

ML13KC1

MERIT® SERIES

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

RESIDENTIAL
PRODUCT SPECIFICATIONS (EHB)



1.5 to 5 Tons

SEER2 up to 16.0

Cooling Capacity | 17,000 to 59,000 Btuh



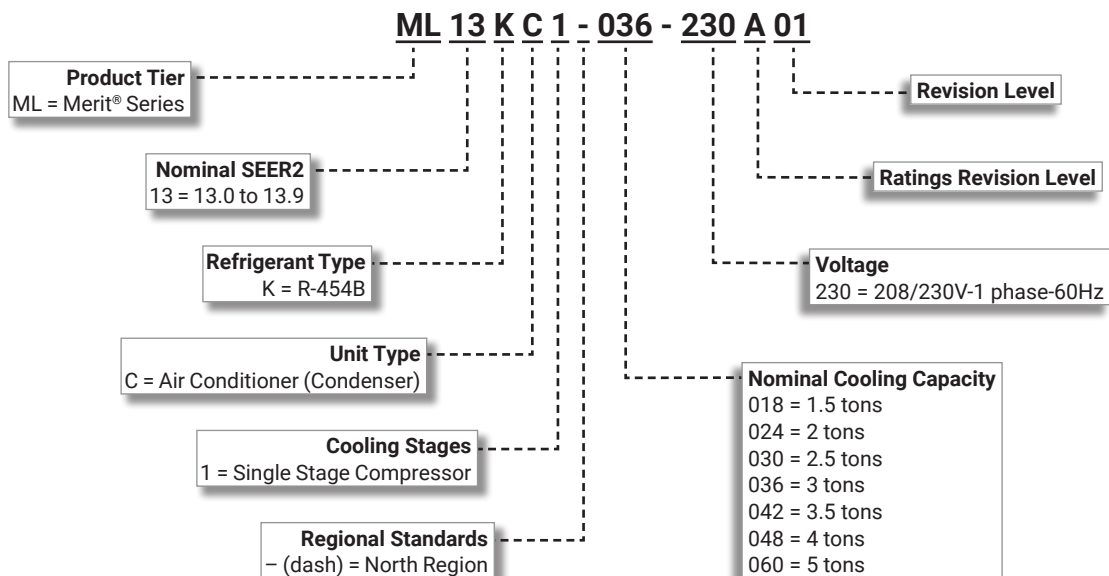
MERIT® SERIES



2025 COMPLIANT
REFRIGERANT

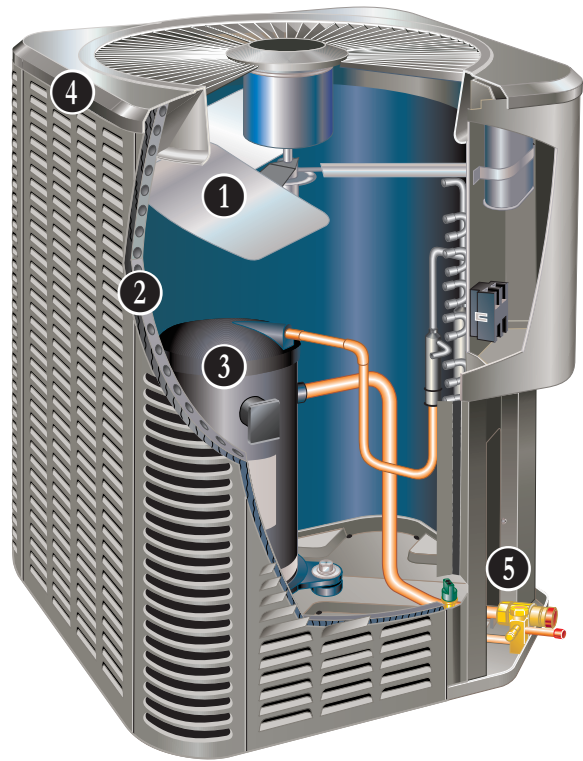


MODEL NUMBER IDENTIFICATION



FEATURE HIGHLIGHTS

1. Outdoor Coil Fan
2. Quantum™ Coil
3. Scroll Compressor
4. Heavy Gauge Steel Cabinet
5. Refrigerant Line Connections and 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
- Region specific models meet the minimum efficiency requirements for U.S. DOE Federal Regional Standards in that area
- 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 installations
 - Limited five years in 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

- 1.5 through 5 tons
- Sound levels as low as 76 dBA
- Single-phase power supply
- Applicable to indoor air handlers or gas furnaces with indoor add-on coils
- Shipped completely factory assembled, piped and wired

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

1 Outdoor Coil Fan

- Direct drive fan
- Vertical air discharge
- Totally enclosed fan motor
- Sleeve bearings (018 through 048 and 060 models)
- Ball bearings (059 model)
- Inherently protected
- Motor rain shield
- Louvered steel fan guard

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

High Capacity Liquid Line Drier

- Furnished with unit for field installation
- Drier traps moisture or dirt that could contaminate the system
- 100% molecular-sieve, bead type drier

High Pressure Switch

- Protects the system from high pressure conditions that can be a result of fan failure or a blocked/dirty coil.
- Automatic reset

Low Pressure Switch

- Shuts off unit if suction pressure falls below setting
- Provides loss of charge and freeze-up protection
- Automatic reset

FEATURES

REFRIGERATION SYSTEM (continued)

Optional Accessories

Expansion Valve Kits

- Field installed on indoor units (if required)
- See TXV Usage table
- Chatleff-style fitting

Freezestat

- Senses suction line temperature
- 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 evaporator or on the suction line

Loss of Charge Switch Kit

- Protects compressor from damage from low refrigerant charge conditions
- SPST, normally-closed
- Automatic reset

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

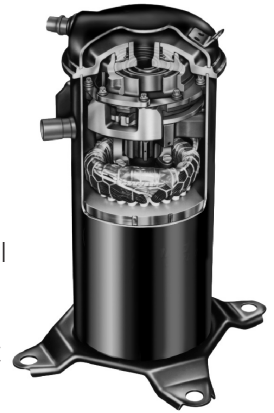
INDOOR REFRIGERANT DETECTION SYSTEM (RDS)

- 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

COMPRESSOR

3 Single-Stage Scroll Compressor

- High volumetric efficiency
- Uniform suction flow
- Constant discharge flow
- High efficiency
- Quiet operation
- Low gas pulses during compression reduces operational sound levels.
- Compressor motor is internally protected from excessive current and temperature
- Muffler in discharge line reduces operating sound levels
- Compressor is installed in the unit on resilient rubber mounts for vibration free operation



Scroll Compressor Operation

- Two involute spiral scrolls matched together generate a series of crescent-shaped gas pockets between them
- During compression, one scroll remains stationary while the other scroll orbits around it
- Gas is drawn into the outer pocket, the pocket is sealed as the scroll rotates
- As the spiral movement continues, gas pockets are pushed to the center of the scrolls. Volume between the pockets is simultaneously reduced
- When the pocket reaches the center, gas is now at high pressure and is forced out of a port located in the center of the fixed scrolls
- During compression, several pockets are compressed simultaneously resulting in a smooth continuous compression cycle
- Continuous flank contact, maintained by centrifugal force, minimizes gas leakage and maximizes efficiency
- Compressor is tolerant to the effects of slugging and contaminants. If this occurs, scrolls separate, allowing liquid or contaminants to be worked toward the center and discharged

Compressor Crankcase Heater (048, 060 Models)

- Prevents migration of liquid refrigerant into compressor and ensures proper compressor lubrication

Optional Accessories

Compressor Crankcase Heater (018 thru 042 models)

- 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 fiberglass insulation
- All open edges are sealed with a one-inch wide hook and loop fastening tape

FEATURES

COMPRESSOR (continued)

Optional Accessories (continued)

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

Compressor Low Ambient Cut-Off Switch

- Non-adjustable switch (low ambient cut-out)
- Prevents compressor operation when outdoor temperature is below 35°F

Compressor Time-Off Control

- Kit prevents compressor short-cycling
- Allows time for suction and discharge pressure to equalize.
- Permits compressor start-up in an unloaded condition.
- Automatic reset with 5 minute delay between compressor shut-off and start-up

CONTROLS

Optional Accessories

Thermostat

- Thermostat is not furnished with unit
- See XX

Indoor Blower Off Delay Relay

- Delays the indoor blower-off time during the cooling cycle

Low Ambient Kit

- Air conditioners can operate down to 45°F outdoor air temperature without additional controls
- Allows unit to operate properly down to 30°F

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.

CABINET

- 4 • Heavy gauge steel construction
- Louvered heavy gauge steel panels surround unit on all four sides
- Pre-painted powder paint cabinet finish
- Control box is conveniently located with all controls factory wired
- Corner patch plate allows access to compressor components
- Drainage holes are provided in base section for moisture removal

Zinc-Coated Steel Unit Base

- Resists rust and corrosion

5 Refrigerant Line Connections, Electrical Inlets, Service Valves

- Sweat connection suction and liquid lines
- Located on corner of unit cabinet
- Suction 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 the cabinet
- 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 raise unit off of mounting surface
- Four feet are furnished per order number

CONTROL OPTIONS

E30 Smart Wi-Fi Thermostat

- 4 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 Apple HomeKit™, Amazon Alexa® and Google Assistant
- 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



M30 Smart Wi-Fi Thermostat

- 4 Htg.-2 Clg.
- 7-day, universal, programmable, touchscreen thermostat
- Humidification / dehumidification / dewpoint measurement and control, Humiditrol® control
- 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 Apple HomeKit™, Amazon Alexa® and Google Assistant
- 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



L40 Smart Wi-Fi Thermostat

- 2 Htg.-1 Clg.
- 7-day, universal, programmable, touchscreen thermostat
- Provides temperature control for gas, electric and heat pumps for single-stage heating or cooling systems (including dual-fuel operation)
- One-Touch Away Mode, Smart Away™ (geo-fencing), equipment maintenance reminders and scheduling
- Smooth Setback Recovery and compressor short-cycle protection
- Smart home automation compatible with Amazon Alexa®, Google Assistant, Control4® and Building36®
- 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

E30 Smart Wi-Fi Thermostat	5 x 7-1/2 x 1	20A65
L40 Smart Wi-Fi Thermostat	2-13/16 x 2-13/16 x 1/4	27V51
M30 Smart Wi-Fi Thermostat	3-5/16 x 4-5/16 x 7/8	15Z69
Thermostat Accessories		
¹ Discharge Air Temperature Sensor (For E30)		88K38
² Remote Outdoor Air Temperature Sensor (For dual-fuel and Humiditrol®)		X2658

¹ Optional for service diagnostics (E30).

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			NORTH REGION			
Size			018	024	030	036
Nominal Tonnage			1.5	2	2.5	3
Sound Rating Number		dBA	73	76	76	76
Connections	Liquid line (OD) - in.		3/8	3/8	3/8	3/8
(Sweat)	Suction line (OD) - in.		3/4	3/4	3/4	7/8
Compressor Type			1-Stage Scroll	1-Stage Scroll	1-Stage Scroll	1-Stage Scroll
Refrigerant (15 ft. Line Set)	¹ R-454B charge furnished		4 lbs. 0 oz.	4 lbs. 7 oz.	4 lbs. 14 oz.	5 lbs. 10 oz.
Refrigerant (30 ft. Line Set)	¹ R-454B charge furnished		4 lbs. 9 oz.	5 lbs. 0 oz.	5 lbs. 7 oz.	6 lbs. 3 oz.
Indoor Unit Expansion Valve (TXV)			26Z70	26Z70	26Z70	26Z70
Outdoor	Net face area - ft. ²		11.33	13.22	16.33	18.67
Coil	Tube diameter - in.		5/16	5/16	5/16	5/16
	Rows		1	1	1	1
	Fins - in.		26	26	26	26
Outdoor	HP		1/10	1/10	1/6	1/6
Fan	Diameter - in.		18	18	22	22
	Blades		3	3	3	3
	Cfm		2290	2350	2610	2800
	Rpm		1075	1075	825	825
	Watts		150	155	160	190
Shipping Data - lbs.			128	134	152	161
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		15	20	25	30
	³ Minimum circuit ampacity (MCA)		11.1	13.5	16.6	17.8
Compressor	Rated load amps		8.3	10.2	12.5	13.4
	Locked rotor amps		45	60.2	67.8	82.5
Fan Motor	Full load amps		0.65	0.65	1.0	1.0
	Locked rotor amps		1.3	1.3	1.9	1.9
OPTIONAL ACCESSORIES - ORDER SEPARATELY						
Compressor	Copeland	27V63	•	•	•	•
Crankcase Heater	LG	27U16	•	•	•	•
Compressor Hard	Copeland	63W22	•			
Start Kit		10J42		•	•	•
	LG	10J42	•	•	•	•
Compressor Low Ambient Cut-Off Switch		45F08	•	•	•	•
Compressor Timed-Off Control		47J27	•	•	•	•
Compressor Sound Cover		18J42	•	•	•	•
Freezestat	3/8 in.	93G35	•	•	•	•
Indoor Blower Off Delay Relay		58M81	•	•	•	•
Loss of Charge Switch Kit		84M23	•	•	•	•
⁴ Low Ambient Kit (Fan Cycling)		34M72	•	•	•	•
Refrigerant	3/8 x 3/4 3/8 20 ft.	89J56				
Line Sets	3/8 x 3/4 3/8 30 ft.	89J57				
Liquid x Suction OD	3/8 x 3/4 3/8 40 ft.	89J58	•	•	•	
Insulation Thickness	3/8 x 3/4 3/8 50 ft.	89J59				
Length						
	3/8 x 7/8 3/8 30 ft.	89J60				
	3/8 x 7/8 3/8 40 ft.	89J61				•
	3/8 x 7/8 3/8 50 ft.	89J62				
Unit Stand-Off Kit		94J45	•	•	•	•

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

¹ Refrigerant charge sufficient for the line set length listed in parenthesis. 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.

SPECIFICATIONS			NORTH REGION		
Size			042	048	060
Nominal Tonnage			3.5	4	5
Sound Rating Number					

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

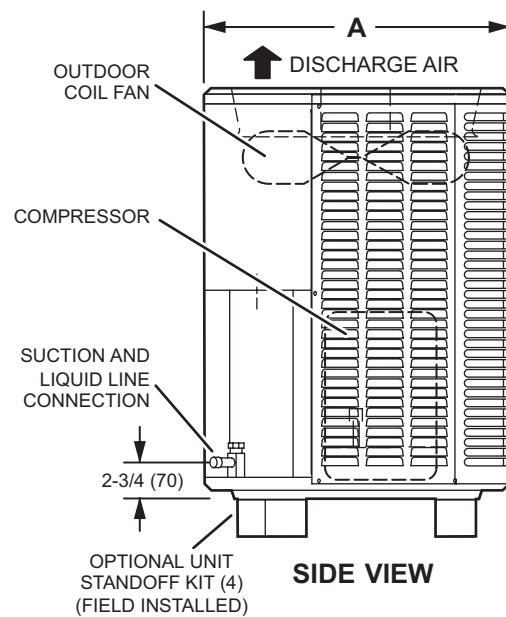
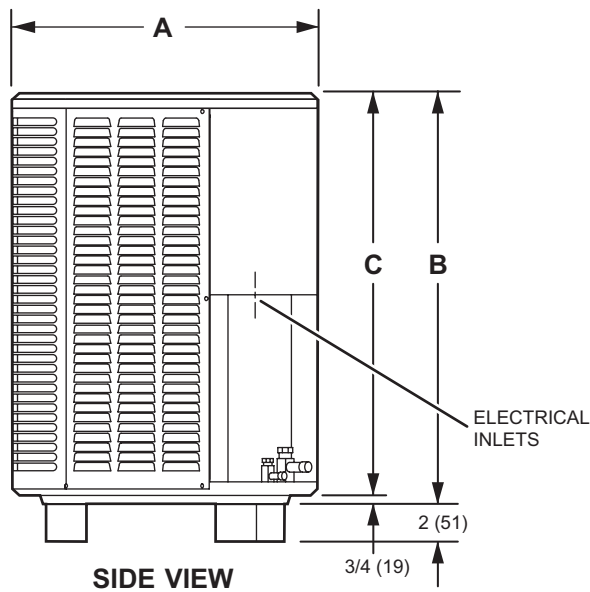
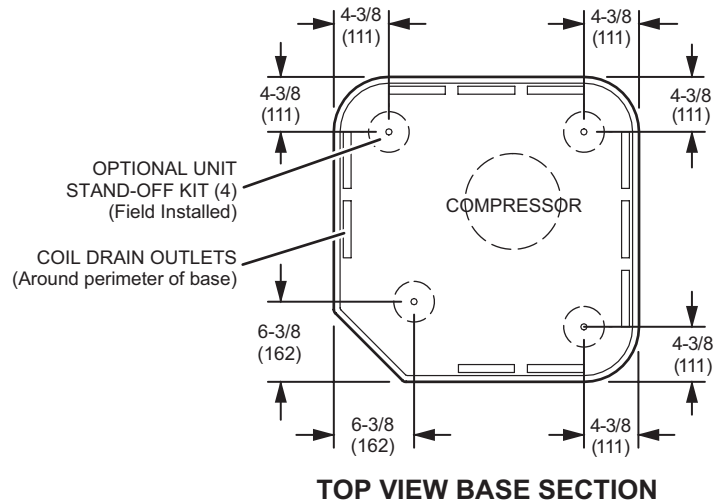
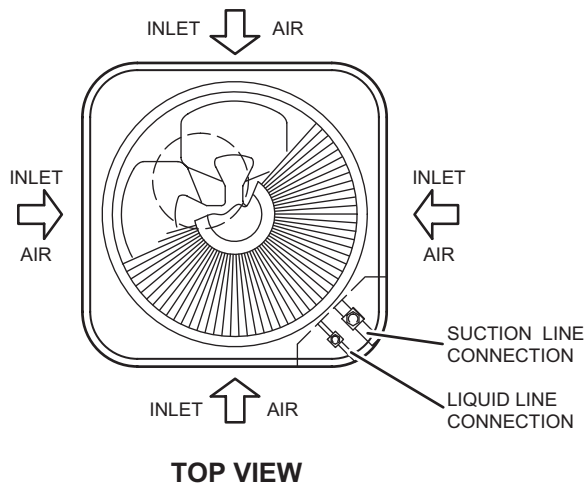
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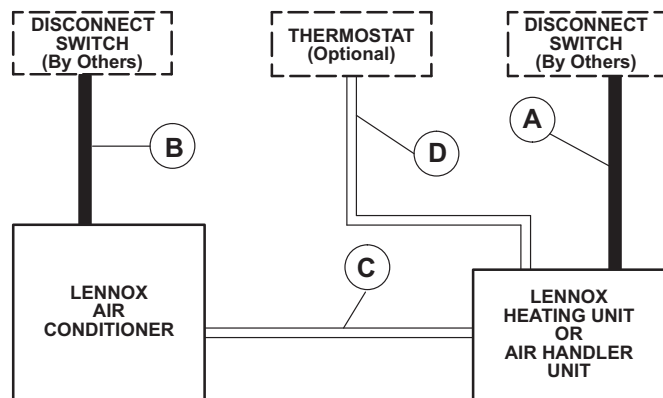
⁴ Crankcase Heater and Freezestat are recommended with Low Ambient Kit.

DIMENSIONS - UNIT



Size	A Width and Depth		B Height		C	
	inches	mm	inches	mm	inches	mm
018	24-1/4	616	25-1/4	641	24-1/2	622
024	24-1/4	616	29-1/4	743	28-1/2	724
030	28-1/4	718	29-1/4	743	28-1/2	724
036	28-1/4	718	33-1/4	845	32-1/2	826
042	28-1/4	718	37-1/4	946	36-1/2	927
048	28-1/4	718	29-1/4	743	28-1/2	724
060	28-1/4	718	37-1/4	946	36-1/2	927

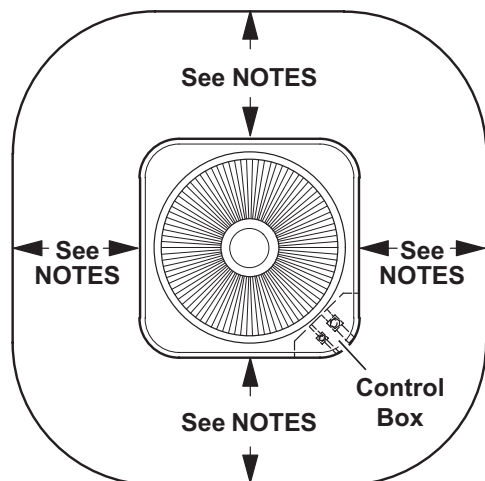
FIELD WIRING



- A - Two Wire Power (not furnished). See Indoor Unit Electrical Data
 B - Two Wire Power (not furnished). See Electrical Data
 C - Four Wire Low Voltage (not furnished). 18 ga. minimum
 D - Five Wire Low Voltage (not furnished). 18 ga. minimum

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

INSTALLATION CLEARANCES



NOTES:

- Service Clearance – 30 in. (762 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
- 24 in. (610 mm) required between two units

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
018	53	58.5	66.5	69.5	65	62.5	54.5	73	66	61	55	52	41
024	56	66	72	71	67	63	56.5	76	69	64	58	55	44
030	55	64.5	70.5	72.5	67.5	61	54	76	69	64	58	55	44
036	58	67.5	71.5	70.5	66.5	61.5	55	76	69	64	58	55	44
042	56	65	71	71.5	67.5	62	55	76	69	64	58	55	44
048	61.5	68	73.5	72.5	69	64	56.5	78	71	66	60	57	46
060	63.5	70	75	75	70.5	68	61	80	73	68	62	59	48

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

¹ Tested according to AHRI Standard 270-2008 test conditions.

² Estimated sound pressure level at distance based on AHRI Standard 275-2010 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.

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
018	26Z70
024	26Z70
030	26Z70
036	26Z70
042	26Z71
048	26Z71
060	26Z72

AHRI STANDARD 210-240-2023

Standard Ratings relating to cooling or heating capacities shall be net values, including the effects of circulating-fan heat, but not including supplementary electric heat. Power input used for calculating efficiency shall be the Total Power.

Standard Ratings of units which do not have indoor air-circulating fans furnished as part of the model, i.e., Coil-only System, shall be established by subtracting from the total cooling capacity 1,505 Btu/h per 1,000 SCFM, and by adding the same amount to the heating capacity for non-mobile-home, non-Space Constrained units. Total Power for both heating and cooling shall be increased by 441 W per 1,000 SCFM 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		
018	1.5	42	3.5	26Z71	26Z70
018	1.5	48	4	26Z71	26Z70
018	1.5	49	4	26Z71	26Z70
018	1.5	50/60	4/5	26Z71	26Z70
018	1.5	51/61	4/5	26Z71	26Z70
018	1.5	60	5	26Z72	26Z70
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
030	2.5	42	3.5	26Z71	26Z70
030	2.5	48	4	26Z71	26Z70
030	2.5	49	4	26Z71	26Z70
030	2.5	50/60	4/5	26Z71	26Z70
030	2.5	51/61	4/5	26Z71	26Z70
030	2.5	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
042	3.5	24	2	26Z70	26Z71
042	3.5	30	2.5	26Z70	26Z71
042	3.5	30/36	2.5/3	26Z70	26Z71
042	3.5	36	3	26Z70	26Z71
042	3.5	60	5	26Z72	26Z71
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.

REVISIONS

Sections	Description of Change
New Section	Added Control Options.



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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