



14HPX
MERIT® Series
R-410A - 60 Hz

**RESIDENTIAL
 PRODUCT SPECIFICATIONS**

Bulletin No. 210845
 March 2019
 Supersedes February 2019

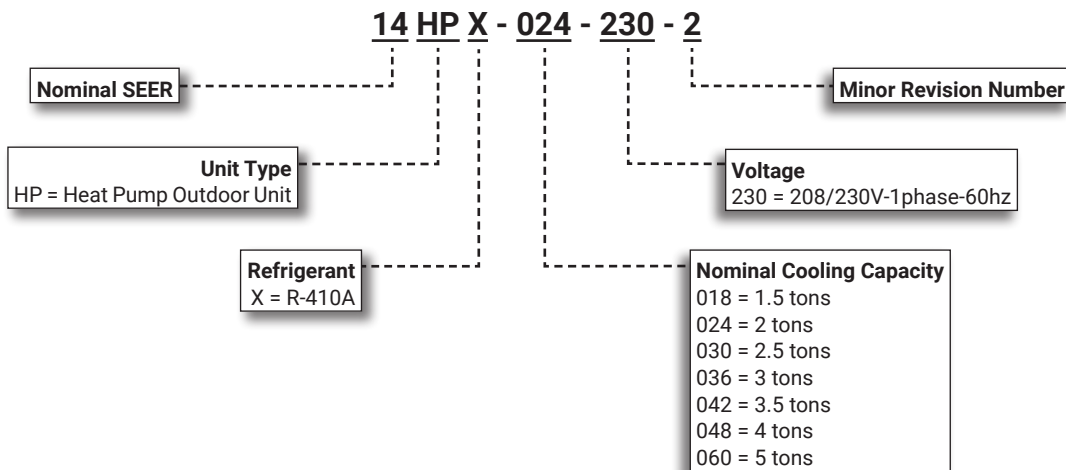


**MERIT®
 SERIES**

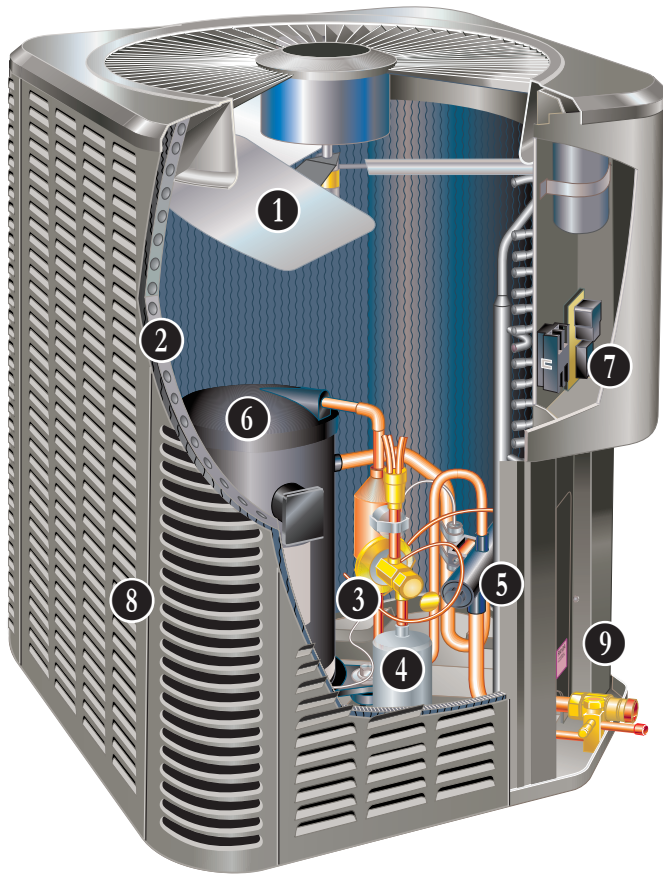


SEER up to 16.00
HSPF up to 9.50
1.5 to 5 Tons
Cooling Capacity - 18,000 to 61,000 Btuh
Heating Capacity - 17,500 to 58,500 Btuh

MODEL NUMBER IDENTIFICATION



FEATURE HIGHLIGHTS



1. Outdoor Coil Fan
2. Copper Tube / Enhanced Fin Coil
3. Expansion Valve - Outdoor Unit
4. High Capacity Liquid Line Drier
5. Four-Way Reversing Valve
6. Scroll Compressor
7. Defrost Control
8. Heavy Gauge Steel Cabinet
9. Refrigerant Line Access

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APPROVALS AND WARRANTY

APPROVALS

- AHRI Certified to AHRI Standard 210/240
- For 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 the Lennox Research Laboratory environmental test room
- Rated according to U.S. Department of Energy (DOE) test procedures
- Units and components UL, 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 Equipment Limited Warranty certificate included with unit for specific details.

FEATURES

APPLICATIONS

- 1.5 through 5 tons
- Sound levels as low as 76 dBA
- Single phase power supply
- Vertical air discharge
- Applicable to indoor air handlers or gas furnaces with indoor add-on coils
- See Indoor Coils and Air Handlers sections for indoor unit data
- Shipped completely factory assembled, piped, and wired
- Factory tested operated

NOTE - When heat pumps are used with gas furnaces, a dual-fuel compatible thermostat or a 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-410A Refrigerant

- Non-chlorine, ozone friendly
- Unit is factory pre-charged

NOTE - Total system refrigerant charge is dependant 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 fan
- Vertical air discharge
- Ball bearings
- Inherently protected
- Totally enclosed fan motor
- Louvered steel top fan guard

2 Copper Tube/Enhanced Fin Coil

- Lennox designed and fabricated coil
- Ripple-edged aluminum fins
- Copper tube construction
- Lanced fins for maximum fin surface exposure
- Fin collars grip tubing for maximum contact area
- Flared shoulder tubing connections
- Silver soldering construction
- Factory tested under high pressure
- Steel louvered panels provide complete coil protection
- Entire coil accessible for cleaning

FEATURES

REFRIGERATION SYSTEM (continued)

3 Expansion Valve - Outdoor Unit

- Designed and sized specifically for use in heat pump system
- Sensing bulb is located on the suction line

High Pressure Switch

- Protects the system from high pressure conditions
- Automatic reset

Low Pressure Switch

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

4 High Capacity Liquid Line Drier

- Factory installed in the liquid line
- Drier traps moisture or dirt
- 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
- Factory installed

Optional Accessories

Check/Expansion Valve Kits

- Field installed on certain indoor units
- See TXV Usage table
- Chatleff-style fitting

Loss of Charge Kit

- Helps protect the compressor from damage due 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

COMPRESSOR

0 Scroll Compressor

- High efficiency with uniform suction flow
- Constant discharge flow, high volumetric efficiency and 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 (Factory installed on -036-042-048-060 models)

- Protects against refrigerant migration that can occur during low ambient operation

Optional Accessories

Compressor Crankcase Heater (Optional for -018-024-030 models)

- Protects against refrigerant migration that can occur during low ambient operation

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

CONTROLS

7 Defrost Control

- Time/temperature defrost control
- Defrost cycle every 30, 60 or 90 minutes of compressor "on" time at outdoor coil temperatures below 42°F
- Factory setting - 90 minutes
- Anti-short cycle, timed-off control - 5 minutes
- Compressor delay - 30 seconds (field selectable) cycles the compressor in and out of defrost mode
- High and low pressure switch monitoring (five-trip lockout)
- Two diagnostic LEDs furnished for troubleshooting
- Conveniently located in control box

Optional Accessories

iComfort® M30 Smart Wi-Fi Thermostat

- Wi-Fi-enabled, electronic 7-day, universal, multi-stage, programmable, touchscreen thermostat
- 4 Heat/2 Cool
- Auto-changeover
- Dual-fuel control with optional outdoor sensor
- Controls dehumidification during cooling mode and humidification during heating mode
- Offers enhanced capabilities including humidification / dehumidification / dewpoint measurement and control, Humiditrol® control, and equipment maintenance reminders
- Easy to read 4.3 in. color touchscreen (measured diagonally)
- LCD display with backlight shows the current and set temperature, time, inside relative humidity, system status (operating mode and schedules) and outside temperature (optional outdoor sensor required)
- Smooth Setback Recovery starts system early to achieve setpoint at start of program period
- Compressor short-cycle protection (5 minutes)
- Up to four separate schedules are available plus Schedule IQ™
- One-Touch Away Mode - A quick and easy way to set the cooling and heating setpoints while away
- Smart Away™ - Uses geo-fencing technology to determine when the homeowner is within a predetermined distance from the home to operate the system when leaving, away and arriving
- Wi-Fi remote monitoring and adjustment through a home wireless network for desktop PCs, laptops and apps for smartphones or tablets
- Smart home automation compatible with Amazon Alexa®, Google Assistant and IFTTT



NOTE - See the iComfort® M30 Smart Wi-Fi Thermostat Product Specifications bulletin in the Controls section for more information.

Remote Outdoor Temperature Sensor

- Used with the iComfort® M30 Smart Thermostat
- Outdoor sensor allows thermostat to display outdoor temperature

NOTE - Sensor is required for high and low balance points option.

NOTE - Sensor is required for the Enhanced Dehumidification Accessory (EDA).



Thermostat

- Thermostat is not furnished with unit
- See Lennox Price Book for selection

Compressor Hard Start Kit

- Single-phase units are equipped with a PSC compressor motor
- This type of motor normally doesn't need a potential relay and start capacitor
- In conditions such as low voltage, this kit may be required to increase the compressor starting torque

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

Freezestat

- Senses suction line temperature
- Cycles compressor off when suction line temperature falls below its 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

Indoor Blower Off Delay Relay Kit

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

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.

FEATURES

CONTROLS (continued)

Optional Accessories (continued)

Low Pressure Switch Bypass Thermostat

- For use in applications where the heat pump is operated in outdoor ambient temperatures below 15°F
- Prevents nuisance trips from the low pressure switch
- Wired in parallel with the low pressure switch

Mild Weather Kit

- Heat pump units operate satisfactorily in the heating mode at outdoor air temperatures up to 75°F
- Allows heating operation above 75°F

Monitor Kit - Service Light

- Ambient compensating thermistor
- Service light thermostat
- For thermostats requiring indicator light inputs

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 the low power input as long as possible before allowing the full power load to come on the line
- Thermostat kit and Mounting Box must be ordered separately

CABINET

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

PermaGuard™ Unit Base

- Durable zinc-coated base section resists rust and corrosion

9 **Refrigerant Line Connections, Electrical Inlets, Service Valves**

- Sweat connection suction and liquid lines
- Located on corner of unit cabinet
- 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 the cabinet
- See dimension drawing

Optional Accessories

Unit Stand-Off Kit

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

SPECIFICATIONS

General Data		Model No.	14HPX-018	14HPX-024	14HPX-030	14HPX-036
		Nominal Tonnage	1.5	2	2.5	3
¹ Sound Rating Number			76	76	76	79
Connections (sweat)		Liquid line o.d. - in.	3/8	3/8	3/8	3/8
		Vapor line o.d. - in.	3/4	3/4	3/4	7/8
² Refrigerant		R-410A charge furnished	5 lbs. 11 oz.	5 lbs. 14 oz.	5 lbs. 10 oz.	9 lbs. 6 oz.
Outdoor Coil		Net face area - sq. ft. Outer coil	21.00	21.00	21.00	18.67
		Inner coil	---	---	---	18.01
		Tube diameter - in.	5/16	5/16	5/16	5/16
		No. of rows	1	1	1	2
		Fins per inch	22	22	22	22
Outdoor Fan		Diameter - in.	22	22	22	22
		No. of Blades	3	3	3	3
		Motor hp	1/6	1/6	1/6	1/6
		Cfm	2670	2670	2890	2870
		Rpm	867	867	847	839
		Watts	168	177	200	205
		Shipping Data - lbs. 1 package		177	177	177
ELECTRICAL DATA						
Line voltage data - 60 hz - 1ph			208/230V	208/230V	208/230V	208/230V
³ Maximum overcurrent protection (amps)			20	30	25	30
⁴ Minimum circuit ampacity			12.2	17.9	17.1	18.7
Compressor		Rated Load Amps	8.96	13.5	12.8	14.1
		Locked Rotor Amps	48	58	64	77
		Power Factor	0.98	0.98	0.98	0.99
		Outdoor Fan Motor	Full Load Amps	1.0	1.1	1.1
		Locked Rotor Amps	1.9	1.9	1.9	1.9
CONTROLS						
iComfort® M30 Smart Wi-Fi Thermostat		15Z69	•	•	•	•
Remote Outdoor Temperature Sensor		X2658	•	•	•	•
OPTIONAL ACCESSORIES - ORDER SEPARATELY						
Compressor Crankcase Heater		93M04	•	•	•	
		Factory				•
Compressor Hard Start Kit		Copeland 10J42	•	•	•	•
		LG 88M91				
Compressor Low Ambient Cut-Off		45F08	•	•	•	•
Compressor Sound Cover		69J03	•	•	•	•
Freezestat		3/8 in. tubing 93G35	•	•	•	•
		5/8 in. tubing 50A93	•	•	•	•
Indoor Blower Off Delay Relay		58M81	•	•	•	•
Loss of Charge Kit		84M23	•	•	•	•
⁵ Low Ambient Kit		54M89	•	•	•	•
Low Pressure Switch Bypass Thermostat		13W07	•	•	•	•
Mild Weather Kit		33M07	•	•	•	•
Monitor Kit - Service Light		76F53	•	•	•	•
Outdoor Thermostat Kit		Thermostat 10Z23	•	•	•	•
		Mounting Box 31461	•	•	•	•
Refrigerant Line Sets		L15-41-20 L15-41-40	•	•	•	
		L15-41-30 L15-41-50				
		L15-65-30 L15-65-40				•
		L15-65-50				
Unit Stand-Off Kit		94J45	•	•	•	•

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

¹ Sound Rating Number rated in accordance with test conditions included in AHRI Standard 270.

² Refrigerant charge sufficient for 15 ft. length of refrigerant lines. For longer line set requirements see the Installation Instructions for information about line set length and additional refrigerant charge required.

³ HACR type circuit breaker or fuse.

⁴ Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

⁵ Crankcase Heater and Freezestat are recommended with Low Ambient Kit.

SPECIFICATIONS

General Data		Model No.	14HPX-042	14HPX-048	14HPX-060
Nominal Tonnage			3.5	4	5
¹ Sound Rating Number			79	80	80
Connections (sweat)	Liquid line o.d. - in.		3/8	3/8	3/8
	Vapor line o.d. - in.		7/8	7/8	7/8
² Refrigerant		R-410A charge furnished	11 lbs. 14 oz.	10 lbs. 7 oz.	12 lbs. 11 oz.
Outdoor Coil	Net face area - sq. ft.	Outer coil	24.93	24.93	29.09
		Inner coil	24.13	24.13	28.16
		Tube diameter - in.	5/16	5/16	5/16
		No. of rows	2	2	2
		Fins per inch	22	22	22
Outdoor Fan	Diameter - in.		22	22	22
	No. of Blades		4	4	4
	Motor hp		1/3	1/3	1/3
	Cfm		4347	4347	4500
	Rpm		843	843	830
	Watts		299	299	307
Shipping Data - lbs. 1 package			272	273	295

ELECTRICAL DATA

Line voltage data - 60 hz - 1ph		208/230V	208/230V	208/230V
³ Maximum overcurrent protection (amps)		40	50	50
⁴ Minimum circuit ampacity		24.2	29.0	29.4
Compressor	Rated Load Amps	17.92	21.76	22.10
	Locked Rotor Amps	112	117	125
	Power Factor	0.99	0.99	0.99
Outdoor Fan Motor	Full Load Amps	1.8	1.8	1.8
	Locked Rotor Amps	2.9	2.9	2.9

CONTROLS

iComfort® M30 Smart Wi-Fi Thermostat	15Z69	•	•	•
Remote Outdoor Temperature Sensor	X2658	•	•	•

OPTIONAL ACCESSORIES - ORDER SEPARATELY

Compressor Crankcase Heater	Factory	•	•	•
Compressor Hard Start Kit	Copeland	10J42	•	
	LG	88M91		•
Compressor Low Ambient Cut-Off		45F08	•	•
Compressor Sound Cover		69J03	•	•
Freezestat	3/8 in. tubing	93G35	•	•
	5/8 in. tubing	50A93	•	•
Indoor Blower Off Delay Relay		58M81	•	•
Loss of Charge Kit		84M23	•	•
⁵ Low Ambient Kit		54M89	•	•
Low Pressure Switch Bypass Thermostat		13W07	•	•
Mild Weather Kit		33M07	•	•
Monitor Kit - Service Light		76F53	•	•
Outdoor Thermostat Kit	Thermostat	10Z23	•	•
	Mounting Box	31461	•	•
Refrigerant Line Sets	L15-65-30	L15-65-40	•	•
		L15-65-50		•
Unit Stand-Off Kit		94J45	•	•

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

¹ Sound Rating Number rated in accordance with test conditions included in AHRI Standard 270.

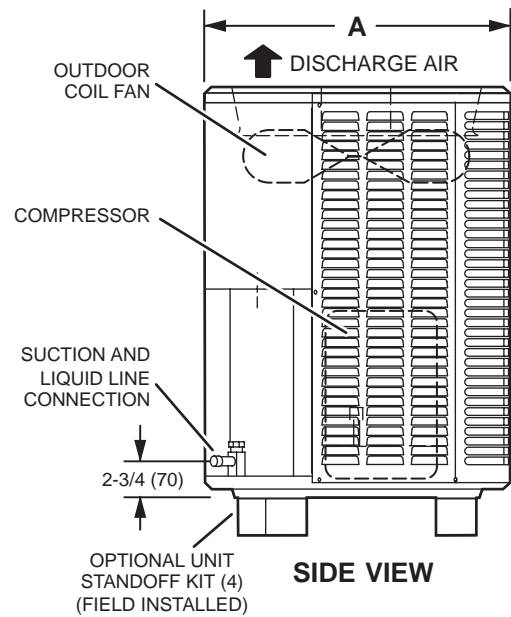
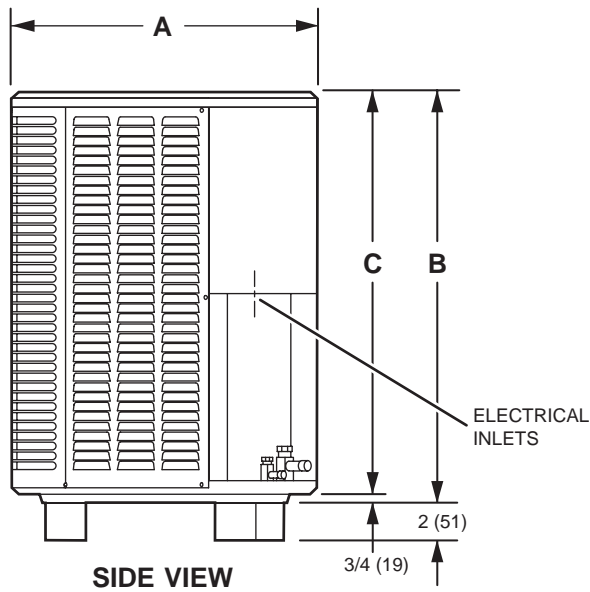
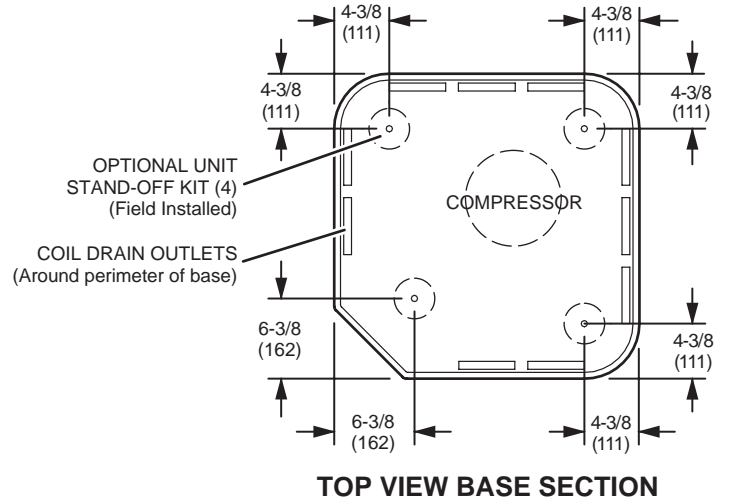
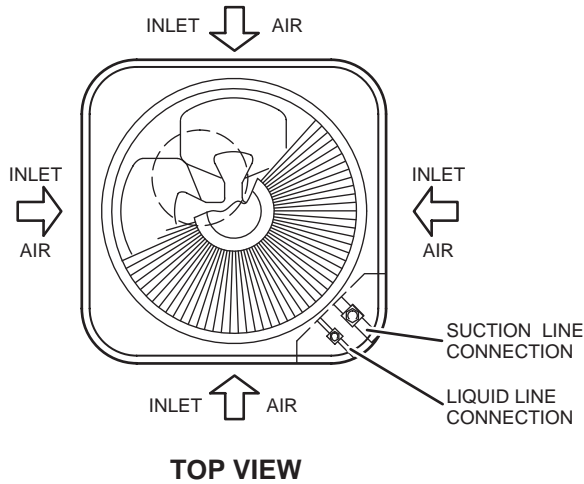
² Refrigerant charge sufficient for 15 ft. length of refrigerant lines.

³ HACR type circuit breaker or fuse.

⁴ Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

⁵ Crankcase Heater and Freezestat are recommended with Low Ambient Kit.

DIMENSIONS - UNIT



Model No.	A		B		C	
	inches	mm	inches	mm	inches	mm
14HPX-018-230	28-1/4	718	37-1/4	946	36-1/2	927
14HPX-024-230	28-1/4	718	37-1/4	946	36-1/2	927
14HPX-030-230	28-1/4	718	37-1/4	946	36-1/2	927
14HPX-036-230	28-1/4	718	33-1/4	845	32-1/2	826
14HPX-042-230	32-1/4	819	37-1/4	946	36-1/2	927
14HPX-048-230	32-1/4	819	37-1/4	946	36-1/2	927
14HPX-060-230	32-1/4	819	43-1/4	1099	42-1/4	1073

SOUND DATA

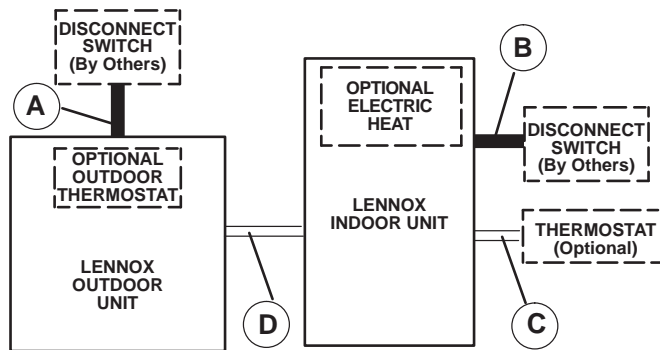
¹ Unit Model	Octave Band Sound Power Levels dBA, re 10 ⁻¹² Watts Center Frequency - HZ							¹ Sound Rating Number (dBA)	² Estimated Sound Pressure Level at Distance From Unit (dBA at distance in ft.)				
	125	250	500	1000	2000	4000	8000		3	5	10	15	50
018	72	70.5	68.5	68	65	59.5	53.5	76	69	64	58	55	44
024	71	74.5	72.5	71.5	68	62.5	56.5	76	69	64	58	55	44
030	70.5	70.5	71.5	71.5	66	62.5	59	76	69	64	58	55	44
036	78.5	77	77.5	74.5	69.5	63.5	61.5	79	72	67	61	58	47
042	76.5	78	78.5	73.5	69.5	63.5	58.5	79	72	67	61	58	47
048	75.5	78	78.5	75	70	63.5	58.5	80	73	68	62	59	48
060	75	77.5	77.5	75.5	70	65	65	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.

FIELD WIRING



A - Two Wire Power (see Electrical Data)

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

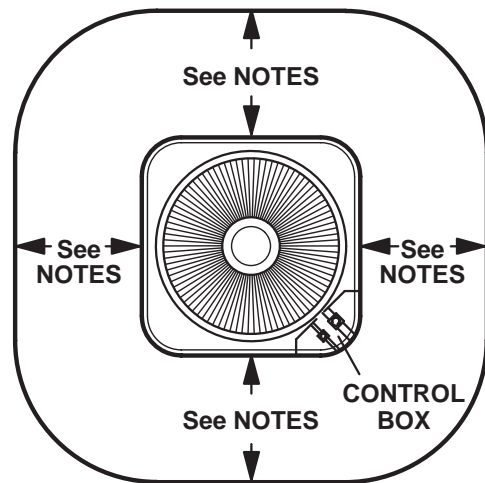
C - Twelve Wire Low Voltage 18 ga. minimum
Fourteen Wire Low Voltage with Optional Outdoor Thermostat

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.

INSTALLATION CLEARANCES



NOTES:

Service clearance of 30 in. (762 mm) must be maintained on one of the sides adjacent to the control box.

Clearance to one of the other three sides must be 36 in. (914 mm)

Clearance to one of the remaining two sides may be 12 in. (305 mm) and the final side may be 6 in. (152 mm).

A clearance of 24 in. must be maintained between two units. 48 in. (1219 mm) clearance required on top of unit.

TXV USAGE

Use this table for C35, CH23, CH35 and CR33 Field Installed TXV Match-Ups.

Model No.	Order No.
14HPX-018	12J18
14HPX-024	12J18
14HPX-030	12J18
14HPX-036	12J19
14HPX-042	12J20
14HPX-048	12J20
14HPX-060	12J20

CX35 and CHX35 coils and all Lennox air handlers are shipped with a factory installed TXV.

C35 and CH35 coils - Replace the factory installed RFC orifice with the expansion valve listed.

CR33 and CH23 - Use the expansion valve listed.

AHRI STANDARD 210/240

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.

REVISIONS

Sections	Description of Change
Optional Accessories	Added iComfort® M30 Smart Thermostat.



Visit us at www.lennox.com

For the latest technical information, www.LennoxPROs.com

Contact us at 1-800-4-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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