R32 SINGLE-ZONE SYSTEMS - A-COIL + GAS FURNACE WITH LGRED°

ENGINEERING MANUAL

LGRED A-Coil / Gas Furnace (80%)

KSSPA181A060-B1, KSSPA241A060-B1

KSSPA301A060-B1; KSSPA361A060-B1, 080-C1; KSSPA421A100-C1; KSSPA481A100-C1; KSSPA481A120-D1

LGRED A-Coil / Gas Furnace (96%)

KSSSA181A060-B1; KSSSA241A060-B1, 080-B1

KSSSA301A060-B1, 080-B1; KSSSA361A060-B1, 080-B1, 080-C1; KSSSA421A100-C1; KSSSA481A100-C1, 120-D1

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, catalogs, installation, owner's, and service manuals, visit www.lghvac.com.

Proper sizing and installation of equipment is critical to achieve optimal performance. Split system air conditioners and heat pumps (excluding ductless systems) must be matched with appropriate coil components to meet ENERGY STAR® criteria. Ask your contractor for details or visit www.energystar.gov.

(ENERGY STAR and the ENERGY STAR mark are registered trademarks owned by the U.S. Environmental Protection Agency.)

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.

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

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.*

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 AIR CONDITIONER TECHNICAL SOLUTION (LATS)

LGRED°

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

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 commissioning.

LG

TABLE OF CONTENTS

TABLE OF SYMBOLS

LGRED°

A2L	*Indicates that this appliance uses a flammable refrigerant. If the refrigerant is leaked and exposure 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.

A2L 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.*

LG

PRECAUTIONS FOR THE GAS FURNACE

These systems feature LG furnaces are designed and approved for use with natural gas or propane gas only. These furnaces comply with requirements embodied in the American National Standard ANSI Z21.47·CSA-2.3 Gas Fired Central Furnaces. Special considerations, however, must be applied when using systems with natural or propane gas.

⚠ DANGER

Fire or Explosion Hazard

- *Installation and service must be performed by qualified service personnel or the gas supplier. Failure to do so will result in serious injury or death.*
- *Failure to follow safety warnings exactly will result in serious injury or death.*
- ⃠ *Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance. Failure to do so will result in serious injury or death.*

⃠ **Do Not Burn Any Liquid Fuel or Solid Fuel in this Furnace**

Burning any unapproved fuel will result in damage to the furnace heat exchanger, which will result in fire, serious injury and / or death.

⃠ **Do not use this furnace if any part has been under water.**

- *A flood-damaged furnace is extremely dangerous. Attempts to use the furnace after a flood will result in fire, explosion, serious injury and / or death.*
- *Qualified service personnel and / or the gas supplier should be contacted to inspect the furnace and to replace all gas controls, control system parts, electrical parts that have been wet or the furnace if deemed necessary.*

What To Do If You Smell Gas

- ⃠ *Do not try to light any appliances.*
- ⃠ *Do not touch any electrical switch; do not use any phone in your building.*
- *Leave the building immediately.*
- *Immediately call the gas supplier from a phone in a separate location. Follow the gas supplier's instructions.*
- *If the gas supplier cannot be reached, call the fire department.*

⚠ WARNING

- *LG gas furnace systems MUST be installed and repaired by qualified service personnel familiar with safety procedures and equipped with the proper tools and test instruments. Installation or repairs made by unqualified persons can result in fire, explosion, serious injury and / or death.*
- *Installation of all field wiring and components MUST conform with local building codes or, in the absence of local codes, with the National Electrical Code 70 and the National Building Construction and Safety Code.*
- *Failure to carefully read and follow all instructions in this manual will result in fire, explosion, serious injury and /or death.*

⃠ **Do Not Burn Any Liquid Fuel or Solid Fuel in this Furnace**

Burning any unapproved fuel will result in damage to the furnace heat exchanger, which will cause a fire, resulting in property damage.

Proposition 65

This appliance contains fiberglass insulation. Respirable fiberglass particles are known to the state of California to cause cancer.
For more information, go to www.P65Warnings.ca.gov.

NOTICE

- *Failure to carefully read and follow all instructions in this manual can result in equipment malfunction and / or property damage.*
- *Failure to follow safety warnings exactly will result in property damage.*

⃠ **Do Not Burn Any Liquid Fuel or Solid Fuel in this Furnace**

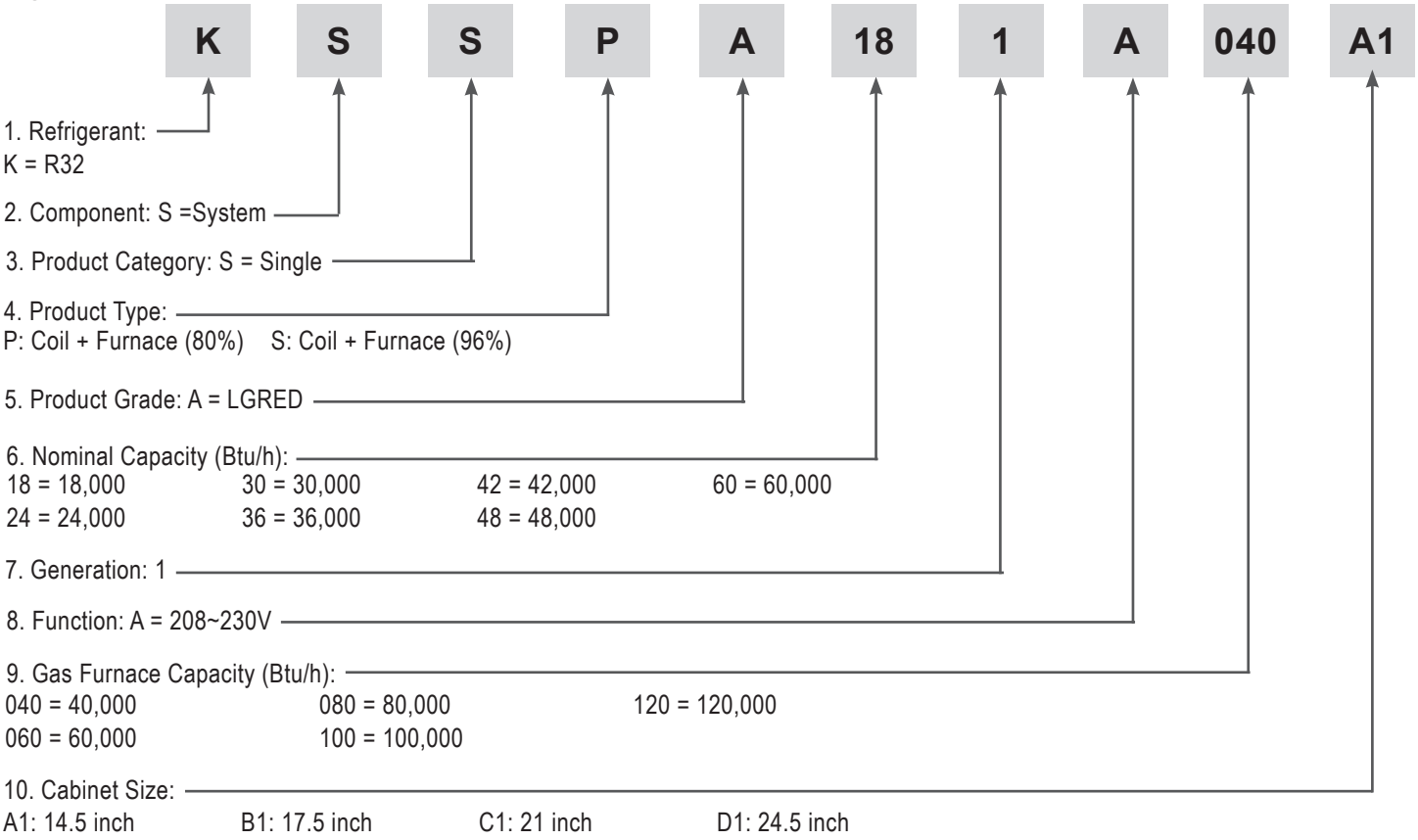
Burning any unapproved fuel will result in damage to the furnace heat exchanger, which will result in property damage.

For additional installation instructions and safety information, visit www.lghvac.com and review the Owner's and Installation Manuals for Gas Furnaces.

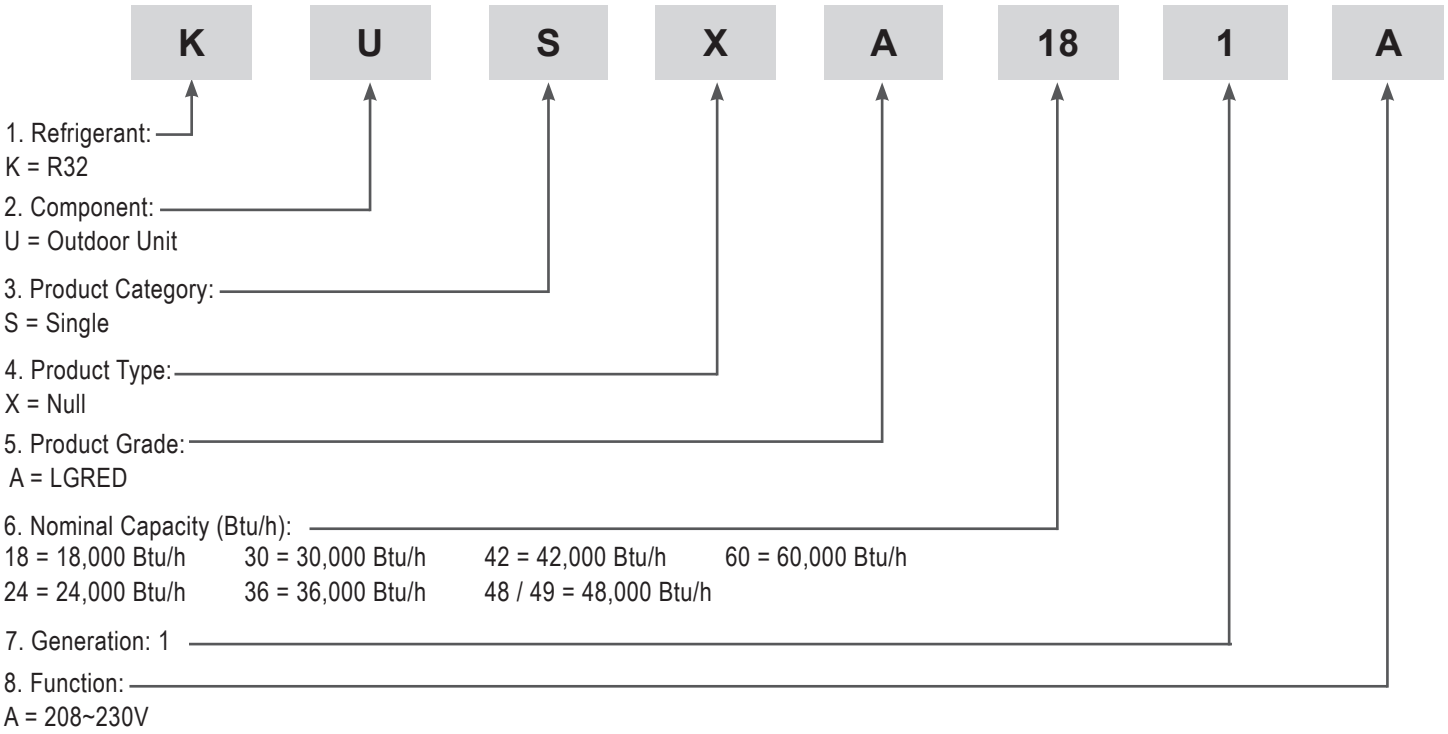
PRODUCT DATA

UNIT NOMENCLATURE

System Nomenclature



Outdoor Unit Nomenclature



UNIT NOMENCLATURE

LGRED°

A-Coil Unit Nomenclature

L	K	M	M	A	18	A	1

1. LG

2. Refrigerant:
K = R32

3. Product Category:
M = A-Coil

4. Cabinet Classification:
M = Cased Multi-Position

5. Heat Exchanger Type:
A = A-Coil Aluminum Fin and Tube

6. Gas Furnace Capacity (Btu/h):
18 = 18,000 Btu/h
24 = 24,000 Btu/h
30 = 30,000 Btu/h
36 = 36,000 Btu/h
42 = 42,000 Btu/h
48 = 48,000 Btu/h
60 = 60,000 Btu/h

7. Cabinet Width:
A = 14.5 inch
B = 17.5 inch
C = 21 inch
D = 24.5 inch

8. Generation:
1

Furnace Unit Nomenclature

L	N	A	E	A	040	D	1

1. LG

2. Product Category:
N = Gas Furnace

3. Type:
A = Standard

4. Feature:
E = One-Stage / Constant Speed Airflow ECM
V = Two-Stage / Constant Speed Airflow ECM

5. Efficiency / Configuration:
A = 80% Upflow / Downflow / Horizontal
E = 96% Upflow / Horizontal

6. Nominal Capacity (Btu/h):
040 = 40,000
060 = 60,000
080 = 80,000
100 = 100,000
120 = 120,000

7. Cabinet Width:
A = 14.5 inch
B = 17.5 inch
C = 21 inch
D = 24.5 inch

8. Generation: 1

LG

PAIRING TABLE

The following table shows the available outdoor and indoor unit, along with the factory provided controller.
Table 1: R32 Single Zone System - A-Coil / 80% Efficiency Gas Furnace with LGRED Pairing Table.

Outdoor Unit Model	A-Coil Unit Model		Furnace Unit Model	
KUSXA181A KUSXA241A 	LKMMA18B1 - 17.5 inch LKMMA24B1 - 17.5 inch 		LNAEA060B1 - 17.5 inch 	
KUSXA301A 	LKMMA30B1 - 17.5 inch 		LNAEA060B1 - 17.5 inch 	
KUSXA361A 	LKMMA36B1 - 17.5 inch 	LKMMA36C1 - 21 inch 	LNAEA060B1 - 17.5 inch 	LNAEA080C1 - 21 inch 
KUSXA422A KUSXA482A 	LKMMA42C1 - 21 inch LKMMA48C1 - 21 inch 	LKMMA48D1 - 24.5 inch 	LNAEA100C1 - 21 inch 	LNAEA120D1 - 24.5 inch 

PAIRING TABLE

LGRED°

The following table shows the available outdoor and indoor unit, along with the factory provided controller.
Table 2: R32 Single Zone System - A-Coil / 96% Efficiency Gas Furnace with LGRED Pairing Table.

Outdoor Unit Model	A-Coil Unit Model		Furnace Unit Model	
KUSXA181A KUSXA241A 	LKMMA18B1 - 17.5 inch LKMMA24B1 - 17.5 inch 		LNAVE060B1 - 17.5 inch LNAVE080B1 - 17.5 inch 	
KUSXA301A 	LKMMA30B1 - 17.5 inch 		LNAVE060B1 - 17.5 inch LNAVE080B1 - 17.5 inch 	
KUSXA361A 	LKMMA36B1 - 17.5 inch 	LKMMA36C1 - 21 inch 	LNAVE060B1 - 17.5 inch LNAVE080B1 - 17.5 inch 	LNAVE080C1 - 21 inch 
KUSXA422A KUSXA482A 	LKMMA42C1 - 21 inch LKMMA48C1 - 21 inch 	LKMMA48D1 - 24.5 inch 	LNAVE100C1 - 21 inch 	LNAVE120D1 - 24.5 inch 

LG

General

LG Single-Zone Systems with LGRED

The LG Heat Pump outdoor unit with LGRED combined with an indoor A-Coil and a Gas Furnace provides a dual-fuel hybrid system. This configuration allows heating and cooling performance in all climates—using heat pump operation down to lower temperatures and switching to gas heating when required for cost or backup.

LG outdoor units with inverter driven compressors ensures load matching. A-Coils serve as the refrigerant-to-air heat exchanger in the furnace plenum with coil design covering a high surface area, compatible with standard multi-position gas furnaces (upflow, downflow [applicable to 80% only], and horizontal). Gas furnace delivers heating in cold temperatures.

LG components are manufactured in a facility registered to ISO 9001 and ISO 14001, which is a set of standards applying to environmental protection set by the International organization for Standardization (ISO). The system components comply with ETL Standard for Safety. Wiring in these units are in accordance with the national Electrical Code (NEC). LG single-zone systems - A-Coil with LGRED have published performance ratings certified by AHRI (Air-Conditioning, Heating, and Refrigeration Institute) and are listed in the AHRI Standard 210 / 240 certified product directory.

Temperature Operating Ranges

- Operating range for outdoor units of 5°F to +118°F (DB) for cooling (Cooling range can be extended from 5°F down to -4°F using the Low Ambient Wind Baffle Kit [sold separately]; -13°F to +64°F (WB) for heating.
- Refer to the third-party thermostat instructions for third-party furnace operating ranges and temperature setting ranges.

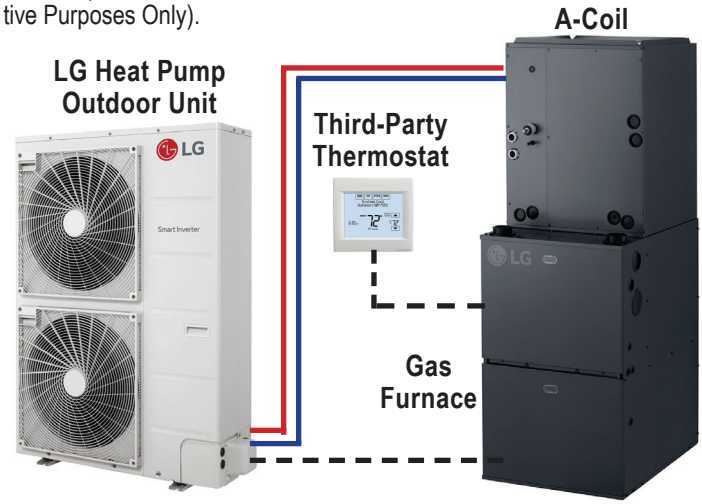
Refrigerant System

The system is designed for use with R32 refrigerant, and consists of a single refrigeration circuit. The refrigeration circuit is pressure-tested at the factory and shipped with a holding charge of helium gas. The outdoor unit is provided with factory installed components, including a refrigerant strainer, accumulator, four-way reversing valve, electronic expansion valve (EEV), high and low side charging ports, service valves, and interconnecting piping. All refrigerant lines from the outdoor unit to the indoor unit are field-installed and must be insulated separately. The 42,000 and 48,000 Btu/h capacities include a sub-cooled heat exchanger, vapor injection, and vapor bypass circuit.

Electrical

The system was designed to operate using 208–230/60/1 power with voltage variances of ±10% and includes overcurrent protection. The gas furnace is to be connected to a field installed, dedicated 115V, single-phase, 60 Hz power supply with proper overcurrent protection. Proper polarity must be maintained for 115V wiring. A field-installed service disconnect switch should be installed within sight of the furnace to allow safe maintenance and servicing.

Figure 2: R32 Single Zone Systems - A-Coil / Gas Furnace (96%) with LGRED (KSSSA301A060-B1 to KSSSA481A100-120-D1; For Illustrative Purposes Only).



Controls

LG outdoor units are factory wired with necessary electrical control components, printed circuit boards, thermistors, sensors, terminal blocks, and lugs for power wiring. Factory installed microprocessor controls in the outdoor unit perform functions to efficiently operate the single zone system.

An LG wired controller cannot be used with the outdoor unit and A-Coil + Gas Furnace. A third-party thermostat that supports dual-fuel function is required. The outdoor unit include an embedded communication kit with a terminal block to connect to the third-party wired thermostat and the gas furnace. An outdoor air sensor (field supplied) is required to sense the outdoor air temperature for dual fuel system.

Microprocessor-based algorithms provide component protection, soft-start capability, refrigeration system pressure, temperature, defrost, and ambient control.

Outdoor Unit

Sound Levels

The outdoor units have sound levels not exceeding 56 dB(A) tested in an anechoic chamber under ISO Standard 3745.

Casing / Frame

The outdoor condensing unit case is constructed from pre-coated metal (PCM) that has been tested in accordance with ASTM B-117 salt spray procedure for a minimum of 1,000 hours. Case has a removable panel to allow access to major internal components, and legs to secure the unit during installation.

Compressors

All of the outdoor units are equipped with one hermetically sealed, digitally controlled, inverter-driven R1 scroll compressor to modulate capacity (modulation in 1 Hz increments). Teflon® coated bearings, overcurrent protection and vibration isolation are integrated with the compressor.

Frequency ranges for the 18,000 ~ 48,000 Btu/h outdoor units are:
18k, 24k Btu/h = 10 to 75 Hz Cooling; 10 to 100 Hz Heating
30k, 36k Btu/h = 10 to 120 Hz Cooling; 10 to 135 Hz Heating
42k, 48K Btu/h = 15 to 110 Hz Cooling; 15 to 120 Hz Heating

Coil
Heat pump outdoor unit coils are made of nonferrous louvered aluminum fins protected with an integral coil guard. The coil for each outdoor unit has a minimum of 14 fins per inch (FPI); heat exchanger has two rows. The coil fins have a factory applied corrosion resistant GoldFin™ material with hydrophilic coating tested in accordance with ASTM B-117 salt spray test procedure for a minimum of 1,000 hours. Coils are factory tested to a maximum allowable pressure of 626 psig.

Fans and Motors
The 18,000 Btu/h (KUSXA181A) and 24,000 Btu/h (KUSXA241A) outdoor units include one direct drive, variable speed axial / propeller type fan with a horizontal air discharge; the 30,000 Btu/h (KUSXA301A), 36,000 Btu/h (KUSXA361A), 42,000 Btu/h (KUSXA422A), and 48,000 Btu/h (KUSXA482A) include two fans. Fan blades are made of Acrylonitrile Butadiene Styrene (ABS) material, and have a Brushless Digitally Controlled (BLDC) fan motor. The fan motor has inherent protection, permanently lubricated bearings, and variable speed with a maximum speeds up to 760 rpm (18k, 24k, Cooling / Heating); and 750 rpm (30k, 36k, 42k and 48k; Cooling / Heating). Raised guards are provided to limit contact with moving parts.

A-Coil Unit
LG A-Coil units are factory built and are comprised of aluminum fins mechanically bonded to aluminium tubing. Each A-Coil unit has a minimum of three rows of coils that are pressure tested to 626 psig at the factory.

Configuration
The cased A-Coil unit is designed to operate in vertical upflow, vertical downflow, horizontal left, and horizontal right configurations.

For Vertical Upflow Configurations: Supply air exits from the top, and return air enters from the bottom.

Vertical Downflow Configurations: Return air enters from the top, and supply air exits from the bottom.

For Horizontal Configurations: Return air can enter from the right side or left side. Additionally for horizontal installations, a blowoff guard is necessary to prevent furnace air from blowing condensate out of the A-Coil. The condensate blowoff guard is included with the A-Coil.

Supply Air
LG A-Coils are to be housed above the blower section of third-party furnaces. The third-party furnace provides the supply air that passes through the A-Coil. Return air plenum sub-base is to be field provided. The supply air opening has a male flange for duct connection.

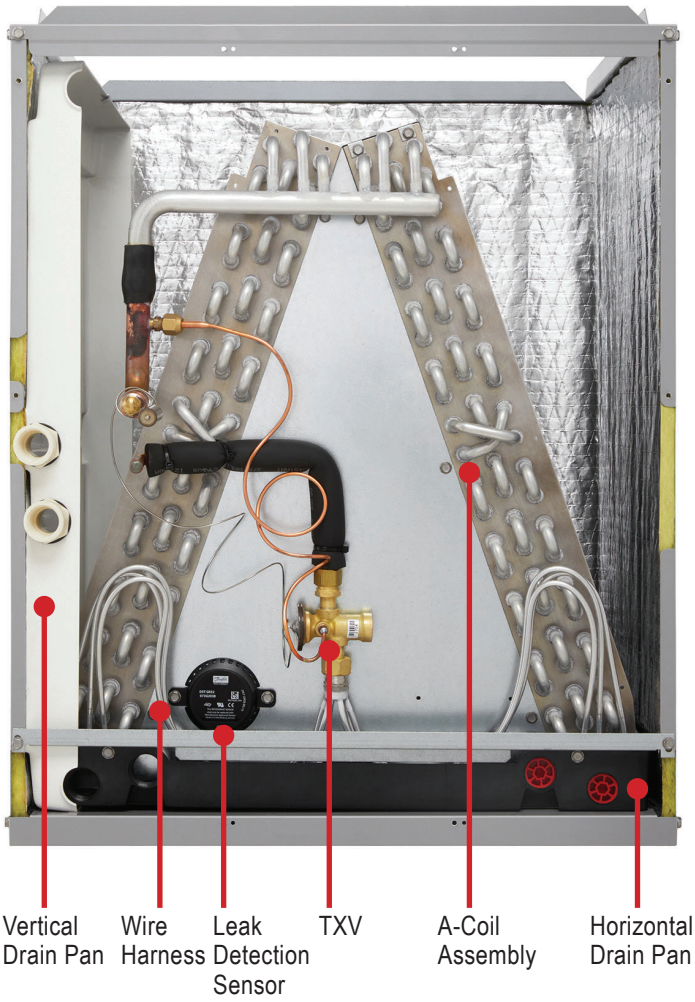
Casing / Frame
The A-Coil unit case is comprised of 22-gauge coated metal and the external surfaces are finished with Black STS color. The cold surfaces of the case are internally insulated. The A-Coil comes with a vertical and a horizontal drain pan.

Refrigerant
In addition to the regular factory pre-charge in the outdoor units, some A-Coils (30,000 (36,000, 42,000, and 48,000) will require an additional 0.88 pounds (14 ounces) charge of refrigerant to be field-supplied.

Refrigerant Control
A thermostatic expansion valve (TXV) comes built-in to regulate the rate of refrigerant flow into the evaporator coil. Temperature is detected by the sensing bulb, which is located near the evaporator outlet.

Refrigerant Leak Detector
The A-Coil Unit has a built-in leak detector sensor to detect any refrigerant leaks.

Figure 3: A-Coil Components.



LG

Gas Furnace Unit

LG Gas Furnaces are available in 80% and 96% efficiency, and are factory tested, complete with all components required for operation except for external ductwork, gas piping, vent system, electrical installations. The unit complies with all applicable U.S. standards and codes and shall be installed in accordance with the manufacturer's installation and service manual, and with local, state, and national mechanical, gas, and electrical codes.

Heat Exchanger/ Heat Component

LG Furnace comprises of heat exchanger(s) that transfers heat from the combustion process to the air distributed in the area to be conditioned, and is constructed of corrosion-resistant steel or aluminized steel. Natural gas or Propane gas is burned in a sealed chamber, and the heat generated then travels through the heat exchanger, which is a series of metal tubes or plates. The burner assembly provides a complete and efficient combustion, modulating or staged with appropriate flame sensors and safety shutoffs.

Blower Assembly / Venting

The centrifugal blower assembly comprising of blower fan and an ECM motor are housed in a metal casing to circulate the heated air to the conditioned space via ductwork. Field-installed venting is required to ensure safe removal of combustion byproducts, prevents back-drafting, and maintains efficient furnace operation. Gas furnaces must be vented in accordance with the manufacturer's installation instructions, and all applicable local codes.

Casing / Frame

The gas furnace cabinet is constructed of anti-rust, painted, galvanized 21-gauge steel panels that pass a 500 hour salt spray test. Panels are removable for service access; provide adequate clearances for maintenance. Fully insulated with fiberglass insulation helps minimize indoor operation sound levels.

The 80% furnace is designed to operate in vertical upflow, vertical downflow, and horizontal configuration with return / supply connection. The 96% furnace is designed to operate in vertical upflow and horizontal configuration with return / supply connection. Connections can be right or left-hand for gas and electric service. Filter is field installed.

Control

The furnace control board includes sequencing control (for ignition, blower delay), and safeties such as flame rollout switch, limit switch, pressure switch, and ignition lockout. The unit has a microprocessor-based control to manage ignition, flame sensing, blower control, and safety interlocks. The unit shall include safety interlocks (e.g. limit switch) to prevent overheating.

Figure 4: LNAVE (96% Efficiency) Gas Furnaces.

Electrical

The furnace is designed to operate using 115V / 60Hz / 1 Phase power with appropriate overcurrent protection. The internal wiring shall be in accordance with NEC and local codes, with proper grounding and strain reliefs. A service disconnect (fused or circuit breaker) should be located within sight of the furnace and readily accessible for servicing.

Gas

The furnace is designed and approved for use with Natural Gas and (LP) Propane Gas ONLY. The furnace is factory-shipped for use with natural gas. A Conversion Kit, which serves the orifice and valve spring, is included in the furnace packaging. Conversion from natural gas to propane involves replacing orifices, adjusting the gas valve / regulator, and verifying combustion (manufacturer's LP conversion kit MUST be used).

Application / Operation

This furnace is ⃠ NOT approved for installation in mobile homes, recreational vehicles, or outdoors. This furnace is designed for minimum continuous return-air temperature of 60°F dry bulb or intermittent operation down to 55°F dry bulb such as when used with a night setback thermostat. Return-air temperature must not exceed 85°F dry bulb. Failure to follow these return-air temperature limits may affect reliability of heat exchangers, motors, and controls.

GENERAL SYSTEM DATA

Table 3: R32 Single-Zone Systems - 18,000 to 36,000 Btu/h A-Coil / 80% Efficiency Gas Furnace with LGRED Specifications.

System Model No.	KSSPA181A060-B1	KSSPA241A060-B1	KSSPA301A060-B1	KSSPA361A060-B1
A-Coil Unit Model No.	**LKMMA18B1**	**LKMMA24B1**	**LKMMA30B1**	**LKMMA36B1**
Furnace Unit Model No.	**LNAEA060B1**	**LNAEA060B1**	**LNAEA060B1**	**LNAEA060B1**
Outdoor Unit Model No.	**KUSXA181A**	**KUSXA241A**	**KUSXA301A**	**KUSXA361A**
Cooling Capacity (Min/Rated/Max) (Btu/h)	7,200~18,000~20,000	9,400~23,000~26,000	10,400~29,000~32,000	12,500~33,000~35,000
Cooling Power Input[1] (Min/Rated/Max) (kW)	0.58~1.565~1.88	0.77~2.035~2.46	0.87~2.479~2.97	1.00~2.870~3.19
EER2 (@95°F)	11.50	11.30	11.70	11.50
SEER2	17	17	18	18
Heating Capacity (Min/Rated/Max) (Btu/h)	7,000~20,000~23,000	12,000~26,000~30,000	13,800~32,000~35,000	14,800~36,000~41,000
Heating Power Input[1] (Min/Rated/Max) (kW)	0.46~1.600~2.08	0.73~2.200~2.75	0.86~2.620~3.14	0.83~2.960~3.91
COP (@47°F)	3.66	3.46	3.58	3.56
HSPF2	9.5	9.3	9	9
Rated Low Heating Capacity (Btu/h)				
Outdoor 17°F (WB)/Indoor 70°F (DB)	13,000	17,000	20,000	23,000
Low COP (@17°F)	2.54	2.38	2.48	2.50
Maximum Heating Capacity (Btu/h)				
Outdoor 17°F (WB)/Indoor 70°F (DB)	20,900	25,300	35,200	36,600
Outdoor 5°F (WB)/Indoor 70°F (DB)	19,000	23,000	32,000	33,000
Outdoor -4 °F (WB)/Indoor 70°F (DB)	17,100	20,500	28,500	29,700
Outdoor -13°F (WB)/Indoor 70°F (DB)	15,200	18,000	25,000	26,400
ENERGY STAR / Cold Climate	No / Yes	No / Yes	No / Yes	No / Yes
Power Supply (To Outdoor Unit; V / Hz / Ø)	208-230 / 60 / 1			
Power Supply Wiring (Outdoor Unit) (No. x AWG)[2]	3 x 12	3 x 12	3 x 10	3 x 10
Power / Comm. Wiring (ODU to Indoor Components) (No. x AWG)[2]	6 x 18	6 x 18	6 x 18	6 x 18
A-Coil Unit Data				
Nominal Capacity (Btu/h)	18,000	23,000	29,000	33,000
Type	17.5 inch	17.5 inch	17.5 inch	17.5 inch
Coil Material	Aluminum	Aluminum	Aluminum	Aluminum
Net Dimensions (W x H x D) (in.)	17-1/2 x 24 x 21	17-1/2 x 24 x 21	17-1/2 x 26 x 21	17-1/2 x 26 x 21
Shipping Dimensions (W x H x D) (in.)	18 x 25-1/8 x 25	18 x 25-1/8 x 25	18-1/4 x 27-1/4 x 25	18-1/4 x 27-1/4 x 25
Net / Shipping Weight (lbs.)	46 / 52	46 / 52	54 / 60	54 / 60
Air Flow Range through A-Coil (CFM) (Min. ~ Max.)	450 ~ 600	600 ~ 800	750 ~ 1,000	840 ~ 1,200
Corresponding ESP Range (in. w.g.) (Min. ~ Max.)	0.1~0.8	0.1~0.8	0.1~0.8	0.1~0.8
Dehumidification Rate (pts./hr.)	2.75	4.23	5.6	7.17
Liquid Piping (in., O.D.)[3]	3/8 Braze	3/8 Braze	3/8 Braze	3/8 Braze
Vapor Piping (in., O.D.)[3]	3/4 Braze	3/4 Braze	3/4 Braze	3/4 Braze
Gas Furnace Data[4]				
Input (Btu/h) (Natural Gas / Propane Gas)[5]	60,000 / 60,000	60,000 / 60,000	60,000 / 60,000	60,000 / 60,000
Output (Btu/h) (Natural Gas/Propane Gas)[5]	48,000 / 48,000	48,000 / 48,000	48,000 / 48,000	48,000 / 48,000
Air Temperature Rise (°F)	25-55	25-55	25-55	25-55
Design Max. Outlet Air Temperature (°F)	155	155	155	155
AFUE	80	80	80	80
Blower Type / Fan Speed No.	Centrifugal / 5	Centrifugal / 5	Centrifugal / 5	Centrifugal / 5
Motor Type	ECM	ECM	ECM	ECM
Airflow Range (CFM)	600 ~ 1,288	600 ~ 1,288	600 ~ 1,288	600 ~ 1,288
Ignition Type / No. of Burner	Automatic / 3	Automatic / 3	Automatic / 3	Automatic / 3
Min./Max. Inlet Gas Pressure (Natural, in. w.c.)	5.0 / 10.5	5.0 / 10.5	5.0 / 10.5	5.0 / 10.5
Min./Max. Inlet Gas Pressure (Propane, in. w.c.)	11 / 14	11 / 14	11 / 14	11 / 14
Case Width x Height x Depth (in.)	17-1/2 x 33-3/4 x 28-1/2	17-1/2 x 33-3/4 x 28-1/2	17-1/2 x 33-3/4 x 28-1/2	17-1/2 x 33-3/4 x 28-1/2
Shipping Weight (lbs.)	126	126	126	126
Power Supply (V/Hz/Ø)[6]	115 / 60 / 1	115 / 60 / 1	115 / 60 / 1	115 / 60 / 1

Table 4: R32 Single-Zone Systems - 18,000 to 36,000 Btu/h A-Coil / 80% Efficiency Gas Furnace with LGRED Specifications, continued.

System Model No.		KSSPA181A060-B1	KSSPA241A060-B1	KSSPA301A060-B1	KSSPA361A060-B1
A-Coil Unit Model No.		LKMMA18B1	LKMMA24B1	LKMMA30B1	LKMMA36B1
Furnace Unit Model No.		LNAEA060B1	LNAEA060B1	LNAEA060B1	LNAEA060B1
Outdoor Unit Model No.		KUSXA181A	KUSXA241A	KUSXA301A	KUSXA361A
Outdoor Unit Data					
Operating Range[7]	Cooling (°F DB)	5 to +118[7]			
	Heating (°F WB)	-13 to +64			
Sound Pressure[8] dB(A)	Cooling	51	51	52	52
	Heating	52	52	54	54
Max. External Static Pressure (in. w.g.)		0.04	0.04	0.04	0.04
Net Dimensions (W x H x D) (in.)		37-13/32 x 32-27/32 x 13		37-13/32 x 54-11/32 x 13	
Shipping Dimensions (W x H x D) (in.)		44-7/8 x 36-5/32 x 18-5/32		45-5/32 x 57-19/32 x 18-5/32	
Net / Shipping Weight (lbs.)		141.8 / 160.1	141.8 / 160.1	190.2 / 214.3	190.2 / 214.3
Exterior Color Codes		Munsell 2.5Y 7.5/1 (RAL 7044)			
Fan Type x Qty.		Axial x 1	Axial x 1	Axial x 2	Axial x 2
Fan Motor Output (W) x Qty.		124 x 1	124 x 1	124 x 2	124 x 2
Fan Motor / Drive		Brushless Digitally Controlled / Direct			
Airflow Rate Max. (CFM)		2,048	2,048	1,942 x 2	1,942 x 2
Compressor (Type x Qty.)		R1 Scroll x 1	R1 Scroll x 1	R1 Scroll x 1	R1 Scroll x 1
Heat Exchanger					
Material and Fin Coating		Outdoor Unit Coil: Copper Tube / Aluminum Fin (Gold Fin™ Coating); A-Coil Unit: Aluminum Tubes / Aluminum Fins			
Rows / Columns / Fin per inch x Qty.	Outdoor Unit Coil	2 x 38 x 14	2 x 38 x 14	2 x 64 x 14	2 x 64 x 14
	Indoor Unit Coil	3 x 18 x 16	3 x 18 x 16	3 x 22 x 16	3 x 22 x 16
Refrigerant					
Type[9] / Control		R32 / Outdoor Unit: EEV; A-Coil Unit: TXV			
Pre-Charge + Add'l Charge for A-Coil (lbs.)		4.2 + 0	4.2 + 0	6.63 + 0.88	6.63 + 0.88
Additional Charge (oz./ft.)		0.38	0.38	0.43	0.43
Piping					
Liquid[3] (in., O.D.)		3/8 Flare	3/8 Flare	3/8 Flare	3/8 Flare
Vapor[3] (in., O.D.)		5/8 Flare	5/8 Flare	5/8 Flare	5/8 Flare
Condensation Line (O.D., I.D., in.)		1-1/4 / 1	1-1/4 / 1	1-1/4 / 1	1-1/4 / 1
Pipe Length[10] (Minimum/Maximum) (ft.)		16.4 / 164	16.4 / 164	16.4 / 246	16.4 / 246
Piping Length[10] (no add'l refrigerant, ft.)		24.6	24.6	24.6	24.6
Max Elevation Difference (ft.)		98.4	98.4	98.4	98.4

EEV: Electronic Expansion Valve TXV = Thermostatic Expansion Valve ODU: Outdoor Unit

This data is rated 0 ft above sea level with 24.6 of refrigerant line per indoor component and a 0 ft level difference outdoor and indoor component.

Cooling capacity rating obtained with air entering the indoor component at 80ºF dry bulb (DB) and 67ºF wet bulb (WB) and outdoor ambient conditions of 95ºF dry bulb (DB) and 75ºF wet bulb (WB).
Heating capacity rating obtained with air entering the indoor component at 70ºF dry bulb (DB) and 59ºF wet bulb (WB) and outdoor ambient conditions of 47ºF dry bulb (DB) and 43ºF wet bulb (WB).

[1]Power Input is rated at high speed.

[2]All wiring must comply with applicable local and national codes.
a. All power supply wiring to the outdoor unit is field supplied, solid or stranded.
b. Control Cable between the Outdoor Unit and the Gas Furnace (No. x AWG): 6 x 18.
c. The 24V Control Power to the A-Coil is to be sourced from the Gas Furnace.

[3]Adapters for piping connections are shipped with the outdoor unit.

[4]The furnace is designed for minimum continuous return-air temperature of 60°F dry bulb or intermittent operation down to 55°F dry bulb such as when used with a night setback thermostat. Return-air temperature must not exceed 85°F dry bulb.

[5]Natural Gas to Propane conversion kit are shipped with the furnace. Venting systems must be installed in accordance with the National Fuel Gas Code, ANSI Z223.1/NFPA 54 and / or the CSA B 149.1, Natural Gas and Propane Installation Codes, and the manufacturer's instructions.

[6]a.The furnace is designed to operate using 115 V/60/1 power with appropriate overcurrent protection.
b.The internal wiring shall be in accordance with NEC and local codes, with proper grounding and strain reliefs.
c. A service disconnect (fused or circuit breaker) should be located within sight of the furnace and readily accessible for servicing.

[7]Optional Low Ambient Wind Baffle Kit allows operation down to -4°F in cooling mode.

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

[9]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.

[10]Piping lengths are equivalent.

GENERAL SYSTEM DATA

LGRED°

Table 5: R32 Single-Zone Systems - 36,000 to 48,000 Btu/h A-Coil / 80% Efficiency Gas Furnace with LGRED Specifications.

System Model No.	KSSPA361A080-C1	KSSPA421A100-C1	KSSPA481A100-C1	KSSPA481A120-D1
A-Coil Unit Model No.	**LKMMA36C1**	**LKMMA42C1**	**LKMMA48C1**	**LKMMA48D1**
Furnace Unit Model No.	**LNAEA080C1**	**LNAEA100C1**	**LNAEA100C1**	**LNAEA120D1**
Outdoor Unit Model No.	**KUSXA361A**	**KUSXA422A**	**KUSXA482A**	**KUSXA482A**
Cooling Capacity (Min/Rated/Max) (Btu/h)	12,900~34,000~37,000	16,400~41,000~43,000	18,400~46,000~50,000	18,200~48,000~51,000
Cooling Power Input[1] (Min/Rated/Max) (kW)	1.02~2.906~3.43	1.26~3.504~3.81	1.40~4.000~4.52	1.53~4.364~4.75
EER2 (@95°F)	11.70	11.70	11.50	11.00
SEER2	18	18.2	18	17.3
Heating Capacity (Min/Rated/Max) (Btu/h)	14,800~36,000~43,000	16,700~44,000~48,000	20,200~48,000~53,000	19,500~50,000~55,000
Heating Power Input[1] (Min/Rated/Max) (kW)	0.99~2.900~3.83	1.23~3.500~4.55	1.34~3.820~4.78	1.33~3.800~4.75
COP (@47°F)	3.64	3.68	3.68	3.86
HSPF2	9.3	9.8	9.6	9.5
Rated Low Heating Capacity (Btu/h)				
Outdoor 17°F (WB)/Indoor 70°F (DB)	24,000	29,000	31,000	33,000
Low COP (@17°F)	2.58	2.74	2.59	2.76
Maximum Heating Capacity (Btu/h)				
Outdoor 17°F (WB)/Indoor 70°F (DB)	37,700	45,400	47,500	46,400
Outdoor 5°F (WB)/Indoor 70°F (DB)	34,000	42,000	44,000	43,000
Outdoor -4 °F (WB)/Indoor 70°F (DB)	30,900	37,400	38,700	37,000
Outdoor -13°F (WB)/Indoor 70°F (DB)	27,800	32,800	33,400	31,000
ENERGY STAR / Cold Climate	No / Yes	No / Yes	No / Yes	No / Yes
Power Supply (To Outdoor Unit; V / Hz / Ø)	208-230 / 60 / 1			
Power Supply Wiring (Outdoor Unit) (No. x AWG)[2]	3 x 10	3 x 10	3 x 10	3 x 10
Power / Comm. Wiring (ODU to Indoor Components) (No. x AWG)[2]	6 x 18	6 x 18	6 x 18	6 x 18
A-Coil Unit Data				
Nominal Capacity (Btu/h)	34,000	41,000	46,000	48,000
Type	21 inch	21 inch	21 inch	24.5 inch
Coil Material	Aluminum	Aluminum	Aluminum	Aluminum
Net Dimensions (W x H x D) (in.)	21 x 26 x 21	21 x 30 x 21	21 x 30 x 21	24-1/2 x 34 x 21
Shipping Dimensions (W x H x D) (in.)	21-1/2 x 27 x 25	21-1/2 x 31 x 25	21-1/2 x 31 x 25	25 x 35-1/8 x 25
Net / Shipping Weight (lbs.)	55 / 62	63 / 70	63 / 70	73 / 82
Air Flow Range through A-Coil (CFM) (Min. ~ Max.)	840 ~ 1,200	1,050 ~ 1,400	1,200 ~ 1,600	1,200 ~ 1,600
Corresponding ESP Range (in. w.g.) (Min. ~ Max.)	0.1~0.8	0.1~0.8	0.1~0.8	0.1~0.8
Dehumidification Rate (pts./hr.)	7.17	7.9	8.06	8.06
Liquid Piping (in., O.D.)[3]	3/8 Braze	3/8 Braze	3/8 Braze	3/8 Braze
Vapor Piping (in., O.D.)[3]	3/4 Braze	3/4 Braze	3/4 Braze	3/4 Braze
Gas Furnace Data[4]				
Input (Btu/h) (Natural Gas / Propane Gas)[5]	80,000 / 80,000	100,000 / 100,000	100,000 / 100,000	120,000 / 120,000
Output (Btu/h) (Natural Gas/Propane Gas)[5]	64,000 / 64,000	80,000 / 80,000	80,000 / 80,000	96,000 / 96,000
Air Temperature Rise (°F)	30-60	30-60	30-60	35-65
Design Max. Outlet Air Temperature (°F)	160	160	160	165
AFUE	80	80	80	80
Blower Type / Fan Speed No.	Centrifugal / 5	Centrifugal / 5	Centrifugal / 5	Centrifugal / 5
Motor Type	ECM	ECM	ECM	ECM
Airflow Range (CFM)	600 ~1,240	1,001 ~1,733	1,001 ~1,733	1,148 ~ 1,917
Ignition Type / No. of Burner	Automatic / 5	Automatic / 6	Automatic / 6	Automatic / 7
Min./Max. Inlet Gas Pressure (Natural, in. w.c.)	5.0 / 10.5	5.0 / 10.5	5.0 / 10.5	5.0 / 10.5
Min./Max. Inlet Gas Pressure (Propane, in. w.c.)	11 / 14	11 / 14	11 / 14	11 / 14
Case Width x Height x Depth (in.)	21 x 33-3/4 x 28-1/2	21 x 33-3/4 x 28-1/2	21 x 33-3/4 x 28-1/2	24-1/2 x 33-3/4 x 28-1/2
Shipping Weight (lbs.)	146	159	159	170
Power Supply (V/Hz/Ø)[6]	115 / 60 / 1	115 / 60 / 1	115 / 60 / 1	115 / 60 / 1

LG

Table 6: R32 Single-Zone Systems - 36,000 to 48,000 Btu/h A-Coil / 80% Efficiency Gas Furnace with LGRED Specifications, continued.

System Model No.		KSSPA361A080-C1	KSSPA421A100-C1	KSSPA481A100-C1	KSSPA481A120-D1
A-Coil Unit Model No.		LKMMA36C1	LKMMA42C1	LKMMA48C1	LKMMA48D1
Furnace Unit Model No.		LNAEA080C1	LNAEA100C1	LNAEA100C1	LNAEA120D1
Outdoor Unit Model No.		KUSXA361A	KUSXA422A	KUSXA482A	KUSXA482A
Outdoor Unit Data					
Operating Range[7]	Cooling (°F DB)	5 to +118[7]			
	Heating (°F WB)	-13 to +64			
Sound Pressure[8] dB(A)	Cooling	52	54	54	54
	Heating	54	56	56	56
Max. External Static Pressure (in. w.g.)		0.04	0.04	0.04	0.04
Net Dimensions (W x H x D) (in.)		37-13/32 x 54-11/32 x 13			
Shipping Dimensions (W x H x D) (in.)		45-5/32 x 57-19/32 x 18-5/32			
Net / Shipping Weight (lbs.)		190.2 / 214.3	213.4 / 232.4	213.4 / 232.4	213.4 / 232.4
Exterior Color Codes		Munsell 2.5Y 7.5/1 (RAL 7044)			
Fan Type x Qty.		Axial x 2	Axial x 2	Axial x 2	Axial x 2
Fan Motor Output (W) x Qty.		124 x 2	124 x 2	124 x 2	124 x 2
Fan Motor / Drive		Brushless Digitally Controlled / Direct			
Airflow Rate Max. (CFM)		1,942 x 2	1,942 x 2	1,942 x 2	1,942 x 2
Compressor (Type x Qty.)		R1 Scroll x 1	R1 Scroll x 1	R1 Scroll x 1	R1 Scroll x 1
Heat Exchanger					
Material and Fin Coating		Outdoor Unit Coil: Copper Tube / Aluminum Fin (Gold Fin™ Coating); A-Coil Unit: Aluminum Tubes / Aluminum Fins			
Rows / Columns / Fin per inch x Qty.	Outdoor Unit Coil	2 x 64 x 14	3 x 64 x 14	3 x 64 x 14	3 x 64 x 14
	Indoor Unit Coil	3 x 22 x 16	3 x 26 x 16	3 x 26 x 16	3 x 28 x 16
Refrigerant					
Type[9] / Control		R32 / Outdoor Unit: EEV; A-Coil Unit: TXV			
Pre-Charge + Add'l Charge for A-Coil (lbs.)		6.63 + 0.88	7.50 + 0.88	7.50 + 0.88	7.50 + 0.88
Additional Charge (oz./ft.)		0.43	0.43	0.43	0.43
Piping					
Liquid[3] (in., O.D.)		3/8 Flare	3/8 Flare	3/8 Flare	3/8 Flare
Vapor[3] (in., O.D.)		5/8 Flare	5/8 Flare	5/8 Flare	5/8 Flare
Condensation Line (O.D., I.D., in.)		1-1/4 / 1	1-1/4 / 1	1-1/4 / 1	1-1/4 / 1
Pipe Length[10] (Minimum/Maximum) (ft.)		16.4 / 246	16.4 / 246	16.4 / 246	16.4 / 246
Piping Length[10] (no add'l refrigerant, ft.)		24.6	24.6	24.6	24.6
Max Elevation Difference (ft.)		98.4	98.4	98.4	98.4

EEV: Electronic Expansion Valve TXV = Thermostatic Expansion Valve ODU: Outdoor Unit

This data is rated 0 ft above sea level with 24.6 of refrigerant line per indoor component and a 0 ft level difference outdoor and indoor component.

Cooling capacity rating obtained with air entering the indoor component at 80ºF dry bulb (DB) and 67ºF wet bulb (WB) and outdoor ambient conditions of 95ºF dry bulb (DB) and 75ºF wet bulb (WB).
Heating capacity rating obtained with air entering the indoor component at 70ºF dry bulb (DB) and 59ºF wet bulb (WB) and outdoor ambient conditions of 47ºF dry bulb (DB) and 43ºF wet bulb (WB).

[1]Power Input is rated at high speed.

[2]All wiring must comply with applicable local and national codes.
a. All power supply wiring to the outdoor unit is field supplied, solid or stranded.
b. Control Cable between the Outdoor Unit and the Gas Furnace (No. x AWG): 6 x 18.
c. The 24V Control Power to the A-Coil is to be sourced from the Gas Furnace.

[3]Adapters for piping connections are shipped with the outdoor unit.

[4]The furnace is designed for minimum continuous return-air temperature of 60°F dry bulb or intermittent operation down to 55°F dry bulb such as when used with a night setback thermostat. Return-air temperature must not exceed 85°F dry bulb.

[5]Natural Gas to Propane conversion kit are shipped with the furnace. Venting systems must be installed in accordance with the National Fuel Gas Code, ANSI Z223.1/NFPA 54 and / or the CSA B 149.1, Natural Gas and Propane Installation Codes, and the manufacturer's instructions.

[6]a.The furnace is designed to operate using 115 V/60/1 power with appropriate overcurrent protection.
b.The internal wiring shall be in accordance with NEC and local codes, with proper grounding and strain reliefs.
c. A service disconnect (fused or circuit breaker) should be located within sight of the furnace and readily accessible for servicing.

[7]Optional Low Ambient Wind Baffle Kit allows operation down to -4°F in cooling mode.

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

[9]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.

[10]Piping lengths are equivalent.

GENERAL SYSTEM DATA

LGRED°

Table 7: R32 Single-Zone Systems -18,000 to 30,000 Btu/h A-Coil / 96% Efficiency Gas Furnace with LGRED Specifications.

System Model No.	KSSSA181A060-B1	KSSSA241A060-B1	KSSSA241A080-B1	KSSSA301A060-B1
A-Coil Unit Model No.	**LKMMA18B1**	**LKMMA24B1**	**LKMMA24B1**	**LKMMA30B1**
Furnace Unit Model No.	**LNAVE060B1**	**LNAVE060B1**	**LNAVE080B1**	**LNAVE060B1**
Outdoor Unit Model No.	**KUSXA181A**	**KUSXA241A**	**KUSXA241A**	**KUSXA301A**
Cooling Capacity (Min/Rated/Max) (Btu/h)	7,200~18,000~20,000	9,400~23,000~26,000	9,400~23,000~26,000	10,400~29,000~32,000
Cooling Power Input[1] (Min/Rated/Max) (kW)	0.58~1.565~1.88	0.77~2.035~2.46	0.77~2.035~2.46	0.87~2.479~2.97
EER2 (@95°F)	11.50	11.30	11.30	11.70
SEER2	17	17	17	18
Heating Capacity (Min/Rated/Max) (Btu/h)	7,000~20,000~23,000	12,000~26,000~30,000	12,000~26,000~30,000	13,800~32,000~35,000
Heating Power Input[1] (Min/Rated/Max) (kW)	0.46~1.600~2.08	0.73~2.200~2.75	0.73~2.200~2.75	0.86~2.620~3.14
COP (@47°F)	3.66	3.46	3.46	3.58
HSPF2	9.5	9.3	9.3	9
Rated Low Heating Capacity (Btu/h)				
Outdoor 17°F (WB)/Indoor 70°F (DB)	13,000	17,000	17,000	20,000
Low COP (@17°F)	2.54	2.38	2.38	2.48
Maximum Heating Capacity (Btu/h)				
Outdoor 17°F (WB)/Indoor 70°F (DB)	20,900	25,300	25,300	35,200
Outdoor 5°F (WB)/Indoor 70°F (DB)	19,000	23,000	23,000	32,000
Outdoor -4 °F (WB)/Indoor 70°F (DB)	17,100	20,500	20,500	28,500
Outdoor -13°F (WB)/Indoor 70°F (DB)	15,200	18,000	18,000	25000
ENERGY STAR / Cold Climate	No / Yes	No / Yes	No / Yes	No / Yes
Power Supply (To Outdoor Unit; V / Hz / Ø)	208-230 / 60 / 1			
Power Supply Wiring (Outdoor Unit) (No. x AWG)[2]	3 x 12	3 x 12	3 x 12	3 x 10
Power / Comm. Wiring (ODU to Indoor Components) (No. x AWG)[2]	6 x 18	6 x 18	6 x 18	6 x 18
A-Coil Unit Data				
Nominal Capacity (Btu/h)	18,000	23,000	23,000	29,000
Type	17.5 inch	17.5 inch	17.5 inch	17.5 inch
Coil Material	Aluminum	Aluminum	Aluminum	Aluminum
Net Dimensions (W x H x D) (in.)	17-1/2 x 24 x 21	17-1/2 x 24 x 21	17-1/2 x 24 x 21	17-1/2 x 26 x 21
Shipping Dimensions (W x H x D) (in.)	18 x 25-1/8 x 25	18 x 25-1/8 x 25	18 x 25-1/8 x 25	18-1/4 x 27-1/4 x 25
Net / Shipping Weight (lbs.)	46 / 52	46 / 52	46 / 52	54 / 60
Air Flow Range through A-Coil (CFM) (Min. ~ Max.)	450~600	600~800	600~800	750 ~ 1,000
Corresponding ESP Range (in. w.g.) (Min. ~ Max.)	0.1~0.8	0.1~0.8	0.1~0.8	0.1~0.8
Dehumidification Rate (pts./hr.)	2.75	4.23	4.23	5.6
Liquid Piping (in., O.D.)[3]	3/8 Braze	3/8 Braze	3/8 Braze	3/8 Braze
Vapor Piping (in., O.D.)[3]	3/4 Braze	3/4 Braze	3/4 Braze	3/4 Braze
Gas Furnace Data[4]				
Input (Btu/h) (Natural Gas / Propane Gas)[5]	60,000 / 60,000	60,000 / 60,000	80,000 / 80,000	60,000 / 60,000
Output (Btu/h) (Natural Gas/Propane Gas)[5]	57,000 / 57,000	57,000 / 57,000	76,000 / 76,000	57,000 / 57,000
Air Temperature Rise (°F)	30-60	30-60	35-65	30-60
Design Max. Outlet Air Temperature (°F)	160	160	165	160
AFUE	96	96	96	96
Blower Type / Fan Speed No.	Centrifugal / 5	Centrifugal / 5	Centrifugal / 5	Centrifugal / 5
Motor Type	ECM	ECM	ECM	ECM
Airflow Range (CFM)	553 ~ 1,335	553 ~ 1,335	569 ~ 1,251	553 ~ 1,335
Ignition Type / No. of Burner	Automatic / 3	Automatic / 3	Automatic / 4	Automatic / 3
Min./Max. Inlet Gas Pressure (Natural, in. w.c.)	4.5 / 10.5	4.5 / 10.5	4.5 / 10.5	4.5 / 10.5
Min./Max. Inlet Gas Pressure (Propane, in. w.c.)	11 / 13	11 / 13	11 / 13	11 / 13
Case Width x Height x Depth (in.)	17-1/2 x 33-3/4 x 28-1/2			
Shipping Weight (lbs.)	147.5	147.5	165	147.5
Power Supply (V/Hz/Ø)[6]	115 / 60 / 1	115 / 60 / 1	115 / 60 / 1	115 / 60 / 1

LG

Table 8: R32 Single-Zone Systems - 18,000 to 30,000 Btu/h A-Coil / 96% Efficiency Gas Furnace with LGRED Specifications, continued.

System Model No.		KSSSA181A060-B1	KSSSA241A060-B1	KSSSA241A080-B1	KSSSA301A060-B1
A-Coil Unit Model No.		LKMMA18B1	LKMMA24B1	LKMMA24B1	LKMMA30B1
Furnace Unit Model No.		LNAVE060B1	LNAVE060B1	LNAVE080B1	LNAVE060B1
Outdoor Unit Model No.		KUSXA181A	KUSXA241A	KUSXA241A	KUSXA301A
Outdoor Unit Data					
Operating Range[7]	Cooling (°F DB)	5 to +118[7]			
	Heating (°F WB)	-13 to +64			
Sound Pressure[8] dB(A)	Cooling	51	51	51	52
	Heating	52	52	52	54
Max. External Static Pressure (in. w.g.)		0.04	0.04	0.04	0.04
Net Dimensions (W x H x D) (in.)		37-13/32 x 32-27/32 x 13			37-13/32 x 54-11/32 x 13
Shipping Dimensions (W x H x D) (in.)		44-7/8 x 36-5/32 x 18-5/32			45-5/32 x 57-19/32 x 18-5/32
Net / Shipping Weight (lbs.)		141.8 / 160.1	141.8 / 160.1	141.8 / 160.1	190.2 / 214.3
Exterior Color Codes		Munsell 2.5Y 7.5/1 (RAL 7044)			
Fan Type x Qty.		Axial x 1	Axial x 1	Axial x 1	Axial x 2
Fan Motor Output (W) x Qty.		124 x 1	124 x 1	124 x 1	124 x 2
Fan Motor / Drive		Brushless Digitally Controlled / Direct			
Airflow Rate Max. (CFM)		2,048	2,048	2,048	1,942 x 2
Compressor (Type x Qty.)		R1 Scroll x 1	R1 Scroll x 1	R1 Scroll x 1	R1 Scroll x 1
Heat Exchanger					
Material and Fin Coating		Outdoor Unit Coil: Copper Tube / Aluminum Fin (Gold Fin™ Coating); A-Coil Unit: Aluminum Tubes / Aluminum Fins			
Rows / Columns / Fin per inch x Qty.	Outdoor Unit Coil	2 x 38 x 14	2 x 38 x 14	2 x 38 x 14	2 x 64 x 14
	Indoor Unit Coil	3 x 18 x 16	3 x 18 x 16	3 x 18 x 16	3 x 22 x 16
Refrigerant					
Type[9] / Control		R32 / Outdoor Unit: EEV; A-Coil Unit: TXV			
Pre-Charge + Add'l Charge for A-Coil (lbs.)		4.2 + 0	4.2 + 0	4.2 + 0	6.63 + 0.88
Additional Charge (oz./ft.)		0.38	0.38	0.38	0.43
Piping					
Liquid[3] (in., O.D.)		3/8 Flare	3/8 Flare	3/8 Flare	3/8 Flare
Vapor[3] (in., O.D.)		5/8 Flare	5/8 Flare	5/8 Flare	5/8 Flare
Condensation Line (O.D., I.D., in.)		1-1/4 / 1	1-1/4 / 1	1-1/4 / 1	1-1/4 / 1
Pipe Length[10] (Minimum/Maximum) (ft.)		16.4 / 164	16.4 / 164	16.4 / 164	16.4 / 246
Piping Length[10] (no add'l refrigerant, ft.)		24.6	24.6	24.6	24.6
Max Elevation Difference (ft.)		98.4	98.4	98.4	98.4

EEV: Electronic Expansion Valve TXV = Thermostatic Expansion Valve ODU: Outdoor Unit

This data is rated 0 ft above sea level with 24.6 of refrigerant line per indoor component and a 0 ft level difference outdoor and indoor component.

Cooling capacity rating obtained with air entering the indoor component at 80ºF dry bulb (DB) and 67ºF wet bulb (WB) and outdoor ambient conditions of 95ºF dry bulb (DB) and 75ºF wet bulb (WB).
Heating capacity rating obtained with air entering the indoor component at 70ºF dry bulb (DB) and 59ºF wet bulb (WB) and outdoor ambient conditions of 47ºF dry bulb (DB) and 43ºF wet bulb (WB).

[1]Power Input is rated at high speed.

[2]All wiring must comply with applicable local and national codes.
a. All power supply wiring to the outdoor unit is field supplied, solid or stranded.
b. Control Cable between the Outdoor Unit and the Gas Furnace (No. x AWG): 6 x 18.
c. The 24V Control Power to the A-Coil is to be sourced from the Gas Furnace.

[3]Adapters for piping connections are shipped with the outdoor unit.

[4]The furnace is designed for minimum continuous return-air temperature of 60°F dry bulb or intermittent operation down to 55°F dry bulb such as when used with a night setback thermostat. Return-air temperature must not exceed 85°F dry bulb.

[5]Natural Gas to Propane conversion kit are shipped with the furnace. Venting systems must be installed in accordance with the National Fuel Gas Code, ANSI Z223.1/NFPA 54 and / or the CSA B 149.1, Natural Gas and Propane Installation Codes, and the manufacturer's instructions.

[6]a.The furnace is designed to operate using 115 V/60/1 power with appropriate overcurrent protection.
b.The internal wiring shall be in accordance with NEC and local codes, with proper grounding and strain reliefs.
c. A service disconnect (fused or circuit breaker) should be located within sight of the furnace and readily accessible for servicing.

[7]Optional Low Ambient Wind Baffle Kit allows operation down to -4°F in cooling mode.

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

[9]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.

[10]Piping lengths are equivalent.

GENERAL SYSTEM DATA

LGRED°

Table 9: R32 Single-Zone Systems - 30,000 to 36,000 Btu/h A-Coil / 96% Efficiency Gas Furnace with LGRED Specifications.

System Model No.	KSSSA301A080-B1	KSSSA361A060-B1	KSSSA361A080-B1	KSSSA361A080-C1
A-Coil Unit Model No.	**LKMMA30B1**	**LKMMA36B1**	**LKMMA36B1**	**LKMMA36C1**
Furnace Unit Model No.	**LNAVE080B1**	**LNAVE060B1**	**LNAVE080B1**	**LNAVE080C1**
Outdoor Unit Model No.	**KUSXA301A**	**KUSXA361A**	**KUSXA361A**	**KUSXA361A**
Cooling Capacity (Min/Rated/Max) (Btu/h)	10,400~29,000~32,000	12,500~33,000~35,000	12,500~33,000~35,000	12,900~34,000~37,000
Cooling Power Input[1] (Min/Rated/Max) (kW)	0.87~2.479~2.97	1.00~2.870~3.19	1.00~2.870~3.19	1.02~2.906~3.43
EER2 (@95°F)	11.70	11.50	11.50	11.70
SEER2	18	18	18	18
Heating Capacity (Min/Rated/Max) (Btu/h)	13,800~32,000~35,000	14,800~36,000~41,000	14,800~36,000~41,000	14,800~36,000~43,000
Heating Power Input[1] (Min/Rated/Max) (kW)	0.86~2.620~3.14	0.83~2.960~3.91	0.83~2.960~3.91	0.99~2.900~3.83
COP (@47°F)	3.58	3.56	3.56	3.64
HSPF2	9	9	9	9.3
Rated Low Heating Capacity (Btu/h)				
Outdoor 17°F (WB)/Indoor 70°F (DB)	20,000	23,000	23,000	24,000
Low COP (@17°F)	2.48	2.50	2.50	2.58
Maximum Heating Capacity (Btu/h)				
Outdoor 17°F (WB)/Indoor 70°F (DB)	35,200	36,600	36,600	37,700
Outdoor 5°F (WB)/Indoor 70°F (DB)	32,000	33,000	33,000	34,000
Outdoor -4 °F (WB)/Indoor 70°F (DB)	28,500	29,700	29,700	30,900
Outdoor -13°F (WB)/Indoor 70°F (DB)	25,000	26,400	26,400	27,800
ENERGY STAR / Cold Climate	No / Yes	No / Yes	No / Yes	No / Yes
Power Supply (To Outdoor Unit; V / Hz / Ø)	208-230 / 60 / 1			
Power Supply Wiring (Outdoor Unit) (No. x AWG)[2]	3 x 10	3 x 10	3 x 10	3 x 10
Power / Comm. Wiring (ODU to Indoor Components) (No. x AWG)[2]	6 x 18	6 x 18	6 x 18	6 x 18
A-Coil Unit Data				
Nominal Capacity (Btu/h)	29,000	33,000	33,000	34,000
Type	17.5 inch	17.5 inch	17.5 inch	21 inch
Coil Material	Aluminum	Aluminum	Aluminum	Aluminum
Net Dimensions (W x H x D) (in.)	17-1/2 x 26 x 21	17-1/2 x 26 x 21	17-1/2 x 26 x 21	21 x 26 x 21
Shipping Dimensions (W x H x D) (in.)	18-1/4 x 27-1/4 x 25	18-1/4 x 27-1/4 x 25	18-1/4 x 27-1/4 x 25	21-1/2 x 27 x 25
Net / Shipping Weight (lbs.)	54 / 60	54 / 60	54 / 60	55 / 62
Air Flow Range through A-Coil (CFM) (Min. ~ Max.)	750 ~ 1,000	840 ~ 1,200	840 ~ 1,200	840 ~ 1,200
Corresponding ESP Range (in. w.g.) (Min. ~ Max.)	0.1~0.8	0.1~0.8	0.1~0.8	0.1~0.8
Dehumidification Rate (pts./hr.)	5.6	7.17	7.17	7.17
Liquid Piping (in., O.D.)[3]	3/8 Braze	3/8 Braze	3/8 Braze	3/8 Braze
Vapor Piping (in., O.D.)[3]	3/4 Braze	3/4 Braze	3/4 Braze	3/4 Braze
Gas Furnace Data[4]				
Input (Btu/h) (Natural Gas / Propane Gas)[5]	80,000 / 80,000	60,000 / 60,000	80,000 / 80,000	80,000 / 80,000
Output (Btu/h) (Natural Gas/Propane Gas)[5]	76,000 / 76,000	57,000 / 57,000	76,000 / 76,000	76,000 / 76,000
Air Temperature Rise (°F)	35-65	30-60	35-65	35-65
Design Max. Outlet Air Temperature (°F)	165	160	165	165
AFUE	96	96	96	96
Blower Type / Fan Speed No.	Centrifugal / 5	Centrifugal / 5	Centrifugal / 5	Centrifugal / 5
Motor Type	ECM	ECM	ECM	ECM
Airflow Range (CFM)	569 ~ 1,251	553 ~ 1,335	569 ~ 1,251	577 ~ 1,253
Ignition Type / No. of Burner	Automatic / 4	Automatic / 3	Automatic / 4	Automatic / 4
Min./Max. Inlet Gas Pressure (Natural, in. w.c.)	4.5 / 10.5	4.5 / 10.5	4.5 / 10.5	4.5 / 10.5
Min./Max. Inlet Gas Pressure (Propane, in. w.c.)	11 / 13	11 / 13	11 / 13	11 / 13
Case Width x Height x Depth (in.)	17-1/2 x 33-3/4 x 28-1/2			21 x 33-3/4 x 28-1/2
Shipping Weight (lbs.)	165	147.5	165	173
Power Supply (V/Hz/Ø)[6]	115 / 60 / 1	115 / 60 / 1	115 / 60 / 1	115 / 60 / 1

LG

Table 10: R32 Single-Zone Systems - 30,000 to 36,000 Btu/h A-Coil / 96% Efficiency Gas Furnace with LGRED Specifications, continued.

System Model No.		KSSSA301A080-B1	KSSSA361A060-B1	KSSSA361A080-B1	KSSSA361A080-C1
A-Coil Unit Model No.		LKMMA30B1	LKMMA36B1	LKMMA36B1	LKMMA36C1
Furnace Unit Model No.		LNAVE080B1	LNAVE060B1	LNAVE080B1	LNAVE080C1
Outdoor Unit Model No.		KUSXA301A	KUSXA361A	KUSXA361A	KUSXA361A
Outdoor Unit Data					
Operating Range[7]	Cooling (°F DB)	5 to +118[7]			
	Heating (°F WB)	-13 to +64			
Sound Pressure[8] dB(A)	Cooling	52	52	52	52
	Heating	54	54	54	54
Max. External Static Pressure (in. w.g.)		0.04	0.04	0.04	0.04
Net Dimensions (W x H x D) (in.)		37-13/32 x 54-11/32 x 13			
Shipping Dimensions (W x H x D) (in.)		45-5/32 x 57-19/32 x 18-5/32			
Net / Shipping Weight (lbs.)		190.2 / 214.3	190.2 / 214.3	190.2 / 214.3	190.2 / 214.3
Exterior Color Codes		Munsell 2.5Y 7.5/1 (RAL 7044)			
Fan Type x Qty.		Axial x 2	Axial x 2	Axial x 2	Axial x 2
Fan Motor Output (W) x Qty.		124 x 2	124 x 2	124 x 2	124 x 2
Fan Motor / Drive		Brushless Digitally Controlled / Direct			
Airflow Rate Max. (CFM)		1,942 x 2	1,942 x 2	1,942 x 2	1,942 x 2
Compressor (Type x Qty.)		R1 Scroll x 1	R1 Scroll x 1	R1 Scroll x 1	R1 Scroll x 1
Heat Exchanger					
Material and Fin Coating		Outdoor Unit Coil: Copper Tube / Aluminum Fin (Gold Fin™ Coating); A-Coil Unit: Aluminum Tubes / Aluminum Fins			
Rows / Columns / Fin per inch x Qty.	Outdoor Unit Coil	2 x 64 x 14	2 x 64 x 14	2 x 64 x 14	2 x 64 x 14
	Indoor Unit Coil	3 x 22 x 16	3 x 22 x 16	3 x 22 x 16	3 x 22 x 16
Refrigerant					
Type[9] / Control		R32 / Outdoor Unit: EEV; A-Coil Unit: TXV			
Pre-Charge + Add'l Charge for A-Coil (lbs.)		6.63 + 0.88	6.63 + 0.88	6.63 + 0.88	6.63 + 0.88
Additional Charge (oz./ft.)		0.43	0.43	0.43	0.43
Piping					
Liquid[3] (in., O.D.)		3/8 Flare	3/8 Flare	3/8 Flare	3/8 Flare
Vapor[3] (in., O.D.)		5/8 Flare	5/8 Flare	5/8 Flare	5/8 Flare
Condensation Line (O.D., I.D., in.)		1-1/4 / 1	1-1/4 / 1	1-1/4 / 1	1-1/4 / 1
Pipe Length[10] (Minimum/Maximum) (ft.)		16.4 / 246	16.4 / 246	16.4 / 246	16.4 / 246
Piping Length[10] (no add'l refrigerant, ft.)		24.6	24.6	24.6	24.6
Max Elevation Difference (ft.)		98.4	98.4	98.4	98.4

EEV: Electronic Expansion Valve TXV = Thermostatic Expansion Valve ODU: Outdoor Unit

This data is rated 0 ft above sea level with 24.6 of refrigerant line per indoor component and a 0 ft level difference outdoor and indoor component.

Cooling capacity rating obtained with air entering the indoor component at 80ºF dry bulb (DB) and 67ºF wet bulb (WB) and outdoor ambient conditions of 95ºF dry bulb (DB) and 75ºF wet bulb (WB).
Heating capacity rating obtained with air entering the indoor component at 70ºF dry bulb (DB) and 59ºF wet bulb (WB) and outdoor ambient conditions of 47ºF dry bulb (DB) and 43ºF wet bulb (WB).

[1]Power Input is rated at high speed.

[2]All wiring must comply with applicable local and national codes.
a. All power supply wiring to the outdoor unit is field supplied, solid or stranded.
b. Control Cable between the Outdoor Unit and the Gas Furnace (No. x AWG): 6 x 18.
c. The 24V Control Power to the A-Coil is to be sourced from the Gas Furnace.

[3]Adapters for piping connections are shipped with the outdoor unit.

[4]The furnace is designed for minimum continuous return-air temperature of 60°F dry bulb or intermittent operation down to 55°F dry bulb such as when used with a night setback thermostat. Return-air temperature must not exceed 85°F dry bulb.

[5]Natural Gas to Propane conversion kit are shipped with the furnace. Venting systems must be installed in accordance with the National Fuel Gas Code, ANSI Z223.1/NFPA 54 and / or the CSA B 149.1, Natural Gas and Propane Installation Codes, and the manufacturer's instructions.

[6]a.The furnace is designed to operate using 115 V/60/1 power with appropriate overcurrent protection.
b.The internal wiring shall be in accordance with NEC and local codes, with proper grounding and strain reliefs.
c. A service disconnect (fused or circuit breaker) should be located within sight of the furnace and readily accessible for servicing.

[7]Optional Low Ambient Wind Baffle Kit allows operation down to -4°F in cooling mode.

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

[9]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.

[10]Piping lengths are equivalent.

GENERAL SYSTEM DATA

LGRED°

Table 11: R32 Single-Zone Systems - 42,000 to 48,000 Btu/h A-Coil / 96% Efficiency Gas Furnace with LGRED Specifications.

System Model No.	KSSSA421A100-C1	KSSSA481A100-C1	KSSSA481A120-D1
A-Coil Unit Model No.	**LKMMA42C1**	**LKMMA48C1**	**LKMMA48D1**
Furnace Unit Model No.	**LNAVE100C1**	**LNAVE100C1**	**LNAVE120D1**
Outdoor Unit Model No.	**KUSXA422A**	**KUSXA482A**	**KUSXA482A**
Cooling Capacity (Min/Rated/Max) (Btu/h)	16,400~41,000~43,000	18,400~46,000~50,000	18,200~48,000~51,000
Cooling Power Input[1] (Min/Rated/Max) (kW)	1.26~3.504~3.81	1.40~4.000~4.52	1.53~4.364~4.75
EER2 (@95°F)	11.70	11.50	11.00
SEER2	18.2	18	17.3
Heating Capacity (Min/Rated/Max) (Btu/h)	16,700~44,000~48,000	20,200~48,000~53,000	19,500~50,000~55,000
Heating Power Input[1] (Min/Rated/Max) (kW)	1.23~3.500~4.55	1.34~3.820~4.78	1.33~3.800~4.75
COP (@47°F)	3.68	3.68	3.86
HSPF2	9.8	9.6	9.5
Rated Low Heating Capacity (Btu/h)			
Outdoor 17°F (WB)/Indoor 70°F (DB)	29,000	31,000	33,000
Low COP (@17°F)	2.74	2.59	2.76
Maximum Heating Capacity (Btu/h)			
Outdoor 17°F (WB)/Indoor 70°F (DB)	45,400	47,500	46,400
Outdoor 5°F (WB)/Indoor 70°F (DB)	42,000	44,000	43,000
Outdoor -4 °F (WB)/Indoor 70°F (DB)	37,400	38,700	37,000
Outdoor -13°F (WB)/Indoor 70°F (DB)	32,800	33,400	31,000
ENERGY STAR / Cold Climate	No / Yes	No / Yes	No / Yes
Power Supply (To Outdoor Unit; V / Hz / Ø)	208-230 / 60 / 1		
Power Supply Wiring (Outdoor Unit) (No. x AWG)[2]	3 x 10	3 x 10	3 x 10
Power / Comm. Wiring (ODU to Indoor Components) (No. x AWG)[2]	6 x 18	6 x 18	6 x 18
A-Coil Unit Data			
Nominal Capacity (Btu/h)	41,000	46,000	48,000
Type	21 inch	21 inch	24.5 inch
Coil Material	Aluminum	Aluminum	Aluminum
Net Dimensions (W x H x D) (in.)	21 x 30 x 21	21 x 30 x 21	24-1/2 x 34 x 21
Shipping Dimensions (W x H x D) (in.)	21-1/2 x 31 x 25	21-1/2 x 31 x 25	25 x 35-1/8 x 25
Net / Shipping Weight (lbs.)	63 / 70	63 / 70	73 / 82
Air Flow Range through A-Coil (CFM) (Min. ~ Max.)	1,050 ~ 1,400	1,200 ~ 1,600	1,200 ~ 1,600
Corresponding ESP Range (in. w.g.) (Min. ~ Max.)	0.1~0.8	0.1~0.8	0.1~0.8
Dehumidification Rate (pts./hr.)	7.9	8.06	8.06
Liquid Piping (in., O.D.)[3]	3/8 Braze	3/8 Braze	3/8 Braze
Vapor Piping (in., O.D.)[3]	3/4 Braze	3/4 Braze	3/4 Braze
Gas Furnace Data[4]			
Input (Btu/h) (Natural Gas / Propane Gas)[5]	100,000 / 100,000	100,000 / 100,000	120,000 / 120,000
Output (Btu/h) (Natural Gas/Propane Gas)[5]	95,000 / 95,000	95,000 / 95,000	115,000 / 115,000
Air Temperature Rise (°F)	35-65	35-65	40-70
Design Max. Outlet Air Temperature (°F)	165	165	170
AFUE	96	96	96
Blower Type / Fan Speed No.	Centrifugal / 5	Centrifugal / 5	Centrifugal / 5
Motor Type	ECM	ECM	ECM
Airflow Range (CFM)	994 ~ 1,786	994 ~ 1,786	1,165 ~1,998
Ignition Type / No. of Burner	Automatic / 5	Automatic / 5	Automatic / 6
Min./Max. Inlet Gas Pressure (Natural, in. w.c.)	4.5 / 10.5	4.5 / 10.5	4.5 / 10.5
Min./Max. Inlet Gas Pressure (Propane, in. w.c.)	11 / 13	11 / 13	11 / 13
Case Width x Height x Depth (in.)	21 x 33-3/4 x 28-1/2	21 x 33-3/4 x 28-1/2	24-1/2 x 33-3/4 x 28-1/2
Shipping Weight (lbs.)	185	185	190
Power Supply (V/Hz/Ø)[6]	115 / 60 / 1	115 / 60 / 1	115 / 60 / 1

LG

Table 12: R32 Single-Zone Systems - 42,000 to 48,000 Btu/h A-Coil / 96% Efficiency Gas Furnace with LGRED Specifications, continued.

System Model No.		KSSSA421A100-C1	KSSSA481A100-C1	KSSSA481A120-D1
A-Coil Unit Model No.		LKMMA42C1	LKMMA48C1	LKMMA48D1
Furnace Unit Model No.		LNAVE100C1	LNAVE100C1	LNAVE120D1
Outdoor Unit Model No.		KUSXA422A	KUSXA482A	KUSXA482A
Outdoor Unit Data				
Operating Range[7]	Cooling (°F DB)	5 to +118[7]		
	Heating (°F WB)	-13 to +64		
Sound Pressure[8] dB(A)	Cooling	54	54	54
	Heating	56	56	56
Max. External Static Pressure (in. w.g.)		0.04	0.04	0.04
Net Dimensions (W x H x D) (in.)		37-13/32 x 54-11/32 x 13		
Shipping Dimensions (W x H x D) (in.)		45-5/32 x 57-19/32 x 18-5/32		
Net / Shipping Weight (lbs.)		213.4 / 232.4	213.4 / 232.4	213.4 / 232.4
Exterior Color Codes		Munsell 2.5Y 7.5/1 (RAL 7044)		
Fan Type x Qty.		Axial x 2	Axial x 2	Axial x 2
Fan Motor Output (W) x Qty.		124 x 2	124 x 2	124 x 2
Fan Motor / Drive		Brushless Digitally Controlled / Direct		
Airflow Rate Max. (CFM)		1,942 x 2	1,942 x 2	1,942 x 2
Compressor (Type x Qty.)		R1 Scroll x 1	R1 Scroll x 1	R1 Scroll x 1
Heat Exchanger				
Material and Fin Coating		Outdoor Unit Coil: Copper Tube / Aluminum Fin (Gold Fin™ Coating); A-Coil Unit: Aluminum Tubes / Aluminum Fins		
Rows / Columns / Fin per inch x Qty.	Outdoor Unit Coil	3 x 64 x 14	3 x 64 x 14	3 x 64 x 14
	Indoor Unit Coil	3 x 26 x 16	3 x 26 x 16	3 x 28 x 16
Refrigerant				
Type[9] / Control		R32 / Outdoor Unit: EEV; A-Coil Unit: TXV		
Pre-Charge + Add'l Charge for A-Coil (lbs.)		7.50 + 0.88	7.50 + 0.88	7.50 + 0.88
Additional Charge (oz./ft.)		0.43	0.43	0.43
Piping				
Liquid[3] (in., O.D.)		3/8 Flare	3/8 Flare	3/8 Flare
Vapor[3] (in., O.D.)		5/8 Flare	5/8 Flare	5/8 Flare
Condensation Line (O.D., I.D., in.)		1-1/4/ 1	1-1/4/ 1	1-1/4/ 1
Pipe Length[10] (Minimum/Maximum) (ft.)		16.4 / 246	16.4 / 246	16.4 / 246
Piping Length[10] (no add'l refrigerant, ft.)		24.6	24.6	24.6
Max Elevation Difference (ft.)		98.4	98.4	98.4

EEV: Electronic Expansion Valve TXV = Thermostatic Expansion Valve ODU: Outdoor Unit

This data is rated 0 ft above sea level with 24.6 of refrigerant line per indoor component and a 0 ft level difference outdoor and indoor component.

Cooling capacity rating obtained with air entering the indoor component at 80°F dry bulb (DB) and 67°F wet bulb (WB) and outdoor ambient conditions of 95°F dry bulb (DB) and 75°F wet bulb (WB).
Heating capacity rating obtained with air entering the indoor component at 70°F dry bulb (DB) and 59°F wet bulb (WB) and outdoor ambient conditions of 47°F dry bulb (DB) and 43°F wet bulb (WB).

[1]Power Input is rated at high speed.

[2]All wiring must comply with applicable local and national codes.
a. All power supply wiring to the outdoor unit is field supplied, solid or stranded.
b. Control Cable between the Outdoor Unit and the Gas Furnace (No. x AWG): 6 x 18.
c. The 24V Control Power to the A-Coil is to be sourced from the Gas Furnace.

[3]Adapters for piping connections are shipped with the outdoor unit.

[4]The furnace is designed for minimum continuous return-air temperature of 60°F dry bulb or intermittent operation down to 55°F dry bulb such as when used with a night setback thermostat. Return-air temperature must not exceed 85°F dry bulb.

[5]Natural Gas to Propane conversion kit are shipped with the furnace. Venting systems must be installed in accordance with the National Fuel Gas Code, ANSI Z223.1/NFPA 54 and / or the CSA B 149.1, Natural Gas and Propane Installation Codes, and the manufacturer's instructions.

[6]a.The furnace is designed to operate using 115 V/60/1 power with appropriate overcurrent protection.
b.The internal wiring shall be in accordance with NEC and local codes, with proper grounding and strain reliefs.
c. A service disconnect (fused or circuit breaker) should be located within sight of the furnace and readily accessible for servicing.

[7]Optional Low Ambient Wind Baffle Kit allows operation down to -4°F in cooling mode.

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

[9]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.

[10]Piping lengths are equivalent.

GENERAL GAS FURNACE DATA

LGRED°

Table 13: 80% Efficiency Gas Furnace (Combustion System) Specifications.

Gas Furnace Model Nos.			Unit	LNAEA060B1	LNAEA080C1	LNAEA100C1	LNAEA120D1
Max. Inlet Gas Pressure	Natural Gas		in. w.c.	10.5	10.5	10.5	10.5
	Propane Gas (LP)		in. w.c.	13	13	13	13
Min. Inlet Gas Pressure	Natural Gas		in. w.c.	4.5	4.5	4.5	4.5
	Propane Gas (LP)		in. w.c.	11	11	11	11
Natural Gas Manifold Pressure (High / Low Fire)			in. w.c.	3.5	3.8	3.8	3.9
Propane Gas Manifold Pressure (High / Low Fire)			in. w.c.	10	10	10	10.5
Natural Gas Factory Orifice (0-2000 feet)				45	49	49	49
Propane Gas (LP) Factory Orifice (0-2000 feet)				55	56	56	56
Gas Connection Size			in. NPT	3/4	3/4	3/4	3/4
Ignition Device				Hot Surface			
Number of Burners				3	5	6	7
Primary Heat Exchanger Diameter			Inch	1-1/2	1-1/2	1-1/2	1-1/2
Primary Heat Exchanger			No. of Tubes	3	5	6	7
Flue Vent Diameter			Inch	1-29/64	1-37/64	1-57/64	1-57/64
Safety Switch Settings							
Pressure Switch Factory Settings		Low	in. w.c.	0.55	0.55	0.55	0.55
Rollout Switch - Resettable		Off / On	°F	300	300	300	300
Inlet High Temperature Limit Switch - Fixed		Off / On	°F	180 / 150	180 / 150	180 / 150	180 / 150

Table 14: 96% Efficiency Gas Furnace (Combustion System) Specifications.

Gas Furnace Model Nos.			Unit	LNAVE060B1	LNAVE080B1	LNAVE080C1	LNAVE100C1	LNAVE120D1
Max. Inlet Gas Pressure	Natural Gas		in. w.c.	10.5	10.5	10.5	10.5	10.5
	Propane Gas (LP)		in. w.c.	13	13	13	13	13
Min. Inlet Gas Pressure	Natural Gas		in. w.c.	4.5	4.5	4.5	4.5	4.5
	Propane Gas (LP)		in. w.c.	11	11	11	11	11
Natural Gas Manifold Pressure (High Fire)			in. w.c.	3.5	3.5	3.5	3.5	3.5
Natural Gas Manifold Pressure (Low Fire)			in. w.c.	1.6	1.6	1.6	1.6	1.6
Propane Gas Manifold Pressure (High Fire)			in. w.c.	10	10	10	10	10
Propane Gas Manifold Pressure (Low Fire)			in. w.c.	4	4	4	4	4
Natural Gas Factory Orifice (0-2000 feet)				45	45	45	45	45
Propane Gas (LP) Factory Orifice (0-2000 feet)				55	55	55	55	55
Gas Connection Size			in. NPT	1/2	1/2	1/2	1/2	1/2
Ignition Device				Hot Surface				
Number of Burners				3	4	4	5	6
Primary Heat Exchanger Diameter			Inch	1-3/4	1-3/4	1-3/4	1-3/4	1-3/4
Primary Heat Exchanger			No. of Tubes	3	4	4	5	6
Secondary Heat Exchanger Diameter			Inch	3/8	3/8	3/8	3/8	3/8
Secondary Heat Exchanger			No. of Tubes	33	33	39	39	48
Flue Vent Diameter			Inch	2 / 3	2 / 3	2 / 3	2 / 3	2 / 3
Safety Switch Settings								
Pressure Switch Factory Setting High			in. w.c.	1.1	1.1	1.1	1.1	1.1
Pressure Switch Factory Setting Low			in. w.c.	0.55	0.55	0.55	0.55	0.55
Rollout Switch - Resettable		Off / On	°F	300	300	300	300	300
Inlet High Temperature Limit Switch - Fixed		Off / On	°F	150 / 120	150 / 120	150 / 120	150 / 120	150 / 120

LG

Table 15: R32 Single-Zone Outdoor Unit with LGRED Electrical Data Table.

Nominal Tons	Outdoor Model No.	Phase	Hertz	Voltage	Voltage Range (Min. to Max.)	MCA	MOP	LRA	Compressor Quantity	Condenser Fan Motor(s)	
										Condenser Fan Qty.	Condenser Fan Motor FLA
1.5	KUSXA181A	1	60	208 - 230	187~253	19.1	30	14	1	1	1.6
2	KUSXA241A					19.1	30	14	1	1	1.6
2.5	KUSXA301A					32	35	22	1	2	1.6 x 2
3	KUSXA361A					32	35	22	1	2	1.6 x 2
3.5	KUSXA422A					32	40	22	1	2	1.6 x 2
4	KUSXA482A					32	40	22	1	2	1.6 x 2

Voltage tolerance is ±10%.

Maximum allowable voltage unbalance is 2%.

MCA = Minimum Circuit Ampacity.

Maximum Overcurrent Protection (MOP) is calculated as follows: (Largest motor FLA x 2.25) + (Sum of other motor FLA) rounded down to the nearest standard fuse size.

LRA = Locked Rotor Amps

FLA = Full Load Amps.

Table 16: Gas Furnace Electrical Data Table.

Input (Btu/h) (Natural Gas / Propane Gas)	Gas Furnace Model No.	Phase	Hertz	Voltage	Voltage Range (Min. to Max.)	MCA	MOP
80% Efficiency Gas Furnace							
60,000 / 60,000	LNAEA060B1	1	60	115	104~127	6	15
80,000 / 80,000	LNAEA080C1					6	15
100,000 / 100,000	LNAEA100C1					12.3	20
120,000 / 120,000	LNAEA120D1					13	20
96% Efficiency Gas Furnace							
60,000 / 60,000	LNAVE060B1	1	60	115	104~127	8	15
80,000 / 80,000	LNAVE080B1					8	15
80,000 / 80,000	LNAVE080C1					7.8	15
100,000 / 100,000	LNAVE100C1					11.5	20
120,000 / 120,000	LNAVE120D1					10.5	20

Voltage tolerance is ±10%.

Maximum allowable voltage unbalance is 2%.

MCA = Minimum Circuit Ampacity.

Maximum Overcurrent Protection (MOP) is calculated as follows: (Largest motor FLA x 2.25) + (Sum of other motor FLA) rounded down to the nearest standard fuse size.

Table 17: R32 Single-Zone Systems - A-Coil with LGRED Outdoor Unit Functions, Controls, Options Table.

Outdoor Unit Type		KUSXA181A (18K)	KUSXA241A (24K)	KUSXA301A, KUSXA361A, KUSXA422A, KUSXA482A (30K, 36K, 42K, 48K)
Reliability	Defrost/Deicing	√	√	√
	High Pressure Sensor	√	√	√
	Pressure Switch	√	√	√
	Restart Delay (Three [3] Minutes)	√	√	√
	Self Diagnosis	√	√	√
	Soft Start	√	√	√
Convenience	Night Quiet Operation	√	√	√
	Mode Lock	√ Cooling Only or Heating Only		
	Pump Down (Forced Cooling Operation)	√	√	√
	Network Solution (LGAP)	X	X	X
Central Controllers	AC Smart 5	X	X	X
	ACP 5	X	X	X
Integration Solutions	MultiSITE Communication Manager.	X	X	X
	ACP 5 BACnet® Gateway	X	X	X
	LonWorks® Gateway	X	X	X

√: Standard Feature

O: Option. Optional accessories must be purchased separately.

X: Not Available

[1]Not all controllers can support all features. Contact your LG representative for details.

BACnet is a registered trademark of ASHRAE. LonWorks is a registered trademark of Echelon Corp.

Accessories Table

Table 18: Accessories Overview. (Sold Separately)

Accessory	Model Number
Low Ambient Wind Baffle For 18k and 24k Capacities (One [1] Required), 30k to 48k Capacities (Two [2] Required)	ZLABGP04A
LG Airzone Aidoo Pro Wi-Fi Controller	AZAI6WSPLGE

LG Airzone Aidoo Pro Wi-Fi Controller (AZAI6WSPLGE)

When the Airzone Aidoo Pro is installed, the outdoor unit controls the compressor by sensing the room temperature and the setting temperature (Inverter Linear Control) for maximum efficiency. Device to manage and integrate units remotely from the Cloud. Online control with the Airzone Cloud App (available for iOS and Android). Wireless Wi-Fi connection. Self-powered by external power supply provided.

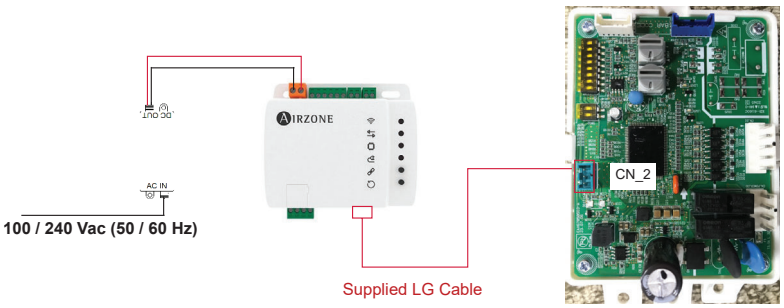
Features:

- Control of the parameters of the unit.
- Temperature and operating mode time schedules.
- Cloud and / or third-party smart thermostat integrations (3PTI).
- On / off output and input.
- Automatic mode change.
- Temperature limits for hot and cold.

Buy Link: [Airzone AZAI6WSPLGE AIDOO Pro 3 Wire WiFi Controller for LG Mini Splits](#).

For further information about Airzone Aidoo Pro, go to www.airzonecontrol.com.

1. Connect Airzone to Outdoor Unit Control Box Communication Kit PCB CN_2 connector.

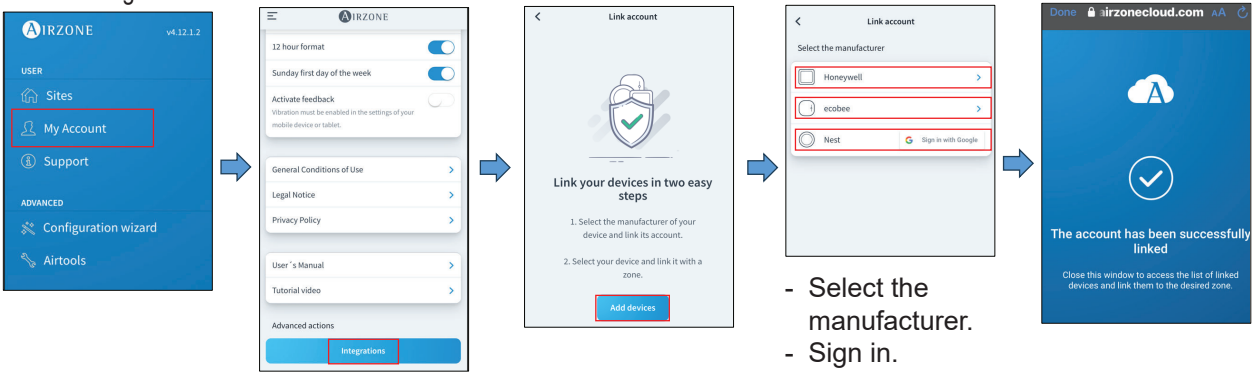


Outdoor Unit Control Box Communication Kit PCB

Download the app and follow the steps below for the settings. Access the support section to see the user manual.

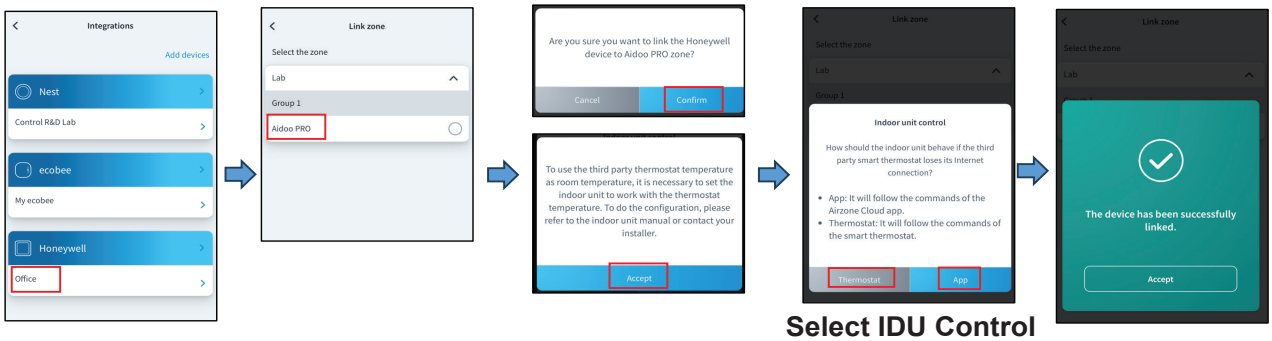
2. Integrate the Cloud to the Airzone Aidoo Pro, and connect the third-party thermostat.

- Cloud Integration.



- Select the manufacturer.
- Sign in.

- Link third-party thermostat to Airzone Aidoo Pro.



Select IDU Control

LG Monitoring View (LGMV) Diagnostic Software and Cable

LG Monitoring View (LGMV) is a maintenance and troubleshooting tool for Multi V™ air conditioning systems. LGMV formats are available for computer or mobile phone use.

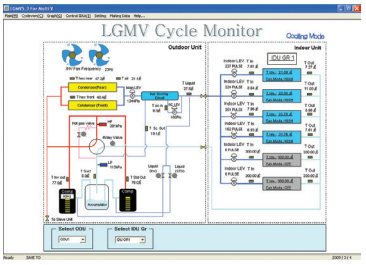
The main screen for LGMV allows the user to view the following real time data:

- Actual inverter compressor speed
- Target inverter compressor speed
- Actual outdoor fan speed
- Target outdoor unit fan speed
- Actual superheat
- Target superheat
- Actual subcooler circuit superheat
- Target subcooler circuit superheat
- Main EEV position
- Subcooling EEV position
- Inverter compressor current transducer value
- Outdoor air temperature
- Actual high pressure/saturation temperature
- Actual low pressure/saturation temperature
- Suction temperature
- Inverter compressor discharge temperature
- Constant speed compressor discharge temperature
- Front outdoor coil pipe temperature
- Back outdoor coil pipe temperature
- Liquid line pipe temperature
- Subcooler inlet temperature
- Subcooler outlet temperature
- Average indoor unit (IDU) pipe temperature
- Inverter compressor operation indicator light
- Four-way reversing valve operation indicator light
- Pressure graph showing actual low pressure and actual high pressure levels
- Error code display
- Operating mode indicator
- Target high pressure
- Target low pressure
- PCB (printed circuit board) version
- Software version
- Installer name
- Model no. of outdoor units
- Site name
- Total number of connected indoor units
- Communication indicator lights
- Indoor unit capacity
- Indoor unit operating mode
- Indoor unit fan speed
- Indoor unit EEV position
- Indoor unit room temperature
- Indoor unit inlet pipe temperature
- Indoor unit outlet pipe temperature
- Indoor unit error code

Additional screens can be accessed by tabs on the main screen

1. Cycleview: Graphic of internal components including
   - Compressors showing actual speeds
   - EEVs
   - Indoor Units
   - Liquid injection valves
   - Temperature and pressure sensors
   - Four-way reversing valve
   - Outdoor fans showing status and speeds
2. Graph:
   Full screen graph of actual high and low pressures and high and low pressure limits. A sliding bar enables user to go back in time and view data.
3. Control IDU: Enables user to turn on all IDUs default setpoints of 86°F in heat mode or 64°F in cool mode.
4. Setting: Converts metric values to imperial values.
5. Making Data: Recording of real time data to a separate file created to be stored on the user's computer.
6. Loading Data: Recorded data from a saved ".CSV" file can be loaded to create an LGMV session.
7. Electrical Data: Screen is changed to show the following:
   - Inverter compressor
     - Amps / Volts / Power Hz
     - Inverter control board fan Hz
   - Constant compressor
     - Current transducer value
     - Phase

Figure 5: Sample Cycleview (Computer View Example).



In lieu of connecting to the outdoor unit, user has the option to connect to the indoor unit with a connector kit. When connected through the indoor unit, user will not be able to record data.

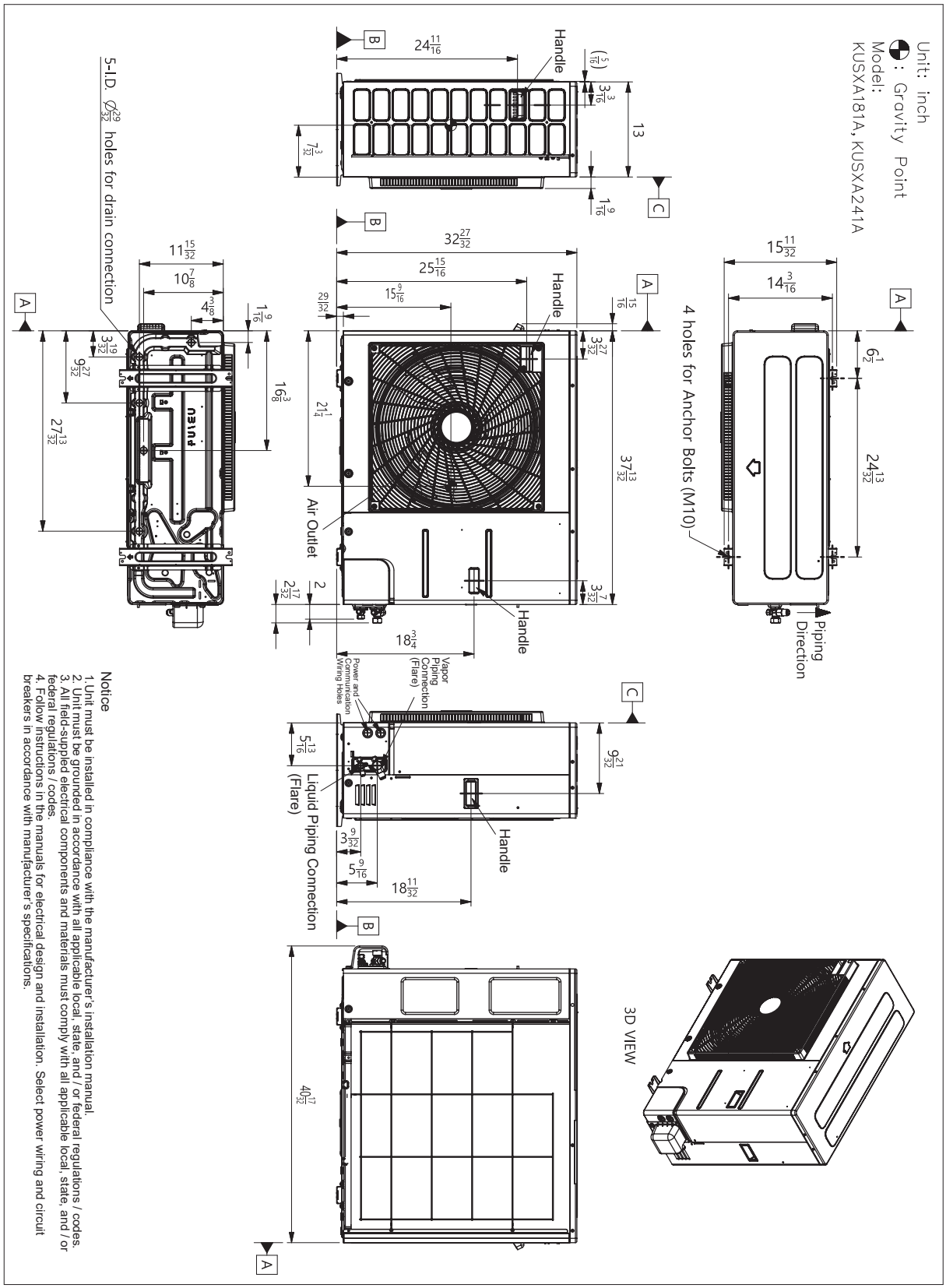
This software can be used to both pre-set-up new systems and troubleshoot existing systems. LGMV data can be recorded to a ".CSV" file and emailed to an LG representative to assist with diagnostic evaluations.

LGMV is available in different formats. Contact your LG Sales Representative for system requirements and for more information.

OUTDOOR UNIT DIMENSIONS

KUSXA181A , KUSXA241A

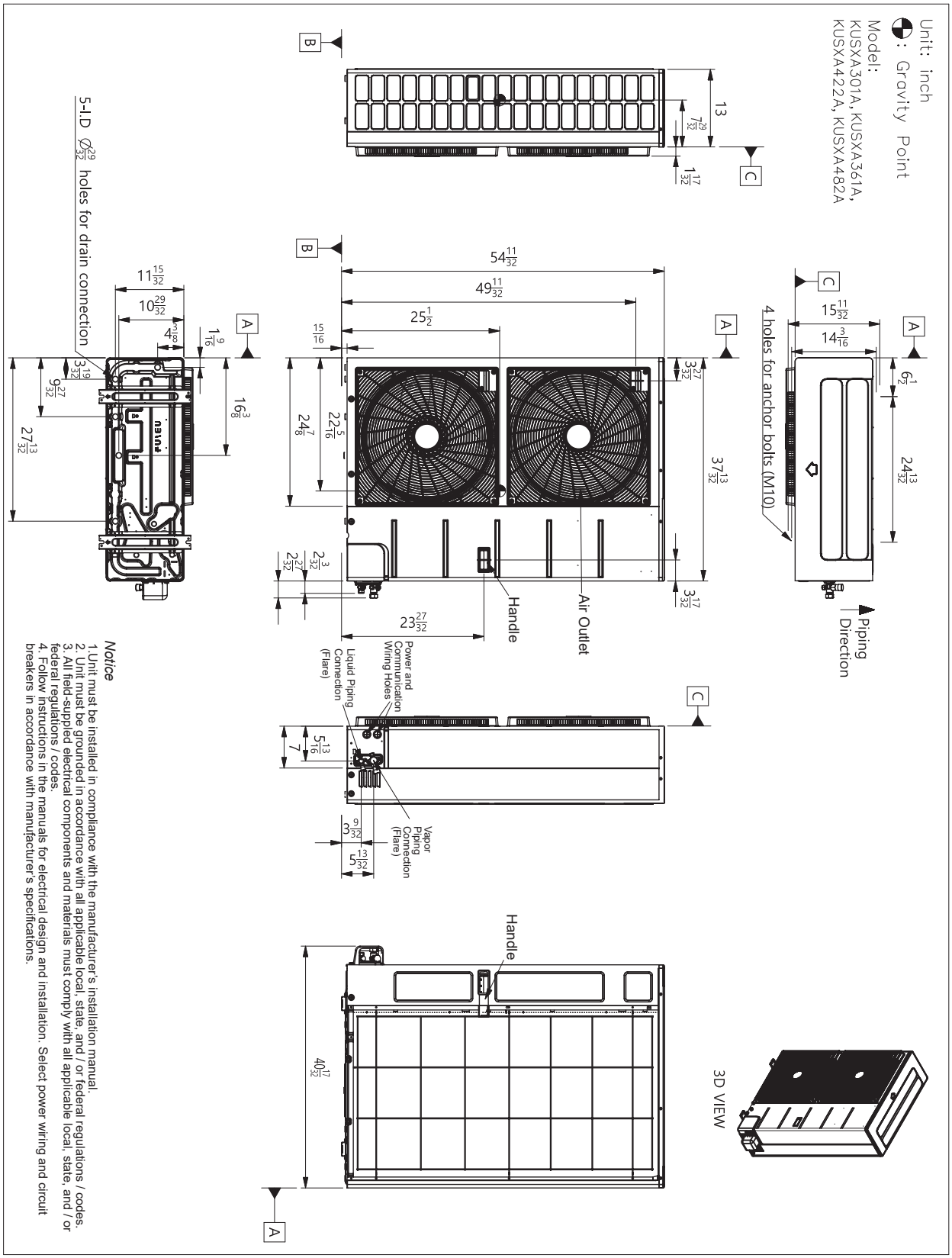
Figure 6: KUSXA181A , KUSXA241A Outdoor Unit Dimensions.



OUTDOOR UNIT DIMENSIONS

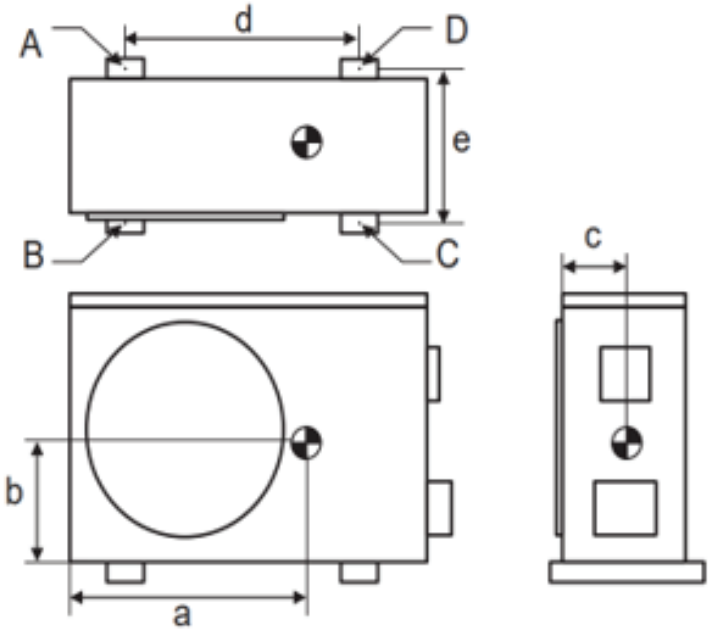
KUSXA301A, KUSXA361A, KUSXA422A, KUSXA482A

Figure 7: KUSXA301A, KUSXA361A, KUSXA422A, KUSXA482A Outdoor Unit Dimensions.



OUTDOOR UNIT CENTER OF GRAVITY / CORNER WEIGHT

Figure 8: Outdoor Unit Center of Gravity and Corner Weight Diagram (Illustrative Purposes Only. Appearances Will Differ Depending On Model).



NOTICE

Diagram is for illustrative purposes only. Actual appearance depends on model type.

Table 19: Outdoor Unit Center of Gravity and Corner Weights.

Model No.	Weight (lb.)		Center of Gravity (in.)			Leg (in.)		Corner Weight (lb.)			
	Shipping	Net	a	b	c	d	e	A	B	C	D
KUSXA181A	160.1	141.8	23-7/32	12-19/32	5-29/32	24-13/32	14-3/16	20.0	28.0	54.7	39.0
KUSXA241A	160.1	141.8	23-7/32	12-19/32	5-29/32	24-13/32	14-3/16	20.0	28.0	54.7	39.0
KUSXA301A	214.3	190.2	27-7/32	21-15/32	6-5/8	24-13/32	14-3/16	15.8	18.1	84.9	74.4
KUSXA361A	214.3	190.2	27-7/32	21-15/32	6-5/8	24-13/32	14-3/16	15.8	18.1	84.9	74.4
KUSXA422A	232.4	213.4	27-7/32	21-15/32	6-5/8	24-13/32	14-3/16	17.4	19.9	93.4	81.8
KUSXA482A	232.4	213.4	27-7/32	21-15/32	6-5/8	24-13/32	14-3/16	17.4	19.9	93.4	81.8

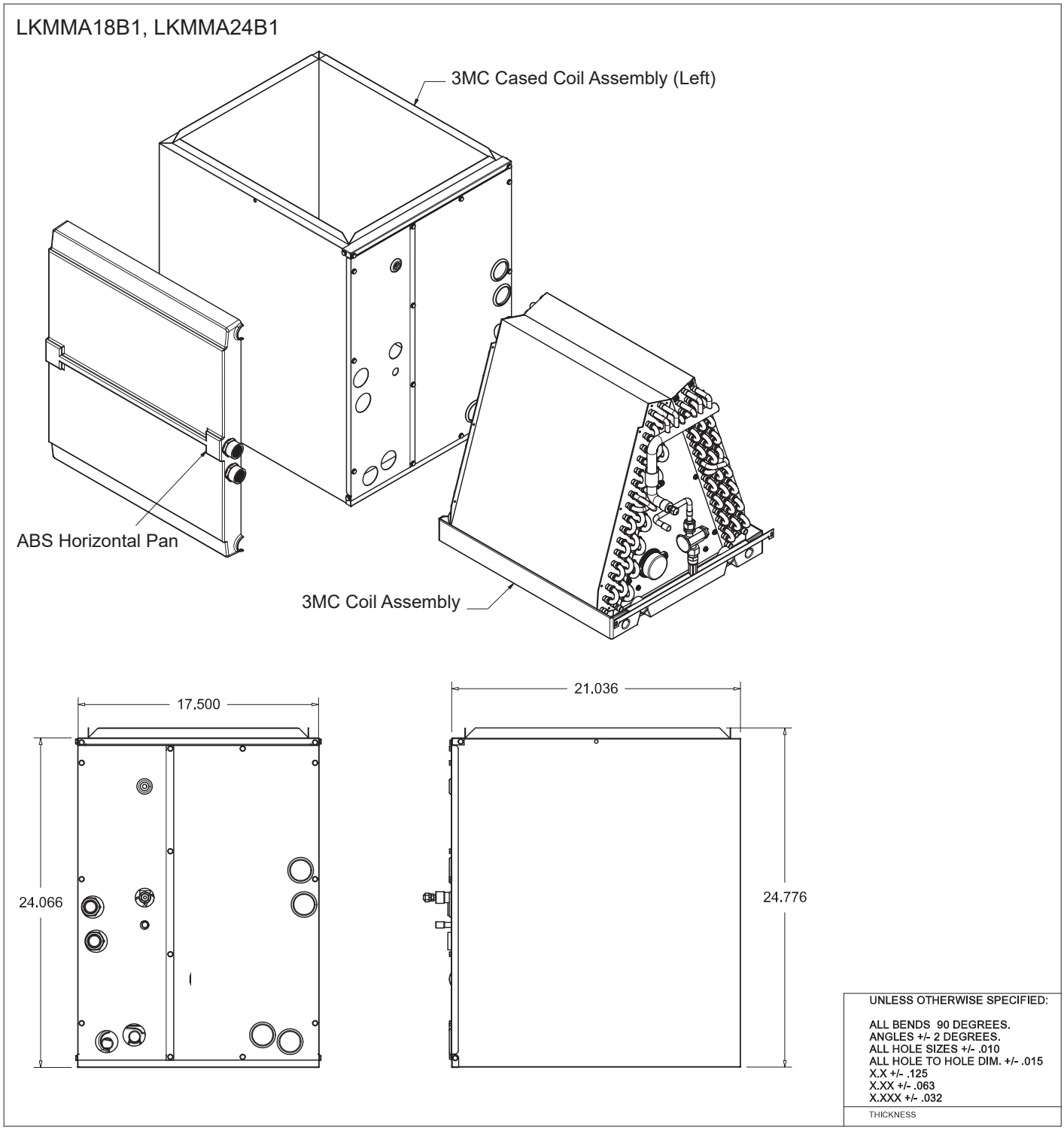
NOTICE

- *Design features and information of outdoor unit may be changed without notifications due to LG's policy of innovation.*
- *The center of gravity and corner weight may be different from the actual values because these are simulation results.*

A-COIL UNIT DIMENSIONS

LKMMA18B1, LKMMA24B1

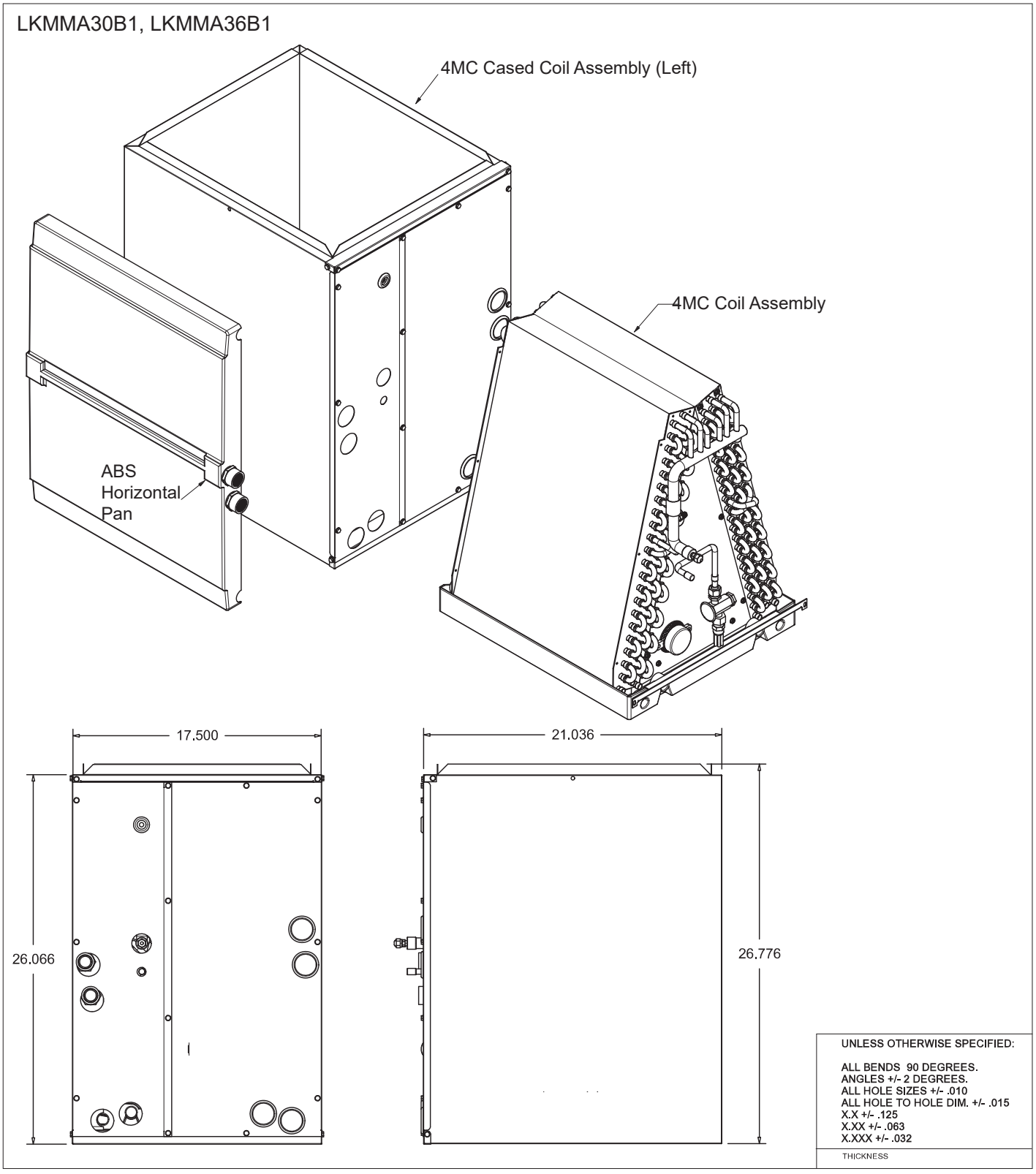
Figure 9: LKMMA18B1, LKMMA24B1 A-Coil Unit Dimensions.



A-COIL UNIT DIMENSIONS

LKMMA30B1, LKMMA36B1

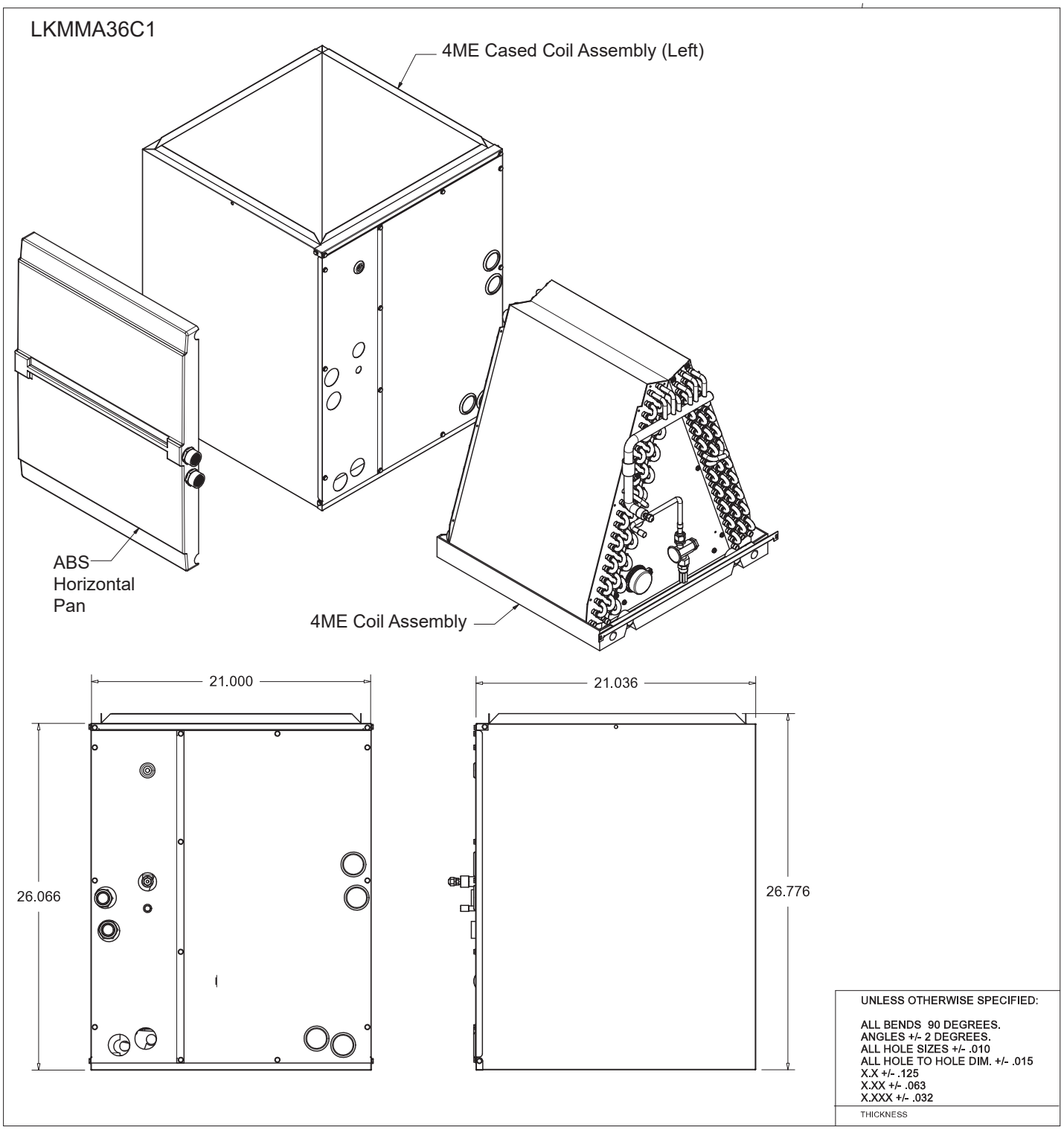
Figure 10: LKMMA30B1, LKMMA36B1 A-Coil Unit Dimensions.



A-COIL UNIT DIMENSIONS

LKMMA36C1

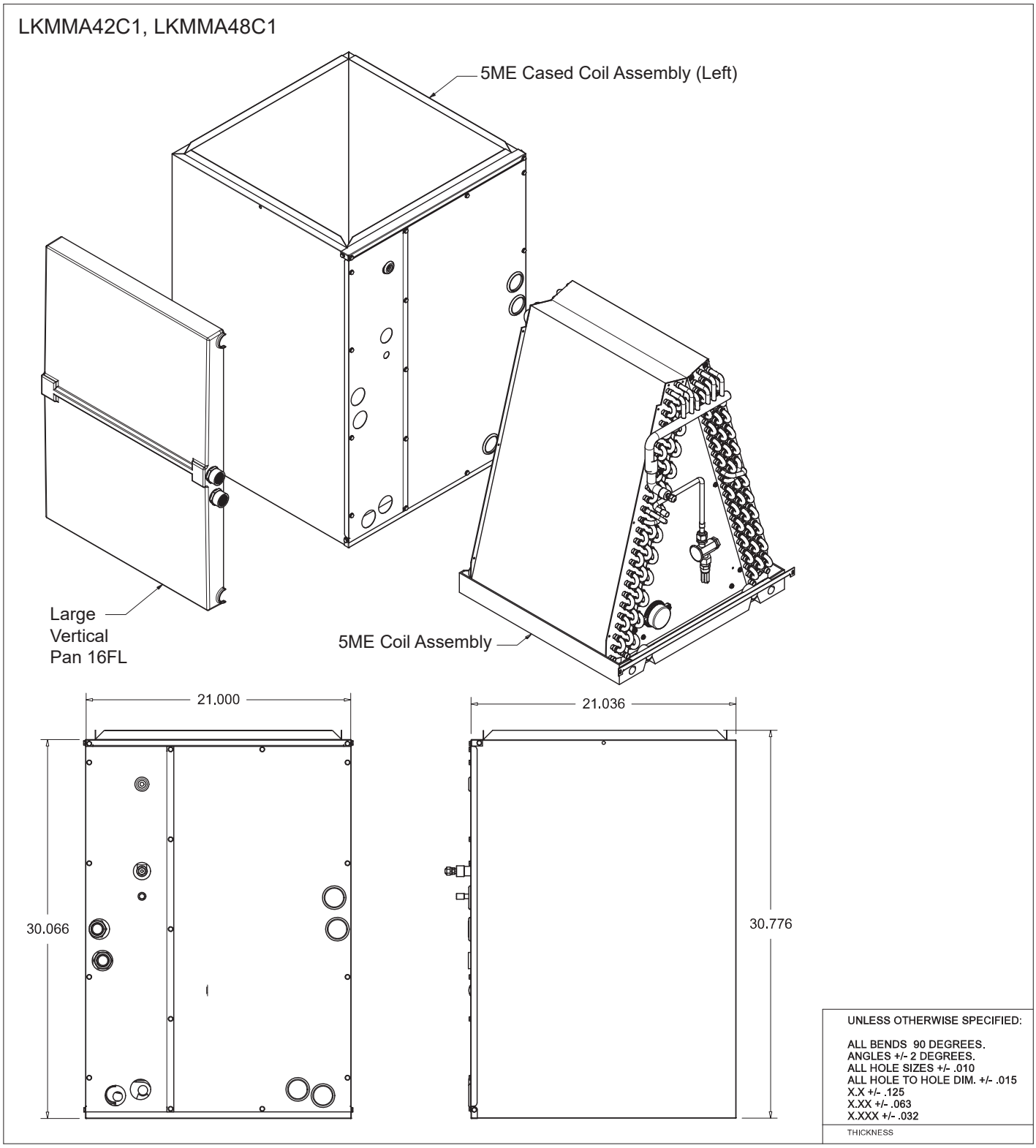
Figure 11: LKMMA36C1 A-Coil Unit Dimensions.



A-COIL UNIT DIMENSIONS

LKMMA42C1, LKMMA48C1

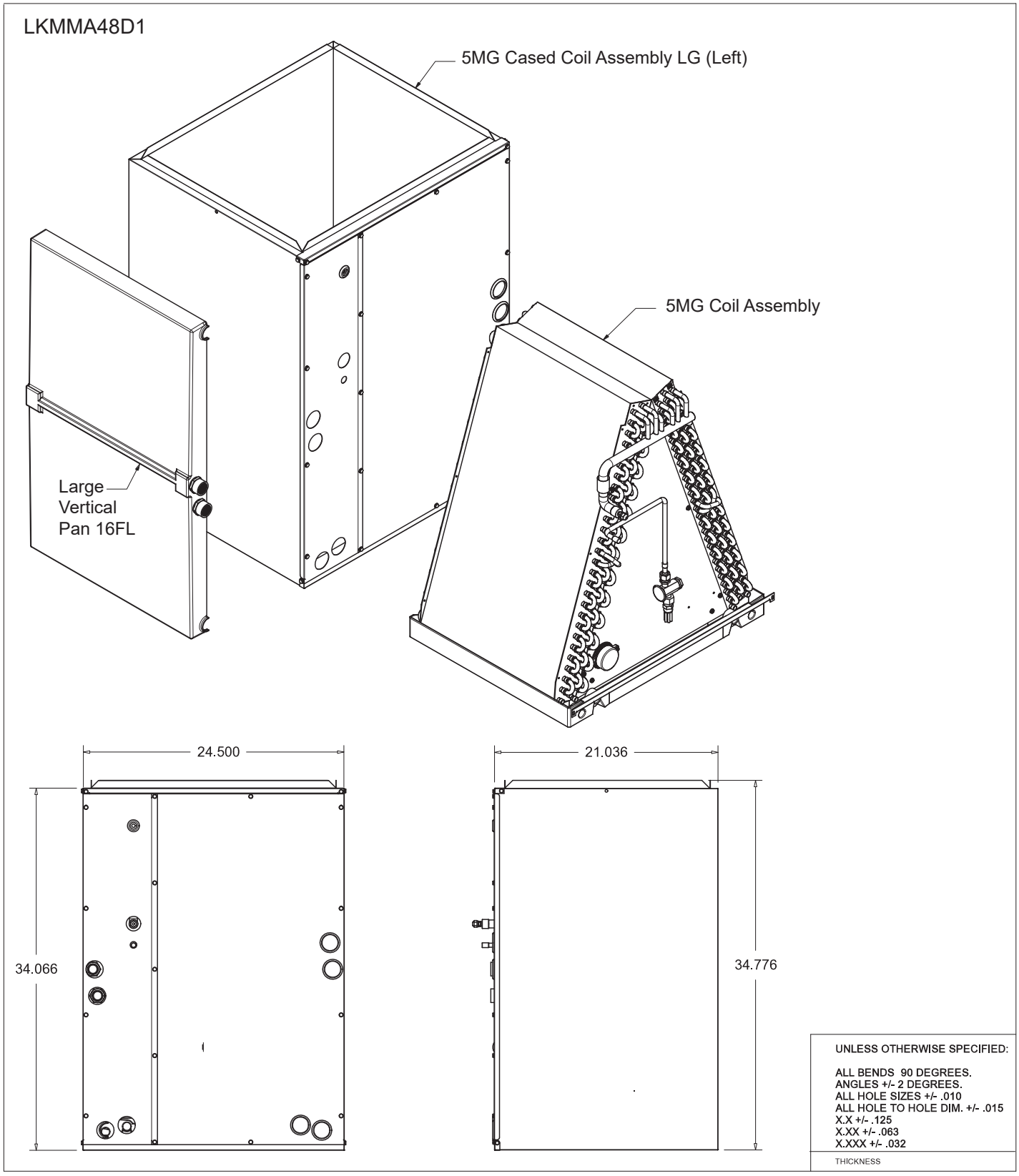
Figure 12: LKMMA42C1, LKMMA48C1 A-Coil Unit Dimensions.



A-COIL UNIT DIMENSIONS

LKMMA48D1

Figure 13: LKMMA48D1 A-Coil Unit Dimensions.

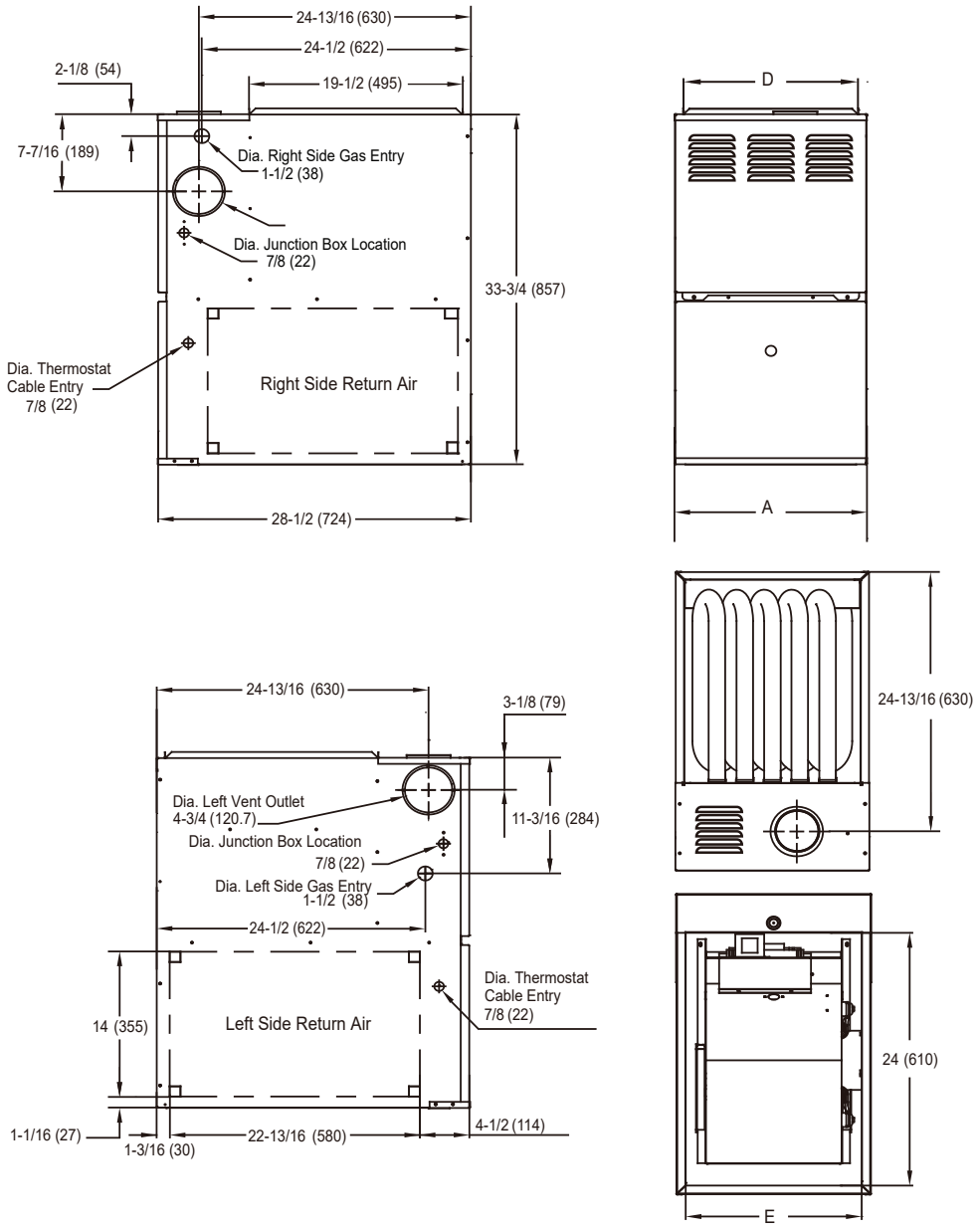


GAS FURNACE UNIT DIMENSIONS

80 AFUE

Figure 14: 80 AFUE Gas Furnace Unit Dimensions.

Jnit: Inches (mm)



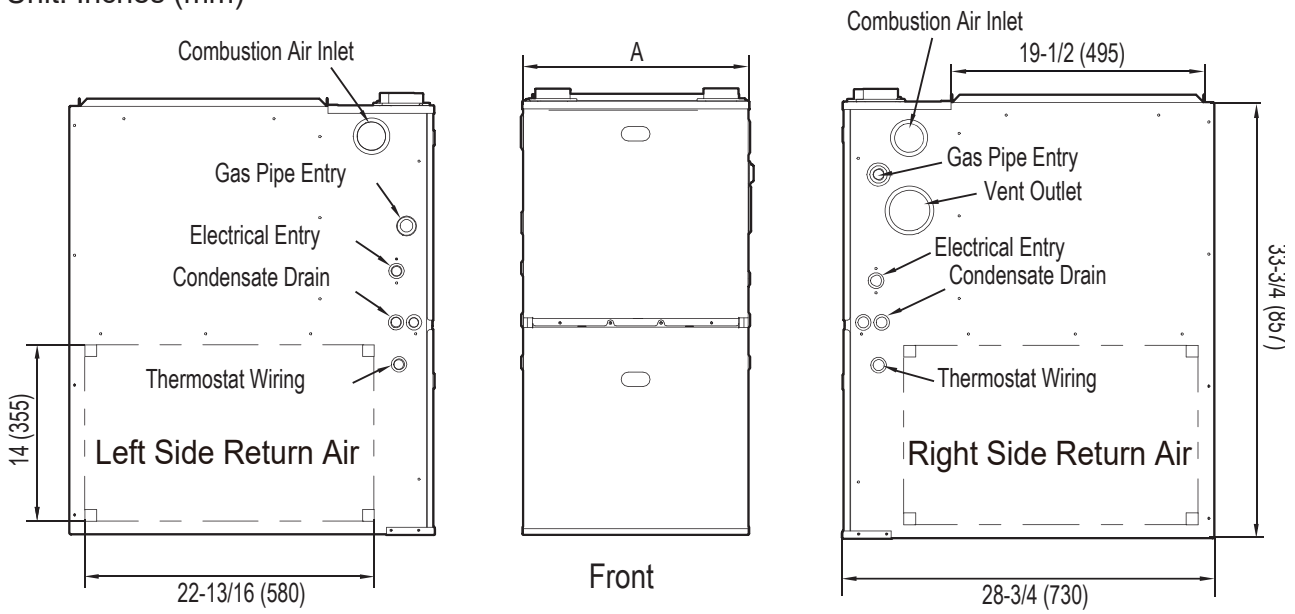
Furnace Size	A Cabinet Width (in. [mm])	D Supply Air Width (in. [mm])	E Return Air Width (in. [mm])
LNAEA040A1	14.5 (368)	13 (330)	15-57/32 (326)
LNAEA060B1	17.5 (446)	16 (406)	15-27/32 (402)
LNAEA080C1	21 (533)	19.5 (495)	19-13/32 (493)
LNAEA100C1	21 (533)	19.5 (495)	19-13/32 (493)
LNAEA120D1	24.5 (622)	23 (584)	22-27/32 (580)

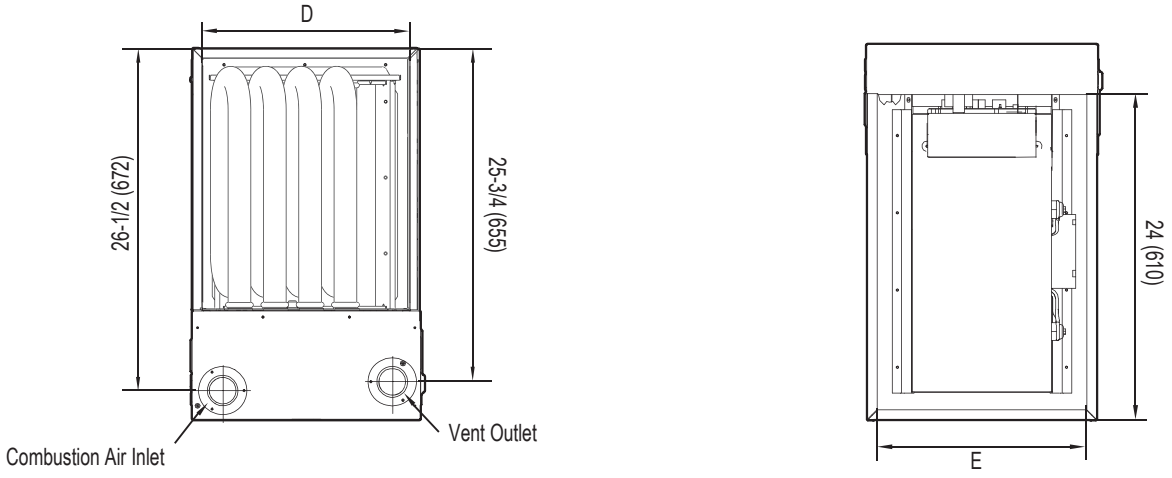
GAS FURNACE UNIT DIMENSIONS

96 AFUE

Figure 15: 96 AFUE Gas Furnace Unit Dimensions.

Unit: Inches (mm)



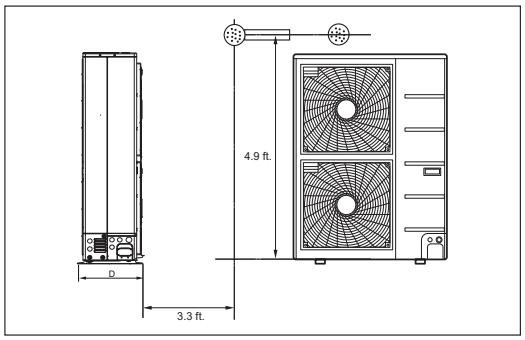


Furnace Size	A Cabinet Width (in. [mm])	D Supply Air Width (in. [mm])	E Return Air Width (in. [mm])
LNAVE060B1	17.5 (445)	16 (406)	15-27/32 (402)
LNAVE080B1	17.5 (445)	16 (406)	15-27/32 (402)
LNAVE080C1	21 (533)	19.5 (495)	19-13/32 (493)
LNAVE100C1	21 (533)	19.5 (495)	19-13/32 (493)
LNAVE120D1	24.5 (622)	23 (584)	22-27/32 (580)

ACOUSTIC DATA

Sound Pressure for Outdoor Units

Figure 16: R32 Single-Zone Systems - A-Coil + Gas Furnace with LGRED Outdoor Unit Sound Pressure Level Measurement Location (For Illustrative Purposes Only; Appearance Depends on Model).



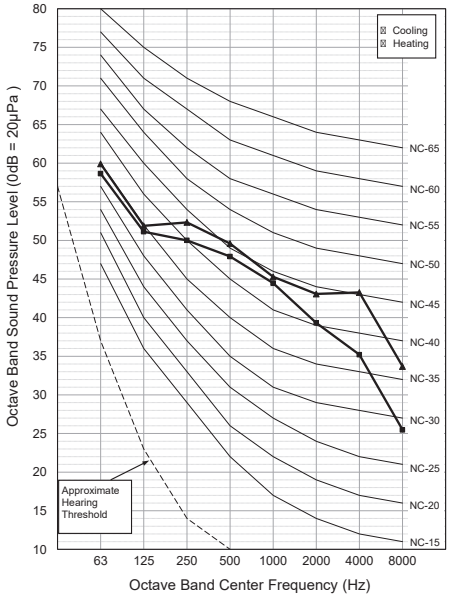
- Measurements taken with no attenuation and units operating at full load normal operating condition.
- Measurements are taken 3.3 ft. away from the front of the unit.
- Sound level will vary depending on a range of factors such as construction (acoustic absorption coefficient) of particular area in which the equipment is installed.
- Sound levels are measured in dB(A)±1.
- Reference acoustic pressure 0dB=20μPa.
- Tested in anechoic chamber per ISO Standard 3745.

Table 20: R32 Single-Zone Systems - A-Coil + Gas Furnace with LGRED Outdoor Unit Sound Pressure Levels (dB[A]).

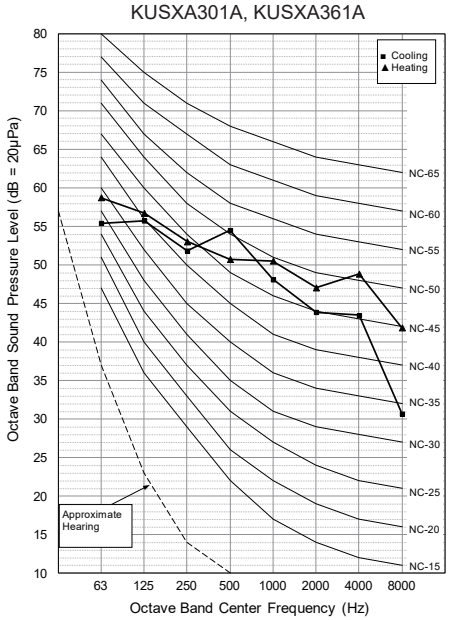
Model	Sound Pressure Levels (dB[A])	
	Cooling	Heating
KUSXA181A	51	52
KUSXA241A	51	52
KUSXA301A	52	54
KUSXA361A	52	54
KUSXA422A	54	56
KUSXA482A	54	56

Figure 17: R32 Single-Zone Systems - A-Coil + Gas Furnace with LGRED Outdoor Unit Sound Pressure Level Diagrams.

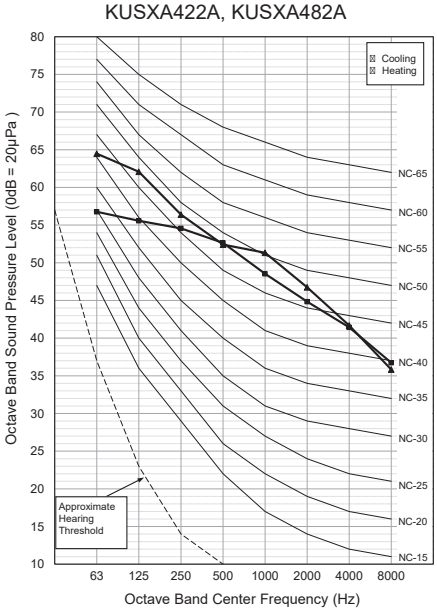
KUSXA181A, KUSXA241A



KUSXA301A, KUSXA361A



KUSXA422A, KUSXA482A



ACOUSTIC DATA

Sound Power for Outdoor Units

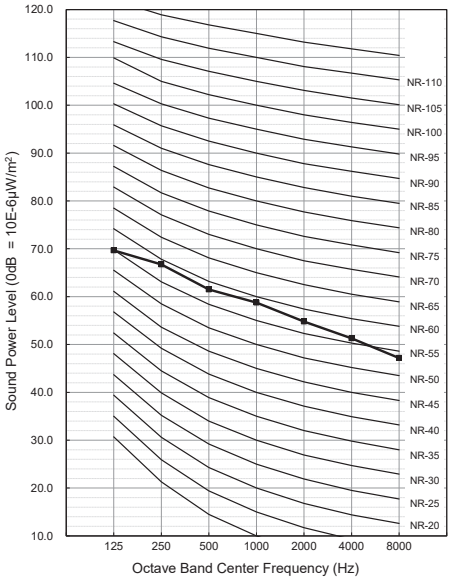
Table 21: R32 Single-Zone Systems - A-Coil / Gas Furnace with LGRED Outdoor Unit Sound Power Levels (dB[A]).

Model	Sound Power Levels (dB[A])
KUSXA181A	67
KUSXA241A	67
KUSXA301A	69
KUSXA361A	69
KUSXA422A	71
KUSXA482A	71

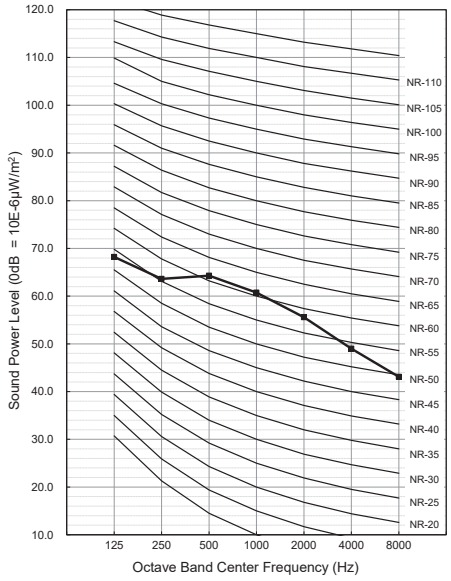
- Data is valid under diffuse field conditions.
- Data is valid under nominal operating conditions.
- Sound power level is measured using rated conditions and tested in a reverberation chamber under ISO Standard 3741.
- Sound level will vary depending on a range of factors such as construction (acoustic absorption coefficient) of particular area in which the equipment is installed.
- Reference acoustic intensity: 0dB = 10E-6μW/m2

Figure 18: R32 Single-Zone Systems - A-Coil + Gas Furnace with LGRED Outdoor Unit Sound Power Level Diagrams.

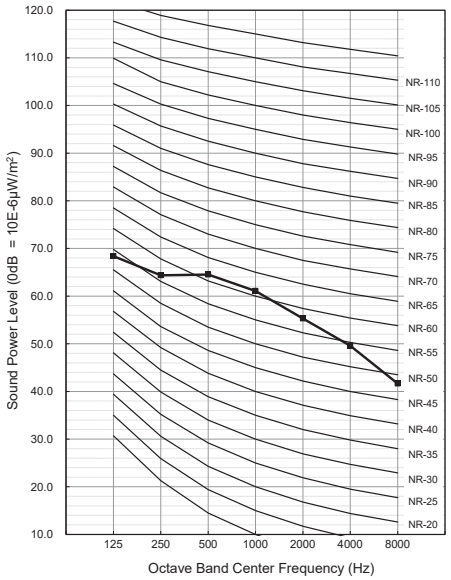
KUSXA181A, KUSXA241A



KUSXA301A, KUSXA361A



KUSXA422A, KUSXA482A



PERFORMANCE DATA

COOLING CAPACITY

KSSPA181A060-B1 (LKMMA18B1 / KUSXA181A), KSSSA181A060-B1 (LKMMA18B1 / KUSXA181A)

Table 22: KSSPA181A060-B1 (LKMMA18B1 / KUSXA181A), KSSSA181A060-B1 (LKMMA18B1 / KUSXA181A) Cooling Capacities.

Outdoor Air Temp. (°F DB)	Indoor Air Temperature (°F DB / °F WB)																	
	68 / 57			72 / 61			77 / 64			80 / 67			86 / 72			90 / 75		
	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
-4	17.70	14.86	0.92	18.80	15.69	0.95	19.89	15.19	1.00	20.69	15.51	1.01	22.09	15.64	1.02	23.19	15.94	1.04
-0.4	17.69	14.94	0.93	18.79	15.78	0.97	19.88	15.28	1.01	20.68	15.60	1.02	22.08	15.74	1.03	23.18	16.03	1.05
5	17.67	15.07	0.95	18.77	15.93	0.99	19.87	15.41	1.02	20.66	15.74	1.03	22.06	15.88	1.05	23.16	16.17	1.08
10	17.66	15.19	0.97	18.76	16.04	1.00	19.85	15.53	1.03	20.64	15.87	1.05	22.05	16.00	1.07	23.14	16.30	1.09
15	17.65	15.31	0.98	18.74	16.17	1.01	19.84	15.66	1.05	20.63	15.98	1.07	22.03	16.13	1.09	23.12	16.44	1.11
20	17.63	15.43	1.00	18.73	16.30	1.03	19.82	15.78	1.07	20.61	16.11	1.08	22.01	16.25	1.10	23.11	16.55	1.12
25	17.62	15.55	1.01	18.71	16.42	1.04	19.81	15.90	1.09	20.60	16.25	1.10	22.00	16.38	1.11	23.09	16.68	1.14
30	17.60	15.66	1.02	18.70	16.55	1.05	19.79	16.03	1.10	20.58	16.36	1.11	21.98	16.51	1.13	23.07	16.82	1.15
35	17.59	15.78	1.03	18.68	16.67	1.08	19.78	16.15	1.11	20.57	16.49	1.12	21.96	16.63	1.14	23.05	16.95	1.17
40	17.58	15.91	1.05	18.67	16.80	1.09	19.76	16.27	1.13	20.55	16.61	1.14	21.94	16.76	1.17	23.04	17.08	1.19
45	17.56	16.03	1.07	18.66	16.93	1.10	19.75	16.39	1.14	20.53	16.73	1.15	21.93	16.87	1.18	23.02	17.19	1.20
50	17.55	16.14	1.08	18.64	17.05	1.12	19.73	16.52	1.15	20.52	16.86	1.18	21.91	17.00	1.20	23.00	17.33	1.22
55	17.54	16.26	1.09	18.63	17.18	1.13	19.72	16.64	1.18	20.50	16.98	1.19	21.89	17.12	1.21	22.98	17.46	1.23
60	17.52	16.38	1.11	18.61	17.30	1.14	19.70	16.76	1.19	20.49	17.11	1.20	21.88	17.25	1.22	22.97	17.57	1.25
65	17.51	16.49	1.12	18.60	17.43	1.17	19.69	16.87	1.20	20.47	17.23	1.22	21.86	17.37	1.24	22.95	17.71	1.27
70	17.50	16.61	1.13	18.58	17.55	1.18	19.67	16.99	1.22	20.46	17.35	1.23	21.84	17.50	1.25	22.93	17.84	1.28
75	17.08	16.34	1.20	18.16	17.29	1.24	19.24	16.76	1.29	20.03	17.12	1.30	21.41	17.29	1.32	22.50	17.63	1.35
80	16.66	16.07	1.25	17.74	17.02	1.30	18.82	16.51	1.35	19.60	16.89	1.37	20.98	17.06	1.39	22.06	17.42	1.42
85	16.24	15.77	1.32	17.32	16.73	1.37	18.40	16.26	1.42	19.17	16.64	1.43	20.55	16.84	1.45	21.63	17.21	1.49
90	15.82	15.47	1.38	16.90	16.44	1.43	17.97	16.00	1.48	18.75	16.38	1.50	20.12	16.60	1.53	21.20	16.98	1.55
95	15.37	15.29	1.44	16.44	16.29	1.49	17.51	15.87	1.54	**18.00**	**16.02**	**1.565**	19.65	16.52	1.60	20.72	16.90	1.63
100	14.99	14.90	1.50	16.06	15.88	1.55	17.13	15.49	1.61	17.77	15.77	1.63	19.28	16.16	1.67	20.35	16.55	1.70
105	14.62	14.49	1.57	15.69	15.46	1.62	16.76	15.12	1.68	17.53	15.52	1.70	18.90	15.81	1.73	19.97	16.21	1.77
110	14.24	13.99	1.62	15.32	14.96	1.69	16.39	14.64	1.74	17.16	15.06	1.77	18.53	15.36	1.80	19.60	15.77	1.83
115	13.87	13.58	1.69	14.94	14.55	1.74	16.01	14.26	1.81	16.79	14.68	1.83	18.15	14.99	1.86	19.22	15.40	1.90
118	13.65	13.48	1.72	14.72	14.45	1.79	15.79	14.18	1.85	16.56	14.61	1.88	17.93	14.94	1.91	19.00	15.37	1.94
122	13.57	13.44	1.78	14.64	14.43	1.83	15.71	14.16	1.90	16.49	14.58	1.92	17.85	14.92	1.96	18.92	15.36	2.00

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

SHC: Sensible Capacity (kBtu/h) PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.

2. Cooling range can be extended from 5°F down to -4°F using the Low Ambient Wind Baffle Kit (sold separately).

3. Grey shading indicates reference data. Operation outside of the verified temperature range is subject to decreased performance and / or safety interruption. .

4. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Cooling capacity rating obtained with air entering the indoor component at 80ºF dry bulb (DB) and 67ºF wet bulb (WB), and outdoor ambient conditions of 95ºF dry bulb (DB) and 75ºF wet bulb (WB).

Table reflects heat pump outdoor unit cooling performance only.

COOLING CAPACITY

LGRED°

KSSPA241A060-B1 (LKMMA24B1 / KUSXA241A), KSSSA241A060-B1 (LKMMA24B1 / KUSXA241A), KSSSA241A080-B1 (LKMMA24B1 / KUSXA241A)

Table 23: KSSPA241A060-B1 (LKMMA24B1 / KUSXA241A), KSSSA241A060-B1 (LKMMA24B1 / KUSXA241A), KSSSA241A080-B1 (LKMMA24B1 / KUSXA241A) Cooling Capacities.

Outdoor Air Temp. (°F DB)	Indoor Air Temperature (°F DB / °F WB)																	
	68 / 57			72 / 61			77 / 64			80 / 67			86 / 72			90 / 75		
	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
-4	22.62	18.98	1.20	24.02	20.05	1.24	25.42	19.41	1.30	26.44	19.82	1.31	28.23	19.98	1.33	29.63	20.36	1.36
-0.4	22.60	19.09	1.21	24.01	20.17	1.26	25.40	19.53	1.31	26.42	19.94	1.33	28.21	20.11	1.34	29.62	20.49	1.37
5	22.58	19.26	1.24	23.98	20.35	1.28	25.39	19.70	1.33	26.40	20.11	1.34	28.19	20.29	1.37	29.59	20.67	1.40
10	22.57	19.41	1.26	23.97	20.50	1.30	25.36	19.85	1.34	26.37	20.27	1.37	28.18	20.44	1.39	29.57	20.83	1.41
15	22.55	19.56	1.27	23.95	20.67	1.31	25.35	20.02	1.37	26.36	20.42	1.39	28.15	20.61	1.41	29.54	21.00	1.44
20	22.53	19.71	1.30	23.93	20.83	1.34	25.33	20.17	1.39	26.34	20.59	1.40	28.12	20.76	1.43	29.53	21.15	1.46
25	22.51	19.86	1.31	23.91	20.99	1.36	25.31	20.32	1.41	26.32	20.76	1.43	28.11	20.92	1.44	29.50	21.32	1.49
30	22.49	20.02	1.33	23.89	21.15	1.37	25.29	20.49	1.43	26.30	20.91	1.44	28.09	21.09	1.47	29.48	21.49	1.50
35	22.48	20.17	1.34	23.87	21.30	1.40	25.27	20.64	1.44	26.28	21.08	1.46	28.06	21.24	1.49	29.45	21.65	1.52
40	22.46	20.33	1.37	23.86	21.47	1.41	25.25	20.79	1.47	26.26	21.23	1.49	28.03	21.41	1.52	29.44	21.82	1.54
45	22.44	20.49	1.39	23.84	21.64	1.43	25.24	20.94	1.49	26.23	21.38	1.50	28.02	21.56	1.53	29.41	21.97	1.56
50	22.43	20.62	1.40	23.82	21.79	1.46	25.21	21.11	1.50	26.22	21.55	1.53	28.00	21.73	1.56	29.39	22.14	1.59
55	22.41	20.77	1.41	23.81	21.96	1.47	25.20	21.26	1.53	26.19	21.70	1.54	27.97	21.88	1.57	29.36	22.30	1.60
60	22.39	20.92	1.44	23.78	22.11	1.49	25.17	21.41	1.54	26.18	21.86	1.56	27.96	22.05	1.59	29.35	22.46	1.63
65	22.37	21.08	1.46	23.77	22.27	1.52	25.16	21.56	1.56	26.16	22.02	1.59	27.93	22.20	1.62	29.33	22.62	1.65
70	22.36	21.23	1.47	23.74	22.43	1.53	25.13	21.71	1.59	26.14	22.17	1.60	27.91	22.37	1.63	29.30	22.79	1.66
75	21.82	20.88	1.56	23.20	22.09	1.62	24.58	21.41	1.67	25.59	21.88	1.69	27.36	22.09	1.72	28.75	22.53	1.76
80	21.29	20.53	1.63	22.67	21.74	1.69	24.05	21.09	1.76	25.04	21.58	1.78	26.81	21.80	1.80	28.19	22.26	1.85
85	20.75	20.15	1.72	22.13	21.38	1.78	23.51	20.77	1.85	24.50	21.26	1.86	26.26	21.52	1.89	27.64	21.99	1.93
90	20.21	19.77	1.79	21.59	21.00	1.86	22.96	20.44	1.92	23.96	20.92	1.95	25.71	21.21	1.99	27.09	21.70	2.02
95	19.64	19.54	1.88	21.01	20.82	1.93	22.37	20.27	2.01	**23.00**	**20.47**	**2.035**	25.11	21.11	2.08	26.48	21.59	2.12
100	19.15	19.04	1.95	20.52	20.29	2.02	21.89	19.79	2.09	22.71	20.15	2.12	24.64	20.65	2.17	26.00	21.15	2.21
105	18.68	18.51	2.04	20.05	19.76	2.11	21.42	19.32	2.18	22.40	19.83	2.21	24.15	20.20	2.25	25.52	20.71	2.30
110	18.20	17.88	2.11	19.58	19.12	2.19	20.94	18.71	2.27	21.93	19.24	2.30	23.68	19.62	2.34	25.04	20.15	2.38
115	17.72	17.35	2.19	19.09	18.59	2.27	20.46	18.23	2.35	21.45	18.76	2.38	23.19	19.15	2.43	24.56	19.68	2.47
118	17.44	17.23	2.24	18.81	18.47	2.32	20.18	18.12	2.41	21.16	18.67	2.44	22.91	19.09	2.48	24.28	19.64	2.53
122	17.34	17.18	2.31	18.71	18.44	2.38	20.07	18.09	2.47	21.07	18.64	2.50	22.81	19.06	2.56	24.18	19.62	2.60

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

SHC: Sensible Capacity (kBtu/h) PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.

2. Cooling range can be extended from 5°F down to -4°F using the Low Ambient Wind Baffle Kit (sold separately).

3. Grey shading indicates reference data. Operation outside of the verified temperature range is subject to decreased performance and / or safety interruption. .

4. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Cooling capacity rating obtained with air entering the indoor component at 80ºF dry bulb (DB) and 67ºF wet bulb (WB), and outdoor ambient conditions of 95ºF dry bulb (DB) and 75ºF wet bulb (WB).

Table reflects heat pump outdoor unit cooling performance only.

LG

COOLING CAPACITY

KSSPA301A060-B1 (LKMMA30B1 / KUSXA301A), KSSSA301A060-B1 (LKMMA30B1 / KUSXA301A), KSSSA301A080-B1 (LKMMA30B1 / KUSXA301A)

Table 24: KSSPA301A060-B1 (LKMMA30B1 / KUSXA301A), KSSSA301A060-B1 (LKMMA30B1 / KUSXA301A), KSSSA301A080-B1 (LKMMA30B1 / KUSXA301A) Cooling Capacities.

Outdoor Air Temp. (°F DB)	Indoor Air Temperature (°F DB / °F WB)																	
	68 / 57			72 / 61			77 / 64			80 / 67			86 / 72			90 / 75		
	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
-4	28.52	23.94	1.46	30.29	25.27	1.51	32.05	24.47	1.58	33.33	24.99	1.60	35.59	25.20	1.62	37.36	25.68	1.65
-0.4	28.50	24.07	1.48	30.27	25.43	1.53	32.03	24.62	1.60	33.32	25.14	1.62	35.57	25.35	1.63	37.35	25.83	1.67
5	28.47	24.28	1.51	30.24	25.66	1.56	32.01	24.83	1.62	33.29	25.35	1.63	35.54	25.58	1.67	37.31	26.06	1.71
10	28.45	24.47	1.53	30.22	25.85	1.58	31.98	25.03	1.63	33.25	25.56	1.67	35.53	25.77	1.69	37.28	26.27	1.72
15	28.44	24.66	1.55	30.19	26.06	1.60	31.96	25.24	1.67	33.24	25.75	1.69	35.49	25.98	1.72	37.25	26.48	1.76
20	28.40	24.85	1.58	30.18	26.27	1.63	31.93	25.43	1.69	33.21	25.96	1.71	35.46	26.17	1.74	37.23	26.67	1.78
25	28.39	25.05	1.60	30.14	26.46	1.65	31.92	25.62	1.72	33.19	26.17	1.74	35.44	26.38	1.76	37.20	26.88	1.81
30	28.36	25.24	1.62	30.13	26.67	1.67	31.88	25.83	1.74	33.16	26.36	1.76	35.41	26.59	1.79	37.17	27.09	1.83
35	28.34	25.43	1.63	30.10	26.86	1.71	31.87	26.02	1.76	33.14	26.57	1.78	35.38	26.79	1.81	37.14	27.30	1.85
40	28.32	25.64	1.67	30.08	27.07	1.72	31.84	26.21	1.79	33.11	26.77	1.81	35.35	27.00	1.85	37.12	27.51	1.88
45	28.29	25.83	1.69	30.06	27.28	1.74	31.82	26.40	1.81	33.08	26.96	1.83	35.33	27.19	1.86	37.09	27.70	1.90
50	28.28	26.00	1.71	30.03	27.47	1.78	31.79	26.61	1.83	33.06	27.17	1.86	35.30	27.40	1.90	37.06	27.91	1.93
55	28.26	26.19	1.72	30.02	27.68	1.79	31.77	26.80	1.86	33.03	27.36	1.88	35.27	27.59	1.92	37.02	28.12	1.95
60	28.23	26.38	1.76	29.98	27.87	1.81	31.74	27.00	1.88	33.01	27.57	1.90	35.25	27.80	1.93	37.01	28.31	1.99
65	28.21	26.57	1.78	29.97	28.09	1.85	31.72	27.19	1.90	32.98	27.76	1.93	35.22	27.99	1.97	36.98	28.52	2.00
70	28.19	26.77	1.79	29.93	28.28	1.86	31.69	27.38	1.93	32.96	27.95	1.95	35.19	28.20	1.99	36.94	28.74	2.02
75	27.52	26.33	1.90	29.26	27.86	1.97	31.00	27.00	2.04	32.27	27.59	2.06	34.49	27.86	2.09	36.25	28.41	2.14
80	26.84	25.89	1.99	28.58	27.42	2.06	30.32	26.59	2.14	31.58	27.21	2.16	33.80	27.49	2.20	35.54	28.07	2.25
85	26.16	25.41	2.09	27.90	26.96	2.16	29.64	26.19	2.25	30.89	26.80	2.27	33.11	27.13	2.30	34.85	27.72	2.36
90	25.49	24.93	2.18	27.23	26.48	2.27	28.95	25.77	2.34	30.21	26.38	2.37	32.42	26.75	2.43	34.16	27.36	2.46
95	24.76	24.64	2.29	26.49	26.25	2.36	28.21	25.56	2.44	**29.00**	**25.81**	**2.479**	31.66	26.61	2.53	33.38	27.22	2.58
100	24.15	24.01	2.37	25.87	25.58	2.46	27.60	24.95	2.55	28.63	25.41	2.58	31.06	26.04	2.64	32.79	26.67	2.69
105	23.55	23.34	2.48	25.28	24.91	2.57	27.00	24.36	2.65	28.24	25.01	2.69	30.45	25.47	2.74	32.17	26.12	2.80
110	22.94	22.54	2.57	24.68	24.11	2.67	26.41	23.59	2.76	27.65	24.26	2.80	29.85	24.74	2.85	31.58	25.41	2.90
115	22.35	21.87	2.67	24.07	23.44	2.76	25.79	22.98	2.87	27.05	23.65	2.90	29.24	24.15	2.95	30.97	24.82	3.01
118	21.99	21.72	2.72	23.72	23.29	2.83	25.44	22.85	2.94	26.68	23.53	2.97	28.89	24.07	3.02	30.61	24.76	3.08
122	21.86	21.66	2.81	23.59	23.25	2.90	25.31	22.81	3.01	26.57	23.50	3.04	28.76	24.03	3.11	30.48	24.74	3.16

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

SHC: Sensible Capacity (kBtu/h) PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.

2. Cooling range can be extended from 5°F down to -4°F using the Low Ambient Wind Baffle Kit (sold separately).

3. Grey shading indicates reference data. Operation outside of the verified temperature range is subject to decreased performance and / or safety interruption. .

4. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Cooling capacity rating obtained with air entering the indoor component at 80ºF dry bulb (DB) and 67ºF wet bulb (WB), and outdoor ambient conditions of 95ºF dry bulb (DB) and 75ºF wet bulb (WB).

Table reflects heat pump outdoor unit cooling performance only.

COOLING CAPACITY

LGRED°

KSSPA361A060-B1 (LKMMA36B1 / KUSXA361A), KSSSA361A060-B1 (LKMMA36B1 / KUSXA361A), KSSSA361A080-B1 (LKMMA36B1 / KUSXA361A)

Table 25: KSSPA361A060-B1 (LKMMA36B1 / KUSXA361A), KSSSA361A060-B1 (LKMMA36B1 / KUSXA361A), KSSSA361A080-B1 (LKMMA36B1 / KUSXA361A) Cooling Capacities.

Outdoor Air Temp. (°F DB)	Indoor Air Temperature (°F DB / °F WB)																	
	68 / 57			72 / 61			77 / 64			80 / 67			86 / 72			90 / 75		
	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
-4	32.45	26.63	1.69	34.47	28.11	1.75	36.47	27.22	1.83	37.93	27.80	1.85	40.50	28.03	1.87	42.52	28.56	1.91
-0.4	32.43	26.77	1.71	34.45	28.28	1.77	36.45	27.39	1.85	37.91	27.97	1.87	40.48	28.20	1.89	42.50	28.73	1.93
5	32.40	27.01	1.75	34.41	28.54	1.81	36.43	27.63	1.87	37.88	28.20	1.89	40.44	28.45	1.93	42.46	28.99	1.97
10	32.38	27.22	1.77	34.39	28.75	1.83	36.39	27.84	1.89	37.84	28.43	1.93	40.43	28.67	1.95	42.42	29.22	1.99
15	32.36	27.43	1.79	34.36	28.99	1.85	36.37	28.07	1.93	37.82	28.65	1.95	40.39	28.90	1.99	42.39	29.45	2.04
20	32.32	27.65	1.83	34.34	29.22	1.89	36.34	28.28	1.95	37.79	28.88	1.97	40.35	29.11	2.01	42.37	29.67	2.06
25	32.30	27.86	1.85	34.30	29.43	1.91	36.32	28.50	1.99	37.77	29.11	2.01	40.33	29.35	2.04	42.33	29.90	2.10
30	32.27	28.07	1.87	34.28	29.67	1.93	36.28	28.73	2.01	37.73	29.33	2.04	40.30	29.58	2.08	42.30	30.13	2.12
35	32.25	28.28	1.89	34.25	29.88	1.97	36.26	28.94	2.04	37.71	29.56	2.06	40.26	29.79	2.10	42.26	30.37	2.14
40	32.23	28.52	1.93	34.23	30.11	1.99	36.23	29.16	2.08	37.68	29.77	2.10	40.22	30.03	2.14	42.24	30.60	2.18
45	32.19	28.73	1.95	34.21	30.35	2.01	36.21	29.37	2.10	37.64	29.99	2.12	40.21	30.24	2.16	42.20	30.82	2.20
50	32.18	28.92	1.97	34.17	30.56	2.06	36.17	29.60	2.12	37.62	30.22	2.16	40.17	30.48	2.20	42.17	31.05	2.24
55	32.16	29.14	1.99	34.16	30.79	2.08	36.15	29.82	2.16	37.58	30.43	2.18	40.13	30.69	2.22	42.13	31.28	2.26
60	32.12	29.35	2.04	34.12	31.01	2.10	36.12	30.03	2.18	37.57	30.67	2.20	40.11	30.92	2.24	42.11	31.50	2.30
65	32.10	29.56	2.06	34.10	31.24	2.14	36.10	30.24	2.20	37.53	30.88	2.24	40.08	31.13	2.28	42.08	31.73	2.32
70	32.08	29.77	2.08	34.06	31.45	2.16	36.06	30.45	2.24	37.51	31.09	2.26	40.04	31.37	2.30	42.04	31.96	2.34
75	31.31	29.28	2.20	33.29	30.99	2.28	35.27	30.03	2.36	36.72	30.69	2.38	39.25	30.99	2.42	41.25	31.60	2.48
80	30.54	28.80	2.30	32.52	30.50	2.38	34.50	29.58	2.48	35.93	30.26	2.50	38.46	30.58	2.54	40.44	31.22	2.60
85	29.77	28.26	2.42	31.75	29.99	2.50	33.73	29.14	2.60	35.15	29.82	2.63	37.68	30.18	2.67	39.66	30.84	2.73
90	29.00	27.73	2.52	30.98	29.45	2.63	32.95	28.67	2.71	34.38	29.35	2.75	36.89	29.75	2.81	38.87	30.43	2.85
95	28.18	27.43	2.65	30.14	29.20	2.73	32.10	28.43	2.83	**33.00**	**28.71**	**2.870**	36.03	29.60	2.93	37.99	30.28	2.99
100	27.48	26.71	2.75	29.44	28.45	2.85	31.41	27.75	2.95	32.58	28.26	2.99	35.35	28.97	3.05	37.31	29.67	3.11
105	26.80	25.97	2.87	28.77	27.71	2.97	30.73	27.09	3.07	32.14	27.82	3.11	34.65	28.33	3.17	36.61	29.05	3.24
110	26.11	25.07	2.97	28.09	26.82	3.09	30.05	26.24	3.20	31.46	26.99	3.24	33.97	27.52	3.30	35.93	28.26	3.36
115	25.43	24.33	3.09	27.39	26.07	3.20	29.35	25.56	3.32	30.78	26.31	3.36	33.28	26.86	3.42	35.24	27.60	3.48
118	25.03	24.16	3.15	26.99	25.90	3.28	28.95	25.41	3.40	30.36	26.18	3.44	32.87	26.77	3.50	34.83	27.54	3.56
122	24.88	24.10	3.26	26.84	25.86	3.36	28.80	25.37	3.48	30.23	26.14	3.52	32.73	26.73	3.60	34.69	27.52	3.66

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

SHC: Sensible Capacity (kBtu/h) PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.

2. Cooling range can be extended from 5°F down to -4°F using the Low Ambient Wind Baffle Kit (sold separately).

3. Grey shading indicates reference data. Operation outside of the verified temperature range is subject to decreased performance and / or safety interruption. .

4. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Cooling capacity rating obtained with air entering the indoor component at 80ºF dry bulb (DB) and 67ºF wet bulb (WB), and outdoor ambient conditions of 95ºF dry bulb (DB) and 75ºF wet bulb (WB).

Table reflects heat pump outdoor unit cooling performance only.

LG

COOLING CAPACITY

KSSPA361A080-C1 (LKMMA36C1 / KUSXA361A), KSSSA361A080-C1 (LKMMA36C1 / KUSXA361A)

Table 26: KSSPA361A080-C1 (LKMMA36C1 / KUSXA361A), KSSSA361A080-C1 (LKMMA36C1 / KUSXA361A) Cooling Capacities.

Outdoor Air Temp. (°F DB)	Indoor Air Temperature (°F DB / °F WB)																	
	68 / 57			72 / 61			77 / 64			80 / 67			86 / 72			90 / 75		
	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
-4	33.43	27.75	1.71	35.51	29.30	1.77	37.57	28.37	1.85	39.08	28.97	1.88	41.73	29.21	1.90	43.80	29.76	1.94
-0.4	33.41	27.90	1.73	35.49	29.48	1.79	37.55	28.55	1.88	39.06	29.14	1.90	41.71	29.39	1.92	43.78	29.94	1.96
5	33.38	28.15	1.77	35.45	29.74	1.83	37.53	28.79	1.90	39.02	29.39	1.92	41.67	29.65	1.96	43.75	30.21	2.00
10	33.36	28.37	1.79	35.44	29.96	1.85	37.49	29.01	1.92	38.99	29.63	1.96	41.65	29.88	1.98	43.71	30.45	2.02
15	33.34	28.59	1.81	35.40	30.21	1.88	37.48	29.26	1.96	38.97	29.85	1.98	41.61	30.12	2.02	43.67	30.70	2.06
20	33.30	28.81	1.85	35.38	30.45	1.92	37.44	29.48	1.98	38.93	30.10	2.00	41.57	30.34	2.04	43.65	30.92	2.08
25	33.28	29.03	1.88	35.34	30.67	1.94	37.42	29.70	2.02	38.91	30.34	2.04	41.56	30.58	2.06	43.61	31.16	2.12
30	33.24	29.26	1.90	35.32	30.92	1.96	37.38	29.94	2.04	38.87	30.56	2.06	41.52	30.83	2.10	43.58	31.40	2.14
35	33.23	29.48	1.92	35.28	31.14	2.00	37.36	30.16	2.06	38.85	30.81	2.08	41.48	31.05	2.12	43.54	31.65	2.16
40	33.21	29.72	1.96	35.27	31.38	2.02	37.32	30.39	2.10	38.82	31.03	2.12	41.44	31.29	2.16	43.52	31.89	2.21
45	33.17	29.94	1.98	35.25	31.63	2.04	37.31	30.61	2.12	38.78	31.25	2.14	41.42	31.52	2.18	43.48	32.11	2.23
50	33.15	30.14	2.00	35.21	31.85	2.08	37.27	30.85	2.14	38.76	31.49	2.18	41.39	31.76	2.23	43.44	32.36	2.27
55	33.13	30.36	2.02	35.19	32.09	2.10	37.25	31.07	2.18	38.72	31.72	2.21	41.35	31.98	2.25	43.41	32.60	2.29
60	33.09	30.58	2.06	35.15	32.31	2.12	37.21	31.29	2.21	38.70	31.96	2.23	41.33	32.22	2.27	43.39	32.82	2.33
65	33.07	30.81	2.08	35.13	32.56	2.16	37.19	31.52	2.23	38.67	32.18	2.27	41.29	32.45	2.31	43.35	33.07	2.35
70	33.06	31.03	2.10	35.10	32.78	2.18	37.15	31.74	2.27	38.65	32.40	2.29	41.25	32.69	2.33	43.31	33.31	2.37
75	32.26	30.52	2.23	34.30	32.29	2.31	36.34	31.29	2.39	37.83	31.98	2.41	40.44	32.29	2.45	42.50	32.93	2.51
80	31.47	30.01	2.33	33.51	31.78	2.41	35.55	30.83	2.51	37.02	31.54	2.54	39.63	31.87	2.58	41.67	32.54	2.64
85	30.68	29.45	2.45	32.72	31.25	2.54	34.76	30.36	2.64	36.21	31.07	2.66	38.82	31.45	2.70	40.86	32.14	2.76
90	29.88	28.90	2.56	31.92	30.70	2.66	33.94	29.88	2.74	35.42	30.58	2.78	38.00	31.01	2.84	40.04	31.72	2.89
95	29.03	28.59	2.68	31.05	30.43	2.76	33.07	29.63	2.86	**34.00**	**29.92**	**2.906**	37.12	30.85	2.97	39.14	31.56	3.03
100	28.31	27.84	2.78	30.34	29.65	2.89	32.36	28.92	2.99	33.57	29.45	3.03	36.42	30.19	3.09	38.44	30.92	3.15
105	27.62	27.06	2.91	29.64	28.88	3.01	31.66	28.24	3.11	33.11	28.99	3.15	35.70	29.52	3.22	37.72	30.27	3.28
110	26.90	26.13	3.01	28.94	27.95	3.13	30.96	27.35	3.24	32.41	28.12	3.28	35.00	28.68	3.34	37.02	29.45	3.40
115	26.20	25.35	3.13	28.22	27.17	3.24	30.24	26.64	3.36	31.71	27.42	3.40	34.28	27.99	3.46	36.30	28.77	3.52
118	25.78	25.18	3.19	27.80	26.99	3.32	29.83	26.48	3.44	31.28	27.28	3.48	33.87	27.90	3.54	35.89	28.70	3.61
122	25.63	25.11	3.30	27.65	26.95	3.40	29.67	26.44	3.52	31.15	27.24	3.57	33.72	27.86	3.65	35.74	28.68	3.71

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

SHC: Sensible Capacity (kBtu/h) PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.

2. Cooling range can be extended from 5°F down to -4°F using the Low Ambient Wind Baffle Kit (sold separately).

3. Grey shading indicates reference data. Operation outside of the verified temperature range is subject to decreased performance and / or safety interruption. .

4. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Cooling capacity rating obtained with air entering the indoor component at 80ºF dry bulb (DB) and 67ºF wet bulb (WB), and outdoor ambient conditions of 95ºF dry bulb (DB) and 75ºF wet bulb (WB).

Table reflects heat pump outdoor unit cooling performance only.

COOLING CAPACITY

LGRED°

KSSPA421A100-C1 (LKMMA42C1 / KUSXA422A), KSSSA421A100-C1 (LKMMA42C1 / KUSXA422A)

Table 27: KSSPA421A100-C1 (LKMMA42C1 / KUSXA422A), KSSSA421A100-C1 (LKMMA42C1 / KUSXA422A) Cooling Capacities.

Outdoor Air Temp. (°F DB)	Indoor Air Temperature (°F DB / °F WB)																	
	68 / 57			72 / 61			77 / 64			80 / 67			86 / 72			90 / 75		
	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
-4	40.32	33.08	2.06	42.82	34.93	2.14	45.31	33.82	2.24	47.13	34.53	2.26	50.32	34.82	2.29	52.82	35.49	2.34
-0.4	40.29	33.27	2.09	42.80	35.14	2.16	45.28	34.03	2.26	47.10	34.75	2.29	50.29	35.04	2.31	52.80	35.70	2.36
5	40.25	33.56	2.14	42.75	35.46	2.21	45.26	34.32	2.29	47.06	35.04	2.31	50.25	35.35	2.36	52.75	36.01	2.41
10	40.23	33.82	2.16	42.73	35.72	2.24	45.21	34.59	2.31	47.01	35.33	2.36	50.23	35.62	2.39	52.71	36.30	2.44
15	40.20	34.08	2.19	42.69	36.01	2.26	45.19	34.88	2.36	46.99	35.59	2.39	50.18	35.91	2.44	52.66	36.59	2.49
20	40.16	34.35	2.24	42.66	36.30	2.31	45.15	35.14	2.39	46.95	35.88	2.41	50.13	36.17	2.46	52.64	36.86	2.51
25	40.13	34.61	2.26	42.62	36.57	2.34	45.12	35.41	2.44	46.92	36.17	2.46	50.11	36.46	2.49	52.59	37.15	2.56
30	40.09	34.88	2.29	42.59	36.86	2.36	45.08	35.70	2.46	46.88	36.44	2.49	50.07	36.75	2.54	52.55	37.44	2.58
35	40.07	35.14	2.31	42.55	37.12	2.41	45.05	35.96	2.49	46.85	36.73	2.51	50.02	37.02	2.56	52.50	37.73	2.61
40	40.04	35.43	2.36	42.53	37.41	2.44	45.01	36.22	2.54	46.81	36.99	2.56	49.97	37.31	2.61	52.48	38.02	2.66
45	40.00	35.70	2.39	42.50	37.70	2.46	44.99	36.49	2.56	46.76	37.26	2.58	49.95	37.57	2.63	52.43	38.29	2.68
50	39.98	35.93	2.41	42.46	37.97	2.51	44.94	36.78	2.58	46.74	37.55	2.63	49.91	37.86	2.68	52.39	38.58	2.73
55	39.95	36.20	2.44	42.44	38.26	2.54	44.92	37.04	2.63	46.69	37.81	2.66	49.86	38.13	2.71	52.34	38.87	2.76
60	39.91	36.46	2.49	42.39	38.52	2.56	44.87	37.31	2.66	46.67	38.10	2.68	49.84	38.42	2.73	52.32	39.13	2.81
65	39.88	36.73	2.51	42.37	38.81	2.61	44.85	37.57	2.68	46.63	38.37	2.73	49.79	38.68	2.78	52.28	39.42	2.83
70	39.86	36.99	2.54	42.32	39.08	2.63	44.80	37.84	2.73	46.60	38.63	2.76	49.75	38.97	2.81	52.23	39.71	2.86
75	38.90	36.38	2.68	41.36	38.50	2.78	43.82	37.31	2.88	45.62	38.13	2.91	48.77	38.50	2.96	51.25	39.26	3.03
80	37.95	35.78	2.81	40.41	37.89	2.91	42.87	36.75	3.03	44.64	37.60	3.06	47.79	38.00	3.11	50.25	38.79	3.18
85	36.99	35.12	2.96	39.45	37.26	3.06	41.91	36.20	3.18	43.67	37.04	3.21	46.81	37.49	3.26	49.27	38.31	3.33
90	36.03	34.45	3.08	38.49	36.59	3.21	40.93	35.62	3.31	42.71	36.46	3.36	45.83	36.96	3.43	48.29	37.81	3.48
95	35.01	34.08	3.23	37.45	36.28	3.33	39.88	35.33	3.45	**41.00**	**35.67**	**3.504**	44.76	36.78	3.58	47.20	37.63	3.65
100	34.14	33.19	3.36	36.58	35.35	3.48	39.02	34.48	3.60	40.48	35.12	3.65	43.92	35.99	3.73	46.35	36.86	3.80
105	33.30	32.26	3.50	35.74	34.43	3.63	38.18	33.66	3.75	39.93	34.56	3.80	43.05	35.19	3.88	45.49	36.09	3.95
110	32.44	31.15	3.63	34.90	33.32	3.78	37.33	32.61	3.90	39.09	33.53	3.95	42.21	34.19	4.03	44.64	35.12	4.10
115	31.59	30.23	3.78	34.03	32.39	3.90	36.47	31.76	4.05	38.24	32.68	4.10	41.34	33.37	4.18	43.78	34.30	4.25
118	31.09	30.02	3.85	33.53	32.18	4.00	35.97	31.57	4.15	37.72	32.53	4.20	40.84	33.27	4.27	43.28	34.22	4.35
122	30.91	29.94	3.98	33.35	32.13	4.10	35.78	31.52	4.25	37.56	32.47	4.30	40.66	33.21	4.40	43.10	34.19	4.47

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

SHC: Sensible Capacity (kBtu/h) PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.

2. Cooling range can be extended from 5°F down to -4°F using the Low Ambient Wind Baffle Kit (sold separately).

3. Grey shading indicates reference data. Operation outside of the verified temperature range is subject to decreased performance and / or safety interruption. .

4. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Cooling capacity rating obtained with air entering the indoor component at 80ºF dry bulb (DB) and 67ºF wet bulb (WB), and outdoor ambient conditions of 95ºF dry bulb (DB) and 75ºF wet bulb (WB).

Table reflects heat pump outdoor unit cooling performance only.

LG

COOLING CAPACITY

KSSPA481A100-C1 (LKMMA48C1 / KUSXA482A), KSSSA481A100-C1 (LKMMA48C1 / KUSXA482A)

Table 28: KSSPA481A100-C1 (LKMMA48C1 / KUSXA482A), KSSSA481A100-C1 (LKMMA48C1 / KUSXA482A) Cooling Capacities.

Outdoor Air Temp. (°F DB)	Indoor Air Temperature (°F DB / °F WB)																	
	68 / 57			72 / 61			77 / 64			80 / 67			86 / 72			90 / 75		
	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
-4	45.23	37.97	2.35	48.04	40.09	2.44	50.83	38.82	2.55	52.87	39.64	2.58	56.45	39.97	2.61	59.26	40.73	2.67
-0.4	45.21	38.18	2.38	48.02	40.33	2.47	50.80	39.06	2.58	52.85	39.88	2.61	56.43	40.21	2.64	59.24	40.97	2.70
5	45.16	38.51	2.44	47.97	40.70	2.52	50.78	39.39	2.61	52.80	40.21	2.64	56.38	40.58	2.70	59.19	41.33	2.75
10	45.13	38.82	2.47	47.94	41.00	2.55	50.73	39.70	2.64	52.75	40.55	2.70	56.35	40.88	2.72	59.14	41.67	2.78
15	45.11	39.12	2.50	47.89	41.33	2.58	50.70	40.03	2.70	52.72	40.85	2.72	56.30	41.21	2.78	59.08	42.00	2.84
20	45.05	39.42	2.55	47.87	41.67	2.64	50.65	40.33	2.72	52.67	41.18	2.75	56.25	41.52	2.81	59.06	42.30	2.87
25	45.03	39.73	2.58	47.81	41.97	2.67	50.63	40.64	2.78	52.64	41.52	2.81	56.22	41.85	2.84	59.01	42.64	2.92
30	44.98	40.03	2.61	47.79	42.30	2.70	50.57	40.97	2.81	52.59	41.82	2.84	56.17	42.18	2.89	58.96	42.97	2.95
35	44.95	40.33	2.64	47.74	42.61	2.75	50.55	41.27	2.84	52.57	42.15	2.87	56.12	42.49	2.92	58.91	43.31	2.98
40	44.93	40.67	2.70	47.71	42.94	2.78	50.50	41.58	2.89	52.52	42.46	2.92	56.07	42.82	2.98	58.88	43.64	3.04
45	44.88	40.97	2.72	47.69	43.28	2.81	50.47	41.88	2.92	52.47	42.76	2.95	56.04	43.12	3.01	58.83	43.94	3.06
50	44.85	41.24	2.75	47.64	43.58	2.87	50.42	42.21	2.95	52.44	43.09	3.01	55.99	43.46	3.06	58.78	44.28	3.12
55	44.82	41.55	2.78	47.61	43.91	2.89	50.40	42.52	3.01	52.39	43.40	3.04	55.94	43.76	3.09	58.73	44.61	3.15
60	44.77	41.85	2.84	47.56	44.22	2.92	50.34	42.82	3.04	52.36	43.73	3.06	55.92	44.09	3.12	58.70	44.91	3.21
65	44.75	42.15	2.87	47.53	44.55	2.98	50.32	43.12	3.06	52.31	44.03	3.12	55.86	44.40	3.18	58.65	45.25	3.23
70	44.72	42.46	2.89	47.48	44.85	3.01	50.27	43.43	3.12	52.29	44.34	3.15	55.81	44.73	3.21	58.60	45.58	3.26
75	43.65	41.76	3.06	46.41	44.18	3.18	49.17	42.82	3.29	51.19	43.76	3.32	54.71	44.18	3.38	57.50	45.06	3.46
80	42.58	41.06	3.21	45.34	43.49	3.32	48.10	42.18	3.46	50.09	43.15	3.49	53.62	43.61	3.55	56.38	44.52	3.63
85	41.50	40.30	3.38	44.26	42.76	3.49	47.02	41.55	3.63	48.99	42.52	3.66	52.52	43.03	3.72	55.28	43.97	3.80
90	40.43	39.55	3.52	43.19	42.00	3.66	45.92	40.88	3.77	47.92	41.85	3.83	51.42	42.43	3.91	54.18	43.40	3.97
95	39.28	39.08	3.69	42.01	41.64	3.80	44.75	40.55	3.94	**46.00**	**40.94**	**4.000**	50.22	42.21	4.09	52.95	43.18	4.17
100	38.31	38.09	3.83	41.04	40.58	3.97	43.78	39.58	4.11	45.41	40.30	4.17	49.27	41.30	4.26	52.01	42.30	4.34
105	37.36	37.03	4.00	40.10	39.51	4.14	42.83	38.64	4.28	44.80	39.67	4.34	48.30	40.39	4.43	51.03	41.43	4.51
110	36.39	35.75	4.14	39.15	38.24	4.31	41.89	37.42	4.45	43.85	38.48	4.51	47.35	39.24	4.60	50.09	40.30	4.68
115	35.45	34.69	4.31	38.18	37.18	4.45	40.91	36.45	4.62	42.91	37.51	4.68	46.38	38.30	4.77	49.12	39.36	4.85
118	34.88	34.45	4.40	37.62	36.94	4.57	40.35	36.24	4.74	42.32	37.33	4.79	45.82	38.18	4.88	48.56	39.27	4.96
122	34.68	34.36	4.54	37.41	36.88	4.68	40.15	36.18	4.85	42.14	37.27	4.91	45.62	38.12	5.02	48.35	39.24	5.11

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

SHC: Sensible Capacity (kBtu/h) PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.

2. Cooling range can be extended from 5°F down to -4°F using the Low Ambient Wind Baffle Kit (sold separately).

3. Grey shading indicates reference data. Operation outside of the verified temperature range is subject to decreased performance and / or safety interruption. .

4. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Cooling capacity rating obtained with air entering the indoor component at 80ºF dry bulb (DB) and 67ºF wet bulb (WB), and outdoor ambient conditions of 95ºF dry bulb (DB) and 75ºF wet bulb (WB).

Table reflects heat pump outdoor unit cooling performance only.

COOLING CAPACITY

LGRED°

KSSPA481A120-D1 (LKMMA48D1 / KUSXA482A), KSSSA481A120-D1 (LKMMA48D1 / KUSXA482A)

Table 29: KSSPA481A120-D1 (LKMMA48D1 / KUSXA482A), KSSSA481A120-D1 (LKMMA48D1 / KUSXA482A) Cooling Capacities.

Outdoor Air Temp. (°F DB)	Indoor Air Temperature (°F DB / °F WB)																	
	68 / 57			72 / 61			77 / 64			80 / 67			86 / 72			90 / 75		
	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
-4	47.20	39.62	2.57	50.13	41.83	2.66	53.04	40.50	2.79	55.17	41.36	2.82	58.91	41.71	2.85	61.84	42.50	2.91
-0.4	47.17	39.84	2.60	50.11	42.09	2.69	53.01	40.76	2.82	55.15	41.61	2.85	58.88	41.96	2.88	61.81	42.75	2.94
5	47.12	40.19	2.66	50.05	42.47	2.75	52.99	41.11	2.85	55.09	41.96	2.88	58.83	42.34	2.94	61.76	43.13	3.00
10	47.09	40.50	2.69	50.03	42.78	2.79	52.93	41.42	2.88	55.04	42.31	2.94	58.80	42.66	2.97	61.71	43.48	3.03
15	47.07	40.82	2.72	49.97	43.13	2.82	52.91	41.77	2.94	55.01	42.63	2.97	58.75	43.00	3.03	61.65	43.83	3.09
20	47.01	41.14	2.79	49.95	43.48	2.88	52.85	42.09	2.97	54.96	42.97	3.00	58.69	43.32	3.06	61.63	44.14	3.13
25	46.99	41.45	2.82	49.89	43.80	2.91	52.83	42.40	3.03	54.93	43.32	3.06	58.67	43.67	3.09	61.57	44.49	3.19
30	46.93	41.77	2.85	49.87	44.14	2.94	52.77	42.75	3.06	54.88	43.64	3.09	58.61	44.02	3.16	61.52	44.84	3.22
35	46.91	42.09	2.88	49.81	44.46	3.00	52.75	43.07	3.09	54.85	43.99	3.13	58.56	44.33	3.19	61.47	45.19	3.25
40	46.88	42.44	2.94	49.79	44.81	3.03	52.69	43.38	3.16	54.80	44.30	3.19	58.51	44.68	3.25	61.44	45.54	3.31
45	46.83	42.75	2.97	49.76	45.16	3.06	52.67	43.70	3.19	54.75	44.62	3.22	58.48	45.00	3.28	61.39	45.85	3.34
50	46.80	43.04	3.00	49.71	45.47	3.13	52.61	44.05	3.22	54.72	44.97	3.28	58.43	45.35	3.34	61.33	46.20	3.40
55	46.77	43.35	3.03	49.68	45.82	3.16	52.59	44.37	3.28	54.67	45.28	3.31	58.37	45.66	3.37	61.28	46.55	3.44
60	46.72	43.67	3.09	49.63	46.14	3.19	52.53	44.68	3.31	54.64	45.63	3.34	58.35	46.01	3.40	61.25	46.87	3.50
65	46.69	43.99	3.13	49.60	46.49	3.25	52.51	45.00	3.34	54.59	45.95	3.40	58.29	46.33	3.47	61.20	47.21	3.53
70	46.67	44.30	3.16	49.55	46.80	3.28	52.45	45.31	3.40	54.56	46.26	3.44	58.24	46.68	3.50	61.15	47.56	3.56
75	45.55	43.57	3.34	48.43	46.11	3.47	51.31	44.68	3.59	53.41	45.66	3.62	57.09	46.11	3.68	60.00	47.02	3.78
80	44.43	42.85	3.50	47.31	45.38	3.62	50.19	44.02	3.78	52.27	45.03	3.81	55.95	45.50	3.87	58.83	46.45	3.96
85	43.31	42.06	3.68	46.19	44.62	3.81	49.07	43.35	3.96	51.12	44.37	3.99	54.80	44.90	4.05	57.68	45.88	4.15
90	42.19	41.26	3.84	45.07	43.83	3.99	47.92	42.66	4.12	50.00	43.67	4.18	53.65	44.27	4.27	56.53	45.28	4.33
95	40.99	40.78	4.02	43.84	43.45	4.15	46.69	42.31	4.30	**48.00**	**42.72**	**4.364**	52.40	44.05	4.46	55.25	45.06	4.55
100	39.97	39.75	4.18	42.83	42.34	4.33	45.68	41.30	4.49	47.39	42.06	4.55	51.41	43.10	4.64	54.27	44.14	4.74
105	38.99	38.64	4.36	41.84	41.23	4.52	44.69	40.32	4.67	46.75	41.39	4.74	50.40	42.15	4.83	53.25	43.23	4.92
110	37.97	37.31	4.52	40.85	39.90	4.70	43.71	39.05	4.86	45.76	40.16	4.92	49.41	40.95	5.01	52.27	42.06	5.11
115	36.99	36.20	4.70	39.84	38.80	4.86	42.69	38.04	5.04	44.77	39.14	5.11	48.40	39.97	5.20	51.25	41.07	5.29
118	36.40	35.95	4.80	39.25	38.54	4.98	42.11	37.82	5.17	44.16	38.95	5.23	47.81	39.84	5.32	50.67	40.98	5.42
122	36.19	35.85	4.95	39.04	38.48	5.11	41.89	37.75	5.29	43.97	38.89	5.35	47.60	39.78	5.48	50.45	40.95	5.57

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

SHC: Sensible Capacity (kBtu/h) PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.

2. Cooling range can be extended from 5°F down to -4°F using the Low Ambient Wind Baffle Kit (sold separately).

3. Grey shading indicates reference data. Operation outside of the verified temperature range is subject to decreased performance and / or safety interruption. .

4. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Cooling capacity rating obtained with air entering the indoor component at 80ºF dry bulb (DB) and 67ºF wet bulb (WB), and outdoor ambient conditions of 95ºF dry bulb (DB) and 75ºF wet bulb (WB).

Table reflects heat pump outdoor unit cooling performance only.

LG

MAXIMUM COOLING CAPACITY

KSSPA181A060-B1 (LKMMA18B1 / KUSXA181A), KSSSA181A060-B1 (LKMMA18B1 / KUSXA181A)

Table 30: KSSPA181A060-B1 (LKMMA18B1 / KUSXA181A), KSSSA181A060-B1 (LKMMA18B1 / KUSXA181A) Maximum Cooling Capacities.

Outdoor Air Temp. (°F DB)	Indoor Air Temperature (°F DB / °F WB)																	
	68 / 57			72 / 61			77 / 64			80 / 67			86 / 72			90 / 75		
	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
-4	19.66	16.51	1.11	20.89	17.43	1.15	22.10	16.88	1.19	22.98	17.24	1.21	24.55	17.38	1.23	25.77	17.71	1.25
-0.4	19.65	16.60	1.12	20.87	17.53	1.17	22.10	16.98	1.21	22.98	17.34	1.22	24.53	17.48	1.25	25.76	17.81	1.27
5	19.64	16.74	1.14	20.85	17.69	1.19	22.07	17.12	1.23	22.95	17.49	1.24	24.52	17.64	1.27	25.73	17.97	1.29
10	19.62	16.88	1.16	20.84	17.83	1.20	22.06	17.27	1.25	22.94	17.63	1.26	24.49	17.78	1.29	25.71	18.12	1.31
15	19.60	17.01	1.17	20.82	17.97	1.22	22.04	17.40	1.27	22.92	17.77	1.28	24.48	17.91	1.30	25.69	18.25	1.32
20	19.59	17.14	1.19	20.81	18.11	1.24	22.02	17.53	1.28	22.90	17.90	1.30	24.46	18.06	1.32	25.68	18.39	1.34
25	19.57	17.28	1.21	20.79	18.25	1.25	22.01	17.68	1.30	22.89	18.05	1.31	24.44	18.20	1.34	25.65	18.54	1.36
30	19.56	17.41	1.23	20.77	18.39	1.27	21.99	17.81	1.32	22.87	18.18	1.33	24.42	18.33	1.36	25.64	18.68	1.38
35	19.55	17.54	1.25	20.76	18.53	1.29	21.98	17.94	1.34	22.85	18.32	1.35	24.40	18.48	1.38	25.61	18.83	1.40
40	19.53	17.68	1.26	20.74	18.67	1.30	21.96	18.08	1.35	22.83	18.46	1.37	24.39	18.61	1.40	25.60	18.97	1.42
45	19.52	17.81	1.28	20.73	18.82	1.32	21.94	18.21	1.37	22.81	18.60	1.39	24.36	18.75	1.41	25.57	19.11	1.44
50	19.50	17.93	1.29	20.71	18.95	1.34	21.93	18.34	1.39	22.80	18.73	1.40	24.35	18.90	1.43	25.56	19.25	1.46
55	19.48	18.07	1.31	20.69	19.09	1.36	21.90	18.49	1.41	22.78	18.87	1.42	24.33	19.03	1.45	25.54	19.39	1.48
60	19.47	18.20	1.32	20.68	19.23	1.38	21.89	18.62	1.42	22.77	19.01	1.44	24.31	19.16	1.47	25.52	19.53	1.50
65	19.46	18.33	1.34	20.66	19.37	1.39	21.87	18.75	1.44	22.74	19.14	1.46	24.29	19.31	1.49	25.50	19.68	1.52
70	19.44	18.47	1.36	20.65	19.50	1.41	21.85	18.89	1.46	22.73	19.29	1.48	24.27	19.44	1.51	25.48	19.81	1.54
75	18.98	18.16	1.44	20.18	19.20	1.49	21.38	18.62	1.54	22.25	19.02	1.56	23.79	19.20	1.59	24.99	19.58	1.62
80	18.51	17.85	1.51	19.71	18.91	1.56	20.91	18.34	1.62	21.77	18.76	1.64	23.31	18.97	1.67	24.52	19.36	1.70
85	18.04	17.52	1.58	19.24	18.59	1.64	20.44	18.06	1.70	21.31	18.49	1.72	22.84	18.71	1.75	24.03	19.11	1.79
90	17.58	17.20	1.65	18.77	18.26	1.71	19.97	17.77	1.78	20.83	18.20	1.80	22.36	18.45	1.83	23.56	18.87	1.87
95	17.07	16.99	1.73	18.27	18.10	1.79	19.45	17.64	1.86	**20.00**	**17.80**	**1.878**	21.83	18.35	1.91	23.02	18.78	1.95
100	16.66	16.56	1.80	17.85	17.64	1.87	19.04	17.22	1.94	19.74	17.52	1.96	21.42	17.95	2.00	22.60	18.39	2.04
105	16.24	16.10	1.88	17.44	17.18	1.94	18.62	16.80	2.02	19.48	17.25	2.04	21.00	17.56	2.08	22.19	18.02	2.12
110	15.83	15.55	1.95	17.02	16.63	2.02	18.21	16.27	2.10	19.06	16.73	2.12	20.59	17.06	2.16	21.77	17.51	2.20
115	15.41	15.08	2.02	16.60	16.16	2.10	17.79	15.84	2.17	18.65	16.30	2.19	20.17	16.65	2.24	21.36	17.12	2.29
118	15.16	14.98	2.07	16.35	16.07	2.14	17.54	15.76	2.22	18.40	16.23	2.25	19.92	16.60	2.29	21.11	17.07	2.33
122	15.08	14.94	2.12	16.27	16.03	2.20	17.46	15.74	2.28	18.31	16.21	2.31	19.84	16.58	2.35	21.02	17.06	2.40

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

SHC: Sensible Capacity (kBtu/h) PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.

2. Cooling range can be extended from 5°F down to -4°F using the Low Ambient Wind Baffle Kit (sold separately).

3. Grey shading indicates reference data. Operation outside of the verified temperature range is subject to decreased performance and / or safety interruption. .

4. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Cooling capacity rating obtained with air entering the indoor component at 80ºF dry bulb (DB) and 67ºF wet bulb (WB), and outdoor ambient conditions of 95ºF dry bulb (DB) and 75ºF wet bulb (WB).

Table reflects heat pump outdoor unit cooling performance only.

MAXIMUM COOLING CAPACITY

LGRED°

KSSPA241A060-B1 (LKMMA24B1 / KUSXA241A), KSSSA241A060-B1 (LKMMA24B1 / KUSXA241A), KSSSA241A080-B1 (LKMMA24B1 / KUSXA241A)

Table 31: KSSPA241A060-B1 (LKMMA24B1 / KUSXA241A), KSSSA241A060-B1 (LKMMA24B1 / KUSXA241A), KSSSA241A080-B1 (LKMMA24B1 / KUSXA241A) Maximum Cooling Capacities.

Outdoor Air Temp. (°F DB)	Indoor Air Temperature (°F DB / °F WB)																	
	68 / 57			72 / 61			77 / 64			80 / 67			86 / 72			90 / 75		
	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
-4	25.56	21.46	1.46	27.15	22.66	1.51	28.74	21.94	1.56	29.88	22.41	1.58	31.91	22.59	1.62	33.50	23.02	1.64
-0.4	25.55	21.58	1.47	27.13	22.79	1.53	28.73	22.07	1.58	29.87	22.54	1.60	31.89	22.73	1.63	33.49	23.15	1.67
5	25.53	21.77	1.49	27.11	22.99	1.56	28.69	22.26	1.61	29.84	22.74	1.62	31.87	22.93	1.66	33.45	23.37	1.69
10	25.51	21.94	1.52	27.09	23.18	1.57	28.67	22.45	1.63	29.82	22.91	1.65	31.84	23.11	1.69	33.42	23.55	1.72
15	25.49	22.11	1.54	27.07	23.37	1.60	28.65	22.62	1.66	29.80	23.10	1.68	31.82	23.29	1.70	33.40	23.73	1.74
20	25.47	22.29	1.56	27.05	23.54	1.62	28.63	22.79	1.68	29.77	23.27	1.70	31.80	23.47	1.73	33.38	23.91	1.76
25	25.44	22.46	1.58	27.03	23.73	1.64	28.61	22.98	1.70	29.75	23.46	1.72	31.77	23.66	1.75	33.35	24.10	1.79
30	25.43	22.63	1.61	27.01	23.91	1.67	28.59	23.15	1.73	29.73	23.63	1.75	31.75	23.83	1.78	33.33	24.29	1.81
35	25.41	22.81	1.63	26.99	24.09	1.69	28.57	23.33	1.75	29.70	23.82	1.77	31.72	24.02	1.81	33.30	24.47	1.84
40	25.39	22.98	1.65	26.96	24.27	1.71	28.55	23.50	1.77	29.68	23.99	1.80	31.70	24.19	1.83	33.28	24.66	1.87
45	25.37	23.15	1.68	26.94	24.46	1.74	28.53	23.67	1.80	29.66	24.18	1.82	31.67	24.38	1.85	33.24	24.85	1.89
50	25.35	23.31	1.69	26.92	24.63	1.75	28.51	23.85	1.82	29.64	24.35	1.84	31.65	24.57	1.88	33.22	25.02	1.92
55	25.33	23.49	1.72	26.90	24.82	1.78	28.47	24.03	1.85	29.62	24.53	1.87	31.63	24.74	1.90	33.20	25.21	1.94
60	25.31	23.66	1.74	26.88	24.99	1.81	28.45	24.21	1.87	29.60	24.71	1.89	31.60	24.91	1.93	33.17	25.39	1.96
65	25.30	23.83	1.76	26.86	25.18	1.82	28.43	24.38	1.89	29.56	24.89	1.92	31.58	25.10	1.95	33.15	25.58	1.99
70	25.28	24.01	1.79	26.84	25.35	1.85	28.41	24.55	1.92	29.54	25.07	1.94	31.56	25.27	1.98	33.12	25.75	2.01
75	24.67	23.61	1.88	26.23	24.97	1.95	27.79	24.21	2.02	28.93	24.73	2.05	30.93	24.97	2.08	32.49	25.46	2.13
80	24.06	23.21	1.98	25.62	24.58	2.05	27.18	23.85	2.13	28.31	24.39	2.15	30.31	24.66	2.19	31.87	25.17	2.23
85	23.45	22.78	2.07	25.01	24.17	2.15	26.57	23.47	2.23	27.70	24.03	2.26	29.69	24.33	2.30	31.24	24.85	2.34
90	22.85	22.35	2.17	24.41	23.74	2.25	25.96	23.10	2.33	27.08	23.66	2.36	29.07	23.98	2.40	30.62	24.53	2.45
95	22.19	22.08	2.26	23.75	23.53	2.35	25.29	22.93	2.44	**26.00**	**23.14**	**2.463**	28.38	23.86	2.51	29.93	24.42	2.56
100	21.66	21.53	2.36	23.20	22.93	2.45	24.75	22.38	2.54	25.66	22.78	2.57	27.85	23.34	2.62	29.39	23.91	2.67
105	21.11	20.93	2.46	22.67	22.34	2.55	24.21	21.83	2.64	25.33	22.42	2.67	27.30	22.83	2.72	28.85	23.42	2.77
110	20.58	20.22	2.56	22.12	21.62	2.64	23.67	21.15	2.75	24.78	21.75	2.77	26.77	22.18	2.83	28.31	22.77	2.89
115	20.03	19.61	2.65	21.59	21.01	2.75	23.13	20.59	2.85	24.25	21.19	2.88	26.22	21.65	2.94	27.77	22.26	3.00
118	19.71	19.47	2.71	21.26	20.89	2.81	22.80	20.49	2.91	23.92	21.10	2.95	25.90	21.58	3.00	27.45	22.19	3.06
122	19.60	19.42	2.78	21.15	20.83	2.89	22.70	20.46	2.99	23.81	21.07	3.02	25.79	21.55	3.09	27.33	22.18	3.15

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

SHC: Sensible Capacity (kBtu/h) PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.

2. Cooling range can be extended from 5°F down to -4°F using the Low Ambient Wind Baffle Kit (sold separately).

3. Grey shading indicates reference data. Operation outside of the verified temperature range is subject to decreased performance and / or safety interruption. .

4. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Cooling capacity rating obtained with air entering the indoor component at 80ºF dry bulb (DB) and 67ºF wet bulb (WB), and outdoor ambient conditions of 95ºF dry bulb (DB) and 75ºF wet bulb (WB).

Table reflects heat pump outdoor unit cooling performance only.

LG

MAXIMUM COOLING CAPACITY

KSSPA301A060-B1 (LKMMA30B1 / KUSXA301A), KSSSA301A060-B1 (LKMMA30B1 / KUSXA301A), KSSSA301A080-B1 (LKMMA30B1 / KUSXA301A)

Table 32: KSSPA301A060-B1 (LKMMA30B1 / KUSXA301A), KSSSA301A060-B1 (LKMMA30B1 / KUSXA301A), KSSSA301A080-B1 (LKMMA30B1 / KUSXA301A) Maximum Cooling Capacities.

Outdoor Air Temp. (°F DB)	Indoor Air Temperature (°F DB / °F WB)																	
	68 / 57			72 / 61			77 / 64			80 / 67			86 / 72			90 / 75		
	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
-4	31.46	26.41	1.76	33.42	27.89	1.83	35.37	27.00	1.89	36.77	27.58	1.91	39.28	27.81	1.95	41.23	28.33	1.98
-0.4	31.45	26.56	1.77	33.39	28.05	1.85	35.35	27.17	1.91	36.76	27.74	1.93	39.25	27.97	1.97	41.21	28.50	2.01
5	31.42	26.79	1.81	33.37	28.30	1.88	35.32	27.40	1.94	36.72	27.99	1.96	39.23	28.22	2.00	41.17	28.76	2.05
10	31.39	27.00	1.84	33.34	28.53	1.90	35.29	27.63	1.97	36.70	28.20	1.99	39.19	28.45	2.04	41.14	28.99	2.08
15	31.37	27.22	1.86	33.32	28.76	1.93	35.26	27.84	2.00	36.67	28.43	2.02	39.16	28.66	2.06	41.11	29.20	2.10
20	31.34	27.43	1.89	33.29	28.97	1.96	35.24	28.05	2.02	36.65	28.64	2.06	39.14	28.89	2.09	41.08	29.43	2.13
25	31.32	27.64	1.91	33.26	29.20	1.98	35.21	28.28	2.06	36.62	28.87	2.08	39.10	29.12	2.12	41.05	29.66	2.16
30	31.30	27.86	1.94	33.24	29.43	2.01	35.19	28.50	2.09	36.59	29.09	2.11	39.07	29.33	2.15	41.02	29.89	2.19
35	31.28	28.07	1.97	33.21	29.64	2.04	35.16	28.71	2.12	36.55	29.32	2.14	39.05	29.56	2.18	40.98	30.12	2.22
40	31.25	28.28	1.99	33.19	29.87	2.07	35.14	28.92	2.14	36.53	29.53	2.17	39.02	29.78	2.21	40.95	30.35	2.25
45	31.23	28.50	2.02	33.16	30.10	2.10	35.11	29.14	2.17	36.50	29.76	2.20	38.98	30.01	2.23	40.92	30.58	2.29
50	31.20	28.69	2.05	33.14	30.32	2.12	35.08	29.35	2.20	36.48	29.97	2.22	38.95	30.24	2.26	40.89	30.79	2.32
55	31.17	28.91	2.08	33.11	30.55	2.15	35.05	29.58	2.23	36.45	30.19	2.25	38.93	30.45	2.30	40.86	31.02	2.35
60	31.15	29.12	2.10	33.08	30.76	2.18	35.02	29.79	2.25	36.43	30.42	2.29	38.89	30.66	2.33	40.83	31.25	2.37
65	31.14	29.33	2.13	33.06	30.99	2.20	34.99	30.01	2.29	36.39	30.63	2.32	38.86	30.89	2.36	40.80	31.48	2.40
70	31.11	29.55	2.16	33.03	31.20	2.23	34.97	30.22	2.32	36.36	30.86	2.34	38.84	31.10	2.39	40.76	31.70	2.43
75	30.36	29.05	2.28	32.28	30.73	2.36	34.21	29.79	2.44	35.60	30.43	2.47	38.06	30.73	2.52	39.99	31.33	2.57
80	29.61	28.56	2.39	31.54	30.25	2.47	33.46	29.35	2.57	34.84	30.02	2.60	37.30	30.35	2.64	39.23	30.97	2.69
85	28.86	28.04	2.50	30.79	29.74	2.60	32.70	28.89	2.69	34.09	29.58	2.72	36.54	29.94	2.78	38.45	30.58	2.83
90	28.13	27.51	2.62	30.04	29.22	2.71	31.95	28.43	2.82	33.33	29.12	2.85	35.78	29.51	2.90	37.69	30.19	2.96
95	27.32	27.18	2.73	29.23	28.96	2.84	31.12	28.22	2.94	**32.00**	**28.48**	**2.974**	34.93	29.37	3.03	36.84	30.05	3.09
100	26.66	26.49	2.85	28.55	28.22	2.95	30.46	27.54	3.07	31.59	28.04	3.10	34.27	28.73	3.16	36.17	29.43	3.22
105	25.99	25.76	2.97	27.90	27.50	3.08	29.79	26.87	3.19	31.17	27.59	3.22	33.60	28.10	3.29	35.51	28.82	3.35
110	25.33	24.89	3.09	27.23	26.61	3.19	29.14	26.04	3.32	30.50	26.77	3.35	32.94	27.30	3.41	34.84	28.02	3.49
115	24.66	24.13	3.20	26.57	25.86	3.32	28.46	25.35	3.44	29.85	26.08	3.48	32.27	26.64	3.55	34.18	27.40	3.62
118	24.26	23.97	3.28	26.17	25.71	3.39	28.06	25.22	3.52	29.45	25.97	3.56	31.87	26.56	3.62	33.78	27.32	3.69
122	24.13	23.90	3.36	26.03	25.64	3.49	27.94	25.18	3.61	29.30	25.94	3.65	31.74	26.53	3.73	33.64	27.30	3.80

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

SHC: Sensible Capacity (kBtu/h) PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.

2. Cooling range can be extended from 5°F down to -4°F using the Low Ambient Wind Baffle Kit (sold separately).

3. Grey shading indicates reference data. Operation outside of the verified temperature range is subject to decreased performance and / or safety interruption. .

4. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Cooling capacity rating obtained with air entering the indoor component at 80ºF dry bulb (DB) and 67ºF wet bulb (WB), and outdoor ambient conditions of 95ºF dry bulb (DB) and 75ºF wet bulb (WB).

Table reflects heat pump outdoor unit cooling performance only.

MAXIMUM COOLING CAPACITY

LGRED°

KSSPA361A060-B1 (LKMMA36B1 / KUSXA361A), KSSSA361A060-B1 (LKMMA36B1 / KUSXA361A), KSSSA361A080-B1 (LKMMA36B1 / KUSXA361A)

Table 33: KSSPA361A060-B1 (LKMMA36B1 / KUSXA361A), KSSSA361A060-B1 (LKMMA36B1 / KUSXA361A), KSSSA361A080-B1 (LKMMA36B1 / KUSXA361A) Maximum Cooling Capacities.

Outdoor Air Temp. (°F DB)	Indoor Air Temperature (°F DB / °F WB)																	
	68 / 57			72 / 61			77 / 64			80 / 67			86 / 72			90 / 75		
	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
-4	34.41	28.24	1.89	36.55	29.82	1.96	38.68	28.87	2.02	40.22	29.49	2.05	42.96	29.73	2.09	45.09	30.29	2.13
-0.4	34.39	28.40	1.90	36.52	29.99	1.98	38.67	29.05	2.05	40.21	29.66	2.07	42.93	29.91	2.11	45.08	30.47	2.16
5	34.36	28.64	1.94	36.50	30.26	2.01	38.63	29.29	2.08	40.17	29.92	2.10	42.90	30.17	2.15	45.03	30.75	2.19
10	34.34	28.87	1.97	36.47	30.50	2.04	38.60	29.54	2.11	40.14	30.15	2.14	42.86	30.41	2.18	44.99	30.99	2.23
15	34.31	29.10	1.99	36.44	30.75	2.07	38.57	29.77	2.15	40.11	30.40	2.17	42.83	30.64	2.20	44.96	31.22	2.25
20	34.28	29.33	2.02	36.41	30.98	2.10	38.54	29.99	2.17	40.08	30.63	2.20	42.80	30.89	2.24	44.94	31.47	2.28
25	34.25	29.56	2.05	36.38	31.22	2.13	38.51	30.24	2.20	40.05	30.87	2.23	42.76	31.13	2.27	44.89	31.71	2.32
30	34.24	29.78	2.08	36.35	31.47	2.16	38.49	30.47	2.24	40.02	31.10	2.26	42.73	31.36	2.30	44.86	31.96	2.35
35	34.21	30.01	2.11	36.33	31.70	2.18	38.46	30.70	2.27	39.98	31.34	2.29	42.71	31.61	2.34	44.82	32.20	2.38
40	34.18	30.24	2.14	36.30	31.94	2.22	38.43	30.92	2.29	39.95	31.57	2.33	42.68	31.84	2.37	44.79	32.45	2.42
45	34.15	30.47	2.17	36.27	32.19	2.25	38.40	31.15	2.33	39.93	31.82	2.36	42.64	32.08	2.39	44.75	32.70	2.45
50	34.13	30.68	2.19	36.24	32.41	2.27	38.37	31.38	2.36	39.90	32.05	2.38	42.61	32.33	2.43	44.72	32.92	2.48
55	34.10	30.91	2.23	36.21	32.66	2.30	38.33	31.63	2.39	39.87	32.27	2.42	42.58	32.55	2.46	44.70	33.17	2.52
60	34.07	31.13	2.25	36.19	32.89	2.34	38.30	31.85	2.42	39.84	32.52	2.45	42.54	32.78	2.49	44.65	33.41	2.54
65	34.05	31.36	2.28	36.16	33.13	2.36	38.27	32.08	2.45	39.80	32.75	2.48	42.51	33.03	2.53	44.63	33.66	2.57
70	34.03	31.59	2.32	36.13	33.36	2.39	38.25	32.31	2.48	39.77	32.99	2.51	42.48	33.26	2.56	44.58	33.89	2.61
75	33.21	31.06	2.44	35.31	32.85	2.53	37.41	31.85	2.62	38.94	32.54	2.65	41.63	32.85	2.70	43.74	33.50	2.75
80	32.39	30.54	2.56	34.49	32.34	2.65	36.59	31.38	2.75	38.10	32.10	2.79	40.80	32.45	2.83	42.90	33.12	2.89
85	31.57	29.98	2.68	33.67	31.80	2.79	35.76	30.89	2.89	37.29	31.63	2.92	39.97	32.01	2.98	42.06	32.70	3.03
90	30.77	29.42	2.81	32.85	31.24	2.91	34.94	30.40	3.02	36.45	31.13	3.05	39.14	31.56	3.11	41.22	32.27	3.18
95	29.88	29.10	2.93	31.97	30.96	3.04	34.04	30.17	3.15	**35.00**	**30.45**	**3.188**	38.20	31.40	3.24	40.29	32.13	3.31
100	29.16	28.33	3.05	31.23	30.17	3.17	33.32	29.45	3.29	34.55	29.98	3.32	37.48	30.71	3.39	39.56	31.47	3.46
105	28.42	27.54	3.19	30.51	29.40	3.30	32.59	28.73	3.42	34.10	29.50	3.46	36.75	30.05	3.52	38.84	30.82	3.59
110	27.70	26.61	3.31	29.78	28.45	3.42	31.87	27.84	3.56	33.36	28.63	3.59	36.03	29.19	3.66	38.10	29.96	3.74
115	26.97	25.80	3.43	29.06	27.64	3.56	31.13	27.10	3.69	32.64	27.89	3.73	35.30	28.49	3.80	37.39	29.29	3.88
118	26.53	25.63	3.51	28.62	27.49	3.64	30.70	26.96	3.77	32.21	27.77	3.81	34.86	28.40	3.88	36.95	29.20	3.96
122	26.39	25.56	3.60	28.47	27.42	3.74	30.55	26.92	3.87	32.05	27.73	3.92	34.72	28.36	3.99	36.79	29.19	4.07

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

SHC: Sensible Capacity (kBtu/h) PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.

2. Cooling range can be extended from 5°F down to -4°F using the Low Ambient Wind Baffle Kit (sold separately).

3. Grey shading indicates reference data. Operation outside of the verified temperature range is subject to decreased performance and / or safety interruption. .

4. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Cooling capacity rating obtained with air entering the indoor component at 80ºF dry bulb (DB) and 67ºF wet bulb (WB), and outdoor ambient conditions of 95ºF dry bulb (DB) and 75ºF wet bulb (WB).

Table reflects heat pump outdoor unit cooling performance only.

LG

MAXIMUM COOLING CAPACITY

KSSPA361A080-C1 (LKMMA36C1 / KUSXA361A), KSSSA361A080-C1 (LKMMA36C1 / KUSXA361A)

Table 34: KSSPA361A080-C1 (LKMMA36C1 / KUSXA361A), KSSSA361A080-C1 (LKMMA36C1 / KUSXA361A) Maximum Cooling Capacities.

Outdoor Air Temp. (°F DB)	Indoor Air Temperature (°F DB / °F WB)																	
	68 / 57			72 / 61			77 / 64			80 / 67			86 / 72			90 / 75		
	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
-4	36.37	30.20	2.03	38.64	31.88	2.11	40.89	30.87	2.18	42.52	31.53	2.20	45.41	31.79	2.25	47.67	32.39	2.29
-0.4	36.36	30.37	2.05	38.61	32.07	2.13	40.88	31.06	2.20	42.51	31.72	2.23	45.38	31.98	2.27	47.65	32.58	2.32
5	36.33	30.63	2.08	38.58	32.35	2.17	40.83	31.32	2.24	42.46	32.00	2.26	45.35	32.26	2.31	47.61	32.88	2.36
10	36.30	30.87	2.12	38.55	32.62	2.19	40.80	31.58	2.27	42.43	32.24	2.30	45.31	32.52	2.35	47.56	33.14	2.39
15	36.27	31.12	2.14	38.52	32.88	2.23	40.77	31.83	2.31	42.40	32.50	2.33	45.28	32.77	2.37	47.53	33.39	2.42
20	36.24	31.36	2.18	38.49	33.12	2.26	40.74	32.07	2.33	42.37	32.75	2.37	45.25	33.03	2.41	47.50	33.65	2.45
25	36.21	31.60	2.20	38.46	33.39	2.29	40.71	32.33	2.37	42.34	33.01	2.39	45.21	33.29	2.44	47.46	33.91	2.49
30	36.19	31.85	2.24	38.43	33.65	2.32	40.69	32.58	2.41	42.31	33.25	2.43	45.18	33.54	2.48	47.43	34.17	2.53
35	36.16	32.09	2.27	38.40	33.89	2.35	40.66	32.82	2.44	42.27	33.52	2.47	45.15	33.80	2.51	47.38	34.44	2.56
40	36.13	32.33	2.30	38.37	34.15	2.38	40.63	33.07	2.47	42.24	33.76	2.50	45.12	34.04	2.55	47.35	34.70	2.60
45	36.10	32.58	2.33	38.34	34.42	2.42	40.60	33.31	2.50	42.21	34.02	2.54	45.07	34.30	2.57	47.31	34.96	2.63
50	36.08	32.80	2.36	38.31	34.66	2.44	40.57	33.55	2.54	42.18	34.27	2.56	45.04	34.57	2.61	47.28	35.20	2.67
55	36.05	33.05	2.39	38.28	34.92	2.48	40.52	33.82	2.57	42.15	34.51	2.60	45.01	34.81	2.65	47.25	35.47	2.71
60	36.02	33.29	2.42	38.25	35.17	2.51	40.49	34.06	2.60	42.12	34.77	2.63	44.97	35.05	2.68	47.20	35.73	2.73
65	36.00	33.54	2.45	38.22	35.43	2.54	40.46	34.30	2.63	42.07	35.02	2.67	44.94	35.32	2.72	47.18	35.99	2.77
70	35.97	33.78	2.49	38.19	35.67	2.57	40.43	34.55	2.67	42.04	35.28	2.70	44.91	35.56	2.76	47.13	36.24	2.80
75	35.11	33.22	2.62	37.33	35.13	2.72	39.55	34.06	2.82	41.16	34.79	2.85	44.01	35.13	2.90	46.24	35.82	2.96
80	34.24	32.65	2.76	36.46	34.59	2.85	38.69	33.55	2.96	40.28	34.32	3.00	43.13	34.70	3.04	45.35	35.41	3.10
85	33.37	32.05	2.89	35.60	34.00	3.00	37.81	33.03	3.10	39.42	33.82	3.14	42.25	34.23	3.20	44.46	34.96	3.26
90	32.52	31.45	3.02	34.73	33.40	3.13	36.94	32.50	3.25	38.54	33.29	3.28	41.37	33.74	3.34	43.58	34.51	3.42
95	31.58	31.12	3.15	33.79	33.10	3.27	35.99	32.26	3.39	**37.00**	**32.56**	**3.429**	40.39	33.57	3.49	42.59	34.36	3.56
100	30.82	30.29	3.28	33.02	32.26	3.40	35.22	31.49	3.54	36.52	32.05	3.57	39.63	32.84	3.65	41.82	33.65	3.72
105	30.05	29.45	3.43	32.26	31.43	3.55	34.45	30.72	3.68	36.05	31.55	3.72	38.85	32.13	3.79	41.06	32.95	3.86
110	29.29	28.45	3.56	31.48	30.42	3.68	33.69	29.77	3.83	35.27	30.61	3.86	38.09	31.21	3.93	40.28	32.03	4.02
115	28.51	27.59	3.69	30.72	29.56	3.83	32.91	28.98	3.97	34.51	29.82	4.01	37.31	30.46	4.09	39.52	31.32	4.18
118	28.05	27.40	3.78	30.26	29.39	3.91	32.45	28.83	4.05	34.05	29.69	4.10	36.85	30.37	4.18	39.06	31.23	4.26
122	27.90	27.33	3.87	30.09	29.32	4.02	32.30	28.79	4.16	33.88	29.65	4.21	36.70	30.33	4.30	38.89	31.21	4.38

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

SHC: Sensible Capacity (kBtu/h) PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.

2. Cooling range can be extended from 5°F down to -4°F using the Low Ambient Wind Baffle Kit (sold separately).

3. Grey shading indicates reference data. Operation outside of the verified temperature range is subject to decreased performance and / or safety interruption. .

4. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Cooling capacity rating obtained with air entering the indoor component at 80ºF dry bulb (DB) and 67ºF wet bulb (WB), and outdoor ambient conditions of 95ºF dry bulb (DB) and 75ºF wet bulb (WB).

Table reflects heat pump outdoor unit cooling performance only.

MAXIMUM COOLING CAPACITY

LGRED°

KSSPA421A100-C1 (LKMMA42C1 / KUSXA422A), KSSSA421A100-C1 (LKMMA42C1 / KUSXA422A)

Table 35: KSSPA421A100-C1 (LKMMA42C1 / KUSXA422A), KSSSA421A100-C1 (LKMMA42C1 / KUSXA422A) Maximum Cooling Capacities.

Outdoor Air Temp. (°F DB)	Indoor Air Temperature (°F DB / °F WB)																	
	68 / 57			72 / 61			77 / 64			80 / 67			86 / 72			90 / 75		
	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
-4	42.27	34.69	2.26	44.91	36.63	2.34	47.53	35.47	2.42	49.42	36.22	2.45	52.78	36.53	2.50	55.40	37.22	2.54
-0.4	42.25	34.89	2.27	44.87	36.85	2.37	47.51	35.69	2.45	49.40	36.44	2.48	52.74	36.74	2.53	55.38	37.43	2.58
5	42.22	35.19	2.31	44.84	37.17	2.41	47.46	35.99	2.49	49.35	36.76	2.52	52.71	37.07	2.57	55.33	37.78	2.62
10	42.19	35.47	2.35	44.80	37.47	2.44	47.42	36.29	2.53	49.31	37.04	2.56	52.66	37.37	2.61	55.28	38.08	2.66
15	42.15	35.75	2.38	44.77	37.78	2.48	47.39	36.57	2.57	49.28	37.35	2.60	52.62	37.65	2.64	55.24	38.36	2.69
20	42.12	36.03	2.42	44.73	38.06	2.52	47.35	36.85	2.60	49.24	37.63	2.64	52.59	37.95	2.68	55.21	38.66	2.73
25	42.08	36.31	2.45	44.70	38.36	2.54	47.32	37.15	2.64	49.21	37.93	2.66	52.54	38.25	2.72	55.15	38.96	2.77
30	42.06	36.59	2.49	44.66	38.66	2.58	47.28	37.43	2.68	49.17	38.21	2.70	52.50	38.53	2.76	55.12	39.26	2.81
35	42.03	36.87	2.53	44.63	38.94	2.61	47.25	37.71	2.72	49.12	38.51	2.74	52.47	38.83	2.80	55.07	39.56	2.85
40	41.99	37.15	2.56	44.60	39.24	2.65	47.21	37.99	2.74	49.09	38.79	2.78	52.43	39.11	2.84	55.03	39.87	2.89
45	41.96	37.43	2.60	44.56	39.54	2.69	47.18	38.27	2.78	49.05	39.09	2.82	52.38	39.41	2.86	54.98	40.17	2.93
50	41.93	37.69	2.62	44.53	39.82	2.72	47.14	38.55	2.82	49.02	39.37	2.85	52.35	39.72	2.90	54.95	40.45	2.97
55	41.89	37.97	2.66	44.49	40.13	2.76	47.09	38.85	2.86	48.98	39.65	2.89	52.31	40.00	2.94	54.91	40.75	3.01
60	41.86	38.25	2.69	44.46	40.41	2.80	47.06	39.13	2.89	48.95	39.95	2.93	52.26	40.28	2.98	54.86	41.05	3.04
65	41.84	38.53	2.73	44.42	40.71	2.82	47.02	39.41	2.93	48.90	40.23	2.97	52.22	40.58	3.02	54.83	41.35	3.08
70	41.80	38.81	2.77	44.39	40.99	2.86	46.99	39.69	2.97	48.86	40.53	3.00	52.19	40.86	3.06	54.77	41.63	3.12
75	40.80	38.16	2.92	43.38	40.36	3.02	45.96	39.13	3.13	47.84	39.97	3.17	51.15	40.36	3.22	53.73	41.16	3.29
80	39.79	37.52	3.06	42.38	39.74	3.17	44.96	38.55	3.29	46.81	39.44	3.33	50.13	39.87	3.39	52.71	40.69	3.45
85	38.79	36.83	3.21	41.37	39.07	3.33	43.94	37.95	3.45	45.81	38.85	3.49	49.10	39.33	3.56	51.67	40.17	3.63
90	37.80	36.14	3.36	40.36	38.38	3.48	42.93	37.35	3.61	44.79	38.25	3.65	48.08	38.77	3.72	50.65	39.65	3.80
95	36.71	35.75	3.51	39.27	38.03	3.64	41.82	37.07	3.77	**43.00**	**37.41**	**3.813**	46.94	38.57	3.88	49.50	39.48	3.96
100	35.82	34.80	3.65	38.37	37.07	3.79	40.94	36.18	3.93	42.45	36.83	3.97	46.05	37.73	4.05	48.60	38.66	4.13
105	34.92	33.83	3.81	37.49	36.12	3.95	40.04	35.30	4.09	41.89	36.25	4.13	45.15	36.91	4.21	47.72	37.86	4.30
110	34.04	32.69	3.96	36.58	34.95	4.09	39.15	34.20	4.26	40.99	35.17	4.30	44.27	35.86	4.38	46.81	36.81	4.47
115	33.13	31.70	4.11	35.70	33.96	4.26	38.25	33.29	4.42	40.10	34.26	4.46	43.36	35.00	4.55	45.93	35.99	4.64
118	32.60	31.48	4.20	35.16	33.77	4.35	37.71	33.12	4.51	39.57	34.11	4.56	42.83	34.89	4.64	45.39	35.88	4.74
122	32.42	31.40	4.31	34.97	33.68	4.47	37.54	33.08	4.63	39.38	34.07	4.68	42.65	34.85	4.78	45.20	35.86	4.87

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

SHC: Sensible Capacity (kBtu/h) PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.

2. Cooling range can be extended from 5°F down to -4°F using the Low Ambient Wind Baffle Kit (sold separately).

3. Grey shading indicates reference data. Operation outside of the verified temperature range is subject to decreased performance and / or safety interruption. .

4. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Cooling capacity rating obtained with air entering the indoor component at 80ºF dry bulb (DB) and 67ºF wet bulb (WB), and outdoor ambient conditions of 95ºF dry bulb (DB) and 75ºF wet bulb (WB).

Table reflects heat pump outdoor unit cooling performance only.

LG

MAXIMUM COOLING CAPACITY

KSSPA481A100-C1 (LKMMA48C1 / KUSXA482A), KSSSA481A100-C1 (LKMMA48C1 / KUSXA482A)

Table 36: KSSPA481A100-C1 (LKMMA48C1 / KUSXA482A), KSSSA481A100-C1 (LKMMA48C1 / KUSXA482A) Maximum Cooling Capacities.

Outdoor Air Temp. (°F DB)	Indoor Air Temperature (°F DB / °F WB)																	
	68 / 57			72 / 61			77 / 64			80 / 67			86 / 72			90 / 75		
	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
-4	49.15	41.27	2.68	52.22	43.58	2.78	55.26	42.19	2.87	57.46	43.09	2.90	61.37	43.45	2.97	64.42	44.27	3.01
-0.4	49.13	41.50	2.70	52.18	43.83	2.81	55.24	42.45	2.90	57.44	43.35	2.93	61.33	43.71	3.00	64.40	44.53	3.06
5	49.09	41.86	2.74	52.14	44.22	2.85	55.18	42.81	2.95	57.38	43.73	2.98	61.29	44.09	3.05	64.33	44.94	3.11
10	49.05	42.19	2.79	52.10	44.58	2.89	55.14	43.17	3.00	57.34	44.06	3.03	61.23	44.45	3.09	64.27	45.29	3.16
15	49.01	42.53	2.82	52.06	44.94	2.93	55.10	43.50	3.05	57.30	44.42	3.08	61.19	44.78	3.12	64.23	45.63	3.19
20	48.97	42.86	2.87	52.02	45.27	2.98	55.06	43.83	3.08	57.26	44.76	3.12	61.15	45.14	3.17	64.19	45.99	3.24
25	48.93	43.19	2.90	51.98	45.63	3.01	55.02	44.19	3.12	57.22	45.12	3.16	61.09	45.50	3.22	64.13	46.35	3.28
30	48.91	43.53	2.95	51.94	45.99	3.06	54.98	44.53	3.17	57.18	45.45	3.20	61.05	45.83	3.27	64.09	46.70	3.33
35	48.87	43.86	3.00	51.90	46.32	3.09	54.94	44.86	3.22	57.12	45.81	3.25	61.01	46.19	3.31	64.03	47.06	3.38
40	48.83	44.19	3.03	51.85	46.68	3.14	54.90	45.19	3.25	57.08	46.14	3.30	60.97	46.53	3.36	63.99	47.42	3.43
45	48.79	44.53	3.08	51.81	47.04	3.19	54.86	45.53	3.30	57.04	46.50	3.35	60.91	46.88	3.39	63.93	47.78	3.47
50	48.75	44.83	3.11	51.77	47.37	3.22	54.82	45.86	3.35	57.00	46.83	3.38	60.87	47.24	3.44	63.89	48.11	3.52
55	48.71	45.17	3.16	51.73	47.73	3.27	54.76	46.22	3.39	56.96	47.17	3.43	60.83	47.58	3.49	63.85	48.47	3.57
60	48.67	45.50	3.19	51.69	48.06	3.31	54.72	46.55	3.43	56.92	47.52	3.47	60.77	47.91	3.54	63.79	48.83	3.60
65	48.65	45.83	3.24	51.65	48.42	3.35	54.68	46.88	3.47	56.85	47.86	3.52	60.73	48.27	3.58	63.75	49.19	3.65
70	48.61	46.17	3.28	51.61	48.76	3.39	54.64	47.22	3.52	56.81	48.22	3.55	60.69	48.60	3.63	63.69	49.52	3.70
75	47.44	45.40	3.46	50.44	48.01	3.58	53.45	46.55	3.71	55.63	47.55	3.76	59.48	48.01	3.82	62.48	48.96	3.90
80	46.27	44.63	3.63	49.27	47.27	3.76	52.28	45.86	3.90	54.44	46.91	3.95	58.29	47.42	4.01	61.29	48.40	4.09
85	45.10	43.81	3.81	48.10	46.47	3.95	51.09	45.14	4.09	53.27	46.22	4.14	57.10	46.78	4.22	60.08	47.78	4.30
90	43.95	42.99	3.98	46.94	45.65	4.12	49.92	44.42	4.28	52.08	45.50	4.33	55.91	46.11	4.41	58.89	47.17	4.50
95	42.68	42.47	4.16	45.67	45.24	4.31	48.63	44.09	4.47	**50.00**	**44.50**	**4.520**	54.58	45.88	4.60	57.56	46.96	4.69
100	41.65	41.40	4.33	44.62	44.09	4.49	47.60	43.04	4.66	49.35	43.81	4.71	53.55	44.88	4.81	56.51	45.99	4.90
105	40.60	40.24	4.52	43.59	42.96	4.68	46.55	41.99	4.85	48.71	43.12	4.90	52.50	43.91	5.00	55.48	45.04	5.09
110	39.58	38.89	4.69	42.54	41.58	4.85	45.52	40.68	5.04	47.66	41.83	5.09	51.47	42.65	5.19	54.44	43.78	5.30
115	38.53	37.71	4.87	41.51	40.40	5.04	44.48	39.60	5.23	46.63	40.76	5.28	50.42	41.63	5.39	53.41	42.81	5.50
118	37.90	37.45	4.98	40.89	40.17	5.15	43.85	39.40	5.34	46.01	40.58	5.41	49.80	41.50	5.50	52.78	42.68	5.61
122	37.70	37.35	5.11	40.67	40.07	5.30	43.65	39.35	5.49	45.79	40.53	5.55	49.60	41.45	5.66	52.56	42.65	5.77

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

SHC: Sensible Capacity (kBtu/h) PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.

2. Cooling range can be extended from 5°F down to -4°F using the Low Ambient Wind Baffle Kit (sold separately).

3. Grey shading indicates reference data. Operation outside of the verified temperature range is subject to decreased performance and / or safety interruption. .

4. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Cooling capacity rating obtained with air entering the indoor component at 80ºF dry bulb (DB) and 67ºF wet bulb (WB), and outdoor ambient conditions of 95ºF dry bulb (DB) and 75ºF wet bulb (WB).

Table reflects heat pump outdoor unit cooling performance only.

MAXIMUM COOLING CAPACITY

LGRED°

KSSPA481A120-D1 (LKMMA48D1 / KUSXA482A), KSSSA481A120-D1 (LKMMA48D1 / KUSXA482A)

Table 37: KSSPA481A120-D1 (LKMMA48D1 / KUSXA482A), KSSSA481A120-D1 (LKMMA48D1 / KUSXA482A) Maximum Cooling Capacities.

Outdoor Air Temp. (°F DB)	Indoor Air Temperature (°F DB / °F WB)																	
	68 / 57			72 / 61			77 / 64			80 / 67			86 / 72			90 / 75		
	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
-4	50.14	42.10	2.82	53.26	44.45	2.92	56.37	43.04	3.02	58.61	43.95	3.05	62.60	44.32	3.12	65.70	45.15	3.17
-0.4	50.12	42.33	2.83	53.22	44.71	2.95	56.35	43.30	3.05	58.59	44.21	3.08	62.56	44.58	3.15	65.68	45.42	3.22
5	50.07	42.70	2.88	53.18	45.10	3.00	56.29	43.66	3.10	58.53	44.61	3.13	62.52	44.97	3.20	65.62	45.83	3.27
10	50.03	43.04	2.93	53.14	45.47	3.03	56.24	44.03	3.15	58.49	44.95	3.18	62.45	45.34	3.25	65.56	46.20	3.32
15	49.99	43.38	2.97	53.10	45.83	3.08	56.20	44.37	3.20	58.44	45.31	3.23	62.41	45.68	3.28	65.52	46.54	3.35
20	49.95	43.72	3.02	53.06	46.17	3.13	56.16	44.71	3.23	58.40	45.65	3.28	62.37	46.04	3.33	65.48	46.91	3.40
25	49.91	44.06	3.05	53.02	46.54	3.17	56.12	45.08	3.28	58.36	46.02	3.32	62.31	46.41	3.38	65.42	47.27	3.45
30	49.89	44.40	3.10	52.97	46.91	3.22	56.08	45.42	3.33	58.32	46.36	3.37	62.27	46.75	3.43	65.37	47.64	3.50
35	49.85	44.74	3.15	52.93	47.25	3.25	56.04	45.76	3.38	58.26	46.72	3.42	62.23	47.12	3.48	65.31	48.00	3.55
40	49.81	45.08	3.18	52.89	47.61	3.30	56.00	46.10	3.42	58.22	47.06	3.47	62.19	47.46	3.53	65.27	48.37	3.60
45	49.77	45.42	3.23	52.85	47.98	3.35	55.96	46.44	3.47	58.18	47.43	3.52	62.13	47.82	3.57	65.21	48.74	3.65
50	49.73	45.73	3.27	52.81	48.32	3.38	55.91	46.78	3.52	58.14	47.77	3.55	62.08	48.19	3.62	65.17	49.08	3.70
55	49.68	46.07	3.32	52.77	48.68	3.43	55.85	47.14	3.57	58.09	48.11	3.60	62.04	48.53	3.67	65.13	49.44	3.75
60	49.64	46.41	3.35	52.73	49.02	3.48	55.81	47.48	3.60	58.05	48.48	3.65	61.98	48.87	3.72	65.07	49.81	3.78
65	49.62	46.75	3.40	52.69	49.39	3.52	55.77	47.82	3.65	57.99	48.82	3.70	61.94	49.23	3.77	65.03	50.17	3.83
70	49.58	47.09	3.45	52.65	49.73	3.57	55.73	48.16	3.70	57.95	49.18	3.73	61.90	49.57	3.82	64.96	50.51	3.88
75	48.39	46.31	3.63	51.45	48.97	3.77	54.52	47.48	3.90	56.74	48.50	3.95	60.67	48.97	4.02	63.73	49.94	4.10
80	47.20	45.52	3.82	50.26	48.21	3.95	53.32	46.78	4.10	55.52	47.85	4.15	59.45	48.37	4.22	62.52	49.36	4.30
85	46.00	44.68	4.00	49.07	47.40	4.15	52.11	46.04	4.30	54.33	47.14	4.35	58.24	47.72	4.43	61.28	48.74	4.52
90	44.83	43.85	4.18	47.87	46.57	4.33	50.92	45.31	4.50	53.12	46.41	4.55	57.03	47.04	4.63	60.07	48.11	4.73
95	43.54	43.32	4.37	46.58	46.15	4.53	49.60	44.97	4.70	**51.00**	**45.39**	**4.749**	55.67	46.80	4.83	58.71	47.90	4.93
100	42.49	42.23	4.55	45.51	44.97	4.72	48.55	43.90	4.90	50.34	44.68	4.95	54.62	45.78	5.05	57.64	46.91	5.15
105	41.42	41.05	4.75	44.46	43.82	4.92	47.48	42.83	5.10	49.68	43.98	5.15	53.55	44.79	5.25	56.59	45.94	5.35
110	40.37	39.66	4.93	43.39	42.41	5.10	46.43	41.49	5.30	48.61	42.67	5.35	52.50	43.51	5.45	55.52	44.66	5.57
115	39.30	38.46	5.12	42.34	41.21	5.30	45.37	40.40	5.50	47.57	41.57	5.55	51.43	42.46	5.67	54.48	43.66	5.78
118	38.66	38.20	5.23	41.70	40.97	5.42	44.73	40.19	5.62	46.93	41.39	5.68	50.79	42.33	5.78	53.84	43.53	5.90
122	38.46	38.10	5.37	41.48	40.87	5.57	44.52	40.13	5.77	46.70	41.34	5.83	50.59	42.28	5.95	53.61	43.51	6.06

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

SHC: Sensible Capacity (kBtu/h) PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.

2. Cooling range can be extended from 5°F down to -4°F using the Low Ambient Wind Baffle Kit (sold separately).

3. Grey shading indicates reference data. Operation outside of the verified temperature range is subject to decreased performance and / or safety interruption. .

4. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Cooling capacity rating obtained with air entering the indoor component at 80ºF dry bulb (DB) and 67ºF wet bulb (WB), and outdoor ambient conditions of 95ºF dry bulb (DB) and 75ºF wet bulb (WB).

Table reflects heat pump outdoor unit cooling performance only.

LG

HEATING CAPACITY

KSSPA181A060-B1 (LKMMA18B1 / KUSXA181A), KSSSA181A060-B1 (LKMMA18B1 / KUSXA181A)

Table 38: KSSPA181A060-B1 (LKMMA18B1 / KUSXA181A), KSSSA181A060-B1 (LKMMA18B1 / KUSXA181A) Heating Capacities.

Outdoor Air Temp.		Indoor Air Temperature (°F DB)											
°F DB	°F WB	61		64		68		70		72		75	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-13	-13.4	6.79	1.15	6.10	1.18	6.19	1.22	6.14	1.24	6.11	1.25	5.81	1.29
-4	-4.4	10.68	1.19	10.44	1.23	10.13	1.27	9.97	1.29	9.84	1.31	9.48	1.34
0	-0.4	11.18	1.23	10.93	1.27	10.62	1.31	10.44	1.33	10.31	1.35	9.93	1.39
5	4.5	11.82	1.28	11.56	1.32	11.23	1.36	11.04	1.39	10.90	1.41	10.50	1.45
10	9	12.72	1.34	12.43	1.39	12.07	1.43	11.88	1.45	11.73	1.47	11.30	1.52
17	15	13.92	1.39	13.61	1.43	13.21	1.48	13.00	1.50	12.83	1.52	12.36	1.57
20	19	14.67	1.40	14.34	1.44	13.93	1.49	13.70	1.51	13.52	1.53	13.02	1.58
25	23	15.91	1.41	15.56	1.46	15.11	1.51	14.87	1.53	14.67	1.55	14.13	1.60
30	28	17.16	1.43	16.78	1.47	16.30	1.52	16.03	1.54	15.82	1.57	15.24	1.62
35	32	18.41	1.44	18.00	1.49	17.48	1.54	17.20	1.56	16.97	1.58	16.35	1.63
40	36	19.66	1.46	19.22	1.50	18.67	1.55	18.37	1.58	18.12	1.60	17.46	1.65
45	41	20.91	1.47	20.44	1.52	19.86	1.57	19.53	1.59	19.27	1.62	18.57	1.67
47	43	21.41	1.48	20.93	1.53	20.33	1.58	**20.00**	**1.60**	19.73	1.62	19.02	1.67
50	46	21.47	1.47	21.03	1.51	20.52	1.55	20.22	1.58	19.98	1.59	19.30	1.64
55	51	21.57	1.45	21.22	1.48	20.83	1.53	20.59	1.54	20.40	1.55	19.79	1.58
60	56	21.68	1.44	21.40	1.46	21.14	1.49	20.96	1.50	20.81	1.51	20.28	1.53
63	59	21.75	1.43	21.50	1.45	21.32	1.47	21.17	1.48	21.06	1.48	20.57	1.50
68	64	21.81	1.42	21.62	1.44	21.50	1.45	21.40	1.45	21.31	1.46	20.86	1.47

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.
2. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Heating capacity rating obtained with air entering the indoor component at 70ºF dry bulb (DB) and 60ºF wet bulb (WB), and outdoor ambient conditions of 47ºF dry bulb (DB) and 43ºF wet bulb (WB).

Table reflects heat pump outdoor unit heating performance only.

HEATING CAPACITY

LGRED°

KSSPA241A060-B1 (LKMMA24B1 / KUSXA241A), KSSSA241A060-B1 (LKMMA24B1 / KUSXA241A), KSSSA241A080-B1 (LKMMA24B1 / KUSXA241A)

Table 39: KSSPA241A060-B1 (LKMMA24B1 / KUSXA241A), KSSSA241A060-B1 (LKMMA24B1 / KUSXA241A), KSSSA241A080-B1 (LKMMA24B1 / KUSXA241A) Heating Capacities.

Outdoor Air Temp.		Indoor Air Temperature (°F DB)											
°F DB	°F WB	61		64		68		70		72		75	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-13	-13.4	8.88	1.60	7.98	1.64	8.09	1.70	8.03	1.73	7.99	1.74	7.59	1.80
-4	-4.4	13.96	1.66	13.65	1.71	13.25	1.77	13.04	1.80	12.87	1.83	12.40	1.87
0	-0.4	14.62	1.71	14.30	1.77	13.89	1.83	13.66	1.85	13.48	1.88	12.98	1.94
5	4.5	15.45	1.78	15.11	1.84	14.68	1.89	14.44	1.94	14.25	1.96	13.73	2.02
10	9	16.63	1.87	16.25	1.94	15.79	1.99	15.53	2.02	15.33	2.05	14.78	2.12
17	15	18.20	1.94	17.79	1.99	17.28	2.06	17.00	2.09	16.78	2.12	16.16	2.19
20	19	19.16	1.95	18.73	2.00	18.19	2.07	17.90	2.10	17.67	2.13	17.02	2.20
25	23	20.77	1.96	20.30	2.02	19.72	2.09	19.40	2.12	19.14	2.15	18.44	2.22
30	28	22.37	1.98	21.87	2.04	21.24	2.11	20.90	2.14	20.62	2.17	19.87	2.24
35	32	23.98	1.99	23.44	2.06	22.77	2.12	22.40	2.16	22.10	2.19	21.30	2.26
40	36	25.58	2.01	25.01	2.07	24.29	2.14	23.90	2.17	23.58	2.21	22.73	2.28
45	41	27.19	2.02	26.58	2.09	25.82	2.16	25.40	2.19	25.06	2.23	24.15	2.29
47	43	27.83	2.03	27.21	2.10	26.43	2.17	**26.00**	**2.20**	25.65	2.23	24.72	2.30
50	46	27.91	2.02	27.35	2.08	26.68	2.13	26.28	2.17	25.98	2.19	25.10	2.26
55	51	28.05	2.00	27.58	2.04	27.07	2.10	26.77	2.12	26.52	2.13	25.73	2.18
60	56	28.18	1.97	27.82	2.01	27.48	2.05	27.24	2.06	27.05	2.08	26.36	2.11
63	59	28.27	1.96	27.96	2.00	27.72	2.02	27.53	2.03	27.38	2.04	26.73	2.06
68	64	28.35	1.95	28.10	1.97	27.96	2.00	27.82	2.00	27.71	2.01	27.12	2.02

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.
2. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Heating capacity rating obtained with air entering the indoor component at 70ºF dry bulb (DB) and 60ºF wet bulb (WB), and outdoor ambient conditions of 47ºF dry bulb (DB) and 43ºF wet bulb (WB).

Table reflects heat pump outdoor unit heating performance only.

LG

HEATING CAPACITY

KSSPA301A060-B1 (LKMMA30B1 / KUSXA301A), KSSSA301A060-B1 (LKMMA30B1 / KUSXA301A), KSSSA301A080-B1 (LKMMA30B1 / KUSXA301A)

Table 40: KSSPA301A060-B1 (LKMMA30B1 / KUSXA301A), KSSSA301A060-B1 (LKMMA30B1 / KUSXA301A), KSSSA301A080-B1 (LKMMA30B1 / KUSXA301A) Heating Capacities.

Outdoor Air Temp.		Indoor Air Temperature (°F DB)											
°F DB	°F WB	61		64		68		70		72		75	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-13	-13.4	10.45	1.81	9.38	1.86	9.52	1.92	9.45	1.95	9.40	1.97	8.93	2.03
-4	-4.4	16.42	1.87	16.05	1.94	15.59	2.00	15.34	2.03	15.14	2.06	14.59	2.11
0	-0.4	17.21	1.94	16.82	2.00	16.34	2.06	16.07	2.09	15.86	2.12	15.27	2.19
5	4.5	18.18	2.01	17.78	2.08	17.27	2.14	16.99	2.19	16.77	2.22	16.15	2.28
10	9	19.56	2.11	19.12	2.19	18.58	2.25	18.27	2.28	18.04	2.31	17.38	2.39
17	15	21.41	2.19	20.93	2.25	20.33	2.33	20.00	2.36	19.74	2.39	19.01	2.47
20	19	22.70	2.21	22.19	2.27	21.55	2.35	21.20	2.39	20.92	2.42	20.16	2.50
25	23	24.84	2.25	24.28	2.32	23.58	2.40	23.20	2.43	22.89	2.46	22.06	2.54
30	28	26.98	2.29	26.37	2.36	25.62	2.44	25.20	2.47	24.87	2.51	23.96	2.59
35	32	29.12	2.33	28.47	2.40	27.65	2.48	27.20	2.52	26.84	2.55	25.86	2.63
40	36	31.26	2.36	30.56	2.44	29.68	2.52	29.20	2.56	28.81	2.60	27.76	2.68
45	41	33.40	2.40	32.65	2.48	31.72	2.56	31.20	2.60	30.78	2.64	29.67	2.72
47	43	34.25	2.42	33.49	2.50	32.53	2.58	**32.00**	**2.62**	31.57	2.66	30.43	2.74
50	46	34.35	2.40	33.66	2.47	32.83	2.54	32.35	2.58	31.97	2.61	30.89	2.69
55	51	34.52	2.38	33.95	2.43	33.32	2.50	32.95	2.53	32.64	2.54	31.67	2.59
60	56	34.69	2.35	34.24	2.39	33.82	2.44	33.53	2.46	33.29	2.47	32.45	2.51
63	59	34.80	2.34	34.41	2.38	34.11	2.40	33.88	2.42	33.70	2.43	32.90	2.46
68	64	34.89	2.32	34.59	2.35	34.41	2.38	34.24	2.38	34.10	2.39	33.38	2.40

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.
2. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Heating capacity rating obtained with air entering the indoor component at 70ºF dry bulb (DB) and 60ºF wet bulb (WB), and outdoor ambient conditions of 47ºF dry bulb (DB) and 43ºF wet bulb (WB).

Table reflects heat pump outdoor unit heating performance only.

HEATING CAPACITY

LGRED°

KSSPA361A060-B1 (LKMMA36B1 / KUSXA361A), KSSSA361A060-B1 (LKMMA36B1 / KUSXA361A), KSSSA361A080-B1 (LKMMA36B1 / KUSXA361A)

Table 41: KSSPA361A060-B1 (LKMMA36B1 / KUSXA361A), KSSSA361A060-B1 (LKMMA36B1 / KUSXA361A), KSSSA361A080-B1 (LKMMA36B1 / KUSXA361A) Heating Capacities.

Outdoor Air Temp.		Indoor Air Temperature (°F DB)											
°F DB	°F WB	61		64		68		70		72		75	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-13	-13.4	12.02	2.07	10.79	2.12	10.95	2.20	10.87	2.23	10.81	2.25	10.27	2.32
-4	-4.4	18.89	2.14	18.46	2.21	17.93	2.29	17.64	2.32	17.41	2.36	16.78	2.41
0	-0.4	19.79	2.21	19.35	2.29	18.79	2.36	18.48	2.39	18.24	2.43	17.57	2.50
5	4.5	20.90	2.30	20.45	2.38	19.87	2.45	19.53	2.50	19.28	2.54	18.57	2.61
10	9	22.50	2.41	21.99	2.50	21.36	2.57	21.02	2.61	20.75	2.65	19.99	2.74
17	15	24.62	2.50	24.07	2.57	23.38	2.66	23.00	2.70	22.70	2.74	21.87	2.83
20	19	26.01	2.52	25.43	2.60	24.70	2.69	24.30	2.73	23.98	2.76	23.10	2.85
25	23	28.33	2.56	27.70	2.64	26.90	2.73	26.47	2.77	26.12	2.81	25.16	2.90
30	28	30.65	2.60	29.97	2.68	29.11	2.77	28.63	2.81	28.25	2.85	27.22	2.94
35	32	32.97	2.64	32.23	2.72	31.31	2.81	30.80	2.86	30.39	2.90	29.29	2.99
40	36	35.29	2.68	34.50	2.76	33.51	2.86	32.97	2.90	32.52	2.94	31.35	3.03
45	41	37.61	2.72	36.77	2.81	35.71	2.90	35.13	2.94	34.66	2.99	33.41	3.08
47	43	38.54	2.73	37.67	2.82	36.59	2.91	**36.00**	**2.96**	35.51	3.01	34.23	3.10
50	46	38.65	2.72	37.86	2.79	36.94	2.87	36.39	2.91	35.97	2.94	34.75	3.04
55	51	38.83	2.69	38.19	2.75	37.49	2.82	37.06	2.85	36.72	2.87	35.62	2.93
60	56	39.02	2.65	38.52	2.70	38.05	2.76	37.72	2.78	37.46	2.79	36.50	2.84
63	59	39.15	2.64	38.71	2.69	38.38	2.72	38.11	2.73	37.91	2.75	37.02	2.78
68	64	39.26	2.62	38.91	2.65	38.71	2.69	38.52	2.69	38.36	2.70	37.55	2.72

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.
2. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Heating capacity rating obtained with air entering the indoor component at 70ºF dry bulb (DB) and 60ºF wet bulb (WB), and outdoor ambient conditions of 47ºF dry bulb (DB) and 43ºF wet bulb (WB).

Table reflects heat pump outdoor unit heating performance only.

LG

HEATING CAPACITY

KSSPA361A080-C1 (LKMMA36C1 / KUSXA361A), KSSSA361A080-C1 (LKMMA36C1 / KUSXA361A)

Table 42: KSSPA361A080-C1 (LKMMA36C1 / KUSXA361A), KSSSA361A080-C1 (LKMMA36C1 / KUSXA361A) Heating Capacities.

Outdoor Air Temp.		Indoor Air Temperature (°F DB)											
°F DB	°F WB	61		64		68		70		72		75	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-13	-13.4	12.54	2.09	11.26	2.15	11.42	2.22	11.34	2.26	11.28	2.28	10.72	2.35
-4	-4.4	19.71	2.17	19.27	2.24	18.71	2.31	18.41	2.35	18.16	2.38	17.51	2.44
0	-0.4	20.65	2.24	20.19	2.31	19.61	2.38	19.28	2.42	19.04	2.46	18.33	2.53
5	4.5	21.81	2.33	21.34	2.40	20.73	2.48	20.38	2.53	20.12	2.57	19.38	2.64
10	9	23.47	2.44	22.95	2.53	22.29	2.60	21.93	2.64	21.65	2.68	20.86	2.77
17	15	25.69	2.53	25.12	2.60	24.39	2.69	24.00	2.73	23.69	2.77	22.82	2.86
20	19	26.98	2.54	26.37	2.62	25.61	2.71	25.20	2.75	24.87	2.78	23.96	2.88
25	23	29.12	2.57	28.47	2.65	27.65	2.74	27.20	2.78	26.84	2.81	25.86	2.90
30	28	31.26	2.59	30.56	2.67	29.68	2.76	29.20	2.80	28.81	2.84	27.76	2.93
35	32	33.40	2.62	32.65	2.70	31.71	2.79	31.20	2.83	30.78	2.87	29.67	2.96
40	36	35.54	2.64	34.74	2.73	33.75	2.82	33.20	2.86	32.76	2.90	31.57	2.99
45	41	37.68	2.67	36.84	2.75	35.78	2.84	35.20	2.89	34.73	2.93	33.47	3.02
47	43	38.54	2.68	37.67	2.77	36.59	2.86	**36.00**	**2.90**	35.51	2.94	34.23	3.03
50	46	38.65	2.66	37.86	2.74	36.94	2.81	36.39	2.86	35.97	2.89	34.75	2.97
55	51	38.83	2.63	38.19	2.69	37.49	2.77	37.06	2.80	36.72	2.81	35.62	2.87
60	56	39.02	2.60	38.52	2.65	38.05	2.71	37.72	2.72	37.46	2.74	36.50	2.78
63	59	39.15	2.59	38.71	2.63	38.38	2.66	38.11	2.68	37.91	2.69	37.02	2.72
68	64	39.26	2.57	38.91	2.60	38.71	2.63	38.52	2.63	38.36	2.65	37.55	2.66

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.
2. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Heating capacity rating obtained with air entering the indoor component at 70ºF dry bulb (DB) and 60ºF wet bulb (WB), and outdoor ambient conditions of 47ºF dry bulb (DB) and 43ºF wet bulb (WB).

Table reflects heat pump outdoor unit heating performance only.

HEATING CAPACITY

LGRED°

KSSPA421A100-C1 (LKMMA42C1 / KUSXA422A), KSSSA421A100-C1 (LKMMA42C1 / KUSXA422A)

Table 43: KSSPA421A100-C1 (LKMMA42C1 / KUSXA422A), KSSSA421A100-C1 (LKMMA42C1 / KUSXA422A) Heating Capacities.

Outdoor Air Temp.		Indoor Air Temperature (°F DB)											
°F DB	°F WB	61		64		68		70		72		75	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-13	-13.4	15.16	2.38	13.61	2.44	13.80	2.52	13.71	2.56	13.63	2.58	12.95	2.67
-4	-4.4	23.82	2.46	23.28	2.54	22.60	2.62	22.25	2.67	21.95	2.71	21.15	2.77
0	-0.4	24.95	2.54	24.39	2.62	23.70	2.71	23.30	2.75	23.00	2.79	22.15	2.87
5	4.5	26.36	2.65	25.78	2.73	25.05	2.81	24.63	2.87	24.31	2.91	23.42	3.00
10	9	28.36	2.77	27.73	2.87	26.93	2.96	26.50	3.00	26.16	3.04	25.21	3.14
17	15	31.05	2.87	30.35	2.96	29.48	3.06	29.00	3.10	28.62	3.14	27.57	3.24
20	19	32.65	2.91	31.92	2.99	31.00	3.10	30.50	3.14	30.10	3.18	29.00	3.29
25	23	35.33	2.97	34.54	3.06	33.54	3.16	33.00	3.21	32.57	3.25	31.37	3.36
30	28	38.00	3.03	37.15	3.12	36.09	3.23	35.50	3.27	35.03	3.32	33.75	3.43
35	32	40.68	3.09	39.77	3.18	38.63	3.29	38.00	3.34	37.49	3.39	36.13	3.50
40	36	43.35	3.15	42.38	3.25	41.17	3.36	40.50	3.41	39.96	3.46	38.51	3.56
45	41	46.03	3.21	45.00	3.31	43.71	3.42	43.00	3.47	42.42	3.53	40.89	3.63
47	43	47.10	3.23	46.05	3.34	44.73	3.45	**44.00**	**3.50**	43.41	3.55	41.84	3.66
50	46	47.23	3.21	46.28	3.30	45.15	3.39	44.48	3.45	43.96	3.48	42.47	3.59
55	51	47.46	3.18	46.68	3.25	45.82	3.34	45.30	3.37	44.88	3.39	43.54	3.46
60	56	47.69	3.14	47.08	3.19	46.51	3.27	46.10	3.28	45.78	3.30	44.61	3.36
63	59	47.85	3.12	47.31	3.18	46.91	3.21	46.58	3.23	46.33	3.25	45.24	3.28
68	64	47.98	3.10	47.56	3.14	47.31	3.18	47.08	3.18	46.89	3.19	45.89	3.21

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.
2. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Heating capacity rating obtained with air entering the indoor component at 70°F dry bulb (DB) and 60°F wet bulb (WB), and outdoor ambient conditions of 47°F dry bulb (DB) and 43°F wet bulb (WB).

Table reflects heat pump outdoor unit heating performance only.

LG

HEATING CAPACITY

KSSPA481A100-C1 (LKMMA48C1 / KUSXA482A), KSSSA481A100-C1 (LKMMA48C1 / KUSXA482A)

Table 44: KSSPA481A100-C1 (LKMMA48C1 / KUSXA482A), KSSSA481A100-C1 (LKMMA48C1 / KUSXA482A) Heating Capacities.

Outdoor Air Temp.		Indoor Air Temperature (°F DB)											
°F DB	°F WB	61		64		68		70		72		75	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-13	-13.4	16.20	2.68	14.54	2.75	14.76	2.85	14.65	2.89	14.57	2.92	13.84	3.01
-4	-4.4	25.46	2.78	24.88	2.87	24.16	2.96	23.78	3.01	23.46	3.06	22.61	3.13
0	-0.4	26.67	2.87	26.07	2.96	25.33	3.06	24.91	3.10	24.59	3.15	23.67	3.24
5	4.5	28.18	2.99	27.56	3.08	26.77	3.17	26.33	3.24	25.99	3.29	25.03	3.38
10	9	30.32	3.13	29.64	3.24	28.79	3.34	28.32	3.38	27.96	3.43	26.94	3.55
17	15	33.19	3.24	32.44	3.34	31.51	3.45	31.00	3.50	30.60	3.55	29.47	3.66
20	19	35.01	3.27	34.22	3.37	33.24	3.48	32.70	3.53	32.27	3.58	31.09	3.70
25	23	38.04	3.32	37.19	3.42	36.12	3.54	35.53	3.59	35.06	3.64	33.78	3.75
30	28	41.07	3.37	40.15	3.47	39.00	3.59	38.37	3.64	37.86	3.69	36.48	3.81
35	32	44.10	3.41	43.12	3.52	41.88	3.64	41.20	3.69	40.65	3.75	39.17	3.86
40	36	47.14	3.46	46.08	3.57	44.76	3.69	44.03	3.75	43.44	3.80	41.87	3.92
45	41	50.17	3.51	49.05	3.62	47.64	3.74	46.87	3.80	46.24	3.86	44.56	3.97
47	43	51.38	3.52	50.23	3.64	48.79	3.76	**48.00**	**3.82**	47.35	3.88	45.64	4.00
50	46	51.53	3.50	50.48	3.60	49.25	3.70	48.52	3.76	47.96	3.80	46.33	3.92
55	51	51.78	3.47	50.92	3.54	49.98	3.64	49.42	3.68	48.96	3.70	47.50	3.78
60	56	52.03	3.43	51.36	3.49	50.73	3.56	50.30	3.58	49.94	3.60	48.67	3.66
63	59	52.19	3.41	51.61	3.47	51.17	3.50	50.82	3.52	50.55	3.54	49.36	3.58
68	64	52.34	3.39	51.88	3.43	51.61	3.47	51.36	3.47	51.15	3.49	50.07	3.50

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.

2. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Heating capacity rating obtained with air entering the indoor component at 70ºF dry bulb (DB) and 60ºF wet bulb (WB), and outdoor ambient conditions of 47ºF dry bulb (DB) and 43ºF wet bulb (WB).

Table reflects heat pump outdoor unit heating performance only.

HEATING CAPACITY

LGRED°

KSSPA481A120-D1 (LKMMA48D1 / KUSXA482A), KSSSA481A120-D1 (LKMMA48D1 / KUSXA482A)

Table 45: KSSPA481A120-D1 (LKMMA48D1 / KUSXA482A), KSSSA481A120-D1 (LKMMA48D1 / KUSXA482A) Heating Capacities.

Outdoor Air Temp.		Indoor Air Temperature (°F DB)											
°F DB	°F WB	61		64		68		70		72		75	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-13	-13.4	17.25	2.68	15.48	2.75	15.71	2.85	15.60	2.89	15.51	2.92	14.74	3.01
-4	-4.4	27.10	2.78	26.49	2.87	25.72	2.96	25.32	3.01	24.98	3.06	24.07	3.13
0	-0.4	28.39	2.87	27.76	2.96	26.97	3.06	26.51	3.10	26.17	3.15	25.20	3.24
5	4.5	29.99	2.99	29.34	3.08	28.50	3.17	28.03	3.24	27.67	3.29	26.65	3.38
10	9	32.28	3.13	31.55	3.24	30.65	3.34	30.15	3.38	29.77	3.43	28.68	3.55
17	15	35.33	3.24	34.54	3.34	33.54	3.45	33.00	3.50	32.57	3.55	31.37	3.66
20	19	37.15	3.27	36.32	3.37	35.27	3.48	34.70	3.53	34.25	3.58	32.99	3.69
25	23	40.18	3.31	39.28	3.41	38.15	3.53	37.53	3.58	37.04	3.63	35.68	3.75
30	28	43.21	3.36	42.25	3.46	41.03	3.58	40.37	3.63	39.83	3.68	38.38	3.80
35	32	46.24	3.40	45.21	3.51	43.91	3.63	43.20	3.68	42.62	3.73	41.08	3.85
40	36	49.28	3.44	48.18	3.56	46.79	3.67	46.03	3.73	45.42	3.79	43.77	3.90
45	41	52.31	3.49	51.14	3.60	49.67	3.72	48.87	3.78	48.21	3.84	46.47	3.96
47	43	53.52	3.51	52.33	3.62	50.83	3.74	**50.00**	**3.80**	49.33	3.86	47.54	3.98
50	46	53.67	3.49	52.59	3.58	51.30	3.68	50.54	3.74	49.96	3.78	48.26	3.90
55	51	53.93	3.45	53.04	3.53	52.07	3.62	51.48	3.66	51.00	3.68	49.48	3.76
60	56	54.20	3.41	53.50	3.47	52.85	3.55	52.39	3.56	52.02	3.58	50.70	3.64
63	59	54.37	3.39	53.76	3.45	53.30	3.49	52.93	3.51	52.65	3.53	51.41	3.56
68	64	54.52	3.37	54.04	3.41	53.76	3.45	53.50	3.45	53.28	3.47	52.15	3.49

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.
2. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Heating capacity rating obtained with air entering the indoor component at 70ºF dry bulb (DB) and 60ºF wet bulb (WB), and outdoor ambient conditions of 47ºF dry bulb (DB) and 43ºF wet bulb (WB).

Table reflects heat pump outdoor unit heating performance only.

LG

MAXIMUM HEATING CAPACITY

KSSPA181A060-B1 (LKMMA18B1 / KUSXA181A), KSSSA181A060-B1 (LKMMA18B1 / KUSXA181A)

Table 46: KSSPA181A060-B1 (LKMMA18B1 / KUSXA181A), KSSSA181A060-B1 (LKMMA18B1 / KUSXA181A) Maximum Heating Capacities.

Outdoor Air Temp.		Indoor Air Temperature (°F DB)											
°F DB	°F WB	61		64		68		70		72		75	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-13	-13.4	16.29	2.45	15.92	2.54	15.46	2.61	15.20	2.66	15.01	2.70	14.46	2.77
-4	-4.4	18.31	2.51	17.90	2.59	17.39	2.67	17.10	2.72	16.88	2.76	16.26	2.84
0	-0.4	19.21	2.53	18.78	2.62	18.24	2.70	17.94	2.75	17.71	2.79	17.06	2.87
5	4.5	20.34	2.57	19.89	2.64	19.31	2.73	19.00	2.78	18.75	2.82	18.06	2.91
10	9	21.18	2.52	20.71	2.60	20.12	2.69	19.79	2.73	19.53	2.77	18.81	2.86
17	15	22.37	2.47	21.88	2.54	21.24	2.62	20.90	2.67	20.62	2.71	19.87	2.79
20	19	22.59	2.41	22.09	2.49	21.46	2.57	21.11	2.61	20.83	2.65	20.07	2.73
25	23	22.97	2.32	22.46	2.39	21.81	2.47	21.46	2.51	21.18	2.55	20.40	2.62
30	28	23.34	2.23	22.83	2.30	22.17	2.37	21.81	2.41	21.52	2.45	20.73	2.52
35	32	23.72	2.14	23.19	2.21	22.52	2.28	22.16	2.32	21.87	2.35	21.07	2.42
40	36	24.09	2.05	23.56	2.11	22.88	2.18	22.51	2.22	22.21	2.25	21.40	2.31
45	41	24.47	1.96	23.92	2.02	23.24	2.09	22.86	2.12	22.56	2.15	21.73	2.21
47	43	24.62	1.92	24.07	1.98	23.38	2.05	**23.00**	**2.08**	22.70	2.11	21.86	2.17
50	46	24.69	1.90	24.19	1.96	23.59	2.02	23.25	2.05	22.98	2.07	22.20	2.13
55	51	24.81	1.89	24.40	1.94	23.95	1.98	23.68	2.00	23.46	2.02	22.76	2.06
60	56	24.93	1.86	24.61	1.90	24.31	1.94	24.10	1.95	23.93	1.96	23.32	1.99
63	59	25.01	1.86	24.74	1.88	24.52	1.91	24.35	1.92	24.21	1.93	23.65	1.95
68	64	25.08	1.84	24.85	1.86	24.74	1.89	24.61	1.89	24.50	1.90	23.99	1.91

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.
2. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Heating capacity rating obtained with air entering the indoor component at 70ºF dry bulb (DB) and 60ºF wet bulb (WB), and outdoor ambient conditions of 47ºF dry bulb (DB) and 43ºF wet bulb (WB).

Table reflects heat pump outdoor unit heating performance only.

MAXIMUM HEATING CAPACITY

LGRED°

KSSPA241A060-B1 (LKMMA24B1 / KUSXA241A), KSSSA241A060-B1 (LKMMA24B1 / KUSXA241A), KSSSA241A080-B1 (LKMMA24B1 / KUSXA241A)

Table 47: KSSPA241A060-B1 (LKMMA24B1 / KUSXA241A), KSSSA241A060-B1 (LKMMA24B1 / KUSXA241A), KSSSA241A080-B1 (LKMMA24B1 / KUSXA241A) Maximum Heating Capacities.

Outdoor Air Temp.		Indoor Air Temperature (°F DB)											
°F DB	°F WB	61		64		68		70		72		75	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-13	-13.4	19.29	2.93	18.85	3.05	18.31	3.13	18.00	3.19	17.77	3.24	17.12	3.32
-4	-4.4	21.95	3.11	21.46	3.21	20.84	3.31	20.50	3.37	20.24	3.42	19.49	3.52
0	-0.4	23.14	3.18	22.62	3.29	21.97	3.39	21.61	3.45	21.33	3.50	20.55	3.60
5	4.5	24.62	3.28	24.07	3.38	23.38	3.49	23.00	3.55	22.70	3.60	21.86	3.71
10	9	25.64	3.24	25.08	3.34	24.35	3.44	23.96	3.50	23.64	3.55	22.78	3.66
17	15	27.08	3.18	26.48	3.28	25.72	3.38	25.30	3.44	24.96	3.49	24.05	3.59
20	19	27.58	3.11	26.97	3.21	26.19	3.31	25.77	3.37	25.43	3.42	24.50	3.52
25	23	28.42	3.01	27.79	3.10	26.99	3.20	26.55	3.26	26.20	3.30	25.24	3.40
30	28	29.26	2.90	28.61	2.99	27.79	3.09	27.34	3.14	26.98	3.19	25.99	3.28
35	32	30.10	2.79	29.43	2.88	28.58	2.98	28.12	3.03	27.75	3.07	26.73	3.16
40	36	30.94	2.69	30.25	2.78	29.38	2.86	28.90	2.91	28.52	2.96	27.48	3.04
45	41	31.78	2.58	31.06	2.67	30.18	2.75	29.69	2.80	29.30	2.84	28.22	2.91
47	43	32.11	2.54	31.39	2.62	30.49	2.71	**30.00**	**2.75**	29.61	2.79	28.52	2.87
50	46	32.20	2.52	31.56	2.59	30.77	2.67	30.33	2.71	29.97	2.74	28.96	2.81
55	51	32.37	2.50	31.82	2.56	31.24	2.61	30.89	2.64	30.59	2.67	29.68	2.73
60	56	32.52	2.46	32.10	2.52	31.71	2.56	31.43	2.58	31.22	2.59	30.42	2.63
63	59	32.62	2.45	32.27	2.49	31.99	2.53	31.76	2.54	31.58	2.55	30.85	2.58
68	64	32.71	2.43	32.42	2.46	32.27	2.50	32.10	2.50	31.96	2.51	31.29	2.53

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.
2. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Heating capacity rating obtained with air entering the indoor component at 70ºF dry bulb (DB) and 60ºF wet bulb (WB), and outdoor ambient conditions of 47ºF dry bulb (DB) and 43ºF wet bulb (WB).

Table reflects heat pump outdoor unit heating performance only.

LG

MAXIMUM HEATING CAPACITY

KSSPA301A060-B1 (LKMMA30B1 / KUSXA301A), KSSSA301A060-B1 (LKMMA30B1 / KUSXA301A), KSSSA301A080-B1 (LKMMA30B1 / KUSXA301A)

Table 48: KSSPA301A060-B1 (LKMMA30B1 / KUSXA301A), KSSSA301A060-B1 (LKMMA30B1 / KUSXA301A), KSSSA301A080-B1 (LKMMA30B1 / KUSXA301A) Maximum Heating Capacities.

Outdoor Air Temp.		Indoor Air Temperature (°F DB)											
°F DB	°F WB	61		64		68		70		72		75	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-13	-13.4	26.79	4.61	26.18	4.79	25.43	4.92	25.00	5.01	24.69	5.09	23.78	5.22
-4	-4.4	30.52	4.71	29.84	4.87	28.98	5.02	28.50	5.11	28.13	5.18	27.10	5.33
0	-0.4	32.18	4.75	31.46	4.91	30.55	5.06	30.06	5.15	29.67	5.23	28.57	5.38
5	4.5	34.25	4.81	33.49	4.96	32.53	5.12	32.00	5.21	31.58	5.28	30.42	5.45
10	9	35.68	4.73	34.89	4.88	33.88	5.03	33.33	5.12	32.89	5.20	31.69	5.35
17	15	37.67	4.62	36.84	4.76	35.78	4.91	35.20	5.00	34.73	5.07	33.46	5.22
20	19	37.65	4.45	36.82	4.59	35.76	4.73	35.18	4.81	34.71	4.89	33.44	5.03
25	23	37.62	4.16	36.78	4.29	35.72	4.43	35.15	4.51	34.68	4.57	33.41	4.70
30	28	37.58	3.87	36.75	4.00	35.69	4.12	35.11	4.20	34.65	4.26	33.38	4.38
35	32	37.55	3.59	36.71	3.70	35.66	3.82	35.08	3.89	34.62	3.94	33.35	4.05
40	36	37.51	3.30	36.68	3.41	35.62	3.52	35.05	3.58	34.59	3.63	33.32	3.73
45	41	37.48	3.02	36.64	3.12	35.59	3.22	35.01	3.27	34.55	3.32	33.28	3.41
47	43	37.47	2.90	36.62	3.00	35.58	3.10	**35.00**	**3.14**	34.54	3.19	33.27	3.28
50	46	37.57	2.88	36.82	2.96	35.90	3.05	35.38	3.10	34.97	3.13	33.79	3.22
55	51	37.76	2.85	37.13	2.93	36.45	2.99	36.03	3.02	35.69	3.05	34.63	3.12
60	56	37.94	2.82	37.45	2.88	36.99	2.93	36.67	2.95	36.42	2.96	35.49	3.01
63	59	38.06	2.81	37.64	2.84	37.32	2.89	37.05	2.90	36.85	2.91	35.99	2.95
68	64	38.16	2.78	37.82	2.82	37.64	2.85	37.45	2.85	37.29	2.87	36.51	2.89

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.
2. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Heating capacity rating obtained with air entering the indoor component at 70ºF dry bulb (DB) and 60ºF wet bulb (WB), and outdoor ambient conditions of 47ºF dry bulb (DB) and 43ºF wet bulb (WB).

Table reflects heat pump outdoor unit heating performance only.

MAXIMUM HEATING CAPACITY

LGRED°

KSSPA361A060-B1 (LKMMA36B1 / KUSXA361A), KSSSA361A060-B1 (LKMMA36B1 / KUSXA361A), KSSSA361A080-B1 (LKMMA36B1 / KUSXA361A)

Table 49: KSSPA361A060-B1 (LKMMA36B1 / KUSXA361A), KSSSA361A060-B1 (LKMMA36B1 / KUSXA361A), KSSSA361A080-B1 (LKMMA36B1 / KUSXA361A) Maximum Heating Capacities.

Outdoor Air Temp.		Indoor Air Temperature (°F DB)											
°F DB	°F WB	61		64		68		70		72		75	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-13	-13.4	28.28	4.50	27.65	4.67	26.85	4.80	26.40	4.89	26.07	4.96	25.11	5.09
-4	-4.4	31.80	4.60	31.09	4.76	30.20	4.90	29.70	4.99	29.32	5.06	28.24	5.21
0	-0.4	33.37	4.64	32.62	4.80	31.68	4.95	31.17	5.03	30.76	5.11	29.63	5.26
5	4.5	35.33	4.70	34.54	4.84	33.54	5.00	33.00	5.09	32.57	5.16	31.37	5.32
10	9	36.93	4.62	36.11	4.77	35.07	4.92	34.50	5.01	34.05	5.08	32.80	5.23
17	15	39.17	4.51	38.31	4.66	37.20	4.80	36.60	4.89	36.11	4.96	34.79	5.11
20	19	39.64	4.42	38.77	4.57	37.65	4.71	37.04	4.79	36.55	4.86	35.21	5.00
25	23	40.43	4.27	39.53	4.41	38.39	4.55	37.77	4.63	37.27	4.70	35.91	4.83
30	28	41.21	4.12	40.30	4.26	39.14	4.39	38.51	4.46	38.00	4.53	36.61	4.66
35	32	42.00	3.97	41.06	4.10	39.89	4.23	39.24	4.30	38.72	4.37	37.30	4.49
40	36	42.79	3.82	41.83	3.94	40.63	4.07	39.97	4.14	39.45	4.20	38.00	4.31
45	41	43.57	3.67	42.60	3.79	41.38	3.91	40.71	3.97	40.17	4.03	38.70	4.14
47	43	43.89	3.61	42.90	3.73	41.67	3.85	**41.00**	**3.91**	40.46	3.97	38.98	4.07
50	46	44.01	3.58	43.13	3.68	42.06	3.79	41.45	3.85	40.97	3.89	39.58	4.00
55	51	44.24	3.55	43.49	3.64	42.70	3.71	42.21	3.76	41.81	3.79	40.57	3.88
60	56	44.44	3.50	43.87	3.58	43.34	3.64	42.95	3.67	42.66	3.68	41.57	3.74
63	59	44.58	3.49	44.10	3.53	43.72	3.59	43.40	3.61	43.16	3.62	42.16	3.67
68	64	44.70	3.46	44.30	3.50	44.10	3.55	43.87	3.55	43.68	3.56	42.76	3.59

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.
2. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Heating capacity rating obtained with air entering the indoor component at 70ºF dry bulb (DB) and 60ºF wet bulb (WB), and outdoor ambient conditions of 47ºF dry bulb (DB) and 43ºF wet bulb (WB).

Table reflects heat pump outdoor unit heating performance only.

LG

MAXIMUM HEATING CAPACITY

KSSPA361A080-C1 (LKMMA36C1 / KUSXA361A), KSSSA361A080-C1 (LKMMA36C1 / KUSXA361A)

Table 50: KSSPA361A080-C1 (LKMMA36C1 / KUSXA361A), KSSSA361A080-C1 (LKMMA36C1 / KUSXA361A) Maximum Heating Capacities.

Outdoor Air Temp.		Indoor Air Temperature (°F DB)											
°F DB	°F WB	61		64		68		70		72		75	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-13	-13.4	29.78	4.89	29.11	5.09	28.27	5.23	27.80	5.32	27.45	5.40	26.45	5.54
-4	-4.4	33.09	5.00	32.35	5.18	31.42	5.34	30.90	5.43	30.50	5.51	29.38	5.67
0	-0.4	34.56	5.05	33.79	5.22	32.81	5.38	32.28	5.48	31.86	5.56	30.69	5.72
5	4.5	36.40	5.12	35.58	5.27	34.56	5.44	34.00	5.54	33.56	5.62	32.32	5.79
10	9	38.04	4.99	37.20	5.14	36.13	5.31	35.54	5.40	35.07	5.48	33.79	5.64
17	15	40.35	4.81	39.46	4.96	38.32	5.12	37.70	5.21	37.20	5.29	35.84	5.44
20	19	40.92	4.68	40.01	4.83	38.86	4.98	38.23	5.07	37.72	5.15	36.34	5.30
25	23	41.86	4.47	40.94	4.61	39.76	4.76	39.11	4.84	38.59	4.91	37.18	5.05
30	28	42.81	4.26	41.86	4.40	40.65	4.53	40.00	4.61	39.47	4.68	38.02	4.81
35	32	43.76	4.04	42.78	4.18	41.55	4.31	40.88	4.38	40.34	4.45	38.86	4.57
40	36	44.70	3.83	43.70	3.96	42.45	4.08	41.76	4.15	41.21	4.21	39.70	4.33
45	41	45.65	3.62	44.63	3.74	43.35	3.86	42.65	3.92	42.09	3.98	40.54	4.09
47	43	46.03	3.53	45.00	3.65	43.71	3.77	**43.00**	**3.83**	42.44	3.89	40.88	3.99
50	46	46.16	3.50	45.23	3.61	44.11	3.71	43.47	3.77	42.96	3.81	41.51	3.92
55	51	46.39	3.47	45.61	3.56	44.78	3.64	44.27	3.68	43.85	3.71	42.55	3.80
60	56	46.61	3.43	46.01	3.50	45.45	3.56	45.05	3.59	44.74	3.61	43.60	3.67
63	59	46.76	3.42	46.25	3.46	45.85	3.52	45.52	3.53	45.27	3.55	44.22	3.59
68	64	46.88	3.39	46.47	3.43	46.25	3.47	46.01	3.47	45.81	3.49	44.85	3.52

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.
2. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Heating capacity rating obtained with air entering the indoor component at 70ºF dry bulb (DB) and 60ºF wet bulb (WB), and outdoor ambient conditions of 47ºF dry bulb (DB) and 43ºF wet bulb (WB).

Table reflects heat pump outdoor unit heating performance only.

MAXIMUM HEATING CAPACITY

LGRED°

KSSPA421A100-C1 (LKMMA42C1 / KUSXA422A), KSSSA421A100-C1 (LKMMA42C1 / KUSXA422A)

Table 51: KSSPA421A100-C1 (LKMMA42C1 / KUSXA422A), KSSSA421A100-C1 (LKMMA42C1 / KUSXA422A) Maximum Heating Capacities.

Outdoor Air Temp.		Indoor Air Temperature (°F DB)											
°F DB	°F WB	61		64		68		70		72		75	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-13	-13.4	35.14	5.61	34.35	5.83	33.36	5.99	32.80	6.10	32.39	6.19	31.20	6.36
-4	-4.4	40.05	5.80	39.15	6.00	38.03	6.18	37.40	6.29	36.92	6.38	35.56	6.56
0	-0.4	42.23	5.88	41.29	6.07	40.10	6.26	39.44	6.37	38.93	6.47	37.50	6.66
5	4.5	44.96	5.98	43.96	6.16	42.69	6.37	42.00	6.48	41.45	6.57	39.92	6.77
10	9	46.47	5.86	45.44	6.04	44.13	6.24	43.42	6.35	42.84	6.44	41.27	6.63
17	15	48.59	5.69	47.52	5.87	46.15	6.05	45.40	6.16	44.79	6.25	43.16	6.43
20	19	48.87	5.54	47.79	5.72	46.41	5.89	45.66	6.00	45.05	6.09	43.41	6.26
25	23	49.33	5.29	48.24	5.46	46.85	5.63	46.09	5.73	45.48	5.82	43.82	5.98
30	28	49.80	5.04	48.69	5.21	47.29	5.37	46.53	5.46	45.91	5.54	44.23	5.70
35	32	50.26	4.80	49.14	4.95	47.73	5.11	46.96	5.19	46.34	5.27	44.64	5.42
40	36	50.73	4.55	49.60	4.70	48.17	4.85	47.39	4.93	46.77	5.00	45.05	5.14
45	41	51.20	4.30	50.05	4.44	48.61	4.58	47.83	4.66	47.20	4.73	45.47	4.86
47	43	51.38	4.20	50.23	4.34	48.79	4.48	**48.00**	**4.55**	47.37	4.62	45.63	4.74
50	46	51.52	4.17	50.49	4.29	49.24	4.41	48.53	4.48	47.96	4.53	46.34	4.66
55	51	51.79	4.13	50.92	4.24	49.98	4.32	49.42	4.38	48.95	4.41	47.49	4.52
60	56	52.03	4.08	51.36	4.17	50.73	4.24	50.29	4.27	49.94	4.29	48.67	4.36
63	59	52.19	4.06	51.63	4.11	51.18	4.18	50.82	4.20	50.53	4.22	49.36	4.27
68	64	52.33	4.03	51.87	4.08	51.63	4.13	51.36	4.13	51.14	4.15	50.07	4.18

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.
2. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Heating capacity rating obtained with air entering the indoor component at 70ºF dry bulb (DB) and 60ºF wet bulb (WB), and outdoor ambient conditions of 47ºF dry bulb (DB) and 43ºF wet bulb (WB).

Table reflects heat pump outdoor unit heating performance only.

LG

MAXIMUM HEATING CAPACITY

KSSPA481A100-C1 (LKMMA48C1 / KUSXA482A), KSSSA481A100-C1 (LKMMA48C1 / KUSXA482A)

Table 52: KSSPA481A100-C1 (LKMMA48C1 / KUSXA482A), KSSSA481A100-C1 (LKMMA48C1 / KUSXA482A) Maximum Heating Capacities.

Outdoor Air Temp.		Indoor Air Temperature (°F DB)											
°F DB	°F WB	61		64		68		70		72		75	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-13	-13.4	35.79	5.88	34.98	6.11	33.97	6.28	33.40	6.39	32.98	6.49	31.77	6.66
-4	-4.4	41.44	6.07	40.51	6.28	39.35	6.48	38.70	6.59	38.20	6.69	36.80	6.88
0	-0.4	43.96	6.16	42.97	6.36	41.74	6.56	41.06	6.68	40.52	6.77	39.03	6.98
5	4.5	47.10	6.27	46.05	6.46	44.73	6.67	44.00	6.79	43.43	6.88	41.83	7.10
10	9	48.66	6.19	47.58	6.38	46.21	6.59	45.46	6.71	44.86	6.80	43.21	7.01
17	15	50.84	6.08	49.72	6.28	48.28	6.47	47.50	6.59	46.87	6.69	45.16	6.88
20	19	51.43	5.92	50.29	6.11	48.84	6.30	48.05	6.41	47.41	6.50	45.68	6.69
25	23	52.41	5.64	51.25	5.82	49.77	6.00	48.97	6.11	48.32	6.20	46.55	6.37
30	28	53.39	5.36	52.21	5.53	50.70	5.71	49.88	5.80	49.22	5.89	47.42	6.06
35	32	54.37	5.08	53.16	5.24	51.64	5.41	50.80	5.50	50.13	5.58	48.29	5.74
40	36	55.36	4.80	54.12	4.96	52.57	5.11	51.72	5.20	51.04	5.28	49.16	5.42
45	41	56.34	4.52	55.08	4.67	53.50	4.82	52.63	4.90	51.94	4.97	50.04	5.10
47	43	56.73	4.41	55.46	4.55	53.87	4.70	**53.00**	**4.78**	52.31	4.85	50.38	4.98
50	46	56.89	4.37	55.75	4.50	54.36	4.63	53.58	4.70	52.96	4.76	51.17	4.89
55	51	57.18	4.33	56.22	4.44	55.19	4.54	54.57	4.59	54.05	4.63	52.44	4.74
60	56	57.45	4.28	56.71	4.37	56.02	4.44	55.53	4.48	55.15	4.50	53.74	4.57
63	59	57.63	4.26	57.00	4.32	56.51	4.39	56.11	4.41	55.80	4.43	54.50	4.48
68	64	57.79	4.22	57.27	4.28	57.00	4.33	56.71	4.33	56.47	4.35	55.28	4.39

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.
2. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Heating capacity rating obtained with air entering the indoor component at 70ºF dry bulb (DB) and 60ºF wet bulb (WB), and outdoor ambient conditions of 47ºF dry bulb (DB) and 43ºF wet bulb (WB).

Table reflects heat pump outdoor unit heating performance only.

MAXIMUM HEATING CAPACITY

LGRED°

KSSPA481A120-D1 (LKMMA48D1 / KUSXA482A), KSSSA481A120-D1 (LKMMA48D1 / KUSXA482A)

Table 53: KSSPA481A120-D1 (LKMMA48D1 / KUSXA482A), KSSSA481A120-D1 (LKMMA48D1 / KUSXA482A) Maximum Heating Capacities.

Outdoor Air Temp.		Indoor Air Temperature (°F DB)											
°F DB	°F WB	61		64		68		70		72		75	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
-13	-13.4	33.21	4.74	32.47	4.93	31.53	5.07	31.00	5.16	30.61	5.24	29.49	5.37
-4	-4.4	39.62	5.28	38.73	5.46	37.62	5.63	37.00	5.73	36.53	5.81	35.18	5.98
0	-0.4	42.47	5.52	41.52	5.70	40.33	5.88	39.67	5.98	39.15	6.07	37.71	6.25
5	4.5	46.03	5.82	45.00	5.99	43.71	6.19	43.00	6.30	42.44	6.39	40.87	6.59
10	9	47.54	5.43	46.49	5.60	45.15	5.78	44.42	5.88	43.83	5.96	42.22	6.14
17	15	49.66	4.88	48.57	5.04	47.16	5.20	46.40	5.29	45.78	5.37	44.11	5.52
20	19	50.58	4.83	49.46	4.99	48.04	5.14	47.26	5.24	46.63	5.31	44.93	5.47
25	23	52.12	4.75	50.96	4.90	49.49	5.06	48.69	5.15	48.05	5.22	46.29	5.37
30	28	53.65	4.67	52.46	4.82	50.95	4.97	50.13	5.06	49.46	5.13	47.65	5.28
35	32	55.19	4.58	53.96	4.73	52.41	4.88	51.56	4.97	50.88	5.04	49.02	5.18
40	36	56.72	4.50	55.46	4.65	53.87	4.80	52.99	4.88	52.30	4.95	50.38	5.08
45	41	58.26	4.42	56.95	4.56	55.32	4.71	54.43	4.79	53.71	4.86	51.74	4.99
47	43	58.88	4.38	57.55	4.53	55.91	4.68	**55.00**	**4.75**	54.28	4.82	52.28	4.95
50	46	59.04	4.35	57.85	4.48	56.42	4.60	55.60	4.68	54.95	4.73	53.10	4.86
55	51	59.34	4.31	58.34	4.42	57.27	4.51	56.62	4.57	56.09	4.60	54.42	4.71
60	56	59.62	4.26	58.85	4.35	58.13	4.42	57.62	4.46	57.23	4.48	55.77	4.55
63	59	59.80	4.24	59.15	4.29	58.64	4.37	58.23	4.38	57.90	4.40	56.55	4.46
68	64	59.97	4.20	59.43	4.26	59.15	4.31	58.85	4.31	58.60	4.33	57.37	4.37

DB: Dry Bulb Temperature (°F) WB: Wet Bulb Temperature (°F) TC: Total Capacity (kBtu/h)

PI: Power Input (kW) (includes compressor and outdoor fan motor)

1. All capacities are net, evaporator fan motor heat is deducted.
2. Direct interpolation is permissible. ⃠ Do not extrapolate.

Capacity as rated: 0 ft. above sea level with 24.6 ft. of refrigerant piping. 0 ft. level difference between outdoor unit and indoor component.

Heating capacity rating obtained with air entering the indoor component at 70ºF dry bulb (DB) and 60ºF wet bulb (WB), and outdoor ambient conditions of 47ºF dry bulb (DB) and 43ºF wet bulb (WB).

Table reflects heat pump outdoor unit heating performance only.

LG

Cooling / Heating Correction Factors

For single zone systems, calculate the equivalent length of the liquid line from the outdoor unit to the A-Coil + Gas Furnace. Also, determine the elevation difference of the A-Coil + Gas Furnace above or below the outdoor unit. Find corresponding cooling or heating capacity correction factors as shown below. Multiply the correction factors by the cooling or heating capacity obtained from the capacity table using design conditions. The resultant is the NET cooling or heating capacity.

Refrigerant Line Length Derates

For air-cooled systems, a capacity correction factor will have to be applied to account for the length of the system's refrigerant pipe. Rate of change in capacity due to increased piping lengths is shown below.

Table 54: R32 Single-Zone Systems - A-Coil + Gas Furnace with LGRED Cooling and Heating Capacity Coefficient Factors.

Piping Length (ft.)		24.6	32.8	49.2	65.6	98.4	131.2	164	196.9	229.7	246
Cooling Capacity Coefficient Factor											
Rate of Capacity Change (%)	KSSPA181A060-B1 / KSSSA181A060-B1 (18,000 Btu/h)	100	100	99	98.1	96.1	94.3	92.1	-	-	-
	KSSPA241A060-B1 / KSSSA241A060-B1 / KSSSA241A080-B1 (24,000 Btu/h)	100	100	99	98.1	96.1	94.3	92.1	-	-	-
	KSSPA301A060-B1 / KSSSA301A060-B1 / KSSSA301A080-B1 (30,000 Btu/h)	100	100	99	98.1	96.1	94.3	92.1	94	92.5	91.8
	KSSPA361A060-B1 / KSSSA361A060-B1 / KSSSA361A080-B1 (36,000 Btu/h)	100	100	100	100	98.5	97	95.5	94	92.5	91.8
	KSSPA361A080-C1 / KSSSA361A080-C1 (36,000 Btu/h)	100	100	100	100	98.5	97	95.5	94	92.5	91.8
	KSSPA421A100-C1 / KSSSA421A100-C1 (42,000 Btu/h)	100	100	100	100	98.5	97	95.5	94	92.5	91.8
	KSSPA481A100-C1 / KSSSA481A100-C1 (48,000 Btu/h)	100	100	100	100	98.5	97	95.5	94	92.5	91.8
	KSSPA481A120-D1 / KSSSA481A120-D1 (48,000 Btu/h)	100	100	100	100	98.5	97	95.5	94	92.5	91.8
Heating Capacity Coefficient Factor											
Rate of Capacity Change (%)	KSSPA181A060-B1 / KSSSA181A060-B1 (18,000 Btu/h)	100	99.8	99.4	99	98.3	97.2	96.2	-	-	-
	KSSPA241A060-B1 / KSSSA241A060-B1 / KSSSA241A080-B1 (24,000 Btu/h)	100	99.8	99.4	99	98.3	97.2	96.2	-	-	-
	KSSPA301A060-B1 / KSSSA301A060-B1 / KSSSA301A080-B1 (30,000 Btu/h)	100	99.8	99.4	99	98.3	97.2	96.2	94	92.5	91.8
	KSSPA361A060-B1 / KSSSA361A060-B1 / KSSSA361A080-B1 (36,000 Btu/h)	100	99.7	99.2	98.7	97.7	96.6	95.6	94.6	93.5	93
	KSSPA361A080-C1 / KSSSA361A080-C1 (36,000 Btu/h)	100	99.7	99.2	98.7	97.7	96.6	95.6	94.6	93.5	93
	KSSPA421A100-C1 / KSSSA421A100-C1 (42,000 Btu/h)	100	99.7	99.2	98.7	97.7	96.6	95.6	94.6	93.5	93
	KSSPA481A100-C1 / KSSSA481A100-C1 (48,000 Btu/h)	100	99.7	99.2	98.7	97.7	96.6	95.6	94.6	93.5	93
	KSSPA481A120-D1 / KSSSA481A120-D1 (48,000 Btu/h)	100	99.7	99.2	98.7	97.7	96.6	95.6	94.6	93.5	93

Equivalent Piping Length for Piping Components

Table 55: Equivalent Piping Length for Elbows.

Component	Size (Inches)													
Elbow (ft.)	1/4	3/8	1/2	5/8	3/4	7/8	1	1-1/8	1-1/4	1-3/8	1-1/2	1-5/8	1-3/4	2-1/8
	0.5	0.6	0.7	0.8	1.2	1.3	1.5	1.6	1.8	2.0	2.1	2.3	2.5	2.8

Altitude Correction Factor

The impact of air density must be considered on systems installed at a significant altitude above sea level, therefore, locally accepted altitude correction factors must be applied.

Defrost Correction Factor for Outdoor Unit Heating Operation

The outdoor unit heating capacity will need to be adjusted for frost accumulation on air-cooled systems. If design day conditions are below the dewpoint of the surrounding air, frost will not be a problem and no correction factor is needed. In certain weather conditions, however, frost will form and accumulate on the air-cooled outdoor unit coil and impact the coils ability to transfer heat. If significant frost accumulates on the outdoor unit coil, a defrost algorithm will start automatically. The timing between defrost periods is determined by the system's ability to achieve a target head pressure value.

Capacity and AHRI ratings tables do not factor in capacity reduction when frost has accumulated on the condenser coil, nor during defrost operation.

Integrated heating capacity values can be obtained using the formula:

A = B x C

Where:

A = Integrated Heating Capacity.
B = Value found in the Capacity Table.
C = Correction Factor for Frost Accumulation Factor (from table at right).

Table 56: Outdoor Unit Frost Accumulation Factor (Heating)1.

Entering DB (ºF)	19.4	23.0	26.6	32.0	37.4	41.0	44.6
Derate Factor	0.98	0.95	0.93	0.86	0.93	0.96	1.0

[1]At 85% outdoor air relative humidity.

The frost accumulation factor does not account for effects of snow accumulation restricting airflow through the outdoor unit coil.

NOTICE

There will be a temporary reduction in capacity when frost / ice accumulates on the outside surface of the outdoor unit heat exchanger. The level of capacity reduction depends on a number of factors, for example, outdoor temperature (°F DB), relative humidity (RH), and the amount of frost present.

Correction Factors for Gas Furnace Heating Operation

General

- The furnace rating plate includes the approved furnace gas input rating and gas types.
- The furnace must be equipped to operate on the type of gas supplied, which includes any conversion kits required for alternate fuels and / or high altitude.
- Inlet gas supply pressures must be maintained within the ranges specified in the table below.
- The supply pressure must be constant and available even when all other household gas-fired appliances are operating. The minimum gas supply pressure must be maintained to prevent unreliable ignition; to prevent unit fatigue, ⃠ do not exceed the maximum gas supply pressure.

Table 57: Inlet Gas Supply Pressures.

Inlet Gas Supply Pressure		
Natural Gas	Minimum: 4.5 in. w.c.	Maximum: 10.5 in. w.c.
Propane Gas (LP)	Minimum: 11.0 in. w.c.	Maximum: 13.0 in. w.c.

NOTICE

Adjusting the minimum supply pressure below the specified limits could result in unreliable ignition. Gas input to the burners must ⃠ not exceed the rated input shown on the rating plate.
Gas furnace fatigue can result in premature heat exchanger failure. Gas pressures above 10.5 in. w.c. (natural gas) or 13 in. w.c. (propane gas) can also cause permanent damage to the gas valve.

High Altitude Derates

NOTICE

At all altitudes and with either fuel, the air temperature rise must be within the range listed on the furnace nameplate. If the gas furnace is to be converted to propane (LP), refer to the instructions included in the manufacturer's LP conversion kit.

Alternately, standard derate for altitude from National Fuel Gas Code ANSI Z223.1 of 4% per 1,000 feet may be taken. Refer to the most recent version of ANSI Z223.1 for correct gas orifice.

The orifices must be selected using the table below. The furnace derate is 4% for each 1,000 feet (305m) above sea level. This table is based upon a heating value of approximately 1,000 Btu / ft.^{3}.

In some areas the gas supplier may artificially derate the gas in an effort to compensate for the effects of altitude. If the gas is artificially derated, the appropriate orifice size must be determined based upon the Btu / ft.^{3} content of the derated gas and the altitude.

To determine the proper orifice size, refer to the latest version of NFPA54/ANSI Z223.1, and information provided by the gas supplier.

CORRECTION FACTORS / CHECK SELECTION

High Altitude Derates, continued.

Table 58: High Altitude Derate Orifice Size Chart (Natural and Propane [LP] Gas), U.S. Installation.

Input Rate (Btu/h) (Natural Gas / Propane Gas)	Gas Furnace Model Nos.	Number of Burners	Elevation (ft)									
			0-2,000		2,000-4,000		4,000-6,000		6,000-8,000		8,000-10,000	
			Nat	LP	Nat	LP	Nat	LP	Nat	LP	Nat	LP
80% Efficiency Gas Furnaces												
60,000 / 60,000	LNAEA060B1	3	45	55	47	56	48	56	49	57	51	57
80,000 / 80,000	LNAEA080C1	5	49	56	50	57	51	58	52	59	53	61
100,000 / 100,000	LNAEA100C1	6	49	56	50	57	51	58	52	59	53	61
120,000 / 120,000	LNAEA120D1	7	49	56	50	57	51	58	52	59	53	61
96% Efficiency Gas Furnaces												
60,000 / 60,000	LNAVE060B1	3	45	55	47	56	48	57	49	58	50	59
80,000 / 80,000	LNAVE080B1	4	45	55	47	56	48	57	49	58	50	59
80,000 / 80,000	LNAVE080C1	4	45	55	47	56	48	57	49	58	50	59
100,000 / 100,000	LNAVE100C1	5	45	55	47	56	48	57	49	58	50	59
120,000 / 120,000	LNAVE120D1	6	45	55	47	56	48	57	49	58	50	59

- *LP orifice based on 10 in. w.c. manifold pressure.*
- *The input to the furnace must be checked AFTER re-orificing.*

Check the A-Coil + Gas Furnace + Outdoor Unit Selection(s)

Compare the corrected cooling and heating capacities to the load calculations. Is each capacity sufficient for the zone it serves?

For each A-Coil + Gas Furnace, the corrected capacity must be at least equal to the total of the cooling design load (plus ventilation load, if applicable) for the space(s) served by the A-Coil + Gas Furnace. For each A-Coil + Gas Furnace, the corrected capacity also must be at least equal to the total of the heating design load (plus ventilation load, if applicable) for the space(s) and / or thermal zones served by the A-Coil + Gas Furnace.

The outdoor unit selected must be large enough to offset the total cooling load for all spaces it serves (account for ventilation air cooling load if the ventilation air has not been pretreated to room neutral conditions). The outdoor unit must also be large enough to offset the total heating load for all spaces it serves.

If the corrected heating capacity ratio exceeds 100%, reselect the equipment, or change the system design by moving some of the load to another system.

System Sizing Check Formulas

1. Outdoor Unit Rated Capacity.

$Q_{odu(rated)}$ (From capacity tables).

2. Outdoor Unit Capacity at Ti, To Temperature.

$Q_{odu(Ti, To)}$ (From capacity tables).

3. Outdoor Unit Capacity Coefficient Factor.

$F_{(Ti, To)} = Q_{odu(Ti, To)} / Q_{odu(rated)}$

4. Piping Correction Factor (From Capacity Coefficient Factor Tables).

$F_{(length)}$ for each piping length

5. Individual A-Coil + Gas Furnace Combination Capacity.

$Q_{acu\ (combi)} = Q_{odu(rated)} \times Q_{acu(rated)} / Q_{acu\ (rated\text{-}total)}$

6. Individual A-Coil + Gas Furnace Actual Capacity.

$Q_{acu\ (actual)} = Q_{odu(combi)} \times F_{(Ti, To)} \times F_{(length,\ altitude)}$

Conclusions and Recommendations

- Understand the design safety factors.
- Reference load calculations for actual cooling and heating capacities (applies in 99% of applications – consider total load when latent load is greater than 30%).
- Verify that the sensible load of the zone is satisfied.
- Use caution when sizing to meet listed capacity specifications for the scheduled manufacturer's equipment.

If further system design assistance is needed, or you have a unique application you would like to discuss, contact an LG sales rep.

APPLICATION GUIDELINES

Selecting the Best Location for the A-Coil Indoor Component

NOTICE

Follow recommended best practices when choosing an indoor location for the single zone indoor components.

Dos

Select a location for installing the indoor components that will meet the following conditions:

- *Place the unit where air circulation will not be blocked.*
- *Locate the indoor components in a location that is level, with enough strength to bear the weight of the indoor components, and where the components can be easily connected to the outdoor unit.*
- *Place the unit where drainage can be obtained easily. Condensation drain must be conveniently routed away from the unit.*
- *Include enough space around the indoor components so that they are accessible for maintenance and service purposes.*
- *Where electrical noise / electromagnetic waves will not affect indoor component operation. Maintain proper distances between the indoor components and electric wires, audio and visual appliances, breaker / circuit panels, etc. If the frequency signal of the appliance is unstable, then install the indoor components a minimum of ten (10) feet away, and run the power and transmission cables through a conduit.*
- *Place the unit where operating sound will not disturb occupants.*
- *Follow manufacturers' instructions for third-party furnaces and controllers.*

⃠ Do Nots

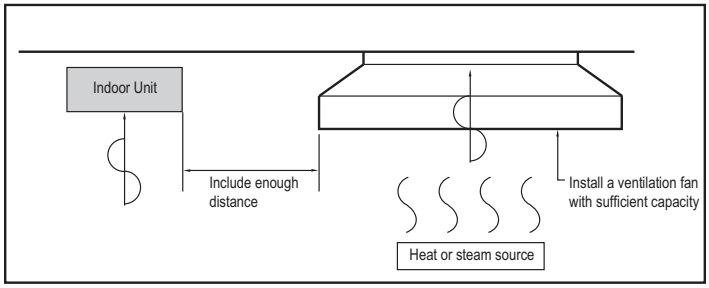
- *Do not install the unit near a heat or steam source, or where considerable amounts of oil, iron powder, or flour are used. (These materials may generate condensate, cause a reduction in heat exchanger efficiency, or the drain to malfunction. If this is a potential problem, install a ventilation fan large enough to vent out these materials.)*
- *Ensure there are no obstacles to air circulation around the unit; keep proper distances from ceilings, doorways, floor, walls, etc.*
- *Avoid installing the indoor components near high-frequency generators or near any equipment that generates an electromagnetic field (minimum 3-1/3 feet away).*

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

Figure 19: Installing Near a Heat or Steam Source.



NOTICE

- ⃠ *Indoor components must not be placed in an environment where they may 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 indoor components are installed, proper air make up or supply and/ or adequate ventilation must be provided. If the indoor components are installed near a body of water, the installation parts are at risk of corroding. Appropriate anti-corrosion methods must be taken for the components and all installation parts.*

Installing in an Area with High Humidity Levels

If the environment is prone to humidity levels of 80% or more (near the ocean, lakes, etc.) or where steam could collect in the plenum:

- Install additional insulation to the A-coil unit (glass wool insulation >13/32 inches thick).
- Install additional insulation to the refrigerant piping (insulation >13/16 inches thick).
- Seal all gaps between the A-Coil unit and the ceiling tiles (make the area air tight) so that humidity does not transfer from the plenum to the conditioned space. Also, add a ceiling grille for ventilation.

PLACEMENT / CLEARANCE CONSIDERATIONS

LGRED°

A-Coil Units

A-Coil Installation Options

LG A-Coils are designed for upflow, downflow, horizontal right, and horizontal left applications. For horizontal installations, a blowoff guard is necessary to prevent furnace air from blowing condensate out of the A-Coil. The condensate blowoff guard is included with the A-Coil.

Figure 20: Example of an Upflow (Vertical) Installation.

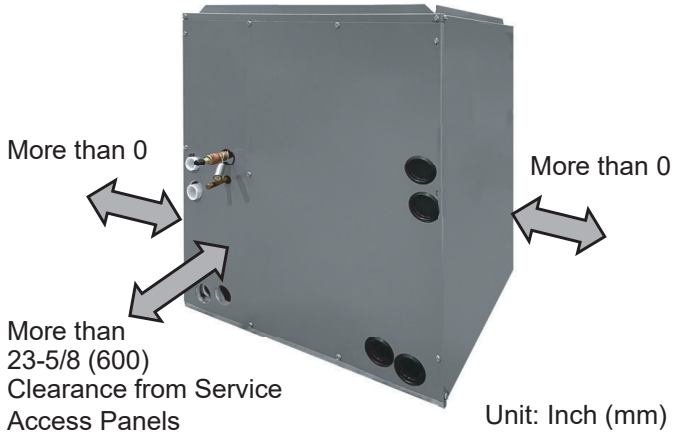
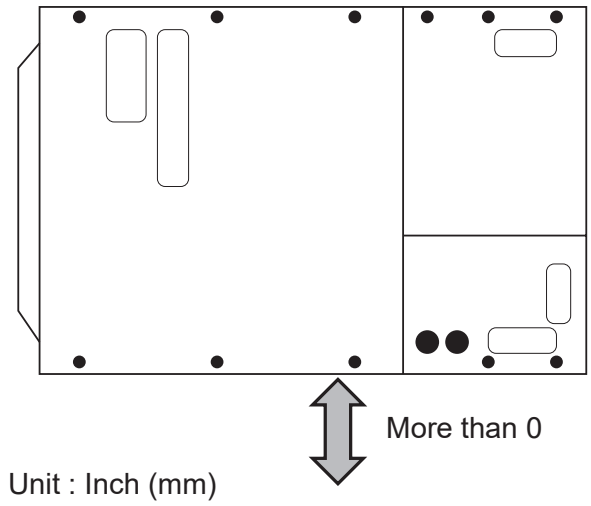


Figure 21: Example of a Horizontal Installation.



NOTICE

Ensure the ductwork and its material follows local, state, and federal codes for supplying / circulating air.
There is risk of product failure and / or damage.

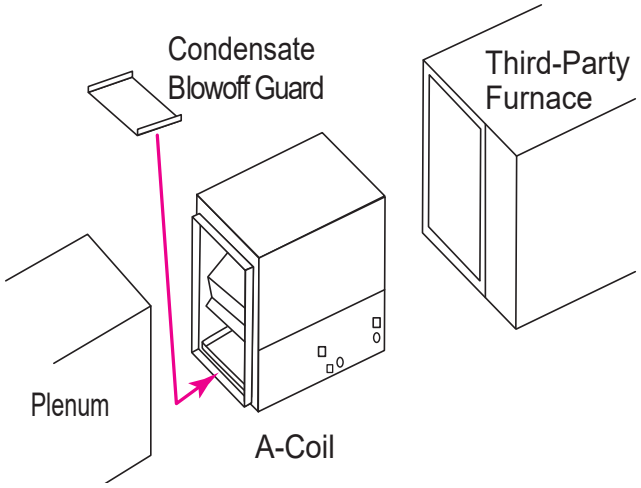
NOTICE

Installation depends on furnace and A-Coil sizes. For more detailed information, see the installation manual on www.lghvac.com.

NOTICE

Verify the gas piping connection details in the installation manual.

Figure 22: Horizontal Installation with Condensate Blowoff Guard.



LG

PLACEMENT / CLEARANCE / INSTALL CONSIDERATIONS

Gas Furnaces

General Considerations

NOTICE

The following types of furnace installations may require OUTDOOR AIR for combustion due to chemical exposure:

- *Commercial buildings*
- *Buildings with indoor pools*
- *Laundry rooms*
- *Hobby or craft rooms*
- *Chemical storage areas*

Selecting the Best Location for 80% Efficiency Gas Furnaces

NOTICE

- *Follow recommended best practices when choosing an indoor location for the components.*
- *Minimum clearances must be maintained in the combustible area.*
- The 80% Efficiency Gas Furnaces can be installed in an upflow, downflow, or horizontal configuration.
- For indoor installation only.
- May be installed on combustible flooring in an alcove or closet following minimum clearances to combustible construction as indicated (see diagram at right).
- The furnace comes default with natural gas application. An accessory kit, supplied by the manufacturer, must be used to convert to propane gas.

Horizontal in Attic:

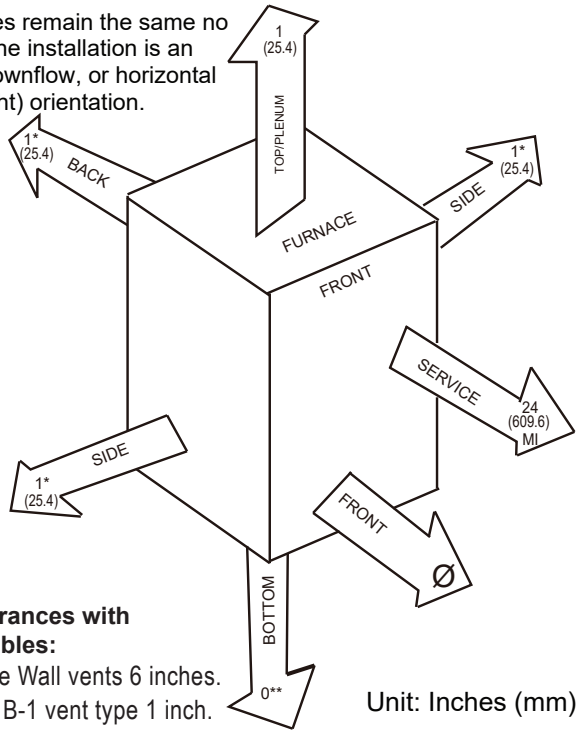
- *Indicates supply or return sides when furnace is installed horizontally.
- Position furnace so that the seams, where the top and two sides of its metal cabinet meet, are directly touching building joists or studs. Review installation manual for more details.

Downflow Configurations:

- **0 inch clearance installation on non-combustible floors only. See diagram at right.
- Front clearance of Ø18 inches is required for installation in alcoves.

Figure 23: Clearance Requirements for 80% Efficiency Gas Furnaces.

Clearances remain the same no matter if the installation is an upflow, downflow, or horizontal (left or right) orientation.



Vent Clearances with Combustibles:

- For Single Wall vents 6 inches.
- For Type B-1 vent type 1 inch.

Unit: Inches (mm)

PLACEMENT / CLEARANCE / INSTALL CONSIDERATIONS

Gas Furnaces

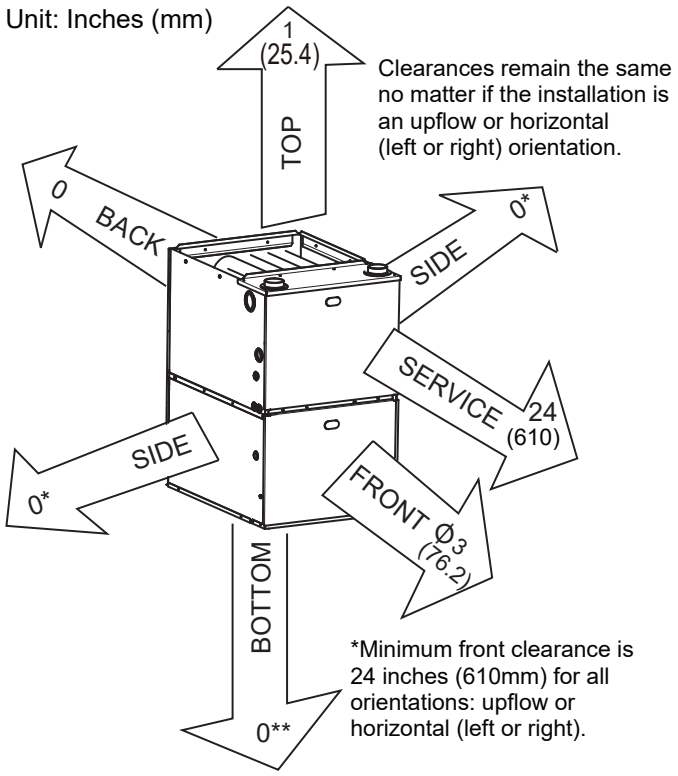
Selecting the Best Location for 96% Efficiency Gas Furnaces

NOTICE

- *Follow recommended best practices when choosing an indoor location for the components.*
- *Minimum clearances must be maintained in the combustible area.*

- The 96% Efficiency Gas Furnaces can be installed in an upflow or horizontal configuration.
- For indoor installation only.
- Equipped for use with natural gas at altitudes 0 to 10,000 ft. (0 to 3,050 m).
- May be installed on combustible flooring in an alcove or closet following minimum clearances to combustible construction as indicated (see diagram at right).
- Requires a special venting system.
- Refer to the parts and installation manuals on www.lghvac.com.
- Furnace is for use with schedule-40 PVC, PVC-DWV, CPVC, or ABS-DWV pipe, and must ⃠ NOT be vented in common with other gas-fired appliances.
- The furnace comes default with natural gas application. An accessory kit, supplied by the manufacturer, must be used to convert to propane gas.
- Roof or wall structures through which vent / air intake pipes penetrates: thickness of the material should be a maximum of 24 inches (610 mm) and a minimum of 3/4 inches (19 mm). Review installation manual on www.lghvac.com for more details.

Figure 24: Clearance Requirements for 96% Efficiency Gas Furnaces.



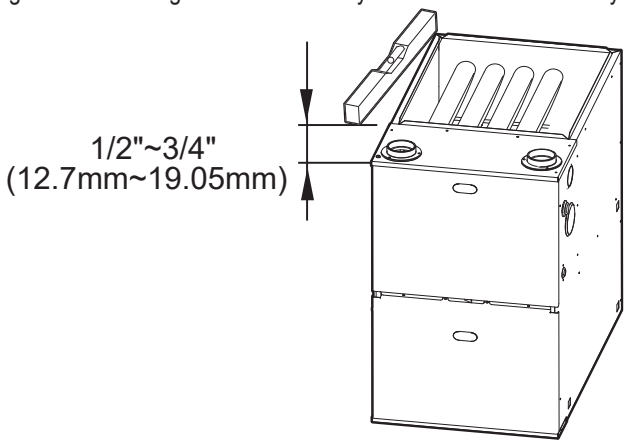
NOTICE

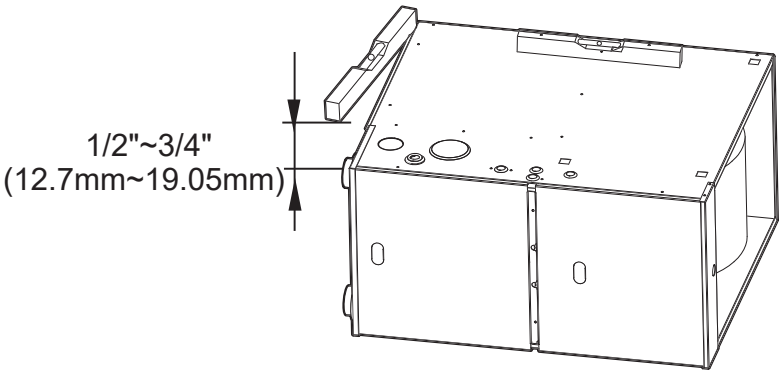
Horizontal installation in attic has additional requirements.

Horizontal in Attic:
Position the furnace so that the seams, where the top and two sides of its metal cabinet meet, are directly touching building joists or studs. Review installation manual for more details.

Upflow / Horizontal Configurations:
Must have a minimum slope of 1/2" (12.7 mm) to maximum of 3/4" (19 mm) forward for proper drainage. See the installation manual on www.lghvac.com for more detailed instructions..

Figure 25: Installing the 96% Efficiency Gas Furnace Horizontally.





Installation

⚠WARNING

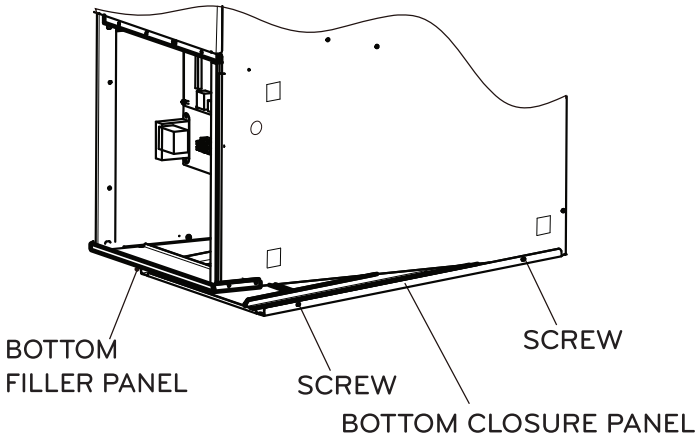
Fire, Injury, or Death Hazard

Check the power supply before installation. Ensure that the power supply is properly grounded following all applicable local, state, and NEC requirements. If the power supply is not properly grounded, and it is detected that the ground wire is charged, installation is prohibited until the issue is resolved. There is a risk of fire and electrical shock, which can cause physical injury and / or death.

Check for the layouts of the electric wiring, water / gas pipelines inside the wall, floor, and ceiling before installation. ⃠ Do not start drilling unless it is confirmed that the drill will not damage a hidden power wire, etc. An electroprobe can be used to test if a wire is near the drilling location. Avoiding electric wiring will help to prevent physical injury or death caused by damaged wiring, water / gas pipelines, and cable insulation.

LG furnaces can be installed in upflow, downflow (applicable for 80% only), and horizontal configurations.

Figure 26: Removing the Bottom Closure Panel.



Bottom Return Air Inlet

LG furnaces are shipped with the bottom closure panel installed in the bottom return-air opening. Remove and discard this panel when the bottom return air is used.

Side Return Inlet

LG gas furnaces are shipped with the bottom closure panel installed in the bottom return-air opening. The panel MUST be in place when only the side return air is used.

NOTICE

Side return air openings can be used in Upflow and in most Horizontal configurations. ⃠ Do not use side return-air openings in Downflow configurations.

Downflow Installation (Applicable for 80% Only)

NOTICE

For downflow applications, the gas furnaces are approved for use on combustible flooring when any one of the following three (3) accessories are used:

1. Special Base
2. Cased Coil Assembly
3. Coil Box

NOTICE

It is recommended that the supply-air duct flanges be completely folded over or removed from the gas furnace when installing it on a factory supplied cased coil or coil box.

Bottom Return Air Inlet

⃠ Do not use side return openings in downflow configurations. Follow all instructions detailed in the gas furnace installation manual.

PLACEMENT / CLEARANCE / INSTALL CONSIDERATIONS

Gas Furnaces

Gas Furnace Filter Arrangement

⚠WARNING

Carbon Monoxide and Poisoning Hazard

⃠ *Never operate the furnace without a filter or with the filter access door removed. Failure to follow instructions could result in physical injury or death.*

Filter Sizes

One of the most common causes of furnace operation issues is a blocked or dirty filter. The filter must be inspected monthly for dirt accumulation and replaced when necessarily. See recommended filter size and type in the table below.

Table 60: Filter Size Information - Inches (mm).

Furnace Casing Width	Filter Size		Filter Type
	Side Return	Bottom Return	
14-1/2 (368)	16 x 25 (406 x 365)	14 x 25 (356 x 635)	High Velocity (600 FPM)
17-1/2 (445)	16 x 25 (406 x 365)	16 x 25 (406 x 635)	
21 (533)	16 x 25 (406 x 635)	20 x 25 (610 x 635)	
24.5 (622)	16 x 25 (406 x 635)	24 x 25 (610 x 635)	

Filter Types

The air velocity through replacement disposable filters may not exceed 300 ft./min. (FPM) (91.4 m/min.). All velocities over 300 ft./min the use of high velocity filters. If a typical disposable filter is used and air speed exceeds 300 ft./min.(FPM), two (2) side returns or one (1) side return AND the bottom return may be needed. For airflow, see table below and on the next page.

If disposable filters are used, the return air opening should be increased to twice the size of the original air opening by using a transition duct or using two (2) filters in a V shape as used in typical ducts.

Table 59: Air Delivery - CFM (Without Filter).

Furnace Size	Speed	Static Pressure	0	0.2	0.4	0.6	0.8	1
LNAEA060B1 / LNAVE060B1	H	SCFM	1,301	1,294	1,313	1,325	1,301	1,288
		Temp. Rise °F	34	35	34	34	34	35
	M / H	SCFM	1,101	1,106	1,103	1,103	1,077	1,142
		Temp. Rise °F	41	40	41	40	42	39
	M	SCFM	901	899	889	886	879	918
		Temp. Rise °F	50	50	50	50	51	49
	M / L	SCFM	800	816	841	783	824	813
		Temp. Rise °F	/	/	/	/	/	/
	L	SCFM	600	631	635	612	601	610
		Temp. Rise °F	/	/	/	/	/	/
LNAVE080B1	H	SCFM	1,301	1,294	1,313	1,325	1,301	1,288
		Temp. Rise °F	46	46	45	45	46	46
	M / H	SCFM	1,101	1,106	1,103	1,106	1,077	1,142
		Temp. Rise °F	54	54	54	54	55	52
	M	SCFM	901	899	889	886	879	918
		Temp. Rise °F	/	/	/	/	/	/
	M / L	SCFM	800	816	841	783	824	813
		Temp. Rise °F	/	/	/	/	/	/
	L	SCFM	600	631	635	612	601	610
		Temp. Rise °F	/	/	/	/	/	/

Table 61: Air Delivery - CFM (Without Filter), continued.

Furnace Size	Speed	Static Pressure	0	0.2	0.4	0.6	0.8	1
LNAEA080C1 / LNAVE080C1	H	SCFM	1,301	1,297	1,271	1,251	1,343	1,240
		Temp. Rise °F	46	46	47	48	44	48
	M / H	SCFM	1,101	1,113	1,142	1,141	1,060	1,168
		Temp. Rise °F	54	54	52	52	56	51
	M	SCFM	901	855	905	938	874	924
		Temp. Rise °F	/	/	/	/	/	/
	M / L	SCFM	800	785	815	823	798	863
		Temp. Rise °F	/	/	/	/	/	/
	L	SCFM	600	606	593	549	571	549
		Temp. Rise °F	/	/	/	/	/	/
LNAEA100C1 / LNAVE100C1	H	SCFM	1,751	1,739	1,742	1,739	1,736	1,733
		Temp. Rise °F	43	43	43	43	43	43
	M / H	SCFM	1,501	1,516	1,492	1,500	1,499	1,505
		Temp. Rise °F	50	49	50	50	50	50
	M	SCFM	1,351	1,351	1,364	1,356	1,347	1,336
		Temp. Rise °F	55	55	55	55	55	56
	M / L	SCFM	1,151	1,154	1,152	1,132	1,154	1,142
		Temp. Rise °F	/	/	/	/	/	/
	L	SCFM	1,001	995	996	982	981	1,013
		Temp. Rise °F	/	/	/	/	/	/
LNAEA120D1 / LNAVE120D1	H	SCFM	1,951	1,910	1,896	1,929	1,981	1,917
		Temp. Rise °F	38	39	39	39	38	39
	M / H	SCFM	1,751	1,775	1,749	1,772	1,786	1,771
		Temp. Rise °F	43	42	43	42	42	42
	M	SCFM	1,501	1,570	1,575	1,596	1,543	1,544
		Temp. Rise °F	50	48	47	48	48	48
	M / L	SCFM	1,348	1,420	1,410	1,416	1,412	1,400
		Temp. Rise °F	55	53	53	53	53	53
	L	SCFM	1,148	1,210	1,196	1,174	1,179	1,175
		Temp. Rise °F	/	/	/	/	/	/

PLACEMENT / CLEARANCE / INSTALL CONSIDERATIONS

LGRED°

Gas Furnaces

Side Return

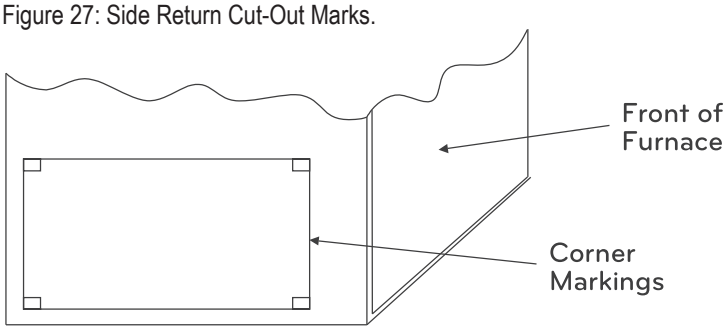
Locate the four (4) cutout locations on the gas furnace. These indicate the size of the cut-out to be made in the furnace side panel (see figure below).

Install the side filter rack following the instructions (see side filter rack installation manual). If filter(s) are present at another location in the return air system, the ductwork may be directly attached to the furnace side panel.

NOTICE

Some accessories such as electronic air cleaners and pleated media may require a larger side opening. Follow the instructions specifically supplied with that accessory for side opening requirements.

Figure 27: Side Return Cut-Out Marks.



Downflow Filters

Downflow furnaces (applicable to 80% only) typically are installed with the filters located above the furnace and extending into the return air plenum or duct. Any branch duct (rectangular or round duct) attached to the plenum must attach to the vertical plenum above the filter height.

Filter(s) may be located in the duct system external to the furnace using an external duct filter box attached to the furnace plenum or at the end of the duct in a return filter grille(s). The use of straps and / or supports is required to support the weight of the external filter box.

Gas Furnace Vent System

Vent Connections

The “Combustion Air Inducer" figure at right shows the furnace as it is shipped from the factory. To convert to a horizontal or downflow position, remove the four screws that secure the inducer assembly, and rotate 90°—take care not to damage the gasket. Reinstall screws, and then remove cap from appropriate vent outlet location on the cabinet. Trim insulation in the cabinet to same size as the hole provided, and reinstall the cap in the hole in the top panel.

NOTICE

In downflow applications, ⃠ do not block the combustion air inlet. The furnace must be installed on a coil cabinet or subbase to allow combustion air to enter the burner compartment.

Figure 28: Combustion Air Inducer.

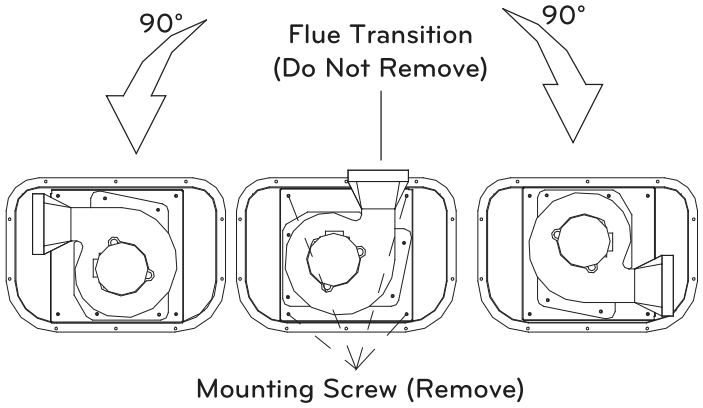
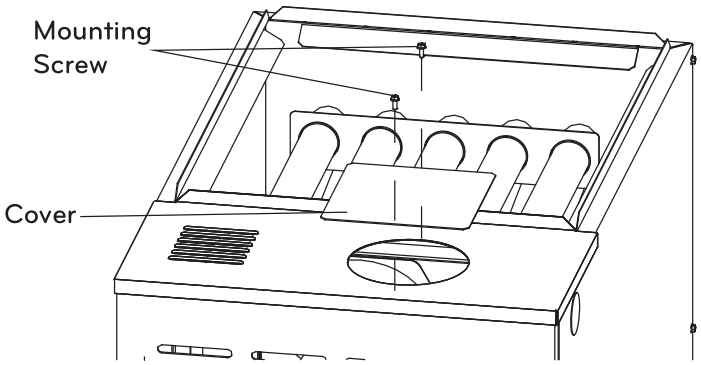


Figure 29: Cover the Hole in the Top When the Combustion Air Inducer is Rotated.



The venting system must be installed in accordance with Section 5.3 Air for combustion and Ventilation, of the National Fuel Gas Code Z223.1 / NFPA 54 (latest edition), or applicable provisions of the local building code and these instructions.

The furnace should connected to a Type B vent connector. ⃠ Do not connect the furnace to a chimney flue serving a separate appliance designed to burn solid fuel. ⃠ Single-wall vent pipe is also not permitted.

It is recommended that the gas furnace is installed in a location where the space temperature is 32°F (0°C) or higher. If the gas furnace is installed in a location where the temperature falls below 32°F (0°C) , the combustion by-products could condense, causing damage to the appliance heat exchanger.

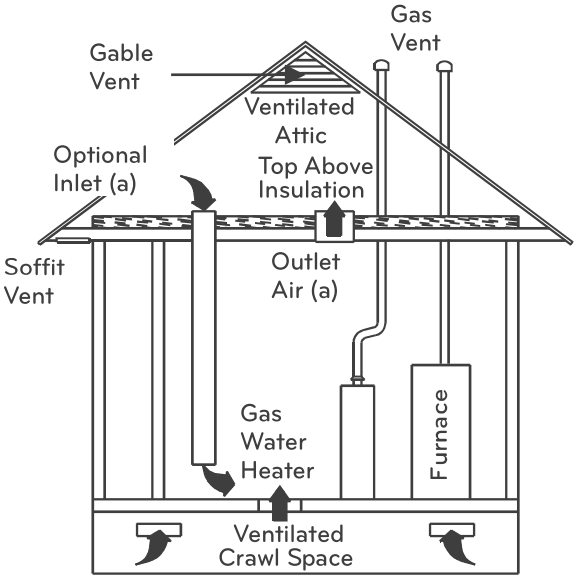
This appliance may be vented with other gas appliances in a common vent as allowed by all applicable codes and standards. See the gas furnace installation manual for more detailed information.

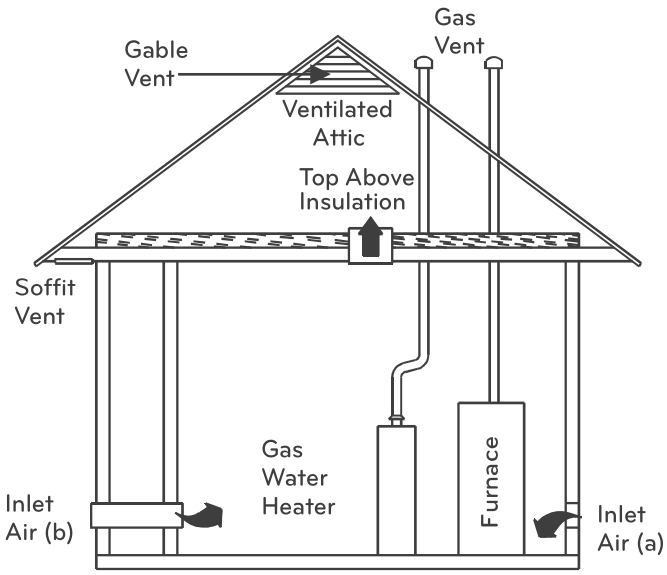
LG

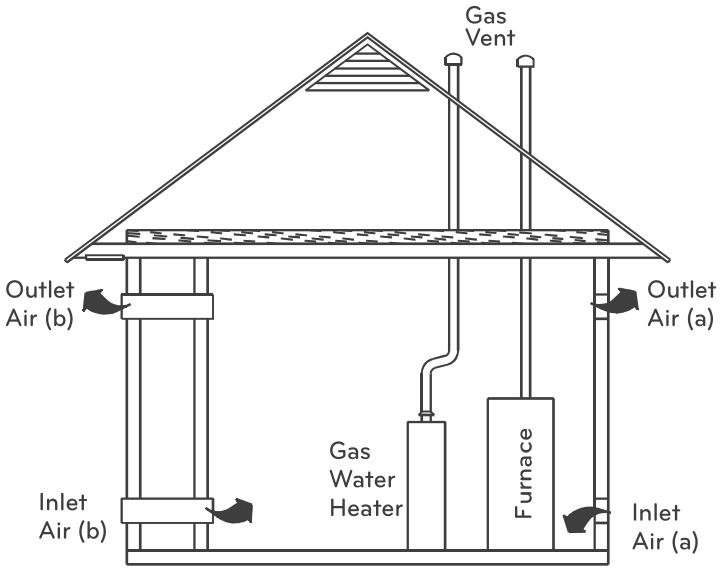
Vent Connections, continued.

The components in the diagrams below must be considered to obtain proper air for combustion and ventilation in confined spaces.

Figure 30: Outside and Ambient Combustion Air Considerations.







Vent and Supply (Outside) Air Safety Check Procedure

Vent installations must follow Parts 7 and 11 of the National Fuel Gas Code, ANSI Z223.1/NFPA 54, all applicable local building codes, and the furnace and vent manufacturer's instructions.

⚠ WARNING

Carbon Monoxide Poisoning Hazard

Failure to follow the steps detailed in the installation manuals for each component connected to the venting system could result in carbon monoxide poisoning, physical injury, or death.

Propane Gas Conversion

⚠WARNING

Physical injury or death can occur if the correct conversion kits are not installed. The appropriate kits must be applied to ensure safe and proper furnace operation. All conversions must be performed by a qualified service personnel.

NOTICE

Property damage can occur if the correct conversion kits are not installed. The appropriate kits must be applied to ensure safe and proper furnace operation. All conversions must be performed by a qualified service personnel.

LG gas furnaces are configured for natural gas. A conversion kit (Part No. 16000110001763, sold separately), MUST be installed or propane gas installations. For high altitude installations, see the "High Altitude Derate" section in the gas furnace installation manual for details. The kits MUST be used to ensure safe and proper furnace operation. All conversions must be performed by a qualified service personnel.

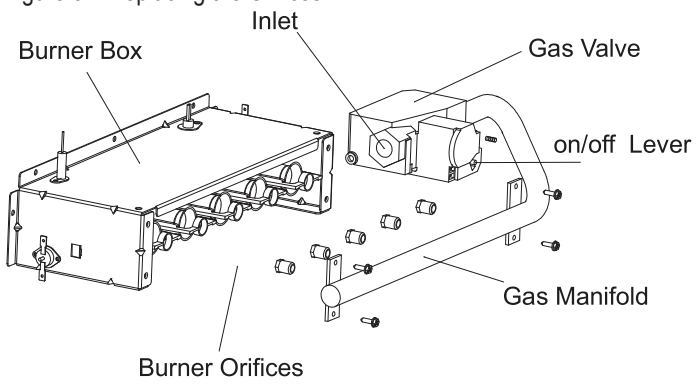
The gas supply must be shut off before to disconnecting the electrical power and installing the conversion kit:

1. Verify all utilities (gas and electricity) are turned off.
2. Remove the front panel from the gas furnace.
3. Disconnect the gas line from the gas valve.
4. Disconnect the wires at gas control.

Replacing the Orifices with Propane (LP) Orifices on the Gas Manifold

1. Disconnect all control wires.
2. Remove the four (4) screws that hold the gas manifold to the supporting burner assembly bracket.
3. Slide the manifold (with valve and orifices) out of burners. ⃠ Do not damage the assembly.
4. Replace the natural gas orifices with the propane (LP) orifices or the appropriate high altitude orifices. See the installation manual for more detailed information; see also the "Section High Altitude Installation.
5. Re-assemble the gas manifold and re-connect all wires.

Figure 31: Replacing the Orifices.



Converting From Natural to Propane (LP) Gas on the Gas Valve

1. Remove the regulator (gas valve) cover screw
2. Remove the regulator adjustment screw (beneath the cover screw)
3. Remove the natural gas spring from the regulator sleeve.
4. Insert the propane (LP) (included in the conversion kit) into the sleeve.
5. Replace the adjustment screw and adjust the outlet pressure to manufacturer's specified outlet pressure. See the installation manual for details on the outlet pressure tap location and pressure measurements.
6. Replace the regulator cover screw.
7. Attach the WARNING label (provided in the conversion kit) to the gas valve, and attach the small round propane (LP) label to the top of regulator cover screw.
8. Fill in required blanks on the provided conversion label, and attach it to an appropriate location on the furnace casing.

LG

Gas Piping Connections

To avoid possible improper operation or equipment damage due to the equipment under firing, use the proper sizes of the natural or propane gas piping from the meter / tank to the furnace.

When sizing a trunk line, be sure to consider all appliances that will operate simultaneously. See the table below.

The gas piping supplying the furnace MUST be properly sized based on the gas flow required, specific gravity of the gas, and length of the run. The gas line installation must comply with all local codes and state, or in their absence,see the latest version of U.S. NFPA54 / ANSI Z223.1.

Figure 32: Natural Gas Capacity of Pipe In Cubic Feet of Gas Per Hour (CFH)

Nominal Pipe Size Inches (mm)	Internal Diameter Inches (mm)	Pipe Length Feet (m)				
		10 (3.0)	20 (6.0)	30 (9.1)	40 (12.1)	50 (15.2)
1/2 (12.7)	0.66 (15.8)	175	120	97	82	73
3/4 (19.0)	0.824 (20.9)	360	250	200	170	151
1 (25.4)	1.049 (26.6)	680	465	375	320	285
1-1/4 (31.8)	1.380 (35.0)	1,400	950	770	660	580
1-1/2 (38.1)	1.610 (40.9)	2,100	1,460	1,180	990	900

Pressure 0.5 psig or less and pressure drop of 0.3 in. w.c.; Based on 0.60 Specific Gravity Gas)

$$CFH = \frac{\text{Btu/h Furnace Input}}{\text{Heating Value of Gas (Btu/Cubic Foot)}}$$

PLACEMENT / CLEARANCE CONSIDERATIONS

LGRED°

Outdoor Units

Selecting the Best Location for the Outdoor Unit

⚠DANGER

- ⃠ *Do not install the unit in an area where combustible gas will generate, flow, stagnate, or leak. These conditions can cause a fire, resulting in bodily injury or death.*
- ⃠ *Do not install the unit in a location where acidic solution and spray (sulfur) are often used as it can cause bodily injury or death.*
- ⃠ *Do not use the unit in environments where oil, steam, or sulfuric gas are present as it can cause bodily injury or death.*

⚠WARNING

When deciding on a location to place the outdoor unit, be sure to choose an area where run-off from defrost will not accumulate and freeze on sidewalks or driveways, which will create unsafe conditions. Properly install and insulate any drain hoses to prevent the hose from freezing, cracking, leaking, and causing unsafe conditions from frozen condensate.

Install a fence to prevent pests from crawling into the unit or unauthorized individuals from accessing it. Pests and unauthorized individuals can damage internal components which can cause a fire, electric shock, physical injury or death. Follow the placement guidelines set forth in "Clearance Requirements".

Select a location for installing the outdoor unit that will meet the following conditions:

Dos

- *Where there is enough strength to bear the weight of the unit.*
- *A location that allows for optimum air flow and is easily accessible for inspection, maintenance, and service.*
- *Where piping between the outdoor unit and indoor unit is within allowable limits.*
- *Include space for drainage to ensure condensate flows properly out of the unit when it is in heating mode.* ⃠ *Avoid placing the outdoor unit in a low-lying area where water could accumulate.*
- *If the outdoor unit is installed in a highly humid environment (near an ocean, lake, etc.), ensure that the site is well-ventilated and has a lot of natural light (Example: Install on a rooftop).*

⃠ **Do Nots**

- *Where it will be subjected to direct thermal radiation from other heat sources, or an area that would expose the outdoor unit to heat or steam like discharge from boiler stacks, chimneys, steam relief ports, other air conditioning units, kitchen vents, plumbing vents, and other sources of extreme temperatures.*
- *Where high-frequency electrical noise / electromagnetic waves will affect operation.*
- *Where operating sound from the unit will disturb inhabitants of surrounding buildings.*
- *Where the unit will be exposed to direct, strong winds.*
- *Where the discharge of one outdoor unit will blow into the inlet side of an adjacent unit (when installing multiple outdoor units).*

NOTICE

The indoor unit may take longer to provide heat, or heating performance will be reduced in winter if the outdoor unit is installed:

1. *In a narrow, shady location.*
2. *Near a location that has a lot of ground moisture.*
3. *In a highly humid environment.*
4. *In an area in which condensate does not drain properly.*

Outdoor Unit Condensate Drain Piping

Outdoor unit requires condensate drain piping. Condensate drain pipe is constructed with materials approved by local code. See pages 93 to 97 for information in reference to outdoor unit placement.

LG

Planning for Snow and Ice

To ensure the outdoor unit operates properly, certain measures are required in locations where there is a possibility of heavy snowfall or severe windchill or cold:

1. Prepare for severe winter wind chills and heavy snowfall, even in areas of the country where these are unusual phenomena.
2. Position the outdoor unit so that its airflow fans are not buried by direct, heavy snowfall. If snow piles up and blocks the airflow, the system will malfunction.
3. Remove any snow that has accumulated four (4) inches or more on the top of the outdoor unit.
4. In climates that will experience significant snow buildup, mount the outdoor unit on a raised, field-provided platform or stand. The raised support platform must be high enough to allow the unit to remain above possible snow drifts, and must be higher than the maximum anticipated snowfall for the location.
5. Design the mounting base to prevent snow accumulation on the platform in front or back of the unit frame.
6. Provide a field fabricated snow protection hood to keep snow and ice and/or drifting snow from accumulating on the coil surfaces.
7. To prevent snow and heavy rain from entering the outdoor unit, install the condenser air inlets and outlets facing away from direct winds.
8. Consider tie-down requirements in case of high winds or where required by local codes.

⚠CAUTION

When deciding on a location to place the outdoor unit, be sure to choose an area where run-off from defrost will not accumulate and freeze on sidewalks or driveways, which will create unsafe conditions.

NOTICE

Choose an area where run-off from defrost mode will not accumulate and freeze on sidewalks or driveways. Properly install and insulate any drain hoses to prevent the hose from freezing, cracking, leaking, and damaging the outdoor unit.

Tie-Downs, Lightning Protection, and Wind Protection

Tie-Downs

- The strength of the roof must be checked before installing the outdoor units.
- The strength of the outdoor unit frames is adequate to be used with field-provided wind restraint tie-downs.
- If the installation site is prone to high winds or earthquakes, when installing on the wall or roof, securely anchor the mounting base using a field-provided tie-down configuration approved by a local professional engineer.
- The overall tie-down configuration must be approved by a local professional engineer.

NOTICE

Always refer to local code when using a wind restraint system.

Lightning Protection

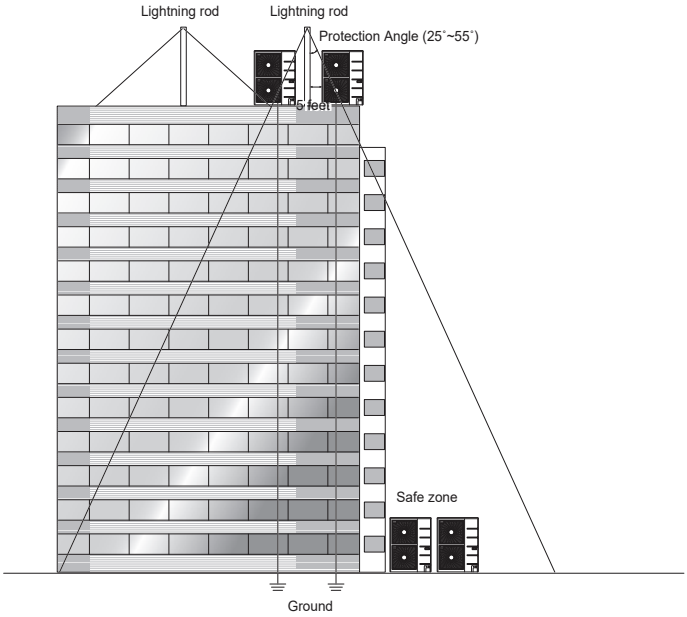
- To protect the outdoor unit from lightning, it must be placed within the specified lightning safety zone.

Table 62: Safety Zone Specifications.

Building Height (feet)	66	98	148	197
Protection Angle (˚)	55	45	35	25

- Power cable and communication cable must be installed five (5) feet away from lightning rod.
- A high-resistance ground system must be included to protect against induced lightning or indirect strike.

Figure 33: Lightning Protection Diagram (Outdoor Unit Appearances Differ According to Model).



NOTICE

If the building does not include lightning protection, the outdoor unit will be damaged from a lightning strike. Inform the customer of this possibility in advance.

Application Guidelines

PLACEMENT / CLEARANCE CONSIDERATIONS

Outdoor Units

Oceanside Applications

Wind Protection

If the outdoor unit is placed on a roof, position it with the compressor end (no coil surface) in the direction of the prevailing wind as shown in the figure at right. In cooler climates, it may be beneficial to position the unit in direct sunlight to assist with defrost operations.

If the outdoor unit is not placed on a roof, place it on the leeward side of the building or in a location where the unit will not be exposed to constant wind.

If placement exposes the unit to constant wind activity, construct a wind break in front of the unit. Follow the placement guidelines set forth in “Clearance Requirements”.

Figure 34: Prevailing Wind Direction.

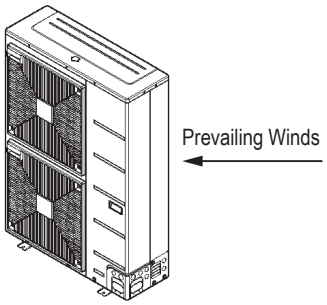
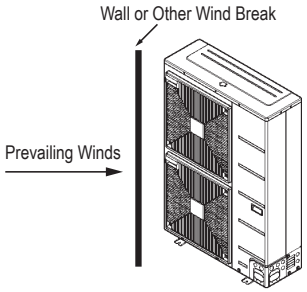


Figure 35: Leeward Side of the Building.

Figure 36: Wind Break.



Oceanside Application Precautions

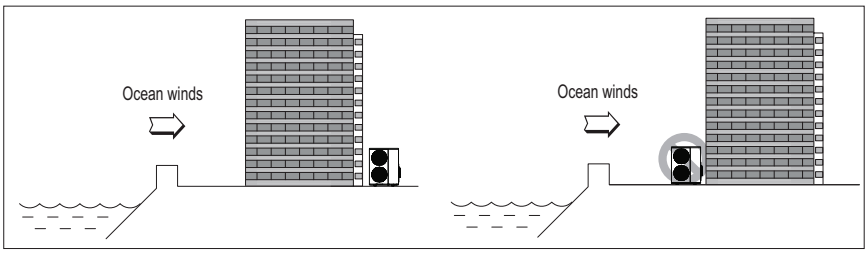
NOTICE

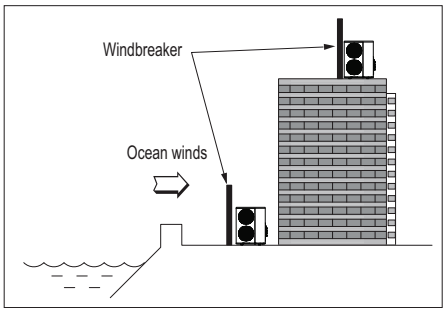
Ocean winds will cause corrosion, particularly on the condenser and evaporator fins, which, in turn could cause product malfunction or inefficient performance.

- ⃠ Avoid installing the outdoor unit where it would be directly exposed to ocean winds.
- Install the outdoor unit on the side of the building opposite from direct ocean winds.
- Select a location with good drainage.
- Periodically clean dust or salt particles off of the heat exchanger with water.

If the outdoor unit must be placed in a location where it would be subjected to direct ocean winds, install a concrete windbreak strong enough to block any winds. Windbreaker height and width must be more than 150% of the outdoor unit, and be installed at least 14 to 28 inches away from the outdoor unit to allow for airflow (depending on the location and outdoor unit size).

Figure 37: Oceanside Placement Using a Building as Shield, and Placement Using a Windbreak.





NOTICE

Additional anti-corrosion treatment may need to be applied to the outdoor unit at oceanside locations.

Minimum Allowable Clearance and Service Access Requirements

Proper clearance for the outdoor unit coil is critical for proper unit operation. When installing the outdoor unit, consider service, inlet and outlet and minimum allowable space requirements as illustrated in the diagrams on the following pages.

- Include enough space for airflow and for service access. If installing multiple outdoor units, ⃠ avoid placing the units where the discharge of one unit will blow into the inlet side of an adjacent unit.
- If an awning is built over the unit to prevent direct sunlight or rain exposure, make sure that the discharge air of the outdoor unit isn't restricted.
- ⃠ No obstacles to air circulation around the unit; keep proper distances from ceilings, fences, floor, walls, etc. (Install a fence to prevent pests from damaging the unit or unauthorized individuals from accessing it.)

Minimum Clearance Requirements for Single Fan Outdoor Units

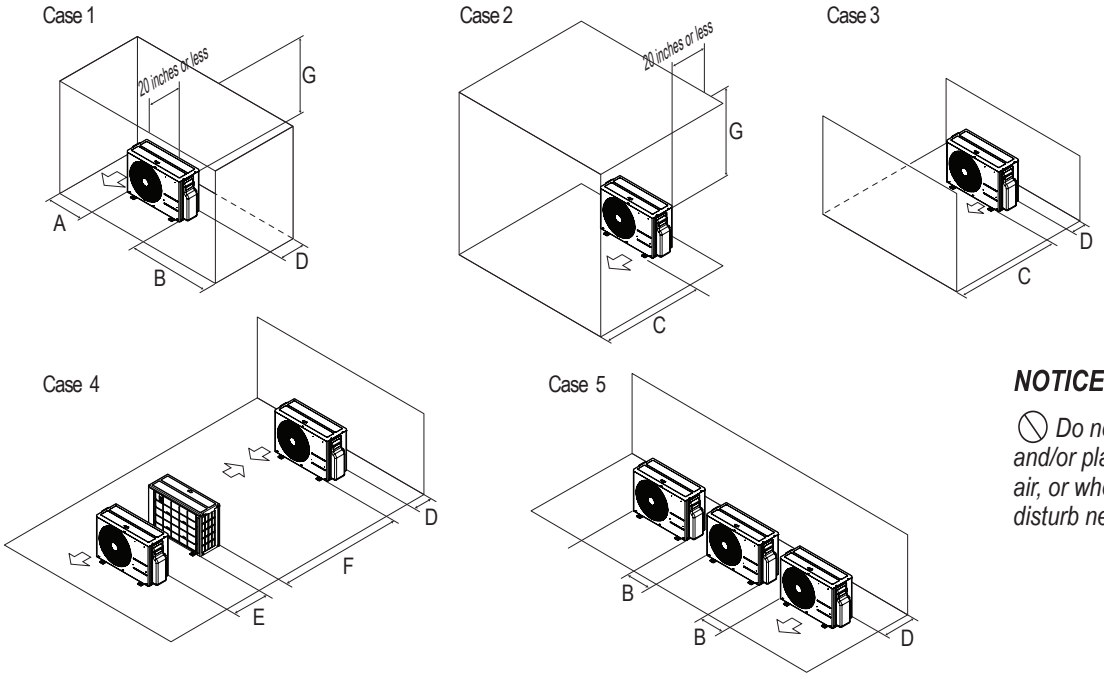
Specific clearance requirements in the diagram below are for single fan outdoor units. The figure below shows the overall minimum clearances that must be observed for safe operation and adequate airflow around the outdoor unit.

When placing the outdoor unit under an overhang, awning, sunroof or other "roof-like structure", observe the clearance requirements (as shown in Cases 1 and 2) for height in relation to the unit. To have successful service access to the outdoor unit, see the figure below for minimum spacing. When installing multiple outdoor units, see Cases 4 and 5 for correct spacing requirements.

NOTICE

If the outdoor unit is installed between standard and minimum clearances, capacity decreases approximately 10%.

Figure 38: Single Fan Outdoor Unit Service Access and Allowable Clearances Diagram.



NOTICE

⃠ *Do not place the unit where animals and/or plants will be in the path of the warm air, or where the warm air and/or noise will disturb neighbors.*

Table 63: Single Fan Outdoor Unit Service Access and Allowable Clearances Diagram Legend.

Unit: Inch		A	B	C	D	E	F	G
Case 1	Standard	12	24	-	12	-	-	-
	Minimum	4	10	-	4	-	-	40
Case 2	Standard	-	-	20	-	-	-	-
	Minimum	-	-	14	-	-	-	40
Case 3	Standard	-	-	20	12	-	-	-
	Minimum	-	-	14	4	-	-	-
Case 4	Standard	-	-	-	12	24	-	-
	Minimum	-	-	-	4	8	79	-
Case 5	Standard	-	24	-	12	-	-	-
	Minimum	-	10	-	4	-	-	-

PLACEMENT / CLEARANCE CONSIDERATIONS

Outdoor Units

Minimum Clearance Requirements for Dual Fan Outdoor Units

Figures below and on the next page illustrate clearance requirements for various installation scenarios for dual fan outdoor units. Use the hot isle / cold isle approach when placing multiple units in close proximity to each other. Outdoor unit fans draw air from the back of the unit and discharges out the front. Place units back to back and face to face.

NOTICE

- *Installation clearances must comply with local building codes.*
- *All figures not to scale.*
- ⃠ *Never place multiple units facing back to front or front to back as shown immediately below here or high and low system pressure problems will occur.*

Figure 39: Improper Outdoor Unit Placement.

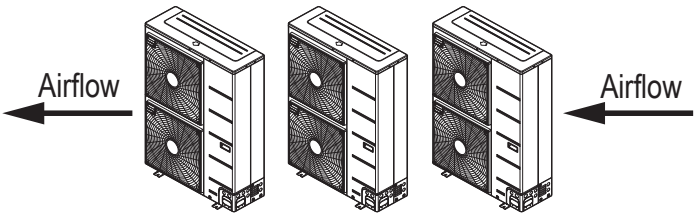
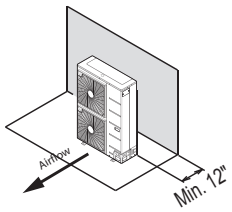
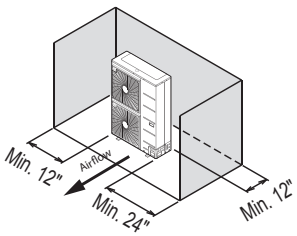


Figure 40: Proper Outdoor Unit Placement and Clearances When There Are Obstacles on the Suction Side.

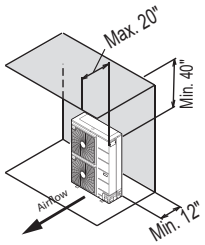
Single Unit—High Rear Wall



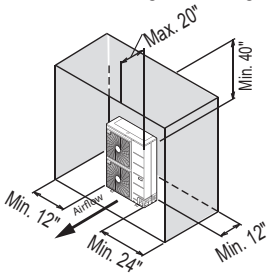
Single Unit—High Rear Wall with High Side Walls



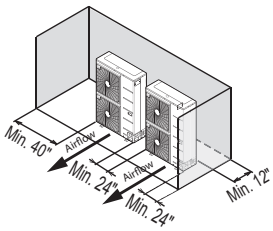
Single Unit—High Rear Wall with Building Overhang



Single Unit—High Rear and Side Walls with Building Overhang



Side by Side—High Rear and Side Walls



Side by Side—High Rear and Side Walls with Building Overhang

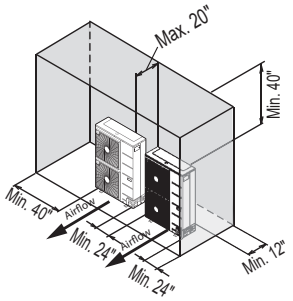
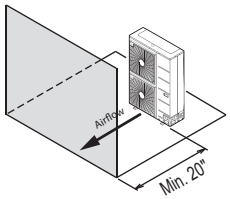
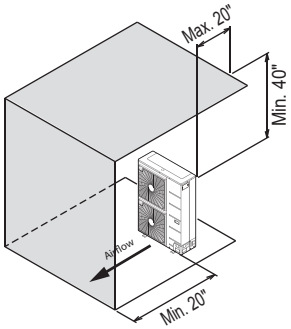


Figure 41: Proper Outdoor Unit Placement and Clearances When There Are Obstacles on the Discharge Side.

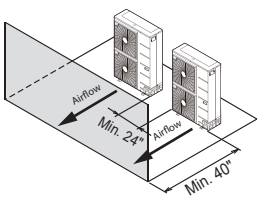
Single Unit—High Front Wall with No Side Walls



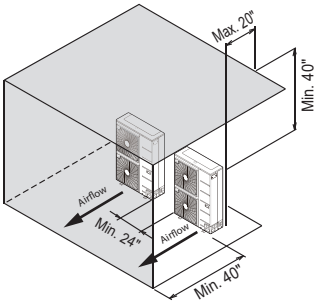
Single Unit—High Front Wall with Building Overhang and No Side Walls



Side by Side—High Front Wall with No Side Walls



Side by Side—High Front Wall with Building Overhang and No Side or Rear Walls



PLACEMENT / CLEARANCE CONSIDERATIONS

Outdoor Units

Minimum Clearance Requirements for Dual Fan Outdoor Units, Continued.

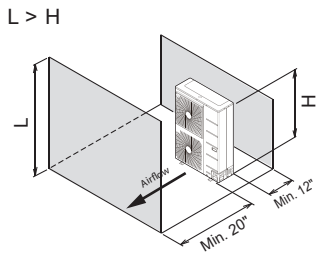
NOTICE

- *Installation clearances must comply with local building codes.*
- *All figures not to scale.*

Figure 42: Proper Outdoor Unit Placement and Clearances When There Are Obstacles on the Suction and the Discharge Sides.

When Obstacle Height of the Discharge Side is Higher than the Outdoor Unit.

Single Unit—High Rear and Front Walls with No Side Walls



Single Unit—High Rear and Front Walls with Building Overhang

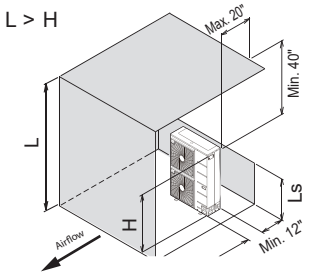


Table 64: H, A, and L Ratio.

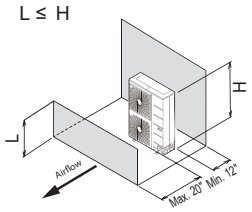
	Ls	A (Inches)
L ≤ H	0 < Ls ≤ 1/2 H	30
	1/2 H < Ls	40
H < L	Set Stand as: L ≤ H	

NOTICE

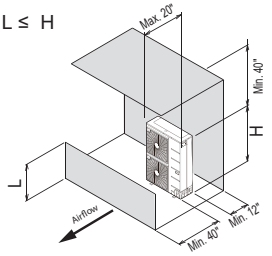
"L" must be lower than "H". If a stand is necessary, it must be made of solid material (not an open frame) to prevent the discharge air from short cycling.

Obstacle Height of Discharge Side Is Lower than the Outdoor Unit.

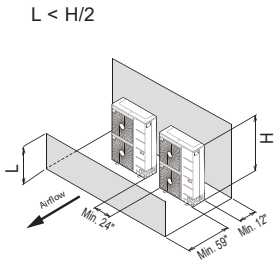
Single Unit—High Rear Wall and Low Front Wall with No Side Walls



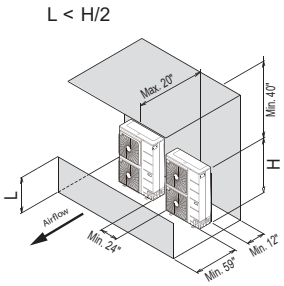
Single Unit—High Rear Wall and Low Front Wall with Building Overhang and No Side Walls



Side by Side—High Rear Wall and Low Front Wall with No Side Walls

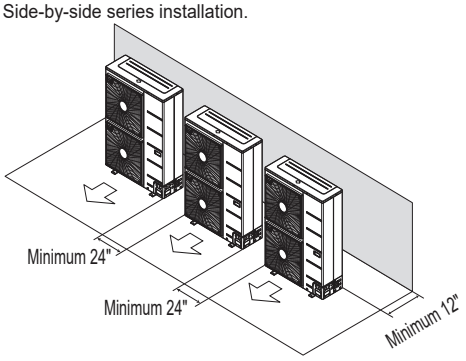


Side by Side—High Rear Wall and Low Front Wall with Building Overhang and No Side Walls

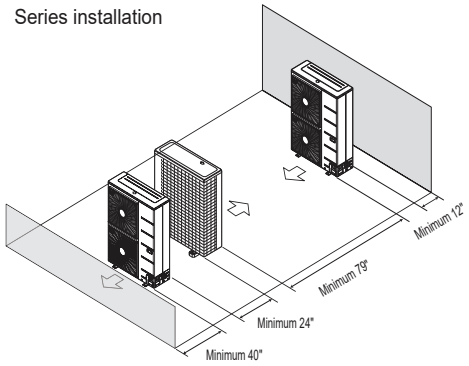


Series Installation

Side-by-side series installation.



Series installation



Installing Outdoor Units Indoors

Single Zone outdoor units are engineered to be mounted outdoors and include technology designed to minimize the negative effects of winter weather's freezing rain, sleet, and snow. Some building projects, however, necessitate placing the HVAC outdoor units indoors:

- Lack of ground space.
- Lack of an appropriate outdoor location that meets system design requirements.
- When mounting on the roof is not an option due to a lack of roof space.
- Roof warranty will be voided if mechanical equipment is placed on the membrane.
- On retrofit projects, a former chiller / boiler / air handler equipment room, mechanical area, or penthouse already exists.
- To curtail the potential need for redundant zone heating devices such as wall-fin radiators or duct heaters.
- In extremely cold environments where there is a significant amount of run-time at temperatures well below freezing outside the outdoor unit ambient air temperature range published in this engineering manual.

Benefits of Installing Outdoor Units Indoors

- Shelters the outdoor unit from direct exposure to prevailing winds that decrease the heating capability of the outdoor unit.
- Protects equipment from freezing precipitation and / or potential ice build-up that could hinder unit operation.
- Maintains coil heat transfer efficiency by reducing the number of and shortening the cycle time for defrost operation.
- Easier maintenance and servicing during inclement weather.
- When mounted in a fully enclosed space, limiting the ambient air temperature will allow the Single Zone system designer to eliminate over-sizing.
- The outdoor unit to compensate for loss of capacity at low ambient temperatures.
- Will also curtail the need to provide inefficient redundant zone heating devices such as wall-fin radiators and second-stage ancillary heating devices.

Design Considerations Include:

- Enclosure types and elements such as louvers (see next page), rain hoods, dampers and controls, heating methods and sizing of heating devices.
- Heating strategies.
- Duct design.
- Condensate handling.

General Guidelines

- Follow ASHRAE 62.1 design guidelines.
- Depending on the project / application, a roof over the outdoor units in combination with a wind break will be all that is necessary.
- Consider the potential for snow accumulation near louvers / roof openings. Outside air intakes and discharge ducts / louvers must be engineered to clear anticipated snow accumulation levels by at least one (1) foot.
- In situations where operation is anticipated at temperatures lower than the product's minimum operating temperature, ancillary heat must be provided to heat the outdoor unit coils to ensure continuous compressor operation and heating.

It may be necessary to use a field-fabricated air guide to prevent discharge air from short-cycling back to the coil inlet.

- Consider the direction of prevailing winds and opening placement. If possible, locate inlet openings upwind of discharge openings and other exhaust outlets.
- When inlet and outlet openings are placed on the same wall, minimum distance between the two openings must be approximately three (3) feet (minimum distance varies significantly with variations in outlet opening face velocity).
- If roof-mounted ventilation openings are used, strategically locate the inlet ventilation opening(s) upwind of the outlet opening(s).
- Discharge and supply ductwork must be designed to avoid weather related long periods of water entrainment.

INSTALLING OUTDOOR UNITS INDOORS

Provide a means to drain the condensate generated during heating mode and defrost cycle in addition to rainwater that infiltrates the inlet louver enclosed area.

- Install a field-provided drain pan under the outdoor units and provide a path to a nearby floor drain.
- If the ambient air temperature is expected to drop below 32°F in the enclosure, heat the bottom surface of the pan, drain line, and floor drain so that the condensate does not freeze before reaching the drain.

⚠CAUTION

When deciding on a location to place the outdoor unit, be sure to choose an area where run-off from defrost will not accumulate and freeze on walk-ways, which will create unsafe conditions.

Allow for ventilation intake and exhaust air based on maximum outdoor unit fan capacity.

- Select the size, type and orientation of architectural louvers with adequate "net free area" face velocity to ensure the total external static pressure from the outdoor unit fan does not exceed design limitations (see specification data tables).
- ⃠ No obstructions must be placed in front of the louver that could hamper the free flow (throw) of air.
- Roof top openings and / or discharge and supply louvers must be equipped with screens to prevent bird and insect infiltration.

NOTICE

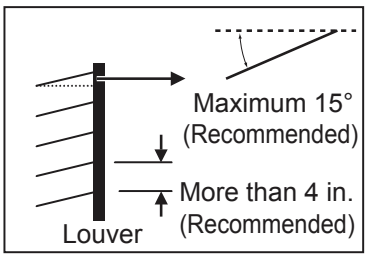
For louver recommendations, see below and on the next page.

As always, the best solution for each project balances acceptable heating performance (considering local weather conditions), capital costs, life cycle energy consumption, and limitations set forth by local building codes.

Louver Recommendations for Outdoor Unit Enclosure

1. Outdoor Unit Enclosure: Manual Door Open Type.
2. Louver Angle: No More Than 15° Horizontally.
3. Space Between Louvers: More than four (4) inches (Recommend).
4. Louver Shape: Wing or Plane Type.

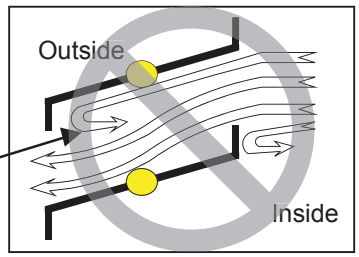
Figure 43: Louver Recommendations.



NOTICE

- Open Rate and Inlet must be taken into consideration when designing the louvered outdoor unit enclosure.
- ⃠ Do not use "S" type louvers.

Table 65: Using "S" Type Louvers.



NOTICE

If the Louver Open Rate is Too Small

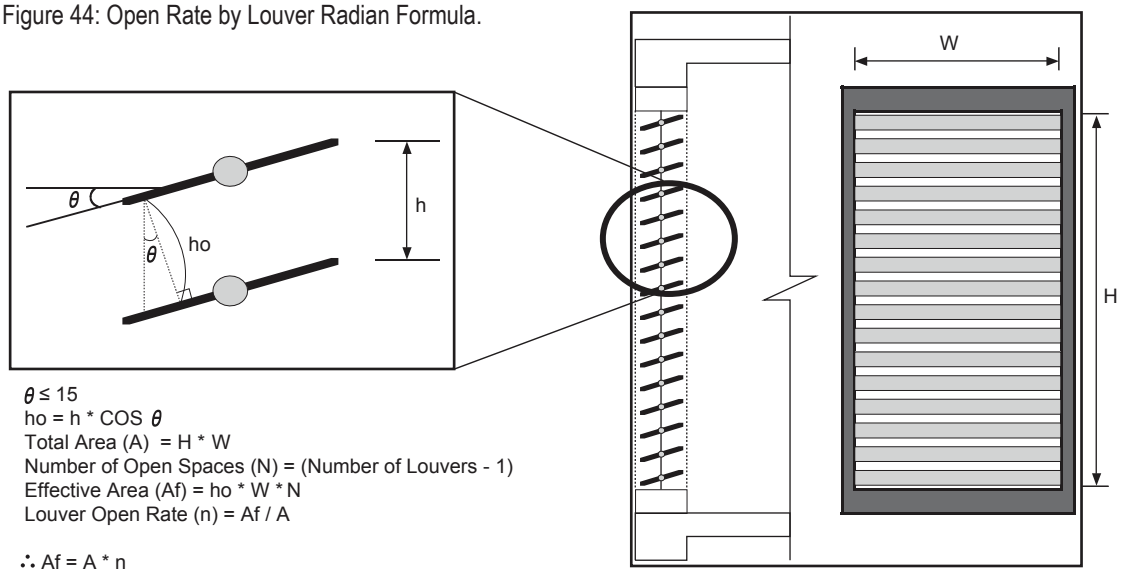
1. Noise can occur because of the increased air velocity passing through the louver blade.
2. Noise can occur from louver blade vibrations.
3. A drop in outdoor unit fan performance (excess static pressure can cause a drop in outdoor unit performance and heat exchanger efficiency).
4. If the louver open rate is too small or there is insufficient air flow exchange, the air conditioner might stop operating.

INSTALLING OUTDOOR UNITS INDOORS

LGRED°

Open Rate by Louver Radian

Figure 44: Open Rate by Louver Radian Formula.



$\theta \leq 15$
ho = h * COS θ
Total Area (A) = H * W
Number of Open Spaces (N) = (Number of Louvers - 1)
Effective Area (Af) = ho * W * N
Louver Open Rate (n) = Af / A

$\therefore$ Af = A * n

Effective Cross Section Area

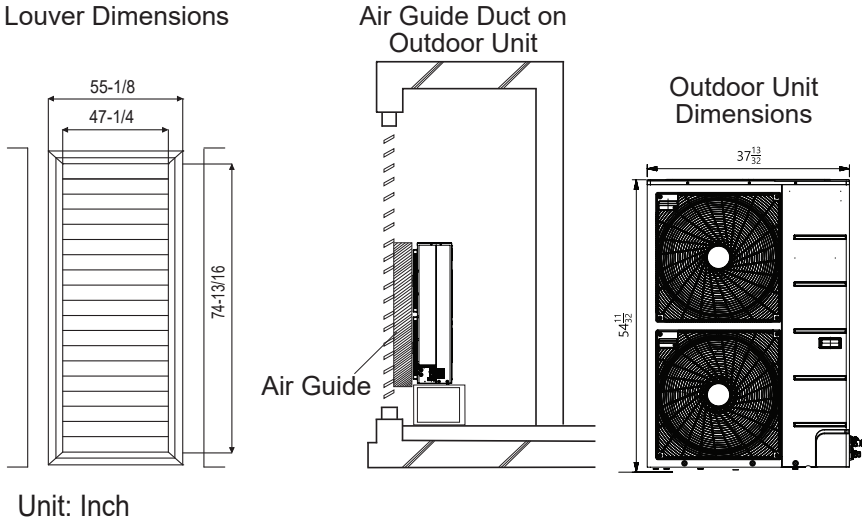
Confirming Air Flow Rate / Total Opening Rate

- Example: KUSXA482A (For illustrative purposes only).
- Discharge Airflow Rate: 3,884 ft.^{3}/min.
- Velocity of Outlet Air: 13.8 ft./s
- Velocity of Inlet Air: 7.1 ft./s
- Open Rate = 80% or More

  Open Rate = $\frac{\text{Effective Face Area (Af)}}{\text{Total Face Area (A)}}$

- Inlet airflow must match or exceed discharge airflow.
- Separate inlet airflow from discharge airflow to prevent recirculation.

Figure 45: Example of Installing Outdoor Unit Indoors.



Unit: Inch

Formula

- Total Louver Dimension (Excluding Frame) (A) = 3.9 feet x 6.2 feet = 24.2 ft.^{2}
- Area Blocked by Outdoor Unit (Discharge) (B) = 3.1 feet x 4.5 feet = 13.95 ft.^{2}
- Inlet Louver Dimension (A - B) = 10.25 ft.^{2}
- Equivalent Inlet Dimension (Open Rate 80%) = 10.25 ft.^{2} x 0.8 = 8.2 ft.^{2}
- Equivalent Inlet Airflow = 8.2 ft.^{2} x 7.1 ft./s x 60 sec./min. = 3,493 ft.^{3}/min.
- Equivalent Inlet Airflow / Discharge Airflow = 3,493 ft.^{3}/min. / 3,884 ft.^{3}/min. = 89.9% (Within Allowable Limits)

LG

REFRIGERANT PIPING DESIGN

REFRIGERANT FLOW DIAGRAMS

KUSXA181A, KUSXA241A, KUSXA301A, KUSXA361A Outdoor Units

NOTICE

Various tools are available to assist in properly designing LG R32 split systems. Refer to the "R32 Application Guide"; the "Simple Calculator for Capacity, Refrigerant Charge and ESP"; the "LG Air Conditioner Technical Solutions" (LATS) software program; and the local LG Sales Representative.

Figure 46: KUSXA181A, KUSXA241A, KUSXA301A, KUSXA361A Outdoor Unit Refrigerant Flow Diagram.

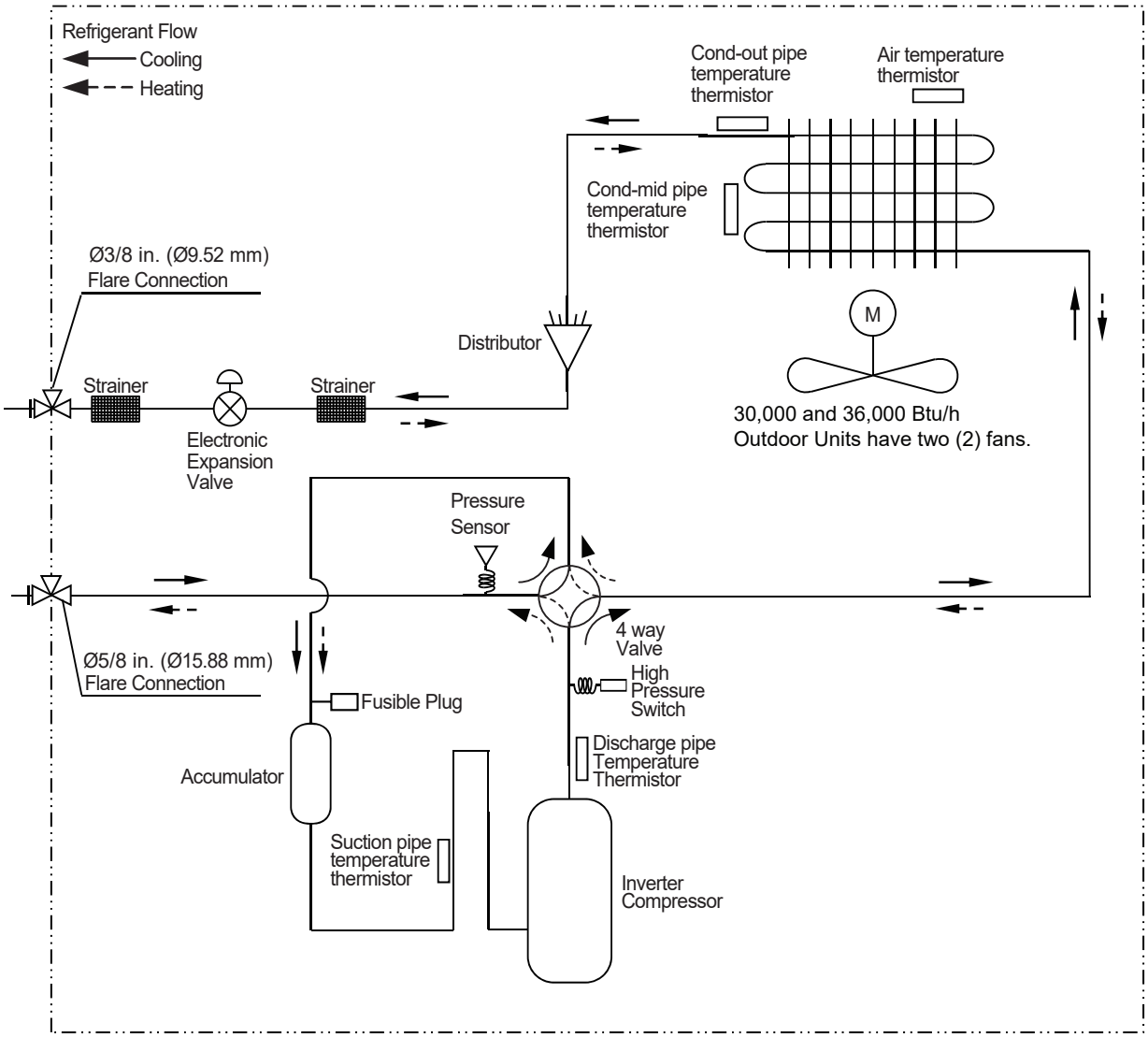


Table 66: KUSXA181A, KUSXA241A, KUSXA301A, KUSXA361A R32 Outdoor Unit Thermistor Details.

Description	PCB Connector
Discharge Pipe Temperature Thermistor	CN6_BK
Suction Pipe Temperature Thermistor	CN5_GN
Condenser Outlet Pipe Temperature Thermistor	CN7_VI
Air Temperature Thermistor	CN8_YL
Condenser Middle Pipe Temperature Thermistor	CN4_BR
Pressure Sensor	CN9_RD
High Pressure Switch	CN_PRESS_SW_WH

REFRIGERANT FLOW DIAGRAMS

KUSXA422A, KUSXA482A Outdoor Units

NOTICE

Various tools are available to assist in properly designing LG R32 split systems. Refer to the "R32 Application Guide"; the "Simple Calculator for Capacity, Refrigerant Charge and ESP"; the "LG Air Conditioner Technical Solutions" (LATS) software program; and the local LG Sales Representative.

Figure 47: KUSXA422A, KUSXA482A Outdoor Unit Refrigerant Flow Diagram.

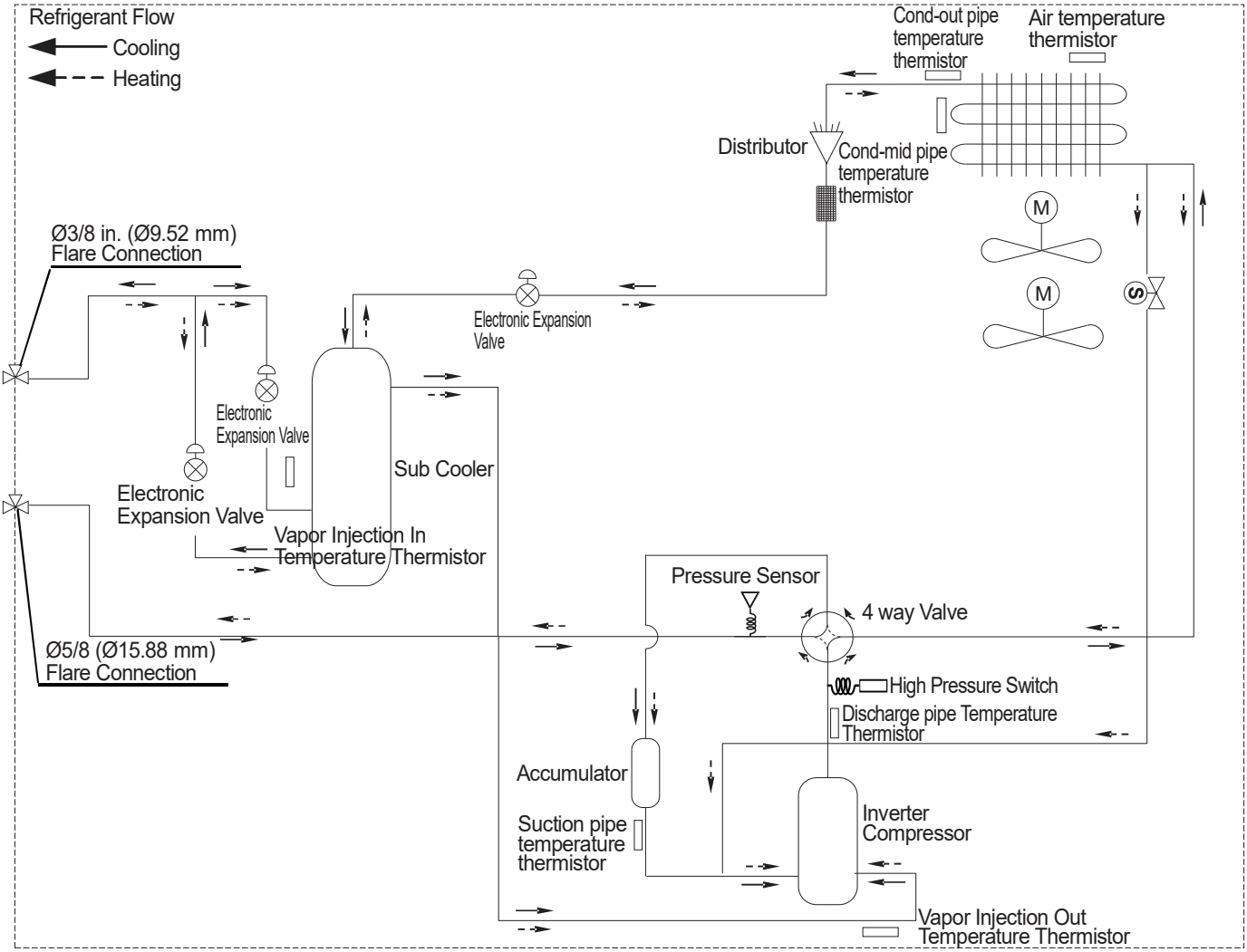


Table 67: KUSXA422A, KUSXA482A Outdoor Unit Thermistor Details.

Description	PCB Connector
Discharge Pipe Temperature Thermistor	CN6_BK
Suction Pipe Temperature Thermistor	CN5_GN
Condenser Outlet Pipe Temperature Thermistor	CN7_VI
Air Temperature Thermistor	CN8_YL
Condenser Middle Pipe Temperature Thermistor	CN4_BR
Vapor Injection Inlet Temperature Thermistor	CN11_WH
Vapor Injection Outlet Temperature Thermistor	CN12_BL
Pressure Sensor	CN9_RD
High Pressure Switch	CN_PRESS_WH

REFRIGERANT FLOW DIAGRAMS

LGRED°

A-Coil Units

NOTICE

Various tools are available to assist in properly designing LG R32 split systems. Refer to the "R32 Application Guide"; the "Simple Calculator for Capacity, Refrigerant Charge and ESP"; the "LG Air Conditioner Technical Solutions" (LATS) software program; and the local LG Sales Representative.

Figure 48: A-Coil Unit Refrigerant Flow Diagram.

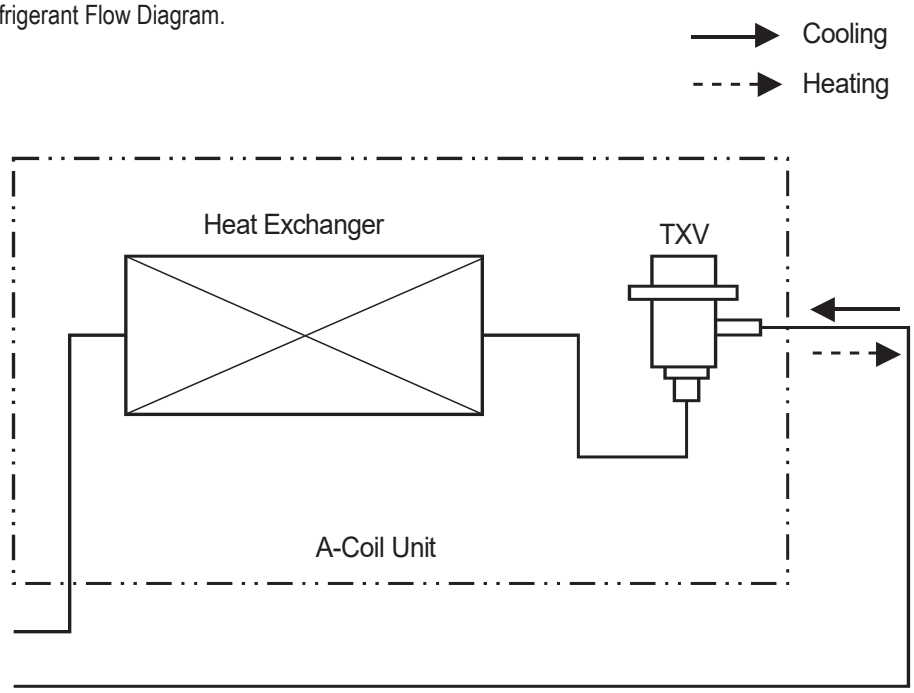


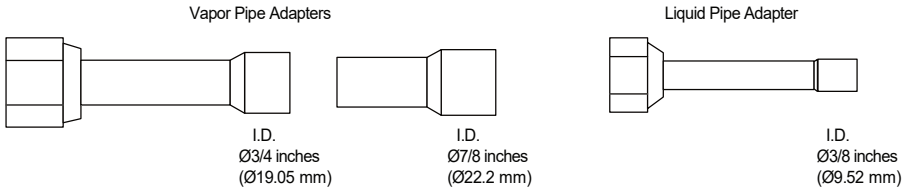
Table 68: A-Coil Unit Piping Connections.

A-Coil Model Nos.	Piping Connections	
	Vapor (in. [mm])	Liquid (in. [mm])
17.5 inch		
LKMMA18B1	Ø3/4 (Ø19.05)	Ø3/8 (Ø9.52)
LKMMA24B1	Ø3/4 (Ø19.05)	Ø3/8 (Ø9.52)
LKMMA30B1	Ø3/4 (Ø19.05)	Ø3/8 (Ø9.52)
LKMMA36B1	Ø3/4 (Ø19.05)	Ø3/8 (Ø9.52)
21 inch		
LKMMA36C1	Ø3/4 (Ø19.05)	Ø3/8 (Ø9.52)
LKMMA42C1	Ø3/4 (Ø19.05)	Ø3/8 (Ø9.52)
LKMMA48C1	Ø3/4 (Ø19.05)	Ø3/8 (Ø9.52)
24.5 inch		
LKMMA48D1	Ø3/4 (Ø19.05)	Ø3/8 (Ø9.52)

A-Coil Adapters

- Use adapters (shipped with the outdoor unit) to connect the A-Coil piping (braze).
- Connect the adapter nut to the outdoor unit, then braze the appropriate pipe diameter.

Figure 49: Adapters for A-Coil Piping.



NOTICE

- *No pipe size change required for Liquid piping.*
- *The Vapor pipe size can be increased to one size up without additional refrigerant charge, however, additional refrigerant charge will be required for any additional length. Refer to Table 70 for additional refrigerant requirements.*

LG

CONNECTION LIMITATIONS / SYSTEM LAYOUT

NOTICE

Various tools are available to assist in properly designing LG R32 split systems. Refer to the "R32 Application Guide"; the "Simple Calculator for Capacity, Refrigerant Charge and ESP"; the "LG Air Conditioner Technical Solutions" (LATS) software program; and the local LG Sales Representative.

Connection Limitations

Single-zone systems consist of one outdoor unit and one indoor unit. One of the most critical elements of a single zone system is the refrigerant piping. If the connection piping is not within allowable limits, there will be reliability, performance, noise, and vibration issues. The table below lists pipe length limits that must be followed in the design of a Single Zone LGRED Cassette refrigerant pipe system. Refer to the figure for maximum length and elevation of piping.

NOTICE

Depending on system and proposed / installed pipe length, it may be required to calculate maximum refrigerant charge to determine if the system complies with applicable regulations / standards. For residential applications, a refrigerant charge less than 4.1 lbs. complies with ASHRAE 15.2 and does not require additional calculation / consideration of maximum refrigerant charge for release in a space.

Table 69: R32 Singe-Zone Systems - A-Coil + Gas Furnace with LGRED Refrigerant Piping System Limitations.

System Model No.		KSSPA181A060-B1, KSSSA181A060-B1, KSSPA241A060-B1, KSSSA241A060-B1, KSSSA241A080-B1	KSSPA301A060-B1, KSSSA301A060-B1, KSSSA301A080-B1, KSSPA361A060-B1, KSSSA361A060-B1, KSSSA361A080-B1, KSSPA361A080-C1, KSSSA361A080-C1, KSSPA421A100-C1, KSSSA421A100-C1, KSSPA481A100-C1, KSSSA481A100-C1, KSSPA481A120-D1, KSSSA481A120-D1
Outdoor Unit Liquid Piping (in., O.D.)[1]		3/8 Flare	3/8 Flare
Outdoor Unit Vapor Piping (in., O.D.)[1]		5/8 Flare	5/8 Flare
A-Coil Unit Liquid Piping (in., O.D.)[1]		3/8 Braze	3/8 Braze
A-Coil Unit Vapor Piping (in., O.D.)[1]		3/4 Braze	3/4 Braze
Pipe Length (ELF = Equivalent Length of Pipe)	Standard length (no add'l refrigerant)	24.6 feet	24.6 feet
	Longest total equiv. piping length	164 feet	246 feet
	Shortest total equiv. piping length	16.4	16.4
	Distance between fittings and A-Coil / Gas Furnace or ODUs	≥20 inches	≥20 inches
Elevation (All Elevation Limitations are Measured in Actual Feet)	If outdoor unit is above A-Coil + Gas Furnace	98.4 feet	98.4 feet
	If outdoor unit is below A-Coil + Gas Furnace	98.4 feet	98.4 feet
Additional Refrigerant Needed (oz. /ft.)		0.38	0.43

[1]*Adapters for piping connections are shipped with the outdoor unit.*

System Layout

Figure 50: Typical 18k ~ 24k System Layout.

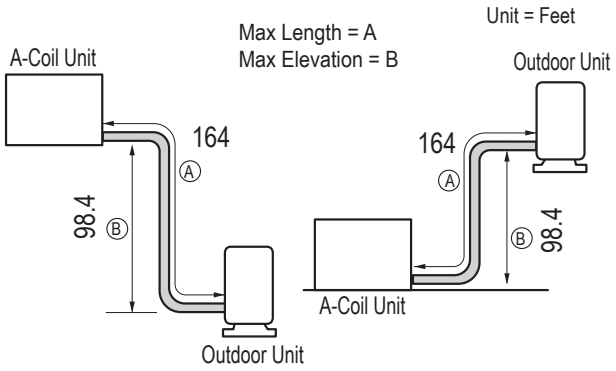
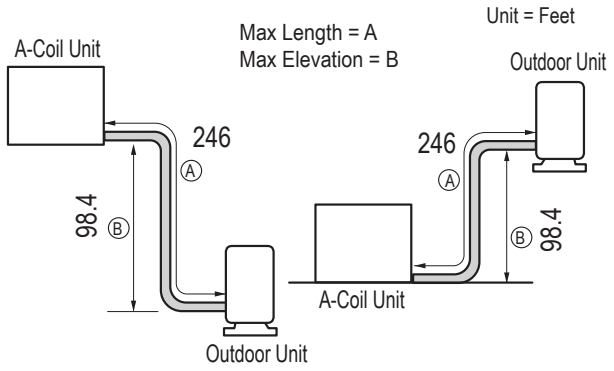


Figure 51: Typical 30k~48k System Layout.



ADDITIONAL REFRIGERANT CHARGE

LGRED°

NOTICE

Various tools are available to assist in properly designing LG R32 split systems. Refer to the "R32 Application Guide"; the "Simple Calculator for Capacity, Refrigerant Charge and ESP"; the "LG Air Conditioner Technical Solutions" (LATS) software program; and the local LG Sales Representative.

Additional Refrigerant Charge

Each outdoor unit is factory charged (nameplate charge) for the evaporator as well as having a standard foot line (for each single zone system; listed in the specification tables). Any time a line set is used longer then the standard foot line set length for the single zone system, the refrigerant charge has to be adjusted.

The charge must be adjusted on the ounces of R32 (listed in the specification tables) per foot based on how many feet of piping are added. The factory charge accommodates pipe lengths up to the standard (no additional refrigerant) length without requiring refrigerant removal.

See table below for information on the additional refrigerant charges necessary for longer piping lengths. Refer to the previous page for maximum piping length and additional charge amount per additional foot of pipe length.

Table 70: R32 Singe-Zone Systems - A-Coil + Gas Furnace with LGRED Additional Refrigerant by Piping Length (oz.).

System Model No.	Add'l Charge (oz./ft.)	Std. Piping Length (no add'l refrig., ft.)	Refrigerant Piping Length (feet)																
			16.4	24.6	32.8	41	49.2	65.6	82	98.4	114.8	131.2	147.6	164	180.4	196.8	213.2	229.6	246
80% Efficiency Gas Furnace Systems																			
KSSPA181A060-B1 (18k)	0.38	24.6	0	0	3.1	6.2	9.3	15.6	21.8	28.0	34.3	40.5	46.7	53.0	-	-	-	-	-
KSSPA241A060-B1 (24k)	0.38	24.6	0	0	3.1	6.2	9.3	15.6	21.8	28.0	34.3	40.5	46.7	53.0	-	-	-	-	-
KSSPA301A060-B1 (30k)	0.43	24.6	0	0	3.5	7.1	10.6	17.6	24.7	31.7	38.8	45.8	52.9	59.9	67.0	74.0	81.1	88.2	95.2
KSSPA361A060-B1 (36k)	0.43	24.6	0	0	3.5	7.1	10.6	17.6	24.7	31.7	38.8	45.8	52.9	59.9	67.0	74.0	81.1	88.2	95.2
KSSPA361A080-C1 (36k)	0.43	24.6	0	0	3.5	7.1	10.6	17.6	24.7	31.7	38.8	45.8	52.9	59.9	67.0	74.0	81.1	88.2	95.2
KSSPA421A100-C1 (42k)	0.43	24.6	0	0	3.5	7.1	10.6	17.6	24.7	31.7	38.8	45.8	52.9	59.9	67.0	74.0	81.1	88.2	95.2
KSSPA481A100-C1 (48k)	0.43	24.6	0	0	3.5	7.1	10.6	17.6	24.7	31.7	38.8	45.8	52.9	59.9	67.0	74.0	81.1	88.2	95.2
KSSPA481A120-D1 (48k)	0.43	24.6	0	0	3.5	7.1	10.6	17.6	24.7	31.7	38.8	45.8	52.9	59.9	67.0	74.0	81.1	88.2	95.2
96% Efficiency Gas Furnace Systems																			
KSSSA181A060-B1 (18k)	0.38	24.6	0	0	3.1	6.2	9.3	15.6	21.8	28.0	34.3	40.5	46.7	53.0	-	-	-	-	-
KSSSA241A060-B1 (24k)	0.38	24.6	0	0	3.1	6.2	9.3	15.6	21.8	28.0	34.3	40.5	46.7	53.0	-	-	-	-	-
KSSSA241A080-B1 (24k)	0.38	24.6	0	0	3.1	6.2	9.3	15.6	21.8	28.0	34.3	40.5	46.7	53.0	-	-	-	-	-
KSSSA301A060-B1 (30k)	0.43	24.6	0	0	3.5	7.1	10.6	17.6	24.7	31.7	38.8	45.8	52.9	59.9	67.0	74.0	81.1	88.2	95.2
KSSSA301A080-B1 (30k)	0.43	24.6	0	0	3.5	7.1	10.6	17.6	24.7	31.7	38.8	45.8	52.9	59.9	67.0	74.0	81.1	88.2	95.2
KSSSA361A060-B1 (36k)	0.43	24.6	0	0	3.5	7.1	10.6	17.6	24.7	31.7	38.8	45.8	52.9	59.9	67.0	74.0	81.1	88.2	95.2
KSSSA361A080-B1 (36k)	0.43	24.6	0	0	3.5	7.1	10.6	17.6	24.7	31.7	38.8	45.8	52.9	59.9	67.0	74.0	81.1	88.2	95.2
KSSSA361A080-C1 (36k)	0.43	24.6	0	0	3.5	7.1	10.6	17.6	24.7	31.7	38.8	45.8	52.9	59.9	67.0	74.0	81.1	88.2	95.2
KSSSA421A100-C1 (42k)	0.43	24.6	0	0	3.5	7.1	10.6	17.6	24.7	31.7	38.8	45.8	52.9	59.9	67.0	74.0	81.1	88.2	95.2
KSSSA481A100-C1 (48k)	0.43	24.6	0	0	3.5	7.1	10.6	17.6	24.7	31.7	38.8	45.8	52.9	59.9	67.0	74.0	81.1	88.2	95.2
KSSSA481A120-D1 (48k)	0.43	24.6	0	0	3.5	7.1	10.6	17.6	24.7	31.7	38.8	45.8	52.9	59.9	67.0	74.0	81.1	88.2	95.2

- *Values are in ounces (oz.).*
- *Capacity is based on standard length; maximum allowance length is based on reliability.*
- *Equivalent Pipe Length = Actual Pipe Length + Number of Bends x 0.3.*
- *Calculation: X oz. = ([Refrigerant Piping Length] - [(Chargeless Length]) × Additional Refrigerant*

Example:
A 50 foot line set is used: Additional 25.4 feet x 0.38 per foot = Add 9.6 of refrigerant.

NOTICE

If the unit charge is unknown, reclaim, evacuate, and weigh in the correct charge using the unit nameplate (capacity) charge adjusting for line sets longer than 246 feet. This will prevent any interruptions to unit operation and possible damage.

LG

NOTICE

Various tools are available to assist in properly designing LG R32 split systems. Refer to the "R32 Application Guide"; the "Simple Calculator for Capacity, Refrigerant Charge and ESP"; the "LG Air Conditioner Technical Solutions" (LATS) software program; and the local LG Sales Representative.

Selecting Field-Supplied Copper Piping

NOTICE

Always follow local codes when selecting and installing copper pipe and piping system components.

Approved piping for use with LG Single Zone products will be marked "R32 RATED" along the length of the pipe. Piping wall thickness must meet local code requirements and be approved for maximum allowable pressure of 626 psig. When bending piping, try to keep the number of bends to a minimum, and use the largest radii possible to reduce the equivalent length of installed piping; also, bending radii greater than ten (10) piping diameters can minimize pressure drop. Be sure no traps or sags are present.

For Single Zone Systems

LG prefers the use of ACR copper piping rated at the system working pressure was used.

NOTICE

Always properly support the piping as per the instructions on page 100.

Table 71: ACR Rated Copper Tubing Material.

Type	Seamless Phosphorous Deoxidized
Class	UNS C12200 DHP
Straight Lengths	H58 Temper
Coils	O60 Temper

Table 72: Piping Tube Thicknesses.

OD (in.)	1/4	3/8	1/2	5/8	3/4	7/8	1-1/8	1-3/8
Material	Rigid or Soft ACR Rated for R32			Rigid or Soft ACR Rated for R32				
Min. Bend Radius (in.)	0.563	0.9375	1.5	2.25	3.0	3.0	3.5	4.0
Min. Wall Thickness (in.)	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.040

Table 73: ACR Copper Tubing Dimensions and Physical Characteristics[1-3].

Nominal Pipe Outside Diameter (in.)	**Actual Outside Diameter (in.)**	**Drawn Tempered (Hard)**			**Annealed Temper (Soft)**		
		Nominal Wall Thickness (in.)	**Weight (lb. / ft.)**	**Cubic ft. per Linear ft.**	**Nominal Wall Thickness (in.)**	**Weight (lb. / ft.)**	**Cubic ft. per Linear ft.**
1/4	0.250	-	-	-	0.030	0.0804	0.00020
3/8	0.375	0.030	0.126	0.00054	0.032	0.134	0.00053
1/2	0.500	0.035	0.198	0.00101	0.032	0.182	0.00103
5/8	0.625	0.040	0.285	0.00162	0.035	0.251	0.00168
3/4	0.750	0.042	0.362	0.00242	0.035	0.305	0.00252
7/8	0.875	0.045	0.455	0.00336	0.045	0.455	0.00336
1-1/8	1.125	0.050	0.655	0.00573	0.050	0.655	0.00573
1-3/8	1.375	0.055	0.884	0.00875	0.055	0.884	0.00875

[1]All dimensions provided are in accordance with ASTM B 280 – Standard.
[2]Maximum allowable design pressure = 626 psig.
[3]The Copper Tube Handbook: Industry Standard Guide for the Design and Installation of Copper Piping Systems; Copper Development Association Inc., Copper Alliance; https://www.copper.org/publications/pub_list/pdf/copper_tube_handbook.pdf.

NOTICE

- *Commercially available piping often contains dust and other materials. Always blow it clean with a dry inert gas.*
- *Prevent dust, water or other contaminants from entering the piping during installation.*

REFRIGERANT PIPING SYSTEM ENGINEERING

LGRED°

NOTICE

Various tools are available to assist in properly designing LG R32 split systems. Refer to the "R32 Application Guide"; the "Simple Calculator for Capacity, Refrigerant Charge and ESP"; the "LG Air Conditioner Technical Solutions" (LATS) software program; and the local LG Sales Representative.

Copper Expansion and Contraction

Under normal operating conditions, the vapor pipe temperature of a Single Zone System can vary as much as 280°F. With this large variance in pipe temperature, the designer must consider pipe expansion and contraction to avoid pipe and fitting fatigue failures.

Refrigerant pipe along with the insulation jacket form a cohesive unit that expands and contracts together. During system operation, thermal heat transfer occurs between the pipe and the surrounding insulation.

If the pipe is mounted in free air space, no natural restriction to movement is present if mounting clamps are properly spaced and installed. In extreme cases, the restrictive force of surface friction between insulating jackets could become so great that natural expansion ceases and the pipe is "fixed" in place. In this situation, opposing force caused by change in refrigerant fluid / vapor temperature can lead to pipe/fitting stress failure.

The refrigerant pipe support system must be engineered to allow free expansion to occur. When a segment of pipe is mounted between two fixed points, provisions must be provided to allow pipe expansion to naturally occur. The most common method is the inclusion of expansion Loop or U-bends. Each segment of pipe has a natural fixed point where no movement occurs. This fixed point is located at the center point of the segment assuming the entire pipe is insulated in a similar fashion. The natural fixed point of the pipe segment is typically where the expansion Loop or U-bend must be.

Linear pipe expansion can be calculated using the following formula:

$LE = C \times L \times (T_r - T_a) \times 12$

LE	=	Anticipated linear tubing expansion (in.)
C	=	Constant (For copper = 9.2×10^{-6} in./in.°F)
L	=	Length of pipe (ft.)
T_R	=	Refrigerant pipe temperature (°F)
T_a	=	Ambient air temperature (°F)
12	=	Inches to feet conversion (12 in./ft.)

1. From the "Linear Thermal Expansion of Copper Tubing in Inches" Table on the next page, find the row corresponding with the actual length of the straight pipe segment.
2. Estimate the minimum and maximum temperature of the pipe. In the column showing the minimum pipe temperature, look up the anticipated expansion distance. Do the same for the maximum pipe temperature.
3. Calculate the difference in the two expansion distance values. The result will be the anticipated change in pipe length.

General Example:

A system is installed and the design shows that there is a 100 foot straight segment of tubing between an indoor unit and the outdoor unit. In heating, this pipe transports hot gas vapor to the indoor units at 120°F. In cooling, the same tube is a suction line returning refrigerant vapor to the outdoor unit at 40°F. Look up the copper tubing expansion at each temperature and calculate the difference.

Vapor Line

Transporting Hot Vapor: 100 ft. pipe at 120°F = 1.40 in.
Transporting Suction Vapor: 100 ft. pipe at 40°F = 0.40 in.
Anticipated Change in Length: 1.40 in. – 0.40 in. = 1.00 in.

Liquid Line

The liquid temperature remains relatively the same temperature; only the direction of flow will reverse. Therefore, no significant change in length of the liquid line is anticipated.

When creating an expansion joint, the joint height must be a minimum of two times the joint width. Although different types of expansion arrangements are available, the data for correctly sizing an Expansion Loop is provided in the "Radii of Coiled Expansion Loops and Developed Lengths of Expansion Offsets" Table on the next page. Use soft copper with long radius bends on longer runs or long radius elbows for shorter pipe segments. Using the anticipated linear expansion (LE) distance calculated, look up the Expansion Loop or U-bend minimum design dimensions. If other types of expansion joints are chosen, design per ASTM B-88 Standards.

See table on next page for precalculated anticipated expansion for various pipe sizes and lengths of refrigerant tubing.

To find the anticipated expansion value:

1. From the table on the next page, find the row corresponding with the actual feet of the straight pipe segment.
2. Estimate the minimum and maximum temperature of the pipe.
3. In the column showing the minimum pipe temperature, look up the anticipated expansion distance corresponding to the segment length. Do the same for the maximum pipe temperature.
4. Calculate the difference in the two expansion distance values. The result will be the change in pipe length.

LG

NOTICE

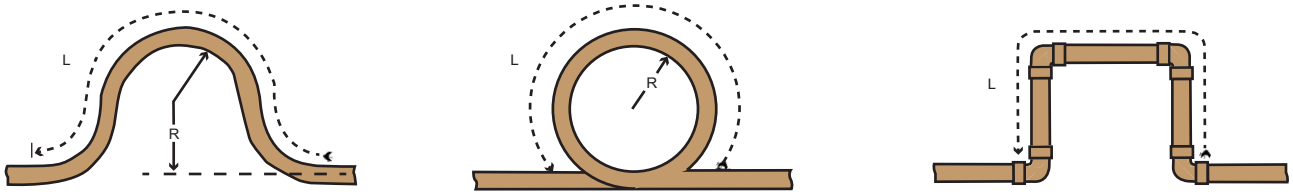
Various tools are available to assist in properly designing LG R32 split systems. Refer to the "R32 Application Guide"; the "Simple Calculator for Capacity, Refrigerant Charge and ESP"; the "LG Air Conditioner Technical Solutions" (LATS) software program; and the local LG Sales Representative.

Table 74: Linear Thermal Expansion of Copper Tubing in Inches.

Pipe Length[1]	Fluid Temperature °F																			
	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°	110°	115°	120°	125°	130°
10	0.04	0.04	0.05	0.06	0.06	0.07	0.08	0.08	0.09	0.09	0.10	0.10	0.11	0.11	0.11	0.12	0.13	0.14	0.15	0.15
20	0.08	0.08	0.10	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20	0.21	0.22	0.22	0.23	0.26	0.28	0.29	0.30
30	0.12	0.12	0.15	0.18	0.20	0.21	0.23	0.24	0.26	0.27	0.29	0.30	0.32	0.33	0.32	0.35	0.39	0.42	0.44	0.45
40	0.16	0.16	0.20	0.24	0.26	0.28	0.30	0.32	0.34	0.36	0.38	0.40	0.42	0.44	0.43	0.46	0.52	0.56	0.58	0.60
50	0.20	0.20	0.25	0.30	0.33	0.35	0.38	0.40	0.43	0.45	0.48	0.50	0.53	0.55	0.54	0.58	0.65	0.70	0.73	0.75
60	0.24	0.24	0.30	0.36	0.39	0.42	0.45	0.48	0.51	0.54	0.57	0.60	0.63	0.66	0.65	0.69	0.78	0.84	0.87	0.90
70	0.28	0.28	0.35	0.42	0.46	0.49	0.53	0.56	0.60	0.63	0.67	0.70	0.74	0.77	0.76	0.81	0.91	0.98	1.02	1.05
80	0.32	0.32	0.40	0.48	0.52	0.56	0.60	0.64	0.68	0.72	0.76	0.80	0.84	0.88	0.86	0.92	1.04	1.12	1.16	1.20
90	0.36	0.36	0.45	0.54	0.59	0.63	0.68	0.72	0.77	0.81	0.86	0.90	0.95	0.99	0.97	1.04	1.17	1.26	1.31	1.35
100	0.40	0.40	0.50	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	1.05	1.10	1.08	1.15	1.30	1.40	1.45	1.50
120	0.48	0.48	0.60	0.72	0.78	0.84	0.90	0.96	1.02	1.08	1.14	1.20	1.26	1.32	1.30	1.38	1.56	1.68	1.74	1.80
140	0.56	0.56	0.70	0.84	0.91	0.98	1.05	1.12	1.19	1.26	1.33	1.40	1.47	1.54	1.51	1.61	1.82	1.96	2.03	2.10
160	0.64	0.64	0.80	0.96	1.04	1.12	1.20	1.28	1.36	1.44	1.52	1.60	1.68	1.76	1.73	1.84	2.08	2.24	2.32	2.40
180	0.72	0.72	0.90	1.08	1.17	1.26	1.35	1.44	1.53	1.62	1.71	1.80	1.89	1.98	1.94	2.07	2.34	2.52	2.61	2.70

[1]Pipe length baseline temperature = 0°F. "Expansion of Carbon, Copper and Stainless Steel Pipe," *The Engineers' Toolbox*, www.engineeringtoolbox.com.

Figure 52: Coiled Expansion Loops and Offsets (Plan View).



Large Tubing U-bend (>3/4 in.) Loop Small Tubing U-bend (<3/4 in.)

NOTICE

All expansion loops and offsets must be installed in the horizontal plane to prevent the possibility of trapping oil. Loops and offsets in vertical risers must also be installed in a horizontal plane.

Table 75: Radii of Coiled Expansion Loops and Developed Lengths of Expansion Offsets. (See *The Copper Tube Handbook: Industry Standard Guide for the Design and Installation of Copper Piping Systems; Copper Development Association Inc., Copper Alliance; https://www.copper.org/publications/pub_list/pdf/copper_tube_handbook.pdf* for additional information.)

Anticipated Linear Expansion (LE) (inches)		Nominal Tube Size (OD) inches			
		1/4	3/8	1/2	3/4
1/2	R[1]	6	7	8	9
	L[2]	38	44	50	59
1	R[1]	9	10	11	13
	L[2]	54	63	70	83
1-1/2	R[1]	11	12	14	16
	L[2]	66	77	86	101
2	R[1]	12	14	16	19
	L[2]	77	89	99	117
2-1/2	R[1]	14	16	18	21
	L[2]	86	99	111	131
3	R[1]	15	17	19	23
	L[2]	94	109	122	143
3-1/2	R[1]	16	19	21	25
	L[2]	102	117	131	155
4	R[1]	17	20	22	26
	L[2]	109	126	140	166

[1]R = Centerline Length of Pipe. [2]L = Centerline Minimum Radius (inches).

REFRIGERANT PIPING SYSTEM ENGINEERING

LGRED°

NOTICE

Various tools are available to assist in properly designing LG R32 split systems. Refer to the "R32 Application Guide"; the "Simple Calculator for Capacity, Refrigerant Charge and ESP"; the "LG Air Conditioner Technical Solutions" (LATS) software program; and the local LG Sales Representative.

Proper system operation depends on the installer using utmost care while assembling the piping system. The following pages are an overview of best practices when installing the refrigerant piping system.

NOTICE

LG Electronics U.S.A.,Inc., is not responsible for any piping calculations, refrigerant leaks, degradation of performance, any other potential problems or damages caused by the interconnecting piping, their joint connections, isolation valves, or introduced debris inside the piping system.

⃠ No Pipe Size Substitutions

Use only the pipe size selected by the information in this manual. Using a different size is prohibited and will result in a system malfunction or failure to work at all.

⃠ No In-line Refrigeration Components

Components such as oil traps, solenoid valves, filter-driers, sight glasses, tee fittings, and other after-market accessories are ⃠ not permitted on the refrigerant piping system between the outdoor units and the indoor units. LG Single Zone systems are provided with redundant systems that make sure oil is properly returned to the compressor. Sight-glasses and solenoid valves will cause vapor to form in the liquid stream. Over time, driers will deteriorate and introduce debris into the system. The designer and installer must verify the refrigerant piping system is free of traps, sagging pipes, sight glasses, filter driers, etc.

Field-Provided Isolation Ball Valves

LG maintains a neutral position on using isolation valves in LG HVAC refrigerant piping systems. LG does not endorse any manufacturer of isolation valves. It is recognized that installing isolation valves will simplify future maintenance requirements, and, if used, considerations must be taken including, but not limited to, the following:

- Pressure drops for any component used, including isolation valves, must be known in equivalent pipe length and calculated into the total and segment equivalent piping lengths and compared to product design limitations.
- In all cases, materials must be suitable for the application and any applicable codes, including, but not limited to, diameter and wall thickness continuity per ACR standards.

Failure to do so will cause significant performance degradation. Proper leak checks must be performed. Using isolation valves does not automatically void any LG product warranty, however, a limited warranty will be voided in whole or part if any field supplied accessory fail in any way that causes product failure.

Using Elbows

Field-supplied elbows are allowed if they are long radius and designed for use with R32 refrigerant. The designer and installer, however, must be cautious with the quantity and size of fittings used, and must account for the additional pressure losses in equivalent pipe length calculation for each branch. The equivalent pipe length of each elbow must be added to each pipe segment in the LATS program.

Pipe Bends

When bending soft copper, use long radius bends. Refer to the "Radii of Coiled Expansion Loops and Developed Lengths of Expansion Offsets" table on the previous page for minimum radius specifications.

LG

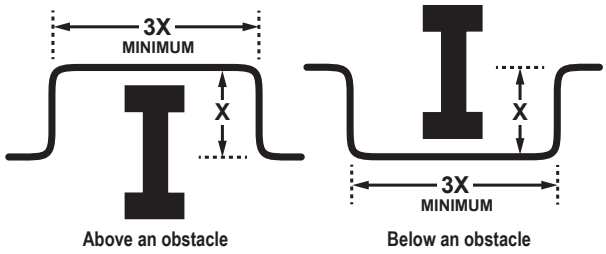
NOTICE

Various tools are available to assist in properly designing LG R32 split systems. Refer to the "R32 Application Guide"; the "Simple Calculator for Capacity, Refrigerant Charge and ESP"; the "LG Air Conditioner Technical Solutions" (LATS) software program; and the local LG Sales Representative.

Obstacles

When an obstacle, such as an I-beam or concrete T, is in the path of the planned refrigerant pipe run, it is best practice to route the pipe over the obstacle. If adequate space is not available to route the insulated pipe over the obstacle, then route the pipe under the obstacle. In either case, it is imperative the length of the horizontal section of pipe above or below the obstacle be a minimum of three (3) times the longest vertical rise (or fall) at either end of the segment.

Figure 53: Installing Piping Above and Below an Obstacle.



Pipe Supports

A properly installed pipe system must be adequately supported to avoid pipe sagging. Sagging pipes become oil traps that lead to equipment malfunction.

Pipe supports must ⃠ never touch the pipe wall; supports must be installed outside (around) the primary pipe insulation jacket. Insulate the pipe first because pipe supports must be installed outside (around) the primary pipe insulation jacket. Clevis hangers must be used with shields between the hangers and insulation. Field provided pipe supports must be designed to meet local codes. If allowed by code, use fiber straps or split-ring hangers suspended from the ceiling on all-thread rods (fiber straps or split ring hangers can be used as long as they do not compress the pipe insulation). Place a second layer of insulation over the pipe insulation jacket to prevent chafing and compression of the primary insulation within the confines of the support pipe clamp.

A properly installed pipe system will have sufficient supports to avoid pipes from sagging during the life of the system. As necessary, place supports closer for segments where potential sagging could occur. Maximum spacing of pipe supports must meet local codes. If local codes do not specify pipe support spacing, pipe must be supported:

- Maximum of five (5) feet on center for straight segments of pipe up to 3/4 inches outside diameter size.
- Maximum of six (6) feet on center for pipe up to one (1) inch outside diameter size.
- Maximum of eight (8) feet on center for pipe up to two (2) inches outside diameter size.

Wherever the pipe changes direction, place a hanger within twelve (12) inches on one side and within twelve (12) to nineteen (19) inches of the bend on the other side.

Support piping at A-Coil unit(s) as shown.

Figure 54: Pipe Hanger Details.

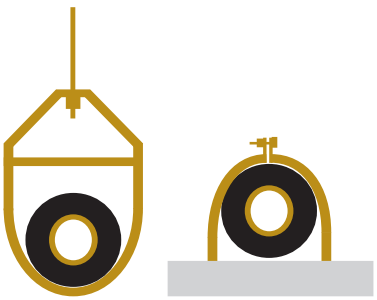


Figure 55: Typical Pipe Support Location—Change in Pipe Direction.

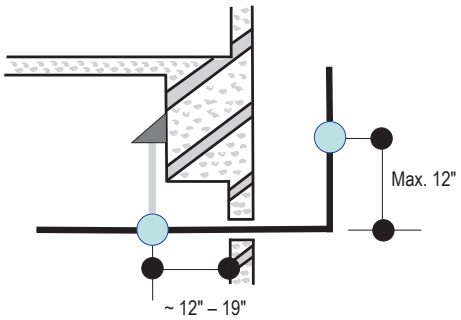
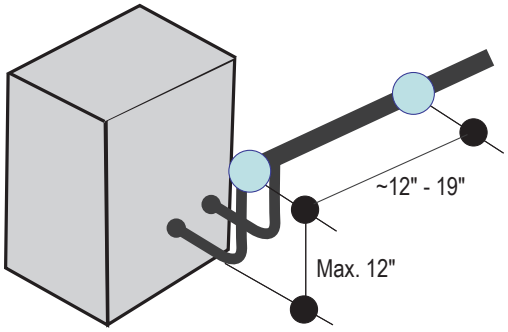


Figure 56: Pipe Support at A-Coil Unit.



NOTICE

Use a 4" + long sheet curved sheet metal saddles between hanger bracket and insulation to promote linear expansion/contraction.

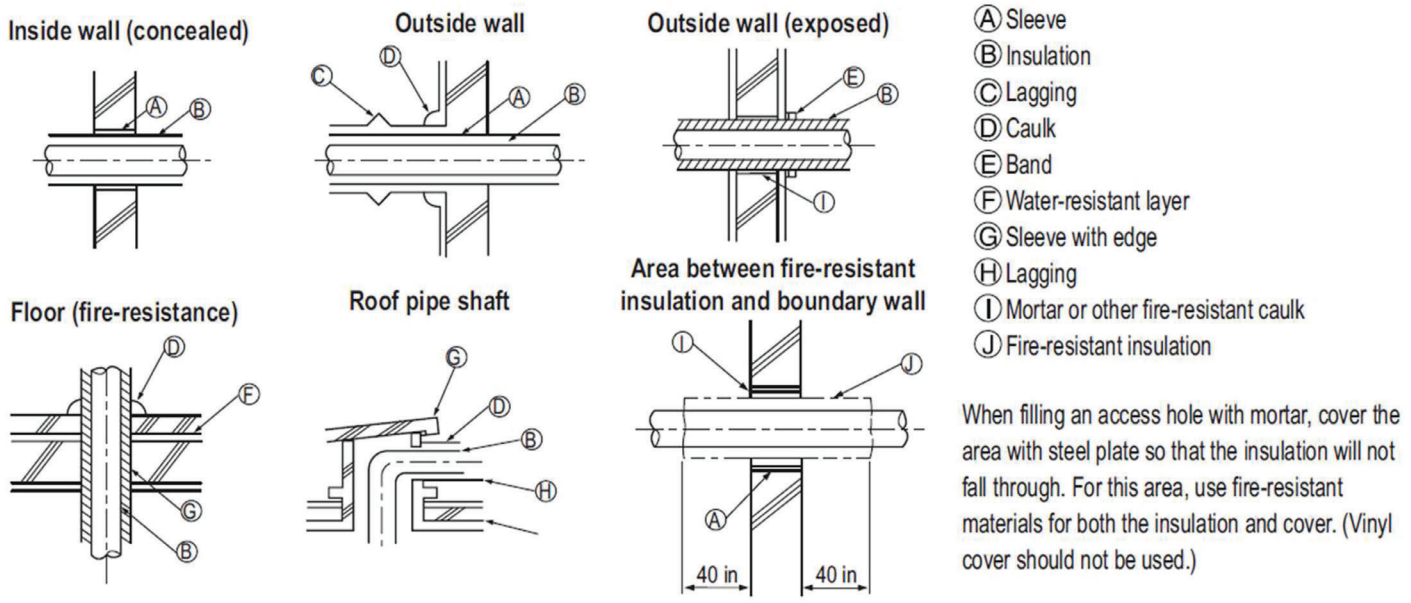
NOTICE

Various tools are available to assist in properly designing LG R32 split systems. Refer to the "R32 Application Guide"; the "Simple Calculator for Capacity, Refrigerant Charge and ESP"; the "LG Air Conditioner Technical Solutions" (LATS) software program; and the local LG Sales Representative.

Pipe Sleeves at Penetrations

LG recommends that all pipe penetrations through walls, floors, and pipes buried underground be properly insulated and routed through an appropriate wall sleeve of sufficient size to prevent compression of refrigerant pipe insulation and free movement of the pipe within the sleeve. Use 4"+ curved sheet metal saddles between the bottom surface of the pipe and the bottom surface of the penetration.

Figure 57: Pipe Sleeve Options.



NOTICE

Diameter of penetrations must be determined by pipe diameter plus the thickness of the insulation.

ELECTRICAL

GENERAL GUIDELINES

General Heat Pump Outdoor Unit to A-Coil Electrical Guidelines

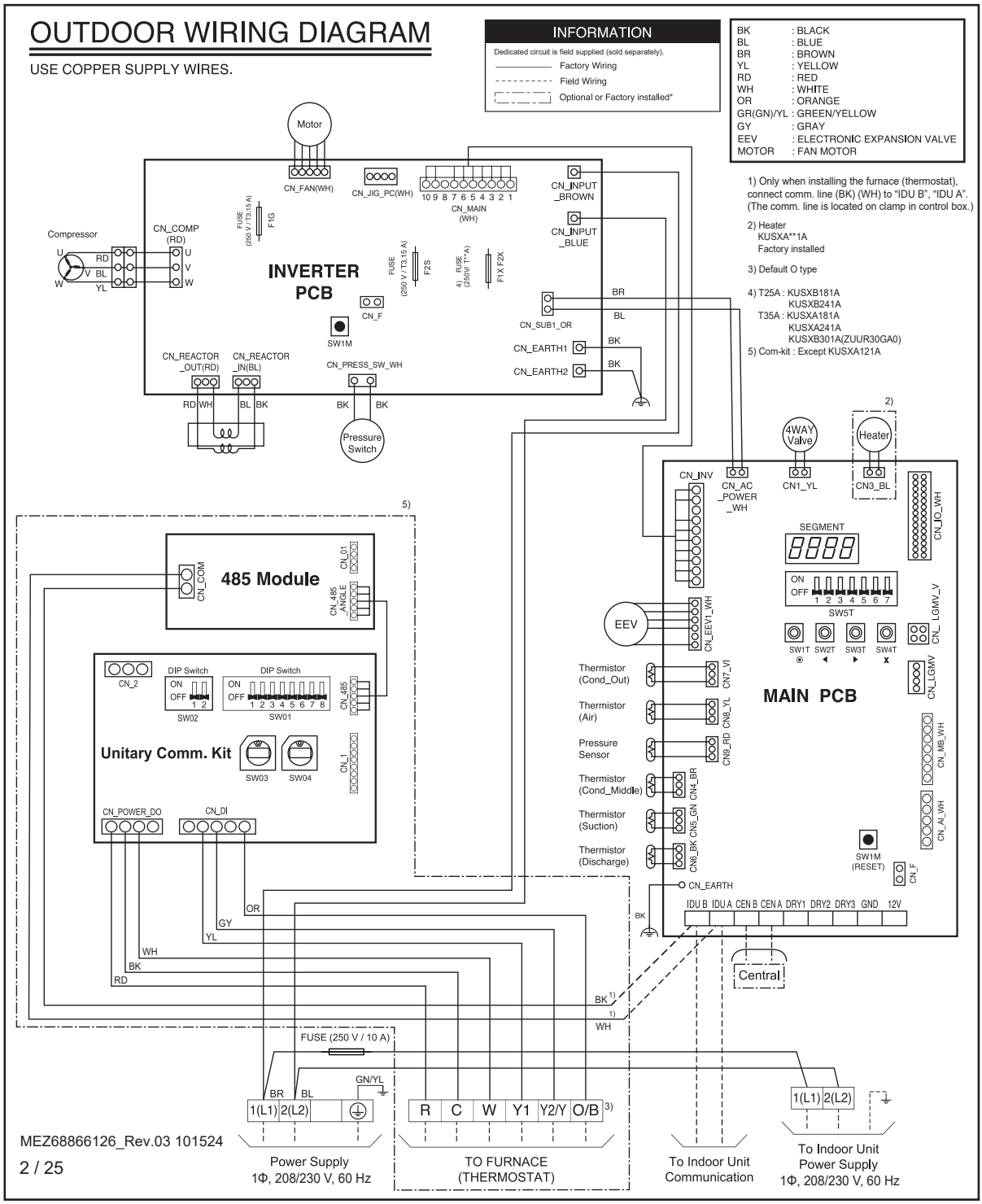
⚠ WARNING

- *Separately wire the high and low voltage lines. There is a risk of electric shock, physical injury, or death.*
- *Use heat-proof electrical wire capable of withstanding temperatures up to 167°F to avoid wiring malfunction and electrical shock, which may cause physical injury or death.*
- *Power wiring and communication cables must be firmly attached to the terminals; connect the wiring so that the wires cannot be easily pulled out. Loose wiring may cause unit malfunction, the wires to burnout or the terminal to overheat and catch fire. There is a risk of electric shock, physical injury or death.*
- *Terminal screws will become loose during transport. Properly tighten the terminal connections during installation or risk electric shock, physical injury, or death.*
- *Use outdoor and waterproof connection cable rated up to 300V for the connection between the indoor and outdoor unit to avoid electrical shock, which may cause physical injury or death.*

NOTICE

- *Separately wire the high and low voltage lines to avoid damage to units.*
- ⃠ *Do not install power wiring to the outdoor unit and the communication / connection (power) cable to the indoor unit in the same conduit. Use separate conduits.*
- *Local codes may require field-installed disconnect switches from outdoor unit to indoor unit.*
- *Use heat-proof electrical wire capable of withstanding temperatures up to 167°F to avoid damage to unit.*
- *Always use a circuit breaker or time delay fuse when connecting electrical wiring to the unit.*
- *Power wiring and communication cables must be firmly attached to the terminals. 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.*
- *Terminal screws will become loose during transport. Properly tighten the terminal connections during installation or risk equipment malfunction or property damage. There is a risk of equipment malfunction or property damage.*
- *Use outdoor and waterproof connection cable rated up to 300V for the connection between the indoor and outdoor unit to avoid damage to the unit.*
- *Comply with local codes while running wire from the indoor unit to the outdoor unit.*
- ⃠ *Do not allow wire to touch refrigerant piping, the compressor or any moving parts since it can lead to mechanical failure.*

Figure 58: KUSXA181A, KUSXA241A Outdoor Unit Wiring Diagram.



1. Only when installing the furnace (thermostat):Connect the communication wiring (BK) (WH) to "IDU B", "IDU A". (The communication wiring is clamped onto the control box.).
*2. Heater: KUSXA**1A; Factory installed.*
3. Default O type
4. Conventional Thermostat Interface only. To be connected to A-Coil / Furnace only.
5. T25A : KUSXB181A; KUSXB241A
T35A : KUSXA181A; KUSXA241A; KUSXB301A.

WIRING DIAGRAMS

KUSXA301A, KUSXA361A Outdoor Unit

Figure 59: KUSXA301A, KUSXA361A Outdoor Unit Wiring Diagram.

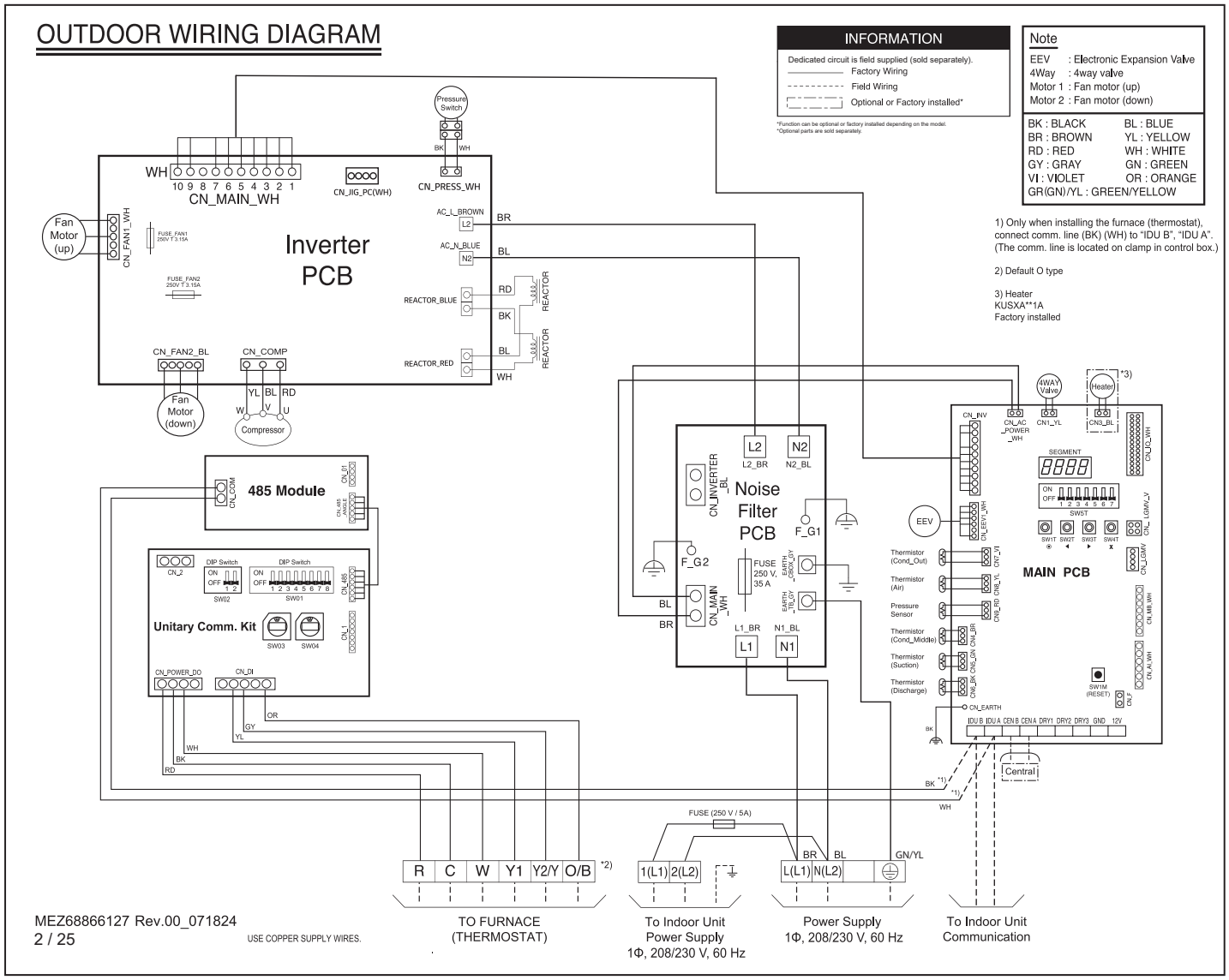
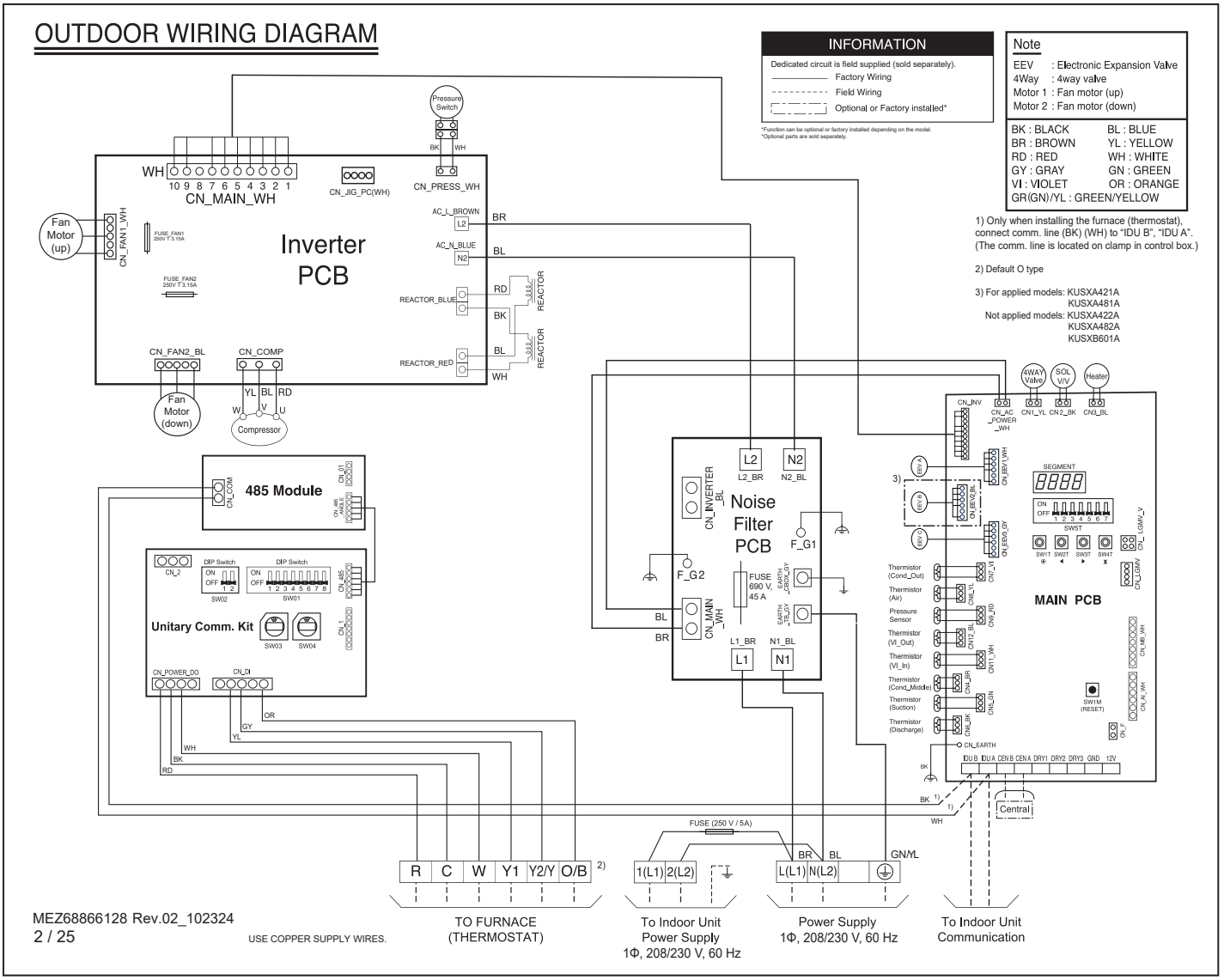


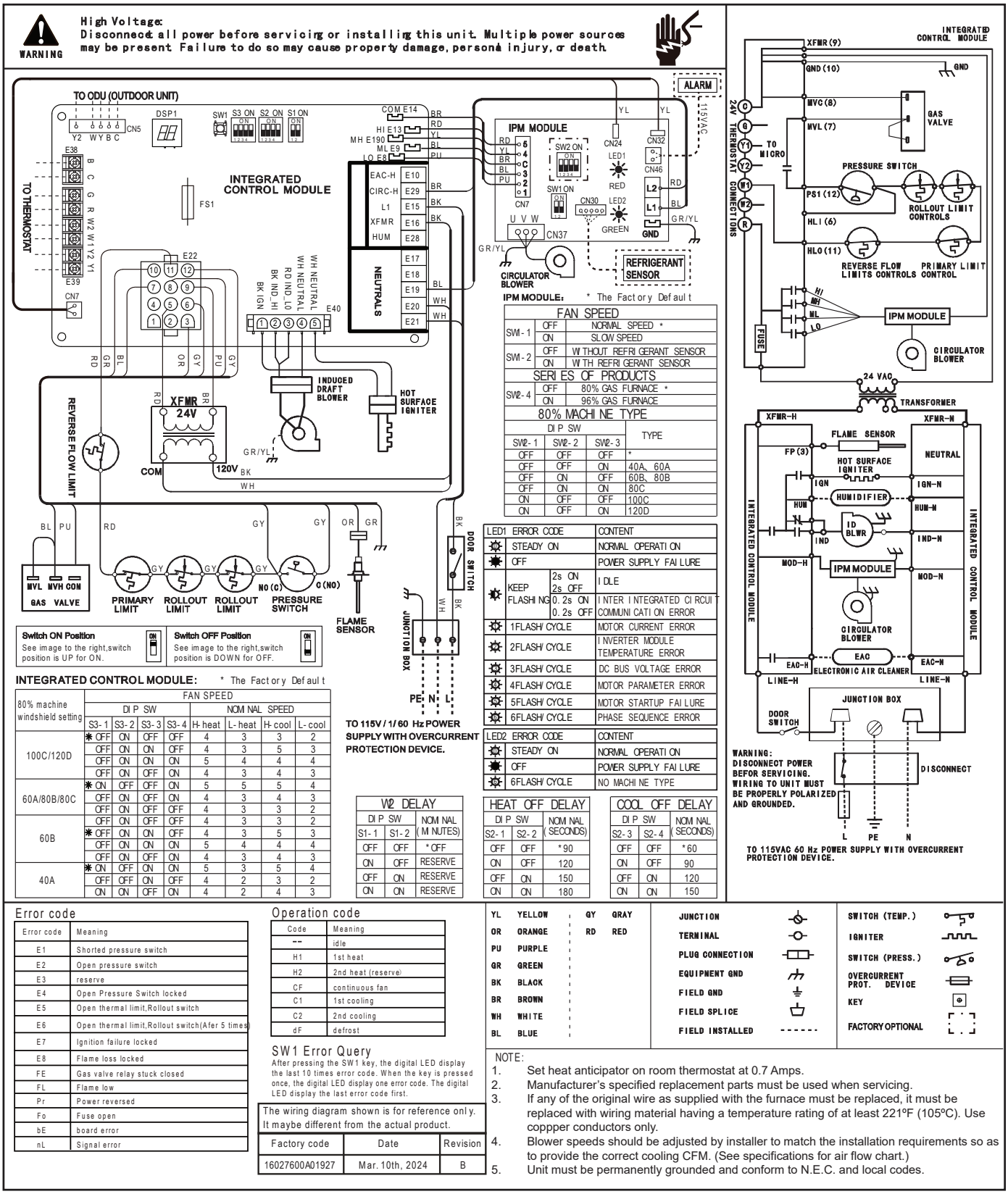
Figure 60: KUSXA422A, KUSXA482A Outdoor Unit Wiring Diagram.



WIRING DIAGRAMS

80% Efficiency Gas Furnaces

Figure 61: LNAEA060B1, LNAEA080C1, LNAEA100C1, LNAEA120D1 80% Efficiency Gas Furnace Wiring Diagram.



IPM MODULE: * The Factory Default

FAN SPEED		
SW1-1	OFF	NORMAL SPEED *
	ON	SLOW SPEED
SW1-2	OFF	WITHOUT REFRIGERANT SENSOR
	ON	WITH REFRIGERANT SENSOR
SERIES OF PRODUCTS		
SW2-4	OFF	80% GAS FURNACE *
	ON	96% GAS FURNACE

80% MACHINE TYPE			
DIP SW			TYPE
SW2-1	SW2-2	SW2-3	
OFF	OFF	OFF	*
OFF	OFF	ON	40A, 60A
OFF	ON	OFF	60B, 80B
OFF	ON	ON	80C
ON	OFF	OFF	100C
ON	OFF	ON	120D

LED1 ERROR CODE		CONTENT
STEADY ON		NORMAL OPERATION
OFF		POWER SUPPLY FAILURE
KEEP FLASHING	2s ON 2s OFF	IDLE
	0.2s ON 0.2s OFF	INTER INTEGRATED CIRCUIT COMMUNICATION ERROR
1FLASH/CYCLE		MOTOR CURRENT ERROR
2FLASH/CYCLE		INVERTER MODULE TEMPERATURE ERROR
3FLASH/CYCLE		DC BUS VOLTAGE ERROR
4FLASH/CYCLE		MOTOR PARAMETER ERROR
5FLASH/CYCLE		MOTOR STARTUP FAILURE
6FLASH/CYCLE		PHASE SEQUENCE ERROR

LED2 ERROR CODE	CONTENT
STEADY ON	NORMAL OPERATION
OFF	POWER SUPPLY FAILURE
6FLASH/CYCLE	NO MACHINE TYPE

INTEGRATED CONTROL MODULE: * The Factory Default

80% machine windshield setting	FAN SPEED							
	DIP SW				NOMINAL SPEED			
	S3-1	S3-2	S3-3	S3-4	H-heat	L-heat	H-cool	L-cool
100C/120D	* OFF	ON	OFF	OFF	4	3	3	2
	OFF	ON	ON	OFF	4	4	4	4
	OFF	ON	OFF	ON	4	3	4	3
60A/80B/80C	* ON	OFF	OFF	ON	5	5	5	4
	OFF	ON	OFF	ON	4	3	4	3
	OFF	ON	OFF	OFF	4	3	3	2
60B	OFF	ON	OFF	OFF	4	3	3	2
	* OFF	ON	ON	OFF	4	3	5	3
	OFF	ON	ON	ON	5	4	4	4
	OFF	ON	OFF	ON	4	3	4	3
40A	* ON	OFF	ON	ON	5	3	5	4
	OFF	OFF	ON	OFF	4	2	3	2
	ON	ON	OFF	ON	4	2	4	3

W2 DELAY		
DIP SW		NOMINAL (MINUTES)
S1-1	S1-2	
OFF	OFF	*OFF
ON	OFF	RESERVE
OFF	ON	RESERVE
ON	ON	RESERVE

HEAT OFF DELAY		
DIP SW		NOMINAL (SECONDS)
S2-1	S2-2	
OFF	OFF	*90
ON	OFF	120
OFF	ON	150
ON	ON	180

COOL OFF DELAY		
DIP SW		NOMINAL (SECONDS)
S2-3	S2-4	
OFF	OFF	*60
ON	OFF	90
OFF	ON	120
ON	ON	150

Error code

Error code	Meaning
E1	Shorted pressure switch
E2	Open pressure switch
E3	reserve
E4	Open Pressure Switch locked
E5	Open thermal limit,Rollout switch
E6	Open thermal limit,Rollout switch(Afer 5 times)
E7	Ignition failure locked
E8	Flame loss locked
FE	Gas valve relay stuck closed
FL	Flame low
Pr	Power reversed
Fo	Fuse open
bE	board error
nL	Signal error

Operation code

Code	Meaning
--	idle
H1	1st heat
H2	2nd heat (reserve)
CF	continuous fan
C1	1st cooling
C2	2nd cooling
dF	defrost

SW1 Error Query

After pressing the SW1 key, the digital LED display the last 10 times error code. When the key is pressed once, the digital LED display one error code. The digital LED display the last error code first.

The wiring diagram shown is for reference only. It maybe different from the actual product.

Factory code	Date	Revision
16027600A01927	Mar. 10th, 2024	B

YL	YELLOW	GY	GRAY
OR	ORANGE	RD	RED
PU	PURPLE		
GR	GREEN		
BK	BLACK		
BR	BROWN		
WH	WHITE		
BL	BLUE		

JUNCTION	
TERMINAL	
PLUG CONNECTION	
EQUIPMENT GND	
FIELD GND	
FIELD SPLICE	
FIELD INSTALLED	------

SWITCH (TEMP.)	
IGNITER	
SWITCH (PRESS.)	
OVERCURRENT PROT. DEVICE	
KEY	
FACTORY OPTIONAL	

NOTE:

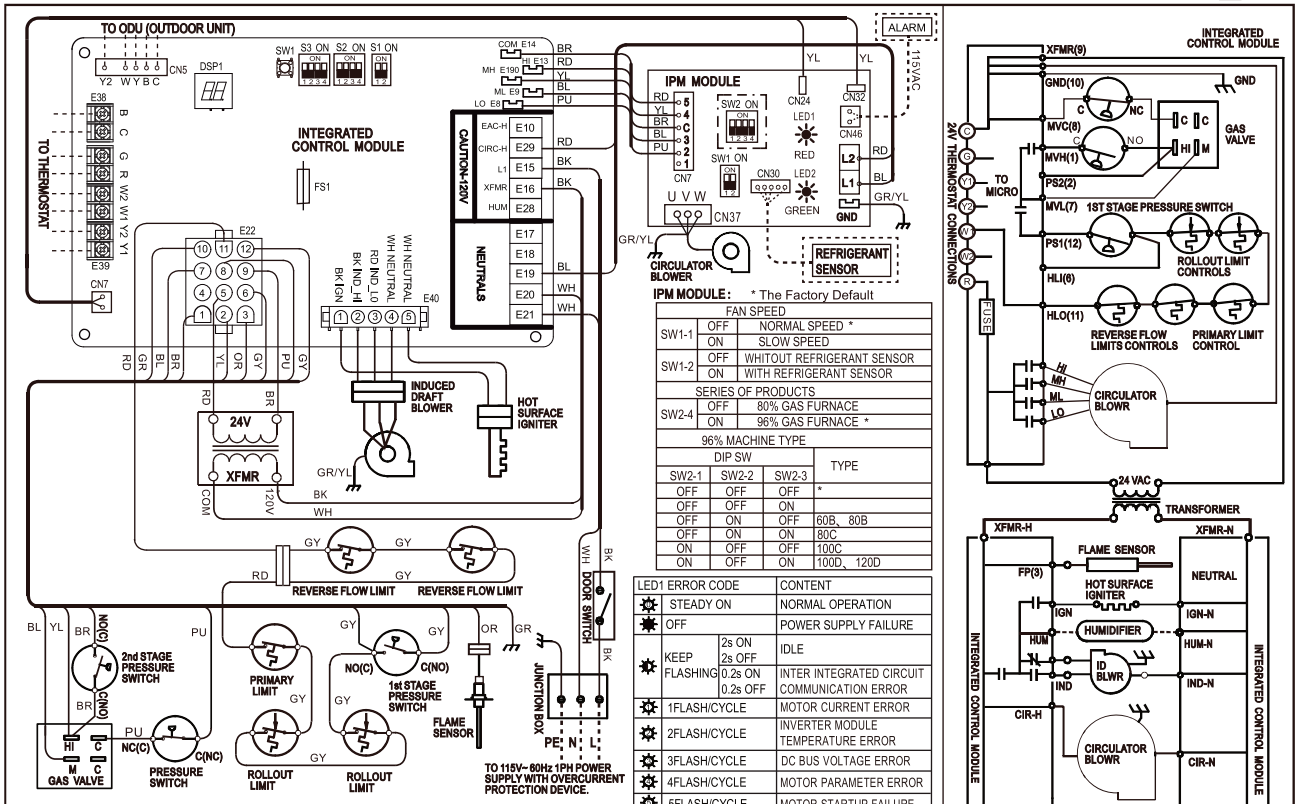
1. Set heat anticipator on room thermostat at 0.7 Amps.
2. Manufacturer's specified replacement parts must be used when servicing.
3. If any of the original wire as supplied with the furnace must be replaced, it must be replaced with wiring material having a temperature rating of at least 221ºF (105ºC). Use coppper conductors only.
4. Blower speeds should be adjusted by installer to match the installation requirements so as to provide the correct cooling CFM. (See specifications for air flow chart.)
5. Unit must be permanently grounded and conform to N.E.C. and local codes.

Figure 62: LNAVE060B1, LNAVE080B1, LNAVE080C1, LNAVE100C1, LNAVE120D1 96% Efficiency Gas Furnace Wiring Diagram.

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

WARNING

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



IPM MODULE: * The Factory Default		
FAN SPEED		
SW1-1	OFF	NORMAL SPEED *
	ON	SLOW SPEED
SW1-2	OFF	WHITOUT REFRIGERANT SENSOR
	ON	WITH REFRIGERANT SENSOR
SERIES OF PRODUCTS		
SW2-4	OFF	80% GAS FURNACE
	ON	96% GAS FURNACE *

96% MACHINE TYPE			
DIP SW			TYPE
SW2-1	SW2-2	SW2-3	
OFF	OFF	OFF	*
OFF	OFF	ON	
OFF	ON	OFF	60B、80B
OFF	ON	ON	80C
ON	OFF	OFF	100C
ON	OFF	ON	100D、120D

LED1 ERROR CODE			CONTENT
☼	STEADY ON		NORMAL OPERATION
☼	OFF		POWER SUPPLY FAILURE
☼	KEEP FLASHING	2s ON 2s OFF	IDLE
		0.2s ON 0.2s OFF	INTER INTEGRATED CIRCUIT COMMUNICATION ERROR
☼	1FLASH/CYCLE		MOTOR CURRENT ERROR
☼	2FLASH/CYCLE		INVERTER MODULE TEMPERATURE ERROR
☼	3FLASH/CYCLE		DC BUS VOLTAGE ERROR
☼	4FLASH/CYCLE		MOTOR PARAMETER ERROR
☼	5FLASH/CYCLE		MOTOR STARTUP FAILURE
☼	6FLASH/CYCLE		PHASE SEQUENCE ERROR

LED2 ERROR CODE		CONTENT
☼	STEADY ON	NORMAL OPERATION
☼	OFF	POWER SUPPLY FAILURE
☼	6FLASH/CYCLE	NO MACHINE TYPE

96% machine windshield setting		FAN SPEED						
		DIP SW			NOMINAL SPEED			
		S3-1	S3-2	S3-3	H-heat	L-heat	H-cool	L-cool
120D		* OFF	ON	OFF	4	3	3	2
100D		* OFF	OFF	ON	4	2	3	2
100C		* OFF	OFF	ON	4	2	3	2
		OFF	OFF	OFF	4	2	2	2
80C		* ON	OFF	OFF	5	3	5	4
		ON	ON	OFF	5	3	4	3
80B		* ON	OFF	OFF	5	3	5	4
		ON	ON	ON	5	3	3	2
		ON	OFF	ON	5	3	5	3
		ON	ON	OFF	5	3	4	3
60B		* OFF	ON	ON	4	3	5	3
		OFF	ON	OFF	4	3	3	2

WARNING: DISCONNECT POWER BEFORE SERVICING. WIRING TO UNIT MUST BE PROPERLY POLARIZED AND GROUNDED.

* The Factory Default

Switch ON Position
See image to the right,switch position is UP for ON.

Switch OFF Position
See image to the right,switch position is DOWN for OFF.

W2 DELAY		
DIP SW		NOMINAL (MINUTES)
S1-1	S1-2	
OFF	OFF	*OFF
ON	OFF	10
OFF	ON	AUTO
ON	ON	20

HEAT OFF DELAY		
DIP SW		NOMINAL (SECONDS)
S2-1	S2-2	
OFF	OFF	*90
ON	OFF	120
OFF	ON	150
ON	ON	180

COOL OFF DELAY		
DIP SW		NOMINAL (SECONDS)
S2-3	S2-4	
OFF	OFF	*60
ON	OFF	90
OFF	ON	120
ON	ON	150

Error code

Error code	Meaning
E1	Shorted pressure
E2	Open pressure 1st-stage
E3	Open pressure 2nd-stage
E4	Open Pressure Switch locked
E5	Open thermal limit,Rollout switch
E6	Open thermal limit,Rollout switch (Afer 5 times)
E7	Ignition failure locked
E8	Flame loss locked
FE	Gas valve relay stuck closed
FL	Flame low
Pr	Power reversed
Fo	Fuse open
bE	Board error
nL	Signal error

Operation code

Operation code	Meaning
--	Idle
H1	1st heat
H2	2nd heat
CF	Continuous fan
C1	1st cooling
C2	2nd cooling
dF	Defrost

SW1 Error Query

After pressing the SW1 key, the digital LED display the last 10 times error code. When the key is pressed once, the digital LED display one error code. The digital LED display the last error code first.

Factory code	Date	Revision
16027600001942	Mar. 10th, 2024	C

YL YELLOW	GY GRAY
OR ORANGE	RD RED
PU PURPLE	
GR GREEN	
BK BLACK	
BR BROWN	
WH WHITE	
BL BLUE	

JUNCTION		SWITCH (TEMP.)	
TERMINAL		IGNITER	
PLUG CONNECTION		SWITCH (PRESS.)	
EQUIPMENT GND		OVERCURRENT PROT. DEVICE	
FIELD GND		KEY	
FIELD SPLICE		FACTORY OPTIONAL	
FIELD INSTALLED			

NOTE:
1. SET HEAT ANTICIPATOR ON ROOM THERMOSTAT AT 0.7 AMPS.
2. MANUFACTURER'S SPECIFIED REPLACEMENT PARTS MUST BE USED WHEN SERVICING.
3. IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE FURNACE MUST BE REPLACED, IT MUST BE REPLACED WITH WIRING MATERIAL HAVING A TEMPERATURE RATING OF AT LEAST 105℃. USE COPPER CONDUCTORS ONLY.
4. BLOWER SPEEDS SHOULD BE ADJUSTED BY INSTALLER TO MATCH THE INSTALLATION REQUIREMENTS SO AS TO PROVIDE THE CORRECT COOLING CFM. (SEE SPEC SHEET FOR AIR FLOW CHART)
5. UNIT MUST BE PERMANENTLY GROUNDED AND CONFORM TO N. E. C. AND LOCAL CODES.

POWER SUPPLY / POWER WIRING TO OUTDOOR UNIT

Power Supply / Power Wiring to Outdoor Unit

- LG single zone systems operate at 1Ø, 208-230V, 60Hz; confirm power source specifications.
- Follow manufacturer's circuit diagrams displayed on the inside of the control box cover.
- 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.
- Power supply wiring to the outdoor unit(s) must be a minimum of 12 AWG, three (3) conductor for 18,000 and 24,000 Btu/h capacities; a minimum of 10 AWG, three (3) conductor for 30,000, 36,000, 42,000, and 48,000 Btu/h capacities; solid or stranded; and must comply with all National Electrical Code (NEC), UL, and local electrical codes.
- Maximum allowable voltage fluctuation ±10% or nameplate rated value. Confirm that the electrical capacity is sufficient.

A voltage drop will 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.

- Any openings where the field wiring enters the cabinet must be completely sealed.
- Properly ground the outdoor unit per National Electrical Code (NEC) and local codes.

Figure 63: Circuit Breaker.

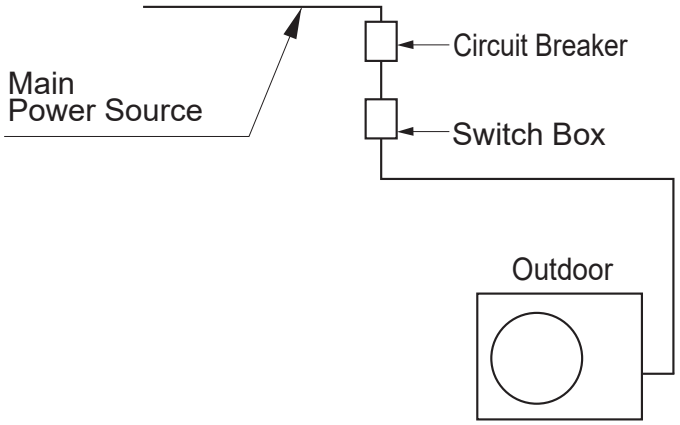
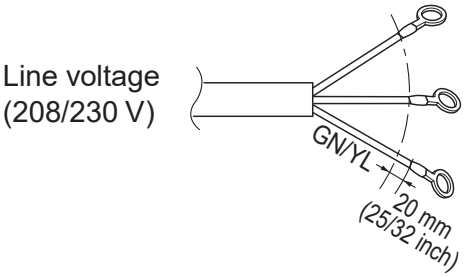


Figure 64: Power Wiring Example.



GAS FURNACE ELECTRICAL GUIDELINES

General Gas Furnace Electrical Guidelines

⚠ WARNING

Electrical Shock Hazard

- *Blower access panel door switch disconnects the power when access panel is removed.*
- *No component operation can occur. ⃠ Do not bypass or close switch with panel removed. Failure to follow this warning can result in electric shock, personal injury and / or death.*

See Figures 61 and 62, 69 to 73 and field wiring diagrams showing typical 115V wiring. Verify that all factory and field electrical connections are appropriately tight. Loose wiring connections can result in electric shock, personal injury and / or death.

⚠ WARNING

Electrical Shock and Fire Hazard

The cabinet MUST have an uninterrupted ground that follows NEC ANSI/NFPA 70-2008 and any / all applicable local and / or state codes to minimize personal injury if an electrical fault should occur. This may consist of electrical wiring; conduit approved for electrical ground; or listed, grounded power wiring (where permitted by local and / or state codes) when installed in accordance with existing electrical codes. Refer to the power wiring manufacturer's ratings for proper wire gauge. ⃠ Do not use gas piping as an electrical ground. Failure to follow instructions can result in injury and / or death.

NOTICE

Furnace May Not Operate

- *Furnace control must be grounded for proper operation or the control will lock out. Control must remain grounded through the green / yellow wire routed to the gas valve and manifold bracket screw. Failure to follow instructions may result in intermittent furnace operation.*

- *The cabinet MUST have an uninterrupted ground that follows NEC ANSI/NFPA 70-2008 and any / all applicable local and / or state codes. This may consist of electrical wiring; conduit approved for electrical ground; or listed, grounded power wiring (where permitted by local and / or state codes) when installed in accordance with existing electrical codes. Refer to the power wiring manufacturer's ratings for proper wire gauge. ⃠ Do not use gas piping as an electrical ground. Failure to follow instructions can result in property damage.*

GAS FURNACE ELECTRICAL INSTALLATION

115V Wiring

Verify that the voltage, frequency, and phase correspond to specifications on the gas furnace rating plate. Check that the service provided by the utility company is sufficient to handle the gas furnace load. Refer to the gas furnace rating plates or Tables 76 and 77 on page 125 for equipment electrical specifications.

Perform all electrical connections following National Electrical Code (NEC) ANSI/NFPA 70-2008 and any applicable local or state codes or ordinances.

⚠ WARNING

Fire Hazard

⃠ Do not connect aluminum wire between the disconnect switch and gas furnace. Use only copper wire. Failure to follow these instructions can result in personal injury and / or death.

NOTICE

Fire Hazard

⃠ Do not connect aluminum wire between the disconnect switch and gas furnace. Use only copper wire. Failure to follow these instructions can result in property damage.

Use a separate, fused branch electrical circuit with a properly sized fuse or circuit breaker for these gas furnaces. See Tables 76 and 77 on page 125 for wire size and fuse specifications. A readily accessible electrical disconnect must be located within near the gas furnace.

NOTICE

Proper polarity must be maintained for 115V wiring. If polarity is incorrect, the control LED status indicator light will flash rapidly (nine times a cycle) and the furnace will NOT operate.

Gas Furnace Junction Box Relocation

NOTICE

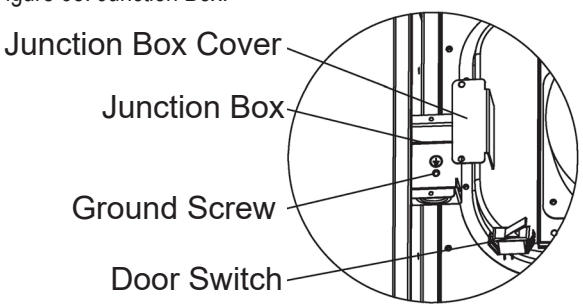
- *If the factory installed location of the gas furnace junction box is acceptable, skip this section and read the "Electrical Connection to the Gas Furnace Box" on the next page.*
- *On 14 inch gas furnace models, the junction box should not be relocated to other side of furnace casing when the vent pipe is routed in the casing.*

1. Remove and retain the two screws that are holding the junction box in place (See figure at right).

NOTICE

The cover does not need to be removed from the junction box if the junction box is to be moved. Do ⃠ NOT, however, remove the green ground screw inside junction box. The ground screw isn't threaded into the casing flange and can be lifted out of the casing access hole if the front edge of the junction box swings outward away from the casing.

Figure 65: Junction Box.



2. Cut the cable tie on loop / bundle of low-voltage wires next to the junction box.
3. Move the junction box to the desired location.
4. Re-attach the junction box to the casing with the two screws removed in Step 1.
5. Route the junction box wires within the gas furnace away from sharp edges, rotating parts, and hot surfaces.

Electrical Connection to the Gas Furnace Junction Box

Field-Supplied Electrical Box on Gas Furnace Junction Box Bracket (see Figure 65 on previous page; Figures 66 to 68 on pages 126 to 128)

1. Remove the gas furnace junction box cover.
2. Attach the electrical box to the gas furnace junction box bracket with at least two field-supplied blunt-nose screws (blunt-nose screws will not pierce the wire insulation). Install the screws through holes in electrical box into holes in bracket.
3. Route the gas furnace power wiring through access holes in the electrical box and the junction box bracket, and make field wire connections in electrical box. Follow U.S. NEC best practices for wire bushings, strain relief, etc.
4. Route and secure the field ground wire to the green ground screw on the junction box bracket.

NOTICE

Furnace will not operate if the field ground wire is not attached to the green ground screw properly.

5. Connect the line voltage leads as shown in Figures 66 and 68 on pages 126 to 128.
6. Re-attach the cover to the junction box. ⃠ Do not pinch the cable between cover and bracket.

Electrical Box on Gas Furnace Casing Side (see Figure 65 on previous page; Figures 66 to 68 on pages 126 to 128)

⚠ WARNING

Fire or Electrical Shock Hazard

If a field-supplied manual disconnect switch is to be mounted on the gas furnace casing side, select a location where a drill or fastener won't damage any electrical or gas components. Damage to the components can result in personal injury or death.

NOTICE

Fire or Electrical Shock Hazard

If a field-supplied manual disconnect switch is to be mounted on the gas furnace casing side, select a location where a drill or fastener cannot damage any electrical or gas components.
Damage to the components can result in property damage.

1. Select / remove the knockout hole in the casing where the electrical box is to be installed.

NOTICE

Verify that the duct on the side of the furnace will not interfere with installed electrical box.

2. Remove the desired electrical box knockout hole, and line up the electrical box hole with the gas furnace casing hole.
3. Install the electrical box to the gas furnace casing by attaching two field-supplied screws from inside electrical box into the casing.
4. Remove and retain the two screws that are holding the junction box in place (See Figure 65 on previous page).
5. Pull out the furnace power wiring from the 1/2 inch (13 mm) diameter hole in the junction box. ⃠ Do not loosen the wires from the strain-relief cable tie on the outside of the junction box.
6. Route the gas furnace power wires through holes in the casing / electrical box and into electrical box.
7. Route the field power wiring into the electrical box.
8. Remove the gas furnace junction box cover.
9. Route the field ground wire through the holes in electrical box and casing and into gas furnace junction box.
10. Re-attach the gas furnace junction box to the furnace casing using the with screws removed in Step 4.
11. Secure the field ground wire to the green ground junction box screw.
12. Finish the electrical box wiring and installation. Connect the line voltage leads as shown in Figures 66 and 68 on pages 126 to 128.

NOTICE

Use U.S. N.E.C. best practices for wire bushings, strain relief, etc.

13. Re-attach the cover to the junction box. ⃠ Do not pinch the cable between cover and bracket.

GAS FURNACE ELECTRICAL INSTALLATION

Installing the Power Wiring in the Gas Furnace Junction Box

NOTICE

Power wiring must follow all electrical requirements listed in Tables 76 and 77 on the next page. Refer to the manufacturer's power wiring specifications.

1. Remove the gas furnace junction box cover.
2. Route the power wiring through the 7/8 inch (22 mm) diameter junction box access hole.
3. Secure the power wiring to the junction box with a strain-relief bushing or a connector approved for the wiring type used.
4. Secure the field ground wire to the green ground screw on the junction box bracket.

NOTICE

Furnace will not operate if the field ground wire is not attached to the green ground screw properly.

5. Connect the line voltage leads as shown in Figures 66 and 68 on pages 126 to 128.
6. Re-attach the cover to the junction box. ⃠ Do not pinch the cable between cover and bracket.

Installing the BX Cable in the Gas Furnace Junction Box

1. Remove the gas furnace junction box cover.
2. Route the BX cable through the 7/8 inch (22 mm) diameter junction box access hole.
3. Secure the BX cable to the junction box bracket with connectors approved for the cable type used (follow all local, state, and federal requirements).
4. Secure the field ground wire to the green ground screw on the junction box bracket.

NOTICE

Furnace will not operate if the field ground wire is not attached to the green ground screw properly.

5. Connect the line voltage leads as shown in Figures 66 and 68 on pages 126 to 128.
6. Re-attach the cover to the junction box. ⃠ Do not pinch the cable between cover and bracket.

24V Wiring for 80% Efficiency Gas Furnaces

1. Make field 24V connections at the 24V terminal strip (Figure 69 on page 129, and Figure 71 on page 30).
2. Connect terminal Y for proper cooling operation (Figure 69 on page 129, and Figure 71 on page 30).
3. Use only AWG 18, color-coded, copper thermostat wire.

NOTICE

The 24V circuit contains an automotive-type, 3-amp maximum fuse located on the control panel. Any short circuits during installation, service, or maintenance can blow the fuse. For replacement, use ONLY a 3-amp maximum fuse of identical size.

24V Wiring for 96% Efficiency Gas Furnaces

1. Make field 24V connections at the 24V terminal strip (Figure 70 on page 130, Figure 72 on 131, Figure 73 on page 132).
2. Connect terminal Y / Y2, Y1 for proper cooling operation (Figure 70 on page 130, Figure 72 on 131, Figure 73 on page 132).
3. Connect terminal W / W1, Y2 for proper heating operation (Figure 70 on page 130, Figure 72 on 131, Figure 73 on page 132.
4. Use only AWG 18, color-coded, copper thermostat wire.

NOTICE

The 24V circuit contains an automotive-type, 5-amp maximum fuse located on the control panel. Any short circuits during installation, service, or maintenance can blow the fuse. For replacement, use ONLY a 5-amp maximum fuse of identical size.

Optional Accessories (Field Supplied)

1. Electronic Air Cleaner (EAC)
   Connect an Electronic Air Cleaner (if used; optional, sold separately) using 1/4 inch female quick connect terminals to the two male 1/4 inch quick-connect terminals on the control board marked “EAC-H” and “NEUTRALS”. The terminals are rated for 115V AC, 1A maximum, and are energized during blower motor operation (See Figures 66 to 68 on pages 126 to 128).
2. Humidifier (HUM)
   Connect an accessory 115V AC, 0.5A maximum humidifier (if used; optional, sold separately) to the 1/4 inch male quick-connect “HUM-H” terminal and “NEUTRALS” terminal on the control board. The HUM terminal is energized when gas valve relay is energized (See Figures 66 to 68 on pages 126 to 128).

Ground Wiring

The gas furnace MUST be electrically grounded in accordance with local codes or, in the absence of local codes, with the National Electrical Code, ANSI / NFPA 70.

Table 76: 80% Efficiency Gas Furnaces—Ratings and Physical / Electrical Data.

Input		Output		Nominal Airflow	Max. Unit Amps	AFUE	Air Temp. Rise		Max. Overcurrent Protection Amps	Min. Wire Size (AWG) @75 feet	Max. Outlet Air Temp.	
MBH	kW	MBH	kW	CFM			°F	°C			°F	°C
LNAEA060B1	17.6	48	14.1	1,100	8.0	80	40	22.2	15	14	155	68.3
LNAEA080C1	23.4	64	18.8	1,300	8.0	80	45	25.0	15	14	160	71.1
LNAEA100C1	29.3	80	23.4	1,680	14.0	80	45	25.0	15	14	160	71.1
LNAEA120D1	35.2	96	28.1	1,800	14.0	80	50	27.8	15	14	165	73.9

Table 77: 96% Efficiency Gas Furnaces—Ratings and Physical / Electrical Data.

Input		Output		Nominal Airflow	Max. Unit Amps	AFUE	Air Temp. Rise		Max. Overcurrent Protection Amps	Min. Wire Size (AWG) @75 feet	Max. Outlet Air Temp.	
MBH	kW	MBH	kW	CFM			°F	°C			°F	°C
LNAVE060B1	17.6	57	16.4	1,200	8	96	30~60	17~33	15	14	160	71
LNAVE080B1	23.4	76	22.3	1,200	8	96	35~65	19~36	15	14	165	74
LNAVE080C1	23.4	76	22.3	1,600	7.8	96	35~65	19~36	15	14	165	74
LNAVE100C1	29.3	95	27.8	2,000	11.5	96	35~65	19~36	20	12	165	74
LNAVE120D1	35.2	106.5	33.7	2,000	10.5	96	40~70	22~39	20	12	170	77

NOTICE

- *Annual Fuel Utilization Efficiency (AFUE) numbers are determined in accordance with DOE test procedures,*
- *Follow National Electrical Codes (NFPA-70-latest edition) and all applicable local / state codes.*
- *The gas furnace must be installed so the electrical components are not exposed to water / moisture.*

GAS FURNACE ELECTRICAL INSTALLATION

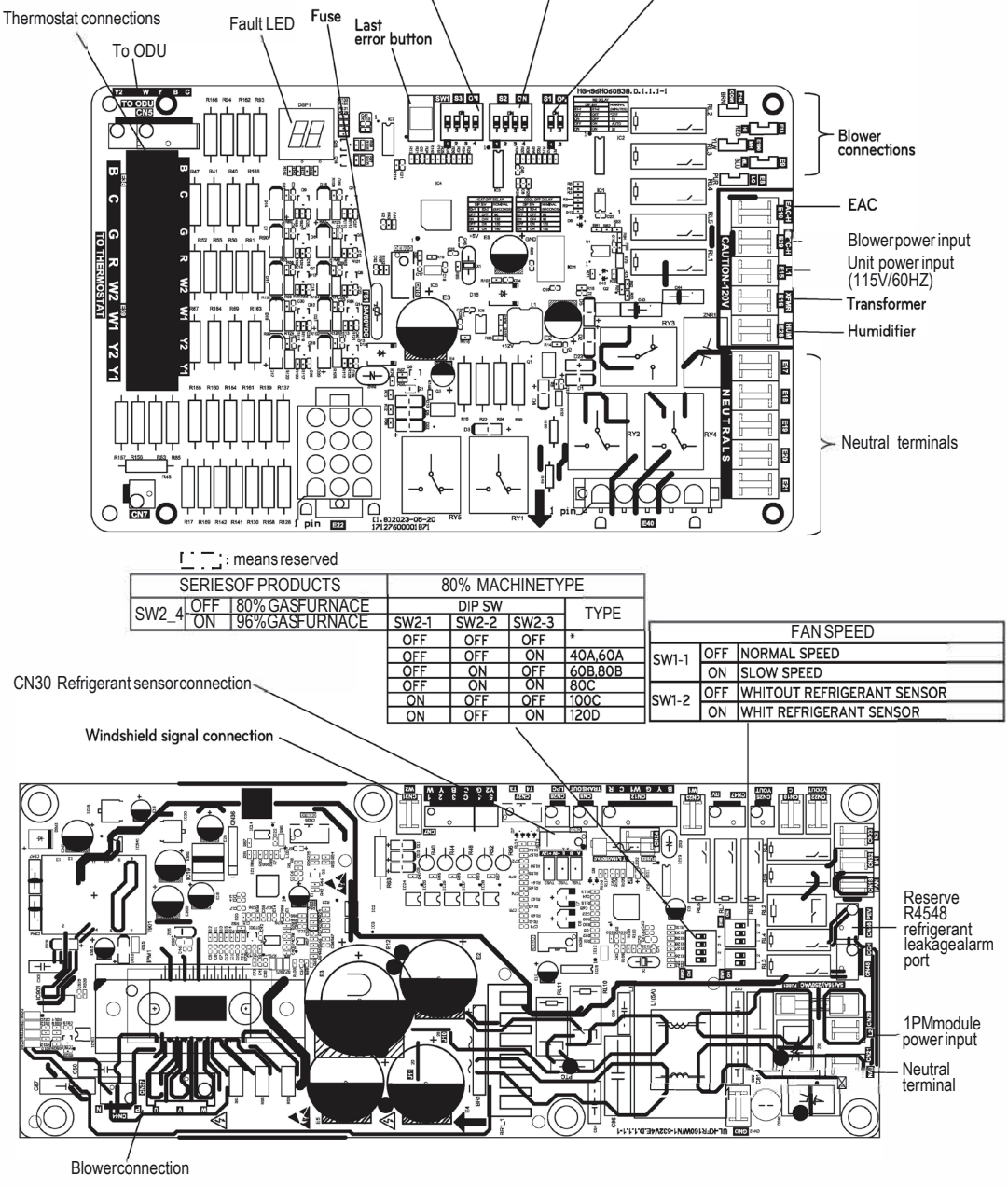
Figure 66: 80% Efficiency Gas Furnace—Furnace Control Module (For Reference).

80% machine windshield setting	FAN SPEED							
	DIP SW				NOMINAL SPEED			
	S3-1	S3-2	S3-3	S3-4	H-heat	L-heat	H-cool	L-cool
100C/120D	OFF	ON	OFF	OFF	4	3	3	2
	OFF	ON	ON	OFF	4	3	5	3
	OFF	ON	ON	ON	5	4	4	4
	OFF	ON	OFF	ON	4	3	4	3
60A/808/ SOC	ON	OFF	OFF	ON	5	5	5	4
	OFF	ON	OFF	ON	4	3	4	3
	OFF	ON	OFF	OFF	4	3	3	2
608	OFF	ON	OFF	OFF	4	3	3	2
	OFF	ON	ON	OFF	4	3	5	3
	OFF	ON	ON	ON	5	4	4	4
	OFF	ON	OFF	ON	4	3	4	3
40A	ON	OFF	ON	ON	5	3	5	4
	OFF	OFF	ON	OFF	4	2	3	2
	ON	ON	OFF	ON	4	2	4	3

HEAT OFF DELAY		
DIPSW		NOMINAL (MINUTES)
S2-1	S2-2	
OFF	OFF	90
ON	OFF	120
OFF	ON	150
ON	ON	180

COOL OFF DELAY		
DIPSW		NOMINAL (MINUTES)
S2-3	S2-4	
OFF	OFF	60
ON	OFF	90
OFF	ON	120
ON	ON	150

W2 DELAY		
DIPSW		NOMINAL (MINUTES)
SI-1	SI-2	
OFF	OFF	OFF
ON	OFF	RESERVE
OFF	ON	RESERVE
ON	ON	RESERVE



SERIES OF PRODUCTS		
SW2_4	OFF	80% GAS FURNACE
	ON	96% GAS FURNACE

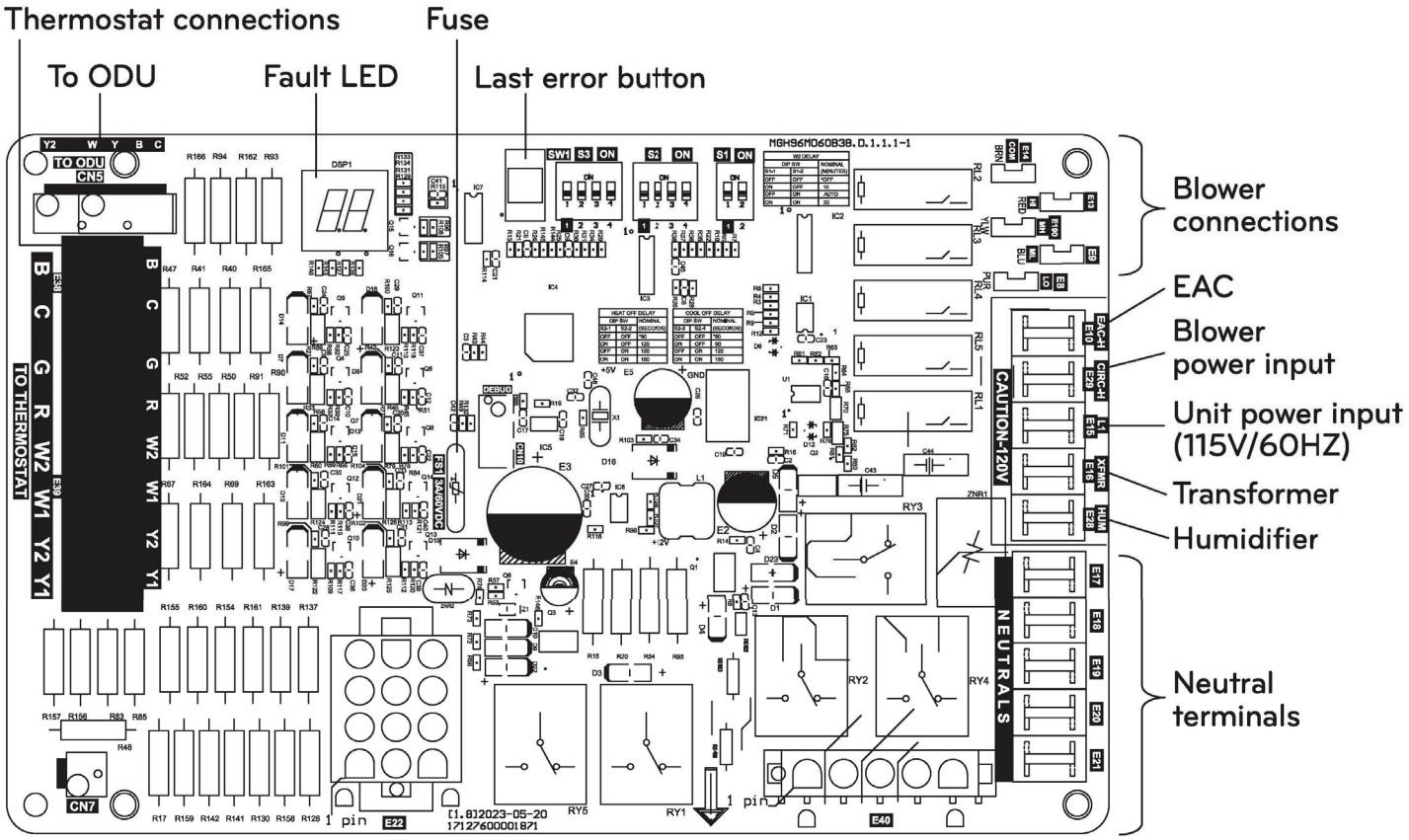
80% MACHINE TYPE			
DIP SW			TYPE
SW2-1	SW2-2	SW2-3	
OFF	OFF	OFF	*
OFF	OFF	ON	40A,60A
OFF	ON	OFF	60B,80B
OFF	ON	ON	80C
ON	OFF	OFF	100C
ON	OFF	ON	120D

FAN SPEED		
SW1-1	OFF	NORMAL SPEED
	ON	SLOW SPEED
SW1-2	OFF	WHITOUT REFRIGERANT SENSOR
	ON	WHIT REFRIGERANT SENSOR

Figure 67: 96% Efficiency Gas Furnace—Furnace Control Module (For Reference).

W2 Delay			Heat Off Delay			Cool Off Delay		
DIP Switch		Nominal (Minutes)	DIP Switch		Nominal (Seconds)	DIP Switch		Nominal (Seconds)
S1-1	S1-2		S2-1	S2-2		S2-3	S2-4	
*Off	Off	Off	*Off	Off	90	*Off	Off	60
On	Off	10	On	Off	120	On	Off	90
Off	On	Auto	Off	On	150	Off	On	120
On	On	20	On	On	180	On	On	150

Optional Switch Positions

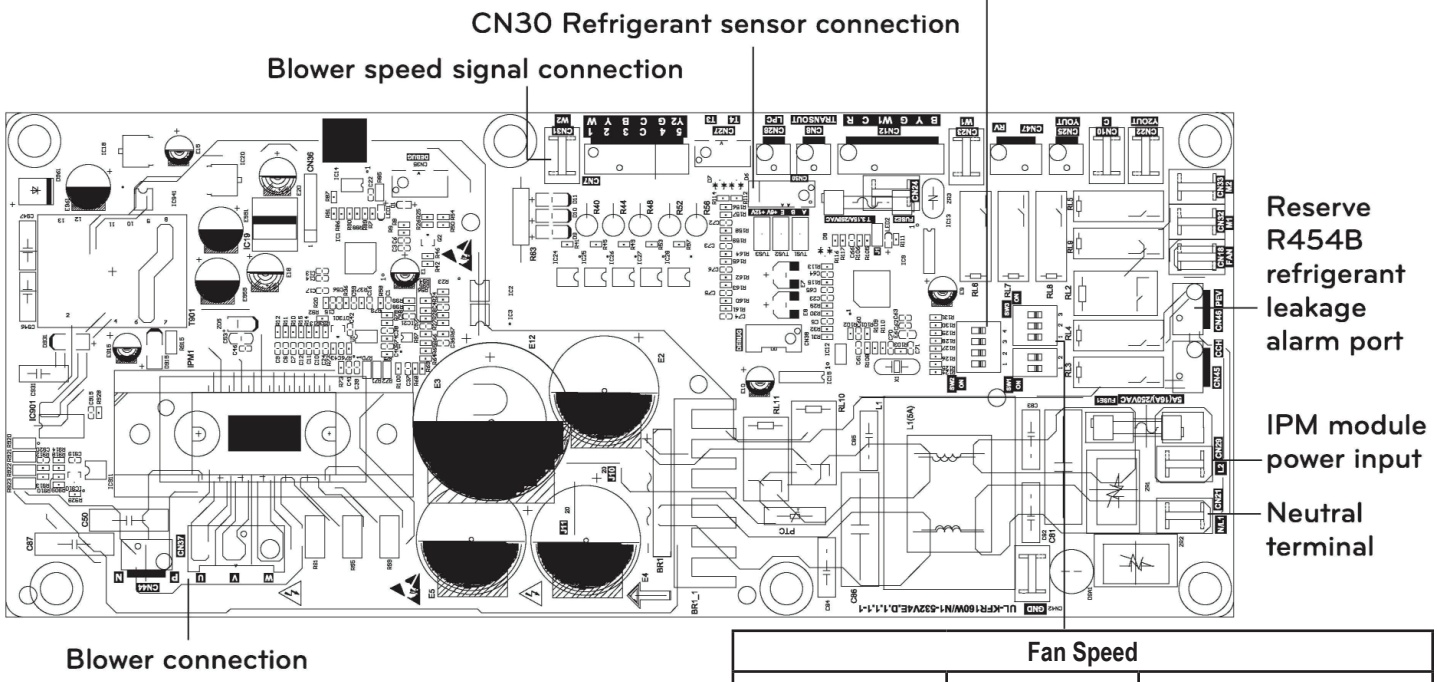


GAS FURNACE ELECTRICAL INSTALLATION

Figure 68: 96% Efficiency Gas Furnace—Furnace Control Module (For Reference), continued.

SW2-4	Off	80% Efficiency Gas Furnace
	On	96% Efficiency Gas Furnace

96% Efficiency Gas Furnace			
DIP Switches			Type
SW2-1	SW2-2	SW2-3	
Off	Off	Off	*
Off	Off	On	*
Off	On	Off	60B, 80B
Off	On	On	80C
On	Off	Off	100C
On	Off	On	120D

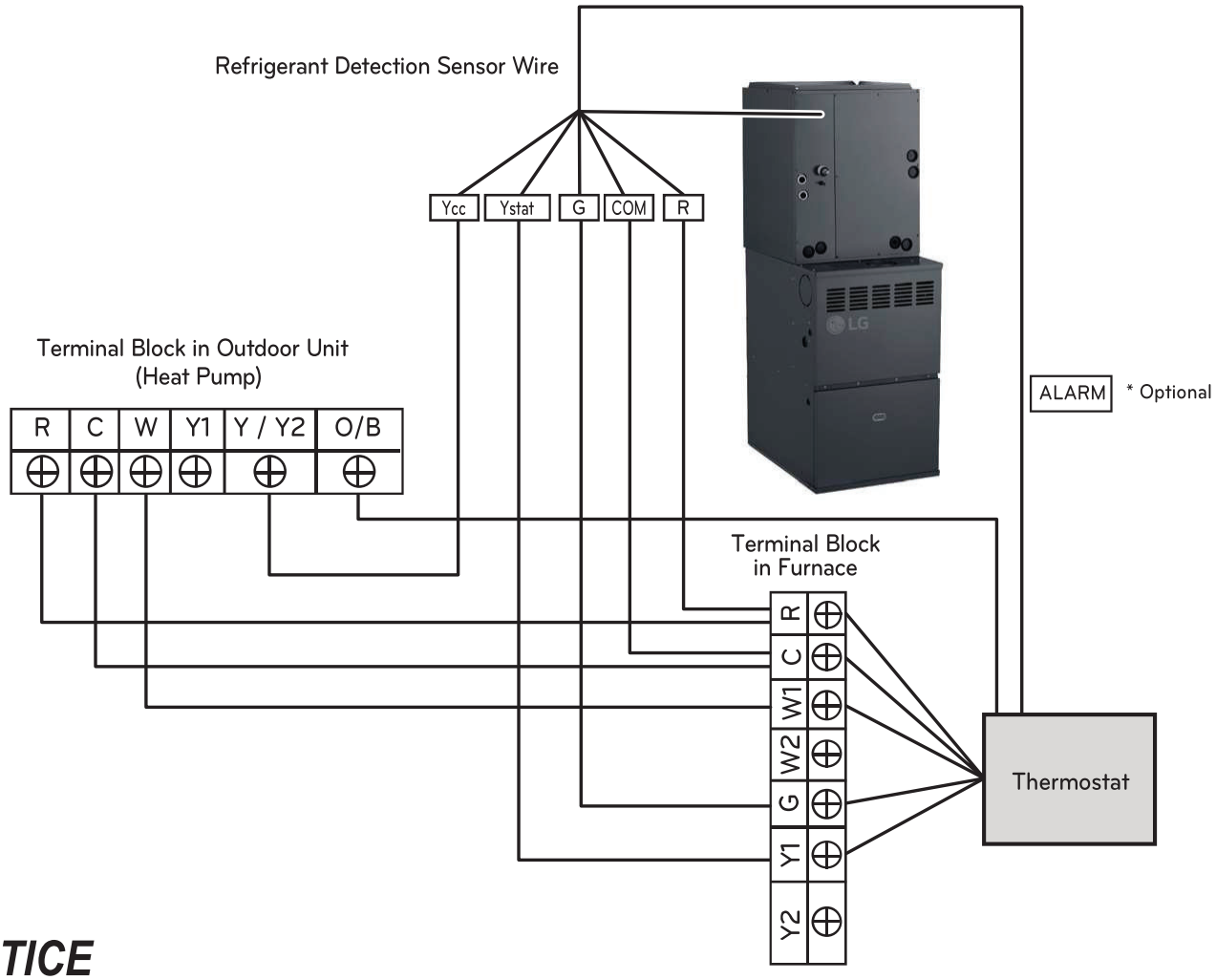


Fan Speed		
SW1-1	Off	Normal Speed
	On	Slow Speed
SW1 _2	Off	Without Refrigerant Sensor
	On	With Refrigerant Sensor

Dual Fuel Thermostat Applications

- One-stage cooling, two-stage heating: one-speed heat pump with one-stage furnace
- One-stage cooling, three-stage heating: one-speed heat pump with two-stage furnace
- Two-stage cooling, three-stage heating: two-speed heat pump with one-stage furnace
- Two-stage cooling, four-stage heating: two-speed heat pump with two-stage furnace

Figure 69: 80% Efficiency Gas Furnace—Wiring Diagram with Dual Fuel One-Stage Cooling, Two-Stage Heating Thermostat.

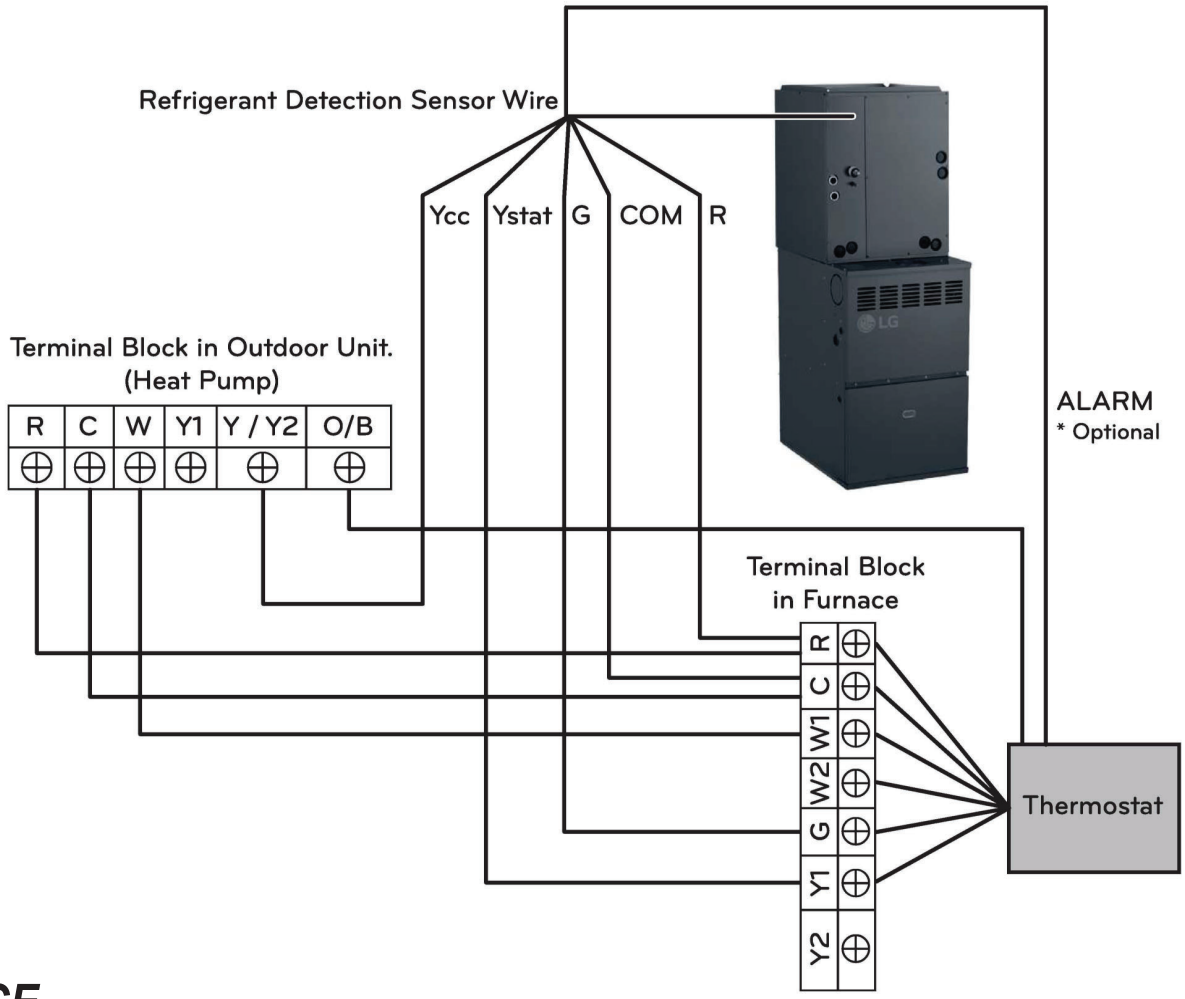


NOTICE

- *To use one-stage heat pumps, change the DIP Switch in the outdoor unit and connect to the Y / Y2 terminal.*
- *For more information on outdoor unit connections and DIP Switch settings, see "Outdoor Unit Communication Connections and DIP Switch Settings" on page 133, outdoor unit wiring diagrams and review the installation manuals.*

GAS FURNACE ELECTRICAL INSTALLATION

Figure 70: 96% Efficiency Gas Furnace—Wiring Diagram with Dual Fuel One-Stage Cooling, Three-Stage Heating Thermostat.



NOTICE

• To use one-stage heat pumps, change the DIP Switch in the outdoor unit and connect to the Y / Y2 terminal.

• For more information on outdoor unit connections, see the outdoor unit wiring diagrams and review the installation manuals.

Figure 71: 80% Efficiency Gas Furnace—Wiring Diagram with Dual Fuel Two-Stage Cooling, Three-Stage Heating Thermostat.

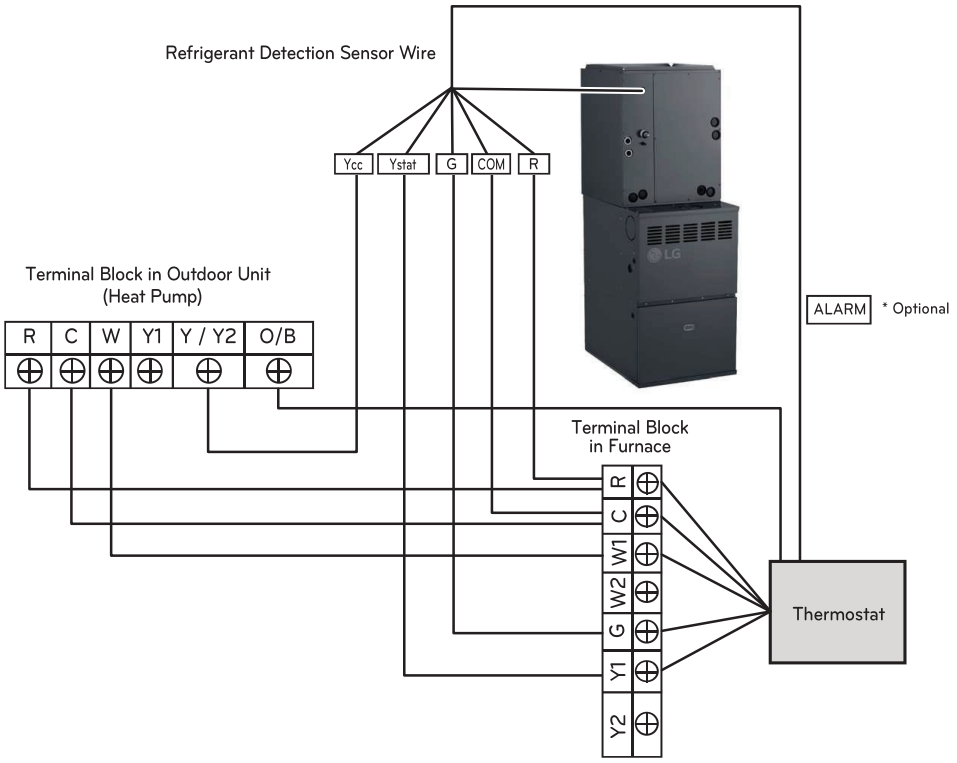
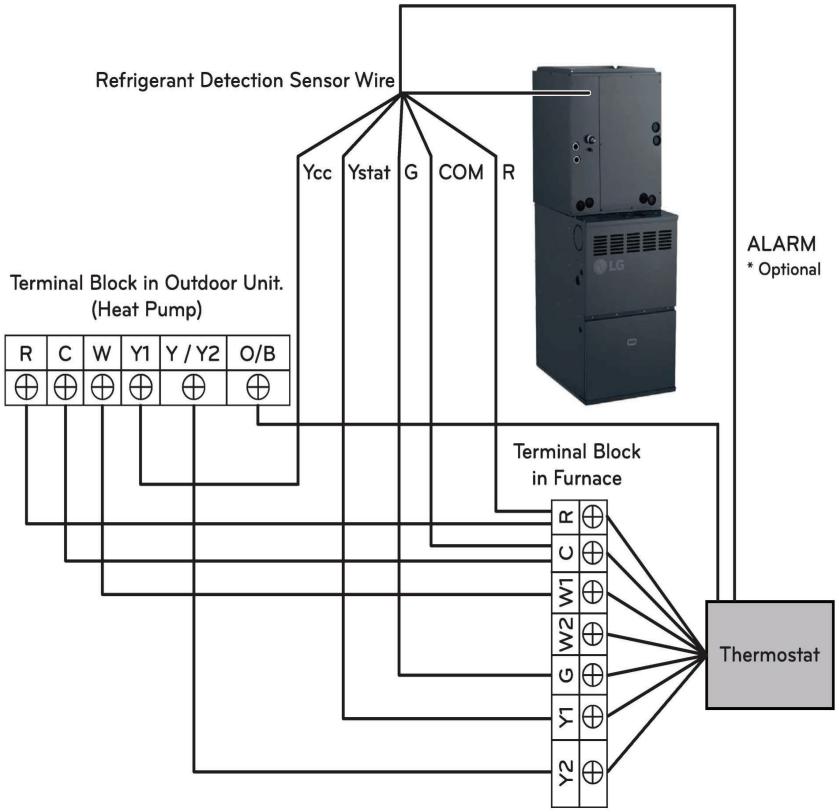
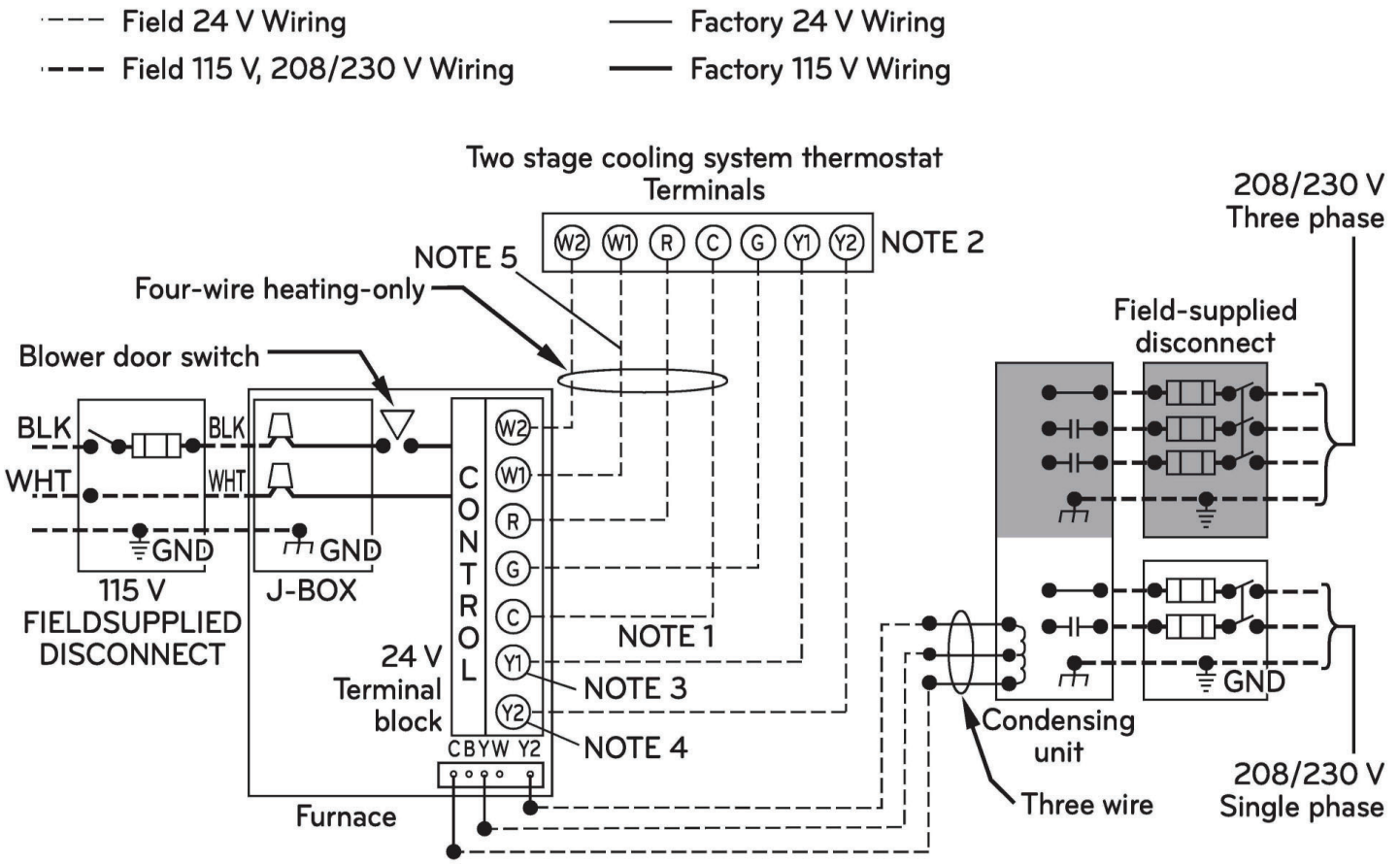


Figure 72: 96% Efficiency Gas Furnace—Wiring Diagram with Dual Fuel Two-Stage Cooling, Four-Stage Heating Thermostat.



GAS FURNACE ELECTRICAL INSTALLATION

Figure 73: 96% Efficiency Gas Furnace—Heating and Cooling Application Wiring Diagram with Two-Stage Heating Thermostat.



Requirements for Refrigerant Leak Detection Sensors

⚠ WARNING

UL 60335-2-40 Safety Requirements on A2L Combustible Refrigerants

When a gas furnace is used with an a-coil, and A2L combustible refrigerant is used in the a-coil, the system MUST be equipped with a refrigerant leak detection sensor to monitor the refrigerant concentration around the components in real time. This helps to prevent the danger of refrigerant leaking / accumulating in the space.

Refrigerant leak detection sensors are manufactured under the a-coil manufacturing label and MUST be installed by a qualified local gas supplier, distributor, or qualified service personnel.

If the refrigerant leak detection sensor is not installed or is incorrectly installed, it does not meet the current requirements and cannot effectively warn of an emergency. Refrigerant that leaks and accumulates into an area can cause physical injury or death. Follow all instructions provided in the applicable installation manuals.

OUTDOOR UNIT COMMUNICATION CONNECTIONS AND DIP SWITCH SETTINGS

Heat Pump Outdoor Unit Communication Kit DIP Switch Setting

Figure 74: DIP SWITCH SW-01 On Communication Kit PCB (Appearances May Vary).

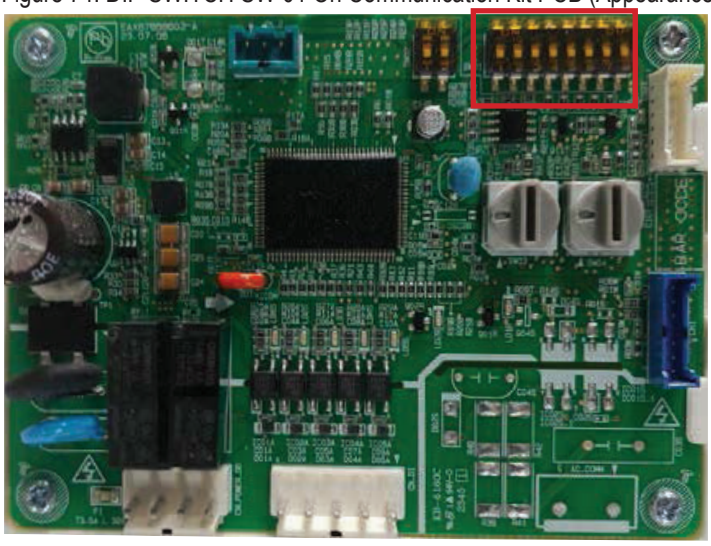


Figure 75: SW-01 DIP Switch Heat Pump Communication Kit Default Setting (All Off).

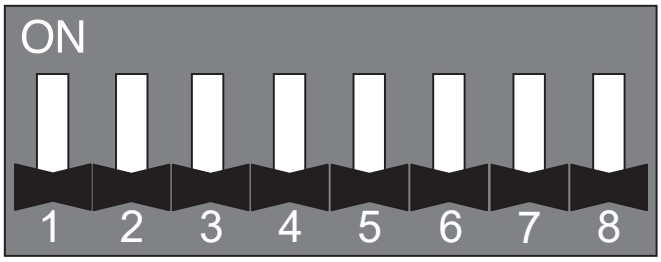


Figure 76: SW-01 DIP Switch Heat Pump Communication Kit Setting for A-Coil / Third-Party Furnace.

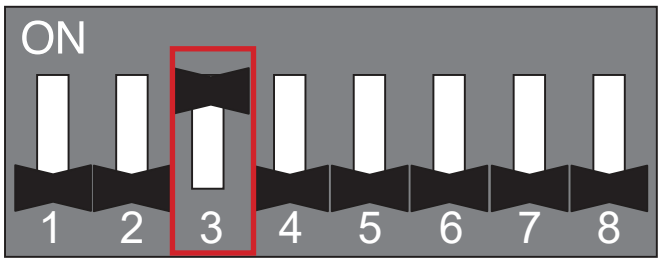


Table 78: Heat Pump Outdoor Unit Communication Kit PCB DIP Switch Functions.

DIP Switch	Function	ON	OFF
1	Heat Pump Outdoor Unit Communication	-	-
2	Remote Controller	For Test Purposes (Standard)	-
3	Thermostat Heat Pump Outdoor Unit Setting*	B Type	O Type
4	Stage Setting (Furnace)	One (1) Stage	Two (2) Stage
5	Reserved	-	-
6	Reserved	-	-
7	Reserved	-	-
8	Reserved	-	-

*Thermostat Heat Pump Setting

For Heat Pump Outdoor Unit and A-Coil + Gas Furnace combinations, only SW-01 DIP Switch No. 3 needs to be set on the communication kit.

- O Type: Heating (Open) / Cooling (Close)
- B Type: Heating (Close) / Cooling (Open)

O Type is usually the default for heat pump settings; it can be adjusted by the thermostat.

⚠WARNING

All power wiring and communication cable installation must be performed by trained service providers working in accordance with local, state, and National Electrical Code (NEC) / UL / ETL federal regulations related to electrical equipment and wiring, and following the manufacturer product diagrams, requirements, and instructions in this manual. Failure to do so will lead to electric shock which can cause physical injury or death.

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

EM_SZ_A-Coil-GasFurnace-ODU_with_LGRED_R32_11_25
Supersedes:EM_SZ_A-Coil-GasFurnace-ODU_with_LGRED_R32_10_25