HEAT PUMPS

ML16KP2

MERIT® SERIES

Two-Stage | Quantum™ Coil | R-454B | 1-Phase | 60Hz

RESIDENTIAL
PRODUCT SPECIFICATIONS (EHB)

2 to 5 Tons
SEER2 up to 17.5
HSPF2 up to 8.5
Cooling Capacity | 22,400 to 58,000 Btuh
Heating Capacity | 21,200 to 54,000 Btuh

MERIT® SERIES

LENNOX QUANTUM™ COIL

ENERGY STAR

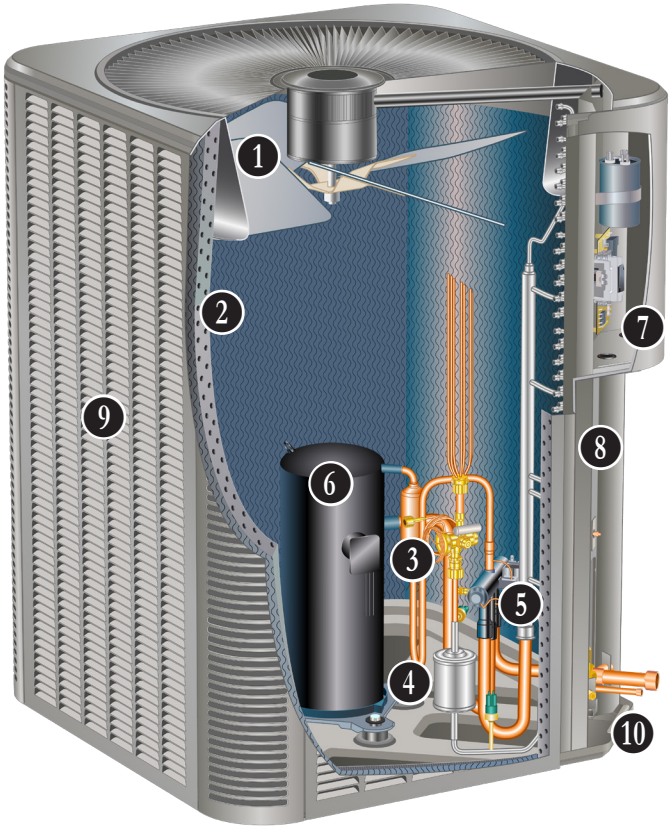
MODEL NUMBER IDENTIFICATION

ML 16 K P 2 - 036 - 230 A 01

- **Product Tier** — ML = Merit® Series
- **Nominal SEER2** — 16= 16.0 to 18.0
- **Refrigerant** — K = R-454B
- **Unit Type** — P = Heat Pump
- **Cooling Stages** — 2 = Two-Stage Compressor
- **Nominal Cooling Capacity** — 024 = 2 tons; 036 = 3 tons; 048 = 4 tons; 060 = 5 tons
- **Voltage** — 230 = 208/230V-1ph-60Hz
- **Ratings Revision Number**
- **Minor Revision Number**

Form Number 211270 | June 2026
Supersedes all previous versions

FEATURE HIGHLIGHTS



1. Outdoor Coil Fan
2. Quantum™ Coil
3. Expansion Valve - Outdoor Unit
4. High Capacity Liquid Line Drier
5. Four-Way Reversing Valve
6. Two-Stage Scroll Compressor
7. Defrost Control
8. Heavy Gauge Steel Cabinet
9. Heavy Gauge Steel Louvered Panels
10. Refrigerant Line Access

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APPROVALS AND WARRANTY

APPROVALS

- AHRI Standard 210-240-2023 certified
- AHRI Certified system match-ups and expanded ratings, visit www.LennoxPros.com
- ENERGY STAR® certified
- Sound rated to AHRI Standard 270-2008 test conditions
- Tested in Lennox' Research Laboratory environmental test room
- Rated According to U.S. Department of Energy (DOE) test procedures
- Unit and components ETL, NEC and CEC bonded for grounding to meet safety standards for servicing
- ETL certified (U.S. and Canada)
- ISO 9001 Registered Manufacturing Quality System

WARRANTY

- Compressor:
  - Limited five years in residential/non-residential installations
- All other covered components:
  - Limited five years in residential installations
  - Limited one year in non-residential installations

NOTE - Refer to Lennox® Basic Limited Warranty at www.Lennox.com for additional details.

FEATURES

APPLICATIONS

- 2 through 5 tons
- Single phase power supply
- Sound levels low as 72 dBA
- Vertical air discharge
- Applicable to indoor air handlers or gas furnaces with indoor add-on coils
- Shipped completely factory assembled, piped and wired

NOTE - When heat pumps are used with gas furnaces, a dual-fuel compatible thermostat or zone control system with dual-fuel capabilities must be used (order separately).

NOTE - Installer must set outdoor unit, connect refrigerant lines and make electrical connections to complete job.

REFRIGERATION SYSTEM

R-454B Refrigerant

- Low GWP (Global Warming Potential)
- Zero ODP (Ozone Depletion Potential)
- Low Toxicity/Lower Flammability - A2L
- Unit is factory pre-charged

NOTE - Total system refrigerant charge is dependent on outdoor unit size, indoor unit size and refrigerant line length.

NOTE - Refer to the unit-mounted charging sticker to determine correct amount of charge required.

1 Outdoor Coil Fan

- Direct drive PSC fan
- Vertical air discharge
- Louvered steel top fan guard
- Totally enclosed fan motor
- Ball bearings
- Inherently protected

2 Quantum™ Coil

- Lennox designed and fabricated coil
- Enhanced aluminum alloy tube/enhanced fin coil
- Superior corrosion resistance
- Ripple-edged aluminum fins
- Aluminum tube construction
- Lanced fins for maximum fin surface exposure
- Fin collars grip tubing for maximum contact area
- Flared shoulder tubing connections
- Factory tested under high pressure
- Entire coil is accessible for cleaning

3 Expansion Valve - Outdoor Unit

- Designed and sized for heat pump systems
- Sensing bulb senses suction temperature during heating cycle

High Pressure Switch

- Protects the system from high pressure conditions
- Automatic reset

FEATURES

REFRIGERATION SYSTEM (continued)

Low Pressure Switch
- Protects the compressor from low pressure conditions such as low refrigerant charge, or low/no indoor airflow
- Shuts off the outdoor unit if suction pressure falls below setting
- Automatic reset

4 High Capacity Liquid Line Drier
- Factory installed in the liquid line
- Drier traps moisture or dirt that could contaminate the system
- 100% molecular-sieve, bead type, bi-flow drier

5 Four-Way Reversing Valve
- Rapid changeover of refrigerant flow direction from cooling to heating and vice versa
- Operates on pressure differential between outdoor unit and indoor coil

Optional Accessories

Check/Expansion Valve Kits
- Field installed on indoor units (if required)
- See TXV Usage table
- Chatleff-style fitting

Freezestat
- Protects the system from ice buildup on the indoor coil due to conditions such as low/no airflow, or low refrigerant charge
- Cycles compressor off when suction line temperature falls below freezestat setpoint
- Opens at 29°F and closes at 58°F
- Installs on or near the discharge line of the indoor coil or on the suction line

Refrigerant Line Kits
- Refrigerant lines are shipped refrigeration clean
- Lines are cleaned, dried, pressurized and sealed at factory
- Suction line fully insulated
- Lines are stubbed at both ends

COMPRESSOR

6 Two-Stage Scroll Compressor
- High volumetric efficiency
- Uniform suction flow
- Constant discharge flow
- Quiet operation
- A 24-volt DC solenoid valve inside the compressor controls staging
- When the solenoid is de-energized the lift ring assembly moves to unblock the compressor ports and the compressor operates at part-load or approximately 67% of its full-load capacity
- The “loading” and “unloading” of the two stage scroll is done “on the fly” without shutting off the single-speed compressor motor between stages
- Compressor motor is internally protected from excessive current and temperature
- Compressor is installed in the unit on specially formulated, resilient rubber mounts for better sound dampening and vibration free operation

Compressor Crankcase Heater
(Factory installed on -036-048-060 models)
- Prevents migration of liquid refrigerant into compressor and ensures proper compressor lubrication

Optional Accessories

Compressor Crankcase Heater
(Optional for -024 model)
- Prevents migration of liquid refrigerant into compressor and ensures proper compressor lubrication

Compressor Sound Cover
- Reinforced vinyl compressor cover
- 1-1/2 inch thick batt of fiberglass insulation
- Hook and loop fastening tape on all open edges

FEATURES

INDOOR REFRIGERANT DETECTION SYSTEM (RDS)

- Complies with UL 60335-2-40 approved standard
- Required for all systems using R-454B refrigerant
- Factory or field installed on all indoor units
- Consists of a RDS refrigerant detection sensor and a mitigation control in the indoor unit
- Ensures safe operation for systems equipped with R-454B refrigerant
- Indoor sensor will detect any R-454B refrigerant
- If R-454B refrigerant is detected, the refrigerant detection system will stop compressor operation and operate the blower to reduce concentrations in the conditioned space
- Once safe levels are reached the HVAC system will resume normal operation
- Refer to indoor unit Product Specifications documents for additional details

CONTROLS

7 Defrost Control
- Control furnished as standard
- Enables a demand defrost cycle whenever system heating performance falls below optimum levels
- Sensing element on coil determines when defrost cycle is required and when to terminate cycle
- Anti-short cycle (5 minutes) incorporated into the board
- Diagnostic LEDs furnished as an aid in troubleshooting
- Conveniently located in control box

Optional Accessories

Thermostat
- Thermostat is not furnished with unit
- See Page 6

Compressor Low Ambient Cut-Off
- Non-adjustable switch (low ambient cut-out)
- Prevents compressor operation in cooling mode when outdoor temperature is below 35°F

Compressor Hard Start Kit
- Single-phase units are equipped with a PSC compressor motor
- This type of motor normally does not need a potential relay and start capacitor
- For conditions such as low voltage, kit may be required to increase the compressor starting torque

Low Ambient Kit
- Heat pump can operate in the cooling mode down to 45°F outdoor air temperature without additional controls
- Allows unit to operate properly down to 30°F in the cooling mode

NOTE - Crankcase heater and freezestat should be installed on compressors equipped with a low ambient kit.

NOTE - A compressor lock-out thermostat should be added to terminate compressor operation below recommended operation conditions.

Mild Weather Kit
- Units can operate in the heating mode at outdoor air temperatures up to 75°F
- Field installed kit allows heating operation above 75°F

Outdoor Thermostat Kit
- Outdoor thermostat locks out some of the electric heating elements on indoor units where two-stage control is applicable
- Outdoor thermostat maintains the heating load on low power input as long as possible before allowing the full power load to come on the line

8 CABINET

- Heavy gauge steel cabinet
- Pre-painted powder paint cabinet finish
- 9 Louvered heavy gauge steel panels
- Control box conveniently located with all controls factory wired
- Corner patch plate allows compressor access
- Drainage holes provided in base section

Zinc-Coated Steel Unit Base
- Resists rust and corrosion

10 Refrigerant Line Connections, Electrical Inlets, Service Valves
- Sweat connection vapor and liquid lines
- Located on corner of unit cabinet
- Fully serviceable brass service valves
- Vapor valve can be fully shut off, while liquid valve may be front seated to manage refrigerant charge while servicing system
- Refrigerant line connections and field wiring inlets are located in one central area of cabinet for easy access
- See dimension drawing

Braze-Free/Press Fitting Flexibility
- Units can accommodate braze-free or press fittings for installation versatility

Optional Accessories

Unit Stand-Off Kit
- Black high density polyethylene feet
- Raises unit off mounting surface
- Four feet furnished per order number

CONTROL OPTIONS

E40 Smart Wi-Fi Thermostat

- 3 Htg.-2 Clg.
- 7-day, universal, programmable, touchscreen thermostat
- Controls dehumidification during cooling mode and humidification during heating mode
- Smooth Setback Recovery and compressor short-cycle protection
- One-Touch Away Mode, Smart Away™ (geo-fencing), equipment maintenance reminders and scheduling
- Smart home automation compatible with Amazon Alexa®, Google Assistant, Control4®, Building36®, Matter and IFTTT
- Lennox® Home App controls temperature, fan operation, set programs/schedules and set Away mode on a smartphone
- Lennox Smart Tech App allows the installer to commission the system and remotely turn the system on and off during setup or service call on a smartphone

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- Lennox® Home App controls temperature, fan operation, set programs/schedules and set Away mode on a smartphone
- Lennox Smart Tech App allows the installer to commission the system and remotely turn the system on and off during setup or service call on a smartphone

NOTE - Please refer to the individual Product Specifications for these products for full information.

CONTROLS - ORDERING

E40 Smart Wi-Fi Thermostat	3-3/8 x 5-3/8 x 1	**30L26**
Lennox® Smart Room Sensor	4 x 5-1/2 x 3	**22V25**
Lennox® Smart Air Quality Monitor	3-5/8 x 4-3/8 x 1-3/8	**21P02**
Lennox® Wireless Extender	4 x 5-1/2 x 2-1/2	**22V26**
M40 Smart Wi-Fi Thermostat	3-5/16 x 4-5/16 x 7/8	**30L27**
Thermostat Accessories		
[1] Discharge Air Temperature Sensor (For E40)		**88K38**
[2] Remote Outdoor Air Temperature Sensor (For dual-fuel and Humiditrol®)		**X2658**

[1] Optional for service diagnostics (E40).

[2] Remote Outdoor Air Temperature Sensor is used with conventional (non-Lennox® Communicating) outdoor units (sensor is furnished with Lennox® Communicating outdoor units). Allows the thermostat to display outdoor temperature. Required in dual-fuel and Humiditrol® applications.

SPECIFICATIONS

Size			024	036	048	060
Nominal Tonnage			2	3	4	5
Sound Rating Number (dBA)		Low	73	72	78	77
		High	74	75	77	77
Connections (sweat)	Liquid line (OD) - in.		3/8	3/8	3/8	3/8
	Vapor line (OD) - in.		3/4	7/8	7/8	1-1/8
Refrigerant (30 ft. Line Set)	[1] R-454B charge furnished		7 lbs. 7 oz.	8 lbs. 4 oz.	10 lbs. 10 oz.	11 lbs. 1 oz.
Indoor Unit Expansion Valve (TXV)			**26Z70**	**26Z70**	**26Z71**	**26Z72**
Outdoor Coil	Net face area - ft.[2]	Outer coil	24.5	22.2	24.93	29.09
		Inner coil	- - -	21.5	24.13	28.16
	Tube diameter - in.		5/16	5/16	5/16	5/16
	Rows		1	2	2	2
	Fins - in.		22	22	22	22
Outdoor Fan	HP		1/8	1/3	1/3	1/3
	Diameter - in.		22	26	26	26
	Blades		2	3	4	4
	Cfm		2840	3590	4110	4060
	Rpm		825	825	825	825
	Watts		127	220	250	260
Shipping Data - lbs.			179	207	230	263

ELECTRICAL DATA

Line voltage data (Volts-Phase-Hz)		208/230-1-60	208/230-1-60	208/230-1-60	208/230-1-60
[2] Maximum overcurrent protection (MOCP) amps		25	35	40	50
[3] Minimum circuit ampacity (MCA)		15.4	21.3	25.5	34.1
Compressor	Rated Load Amps	10.3	14.9	18.3	25.2
	Locked Rotor Amps	62	90	138	147.3
Fan Motor	Full Load Amps	2.6	2.6	2.6	2.6

OPTIONAL ACCESSORIES - ORDER SEPARATELY

Compressor Crankcase Heater		**93M04**	•	Factory	Factory	Factory
Compressor Hard Start Kit	Copeland	**10J42**	•	•	•	•
Compressor Sound Cover		**18J42**	•	•	•	•
Compressor Low Ambient Cut-Off		**45F08**	•	•	•	•
Freezestat	3/8 in.	**93G35**	•	•	•	•
[4] Low Ambient Kit (30°F)		**54M89**	•	•	•	•
Mild Weather Kit		**11B97**	•	•	•	•
Outdoor Thermostat Kit		**10Z23**	•	•	•	•
Refrigerant Line Sets Liquid x Suction OD | Insulation Thickness | Length	3/8 x 3/4 | 3/8 | 20 ft.	**89J56**	•			
	3/8 x 3/4 | 3/8 | 30 ft.	**89J57**				
	3/8 x 3/4 | 3/8 | 50 ft.	**89J59**				
	3/8 x 7/8 | 3/8 | 30 ft.	**89J60**		•	•	
	3/8 x 7/8 | 3/8 | 50 ft.	**89J62**				
	3/8 x 1-1/8 | 3/8 | 50 ft.	**73P91**				•
Unit Stand-Off Kit		**94J45**	•	•	•	•

NOTE - Extremes of operating range are plus 10% and minus 5% of line voltage.

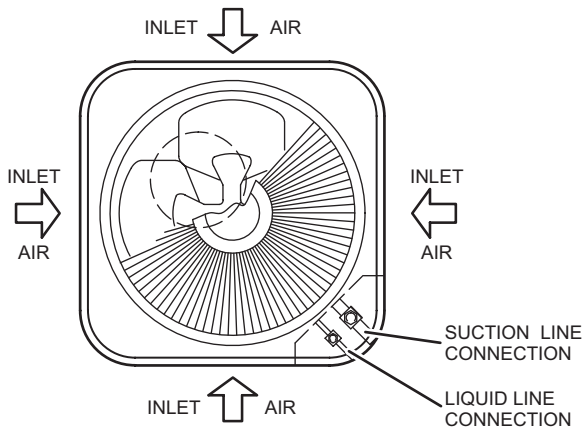
[1] Refrigerant charge is sufficient 30 ft. of line set. For longer line set requirements see the Installation Instructions or unit Charging Label for information about line set length and additional refrigerant charge required.

[2] HACR type breaker or fuse.

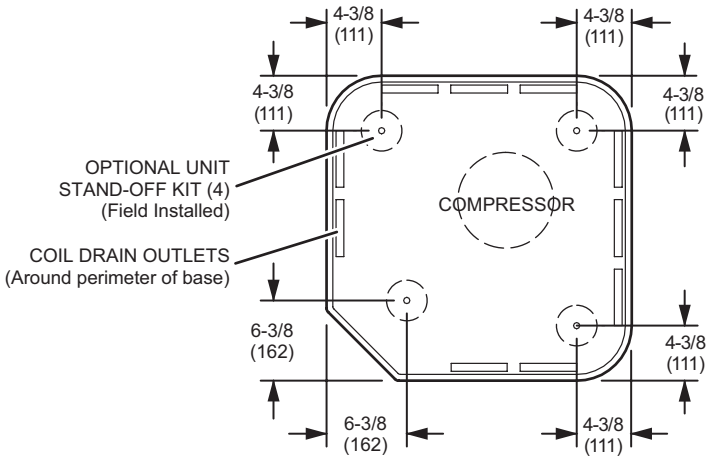
[3] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

[4] Crankcase Heater and Freezestat are recommended with Low Ambient Kit.

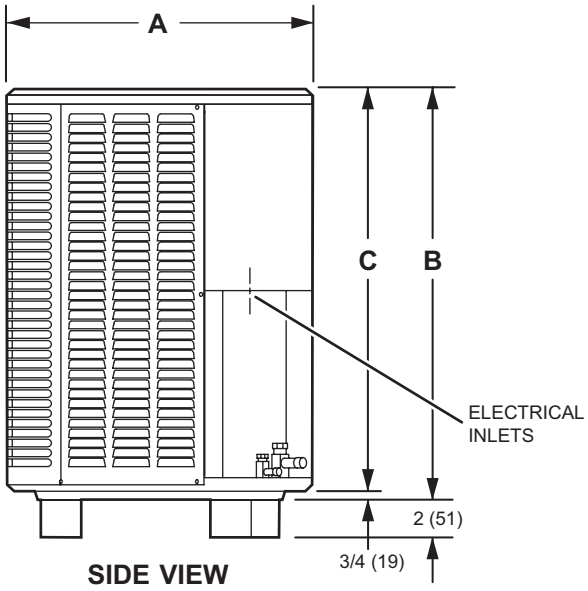
DIMENSIONS



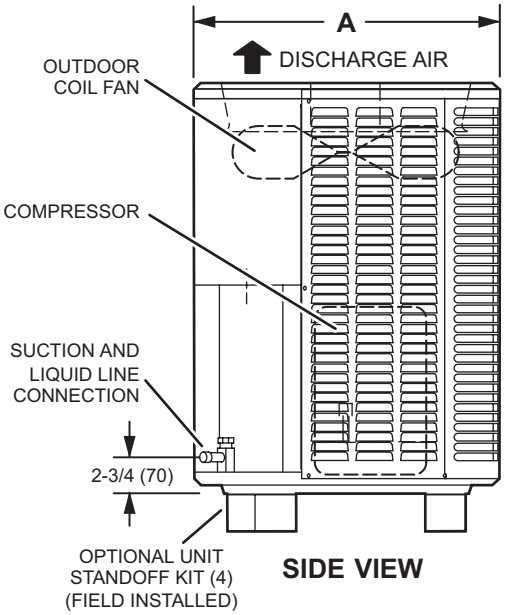
TOP VIEW



TOP VIEW BASE SECTION



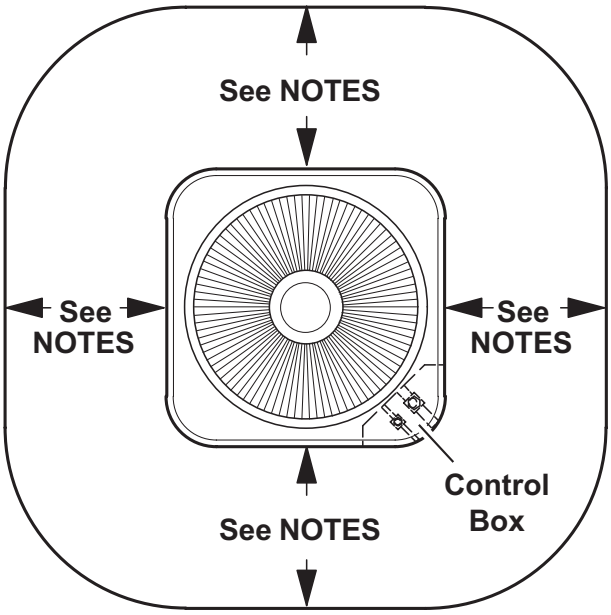
SIDE VIEW



SIDE VIEW

Size	A Width and Depth		B Height		C	
	in.	mm	in.	mm	in.	mm
024	28-1/4	718	43-1/4	1099	42-1/2	1080
036	32-1/4	819	33-1/4	845	32-1/2	826
048	32-1/4	819	37-1/4	946	36-1/2	927
060	32-1/4	819	43-1/4	1099	42-1/2	1080

SINGLE-UNIT INSTALLATION

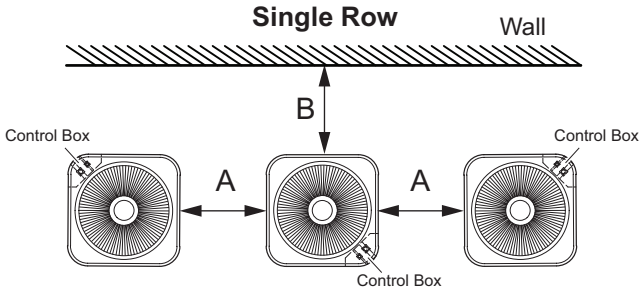


Single-Unit Installation Notes:

- Service Clearance - 24 in. (610 mm) on one of the sides adjacent to the Control Box.
- One of other three sides must be 36 in. (914 mm).
- One of the two remaining sides may be 12 in. (305 mm).
- The remaining side may be 6 in. (152 mm).
- 48 in. (1219 mm) clearance required on top of unit.

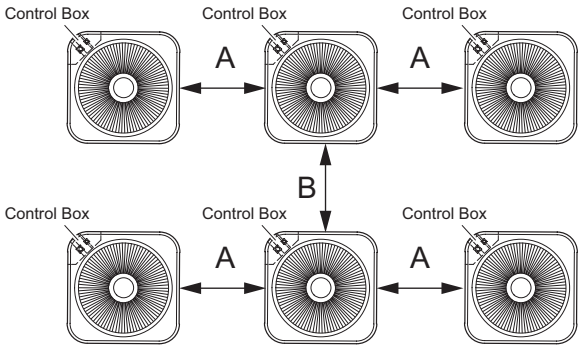
MULTI-UNIT INSTALLATIONS

Single Row



Required Minimum Clearances	A	B
	12 in. (305 mm) [18 in. (457 mm) recommended]	12 in. (305 mm)

Multiple Rows



Required Minimum Clearances	A	B
	12 in. (305 mm) [18 in. (457 mm) recommended]	24 in. (610 mm)

Multi-Unit Installation Notes:

- Recommended service clearance of 24 in. (610 mm) on one side.
- 48 in. (1219 mm) clearance required on top of the unit.

SOUND DATA

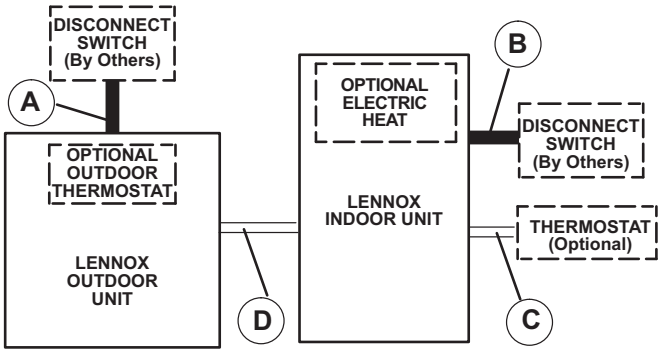
Size	Octave Band Sound Power Levels dBA, re 10^{-12} Watts Center Frequency - HZ							[1] Sound Rating Number (dBA)	[2] Estimated Sound Pressure Level at Distance From Unit (dBA at distance in ft.)				
	125	250	500	1000	2000	4000	8000		3	5	10	15	50
024 Low	55	62.5	66.5	68	65.5	62	59.5	73	66	61	55	52	41
024 High	55	63	65.5	71.5	66	60.5	55	74	67	62	56	53	42
036 Low	54.5	60.5	64.5	67.5	63.5	59.5	60.5	72	65	60	54	51	40
036 High	57.5	66.5	67.5	71.5	66.5	59.5	57.5	75	68	63	57	54	43
048 Low	61	70.5	73	71.5	68.5	62.5	58.5	78	71	66	60	57	46
048 High	60.5	69.5	72.5	71.5	68.5	62	55	77	70	65	59	56	45
060 Low	62.5	70	72.5	71	68	66	63	77	70	65	59	56	45
060 High	61.5	68.5	72	71.5	68	63.5	58.5	77	70	65	59	56	45

NOTE - The octave sound power data does not include tonal correction.

[1] Tested according to AHRI Standard 270 test conditions. Sound rating Number is the overall A-Weighted Sound Power Level, (LWA), dB (100 Hz to 10,000 Hz).

[2] Estimated sound pressure level at distance based on AHRI Standard 275 method for equipment located on the ground, roof, or on side of building wall with no adjacent reflective surface within 9.8 feet. Sound pressure levels will increase based on changes to assumptions. For other applications, refer to AHRI Standard 275.

FIELD WIRING



A - Two Wire Power (see Electrical Data)

B - Two or Three Wire Power (size to heater capacity)

C - Twelve Wire Low Voltage 18 ga. minimum
Fourteen Wire Low Voltage with Optional Outdoor Thermostat

D - Eight Wire Low Voltage 18 ga. minimum
Ten Wire Low Voltage with Optional Outdoor Thermostat

NOTE - Field Wiring Not Furnished

All wiring must conform to NEC or CEC and local electrical codes.

TXV USAGE

All Lennox coils and air handlers are shipped with a factory installed TXV. In most cases, no substitution is needed.
If a different size TXV is required, it will be listed in the “TXV SUBSTITUTION” table by size. The correct TXV must be ordered separately and field installed.

Size	Order Number
024	**26Z70**
036	**26Z70**
048	**26Z71**
060	**26Z72**

AHRI STANDARD 210-240-2023

Cooling or heating capacities are net values, including the effects of blower motor heat, and do not include supplementary heat. Power input is the total power input to the compressor(s) and fan(s), plus any controls and other items required as part of the system for normal operation.

Units which do not have an indoor air-circulating blower furnished as part of the model, i.e., split system with indoor coil only, is established by subtracting from the total cooling capacity 1250 Btu/h per 1,000 cfm, and by adding the same amount to the heating capacity.

Total power input for both heating and cooling is increased by 365 W per 1,000 cfm of indoor air circulated.

TXV SUBSTITUTION - R-454B

A general guide for replacing the factory installed R-454B TXV if the indoor unit (coil/air handler) is larger or smaller than the outdoor unit.

Outdoor Unit		Indoor Unit		Indoor TXV Furnished	Indoor TXV Replacement
Size	Tons	Size	Tons		
024	2	42	3.5	**26Z71**	**26Z70**
024	2	48	4	**26Z71**	**26Z70**
024	2	49	4	**26Z71**	**26Z70**
024	2	50/60	4/5	**26Z71**	**26Z70**
024	2	51/61	4/5	**26Z71**	**26Z70**
024	2	60	5	**26Z72**	**26Z70**
036	3	42	3.5	**26Z71**	**26Z70**
036	3	48	4	**26Z71**	**26Z70**
036	3	49	4	**26Z71**	**26Z70**
036	3	50/60	4/5	**26Z71**	**26Z70**
036	3	51/61	4/5	**26Z71**	**26Z70**
036	3	60	5	**26Z72**	**26Z70**
048	4	30/36	2.5/3	**26Z70**	**26Z71**
048	4	36	3	**26Z70**	**26Z71**
048	4	60	5	**26Z72**	**26Z71**
060	5	50/60	4/5	**26Z71**	**26Z72**
060	5	51/61	4/5	**26Z71**	**26Z72**

TXV Ranges:

26Z70 - 1.5 to 3 ton systems - Use on 3 ton (036) and lower systems.

26Z71 - 3.5-4 ton systems - Use on 4 ton (048) and down to 3.5 ton (042) systems.

26Z72 - 5 ton systems - Use on 5 ton (060) systems only.

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

HRAI MEMBER COMPANY

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LENNOX®

Visit us at www.lennox.com
For the latest technical information, www.LennoxPros.com
Contact us at 1-800-9-LENNOX

NOTE - Due to Lennox' ongoing commitment to quality, Specifications, Ratings and Dimensions subject to change without notice and without incurring liability.
Improper installation, adjustment, alteration, service or maintenance can cause property damage or personal injury.
Installation and service must be performed by a qualified installer and servicing agency.

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