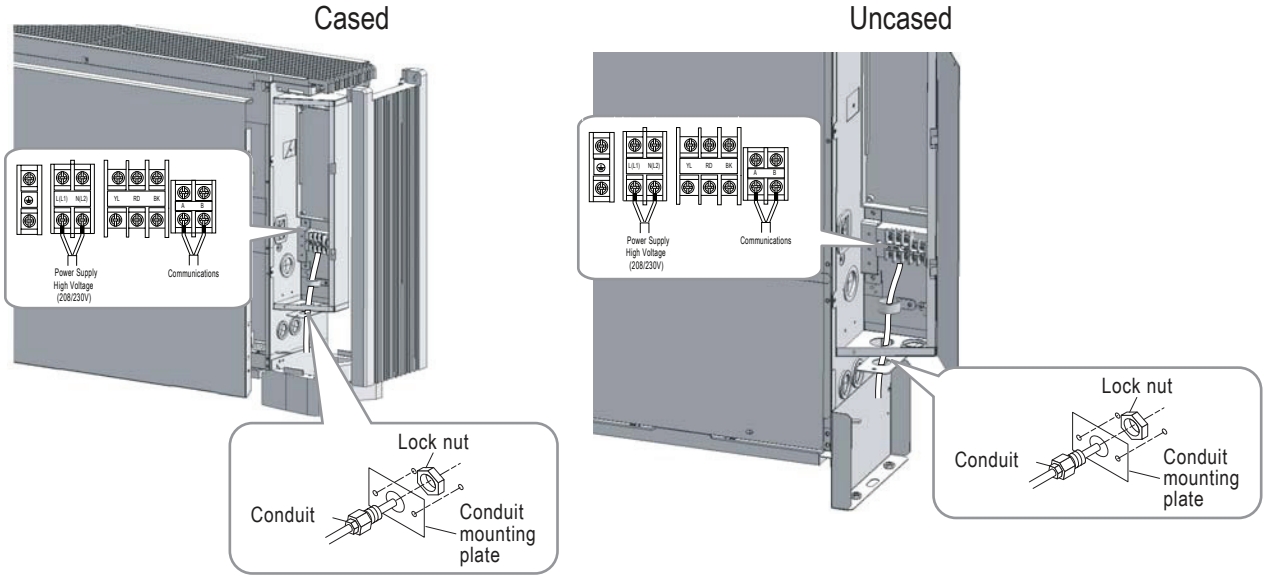
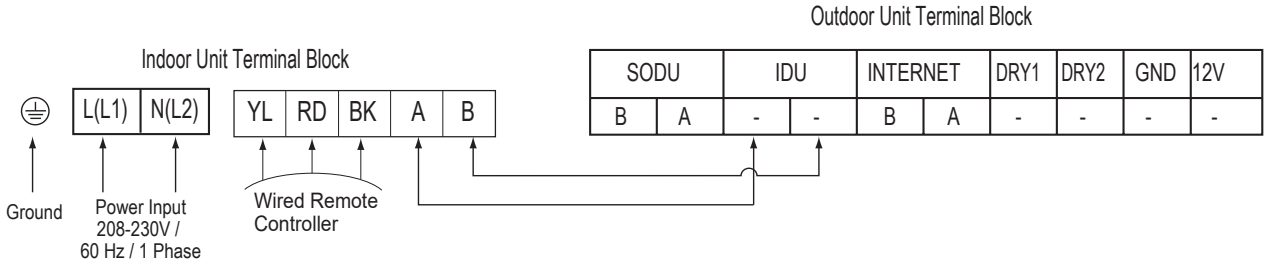


Figure 23: Simplified View of Floor Standing Cased and Uncased Indoor Unit Terminal Connections.



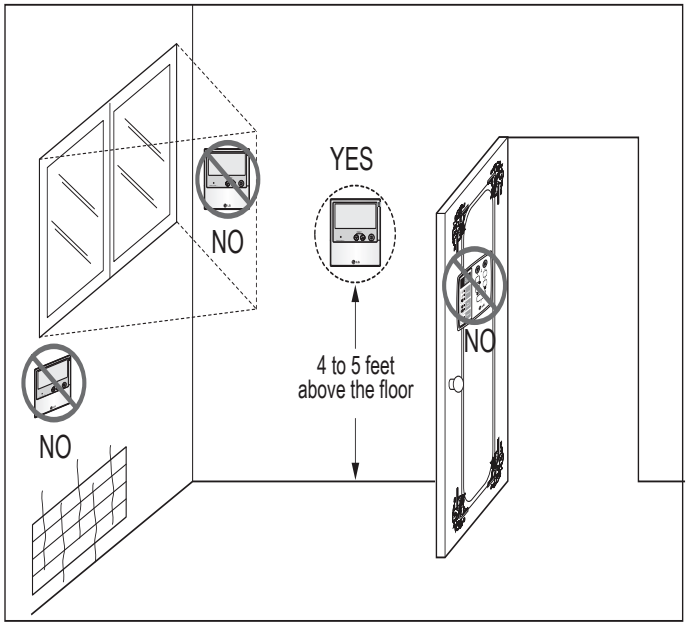
Wired Controller Placement

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 display can be read easily, in an area with good air circulation, and where it can detect an average room temperature.

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.

Figure 24: Proper Location for the Wired Controller.



Assigning the Thermistor for Temperature Detection

Each indoor unit includes a return air thermistor assigned to sense the temperature. If a wired controller is installed, there is a choice of sensing temperature with either the indoor unit return air thermistor or the thermistor in the wired controller. It is also an option to set both thermistors to sense temperature so that indoor unit bases its operation on the first thermistor to reach the designated temperature differential. For applicable indoor units, an optional Remote Temperature Sensor can be used in lieu of the return air thermistor—either alone or in conjunction with a wired controller thermistor as previously described.

Optional Wi-Fi Control

WiFi control is an option for ceiling cassette indoor units. WiFi control requires the optional WiFi module PWFMDD200 and the ThinQ app on a compatible device such as a smartphone. Install the WiFi module by connecting it to the CN_WF / CN_WiFi connector on the indoor unit motherboard. Refer to the ThinQ manual for operation details.

LIMITED WARRANTY (USA)

The product's full Limited Warranty terms and conditions and arbitration requirements are available at https://www.lghvac.com.

LG Air Conditioning Technologies
LG Electronics, U.S.A., Inc.
Air Conditioning Technologies
4300 North Point Parkway
Alpharetta, Georgia 30022
www.lghvac.com