AIR CONDITIONERS

SL28XCV

DAVE LENNOX *SIGNATURE*® COLLECTION

Variable Capacity - Precise Comfort® Technology - R-410A - 60 Hz

RESIDENTIAL
PRODUCT SPECIFICATIONS

Bulletin No. 210919
January 2023
Supersedes November 2022

S40 Smart Wi-Fi
Communicating Thermostat
(Required - Not Furnished)

SEER2 up to 25.8 / SEER up to 28.0
2 to 5 Tons
Cooling Capacity - 20,800 to 57,000 Btuh

MODEL NUMBER IDENTIFICATION

SL 28 X C V - 036 - 230 A 01

Product Tier
SL = Dave Lennox *Signature*® Collection

Nomial Efficiency

Refrigerant Type
X = R-410A

Unit Type
C = Air Conditioner (Condenser)

Cooling Stages
V =Variable Speed Compressor

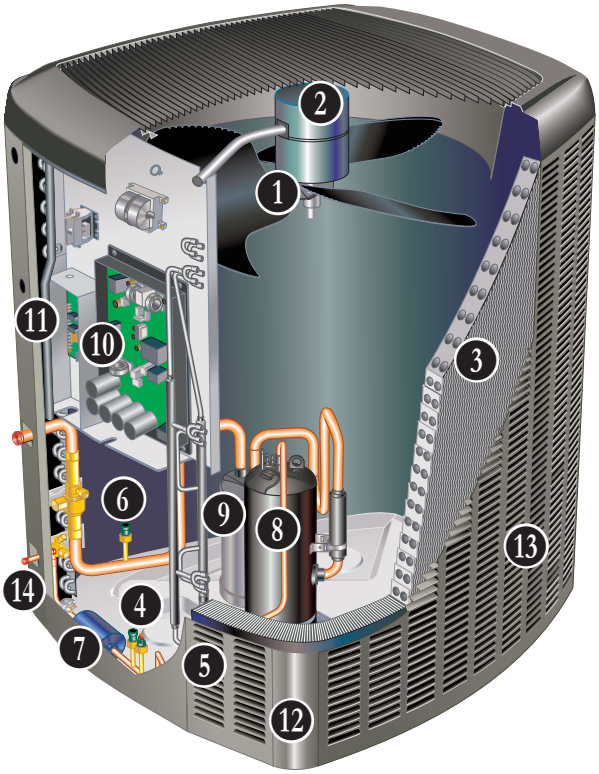
Nominal Cooling Capacity
024 = 2 tons
036 = 3 tons
048 = 4 tons
060 = 5 tons

Voltage
230 = 208/230V-1ph-60Hz

Ratings Revision Level

Revision Level

FEATURE HIGHLIGHTS



1. Outdoor Coil Fan with SilentComfort™ Technology
2. Variable-Speed Outdoor Coil Fan Motor With Integrated Control
3. Quantum™ Coil
4. High Pressure Transducer
5. High Pressure Switch
6. Low Pressure Transducer
7. High Capacity Liquid Line Drier
8. Variable Speed Scroll Compressor
9. Accumulator
10. DC Inverter Control
11. Lennox® Communicating Control
12. Heavy Gauge Steel Cabinet
13. SmartHinge™ Louvered Coil Protection
14. Refrigerant Line Connections and Access

NOTE - SL28XCV MODELS CAN ONLY BE MATCHED WITH LENNOX® COMMUNICATING VARIABLE-SPEED INDOOR FURNACES AND AIR HANDLERS.

NOTE - SL28XCV MODELS CAN ONLY BE USED WITH A LENNOX COMMUNICATING THERMOSTAT.

CONTENTS

APPROVALS AND WARRANTY

APPROVALS

- AHRI Standard 210/240 certified
- AHRI Certified system match-ups and expanded ratings, visit www.LennoxPros.com
- ENERGY STAR® Certified (certain units)
- Sound rated to AHRI Standard 270 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 ten years in residential installations
  - Limited five years in non-residential installations
- All other covered components:
  - Limited ten 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 ton
- Sound levels as low as 56 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

NOTE - The SL28XCV can only be matched with Lennox®-enabled variable-speed indoor furnaces and air handlers.

REFRIGERATION SYSTEM

R-410A Refrigerant

- Non-chlorine, ozone friendly
- 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 with SilentComfort™ Technology

- Specially-designed, SilentComfort™ fan guard uses Passive Vortex Suppression to reduce air noise
- Fan guard constructed of corrosion-resistant PVC (polyvinyl chloride) coated steel
- Specially designed fan blades reduce operating sound levels
- Direct drive fan moves large air volumes uniformly through entire condenser coil for high refrigerant cooling capacity
- Vertical air discharge
- Fan service access by removal of fan guard

2 Variable-Speed Outdoor Coil Fan Motor With Integrated Control

- Programmed for variable capacity operation
- Fan speed is directly controlled by the communications between the Lennox® outdoor unit communicating control and the Lennox® communicating thermostat
- Inherently protected
- Totally enclosed

3 Quantum™ Coil

- Enhanced aluminum alloy tube/enhanced fin coil
- Superior corrosion resistance
- Lennox designed and fabricated coil
- 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

4 High Pressure Transducer

- Measures pressure in the liquid line
- Pressure readings are used to calculate subcooling values to assist with charging

FEATURES

REFRIGERATION SYSTEM (continued)

5 High Pressure Switch
- Protects the system from high pressure conditions
- Automatic reset

6 Low Pressure Transducer
- Shuts off unit if suction pressure falls below setting
- Provides loss of charge protection

7 High Capacity Liquid Line Drier
- Factory installed in the liquid line
- Traps moisture or dirt
- 100% molecular-sieve, bead type, drier

Optional Accessories

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

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

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

NOTE - The SL28XCV is a variable capacity air conditioner utilizing variable speed compressor technology. With the variable speed compressor and variable pumping capacity, additional consideration must be given to refrigerant piping sizing and application.
Refer to the Installation Instructions for Line Set Requirements and Refrigerant Piping Guidelines.

PRECISE COMFORT® TECHNOLOGY

The Variable Capacity Compressor and DC Inverter Control is an integrated system that operates together to reduce overall energy usage when compared to conventional air conditioners.

8 Variable Capacity Scroll Compressor
- Operates on a variable frequency determined by the DC Inverter Control to vary capacity based on the cooling load required
- High volumetric efficiency
- Uniform suction flow
- Constant discharge flow
- Quiet operation

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

9 Accumulator
- Standard in all models

Compressor Crankcase Heater
- Protects against refrigerant migration that can occur during low ambient operation
- Factory Installed

Compressor Sound Dampening System
- Comprised of a vinyl and polyester composite
- Inner and outer layer sound cover furnished on 4 and 5 ton units only
- Inner layer sound cover furnished on 2 and 3 ton units only
- All open edges sealed with one-inch wide hook and loop fastening tape
- Rubber dampeners furnished on 3, 4, and 5 ton units to decrease sound levels

PRECISE COMFORT® TECHNOLOGY (continued)

10 DC Inverter Control

- Converts AC line voltage into filtered variable DC voltage
- Provides continuous compressor operation, while adjusting the capacity according to indoor temperature
- Adjusts compressor output in increments as small as 1%
- The accurate sensing of cooling load prevents frequent changes in capacity and ensures efficient, economical operation
- Power Factor Correction (PFC) circuit monitors the DC bus for high, low and abnormal voltage conditions to protect the compressor
- Integrated noise filter reduces unwanted electromagnetic interference (EMI)
- The inverter reactor (mounted separately) adds inductance to the line between the inverter and the compressor to limit current rise and protect the compressor

CONTROLS

11 Lennox® Communicating Control

- Advanced control communicates information about various operating parameters in the air conditioner to the Lennox® Communicating Thermostats to constantly maintain the highest level of comfort, performance and efficiency available
- Auto Configuration - On start-up the control automatically sends a description of the unit to the Lennox® Communicating Thermostat to automatically configure the features available
- Control Features:
  - Seven-Segment Display - Shows information about outdoor unit type and capacity and also displays alerts for common fault conditions (electrical and mechanical)
  - Low Voltage Protection - Prevents compressor operation when voltage is not within the specified range
  - High and low pressure transducer monitoring with provisions for lockout
  - Five-Strike lockout protection protects compressor
  - Liquid line temperature and sensor monitoring
  - EEPROM storage of all local configurations
  - Non-volatile memory storage of 100 alarm codes with display of last 10 codes for troubleshooting
  - Built-in low-ambient control

NOTE - A 6-pin RAST connector is also provided for outdoor unit wiring connections to the control.

Low Ambient Operation

- Air conditioner can operate down to 0°F outdoor air temperature

NOTE - A freezestat is recommended for extra protection during low ambient operation.

Climate IQ™ Technology

- Optimizes dehumidification settings for specific climates to improve home comfort during cooling operation
- S40 Thermostat Setting:
  - Climate IQ (Auto) - Dry, Normal, Basic and Humid modes are automatically set based on the difference between the measured relative humidity and the relative humidity setting
- All modes are selected on the Lennox® Communicating Thermostat

Outdoor Air Temperature Sensor

- Used with Lennox® Communicating Thermostats
- Sensor allows thermostat to display outdoor temperature
- Sensor is auto-detected when connected to thermostat

FEATURES

CONTROLS (continued)

REQUIRED COMPONENTS

NOTE - The SL28XCV Air Conditioner can only be used with a Lennox® Communicating Thermostat.

S40 Smart Wi-Fi Thermostat (part of the Lennox® Residential Communicating Control System)

- Recognizes and connects to all Lennox® Communicating products to automatically configure and control the heating/cooling system (based on user-specified settings) for the highest level of comfort, performance and efficiency

- Recognizes model and serial number information for Lennox® Communicating products to simplify system setup
- Lennox Smart Room Sensors, Lennox Wireless Extenders and Lennox Smart Air Quality Monitor can be added to the system
- Smart home automation compatible with Amazon Alexa®, Google Assistant, Control4® and Building36®
- Sends service alerts and reminders
- Lennox Smart Thermostat App features Wi-Fi remote temperature monitoring and adjustment through a home wireless network apps for smartphones or tablets
- Lennox Smart Technician App allows installer to manage systems in the home
- Service Dashboard features online real-time monitoring and advanced diagnostics of installed Lennox® Communicating systems
- Simple easy-to-use touchscreen allows complete system configuration
- Scheduled maintenance alerts, system warnings and troubleshooting are also displayed on thermostat screen
- Easy to read 7 inch high definition color display (measured diagonally)
- Conventional outdoor units (not Lennox® Communicating) can easily be added and controlled by the S40 Thermostat
- Installer setup screens allow quick and simple system configuration without a manual, Installer can also run tests on complete system or individual components for easy maintenance and troubleshooting
- Serial communications bus (RSBus), with less wiring than a conventional heating/cooling system, allows system communication
- Uses standard 4-wire unshielded thermostat wiring
- High Definition Color Display with Subbase and wallplate furnished for easy installation

NOTE - See the Lennox® S40 Thermostat Product Specifications bulletin for more information.

CABINET

12 Heavy-gauge steel construction

- Louvered steel panels surround unit on all four sides
- Pre-painted cabinet finish
- Control box is conveniently located with all controls factory wired
- Drainage holes are provided in base section for moisture removal
- High density polyethylene unit support feet raise the unit off of the mounting surface, away from damaging moisture

PermaGuard™ Unit Base

- Durable zinc-coated base section resists rust and corrosion

13 SmartHinge™ Louvered Coil Protection

- Steel louvered panels provides complete coil protection
- Panels are hinged to allow easy cleaning and servicing of coils
- Panels may be completely removed
- Interlocking tabs and slots assure tight fit on cabinet

14 Refrigerant Line Connections, Electrical Inlets and 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

SPECIFICATIONS

			SL28XCV-024	SL28XCV-036	SL28XCV-048	SL28XCV-060
General Data		**Model No.**				
		Nominal Tonnage	2	3	4	5
		Indoor Unit Expansion Valve (TXV) (If needed)	**12J18**	**12J19**	**12J20**	**12J20**
Connections (sweat)		Liquid line OD - in.	3/8	3/8	3/8	3/8
		Suction line OD - in.	7/8	7/8	7/8	1-1/8
Refrigerant		[1] R-410A charge furnished	11 lbs. 0 oz.	10 lbs 8 oz.	12 lbs. 8 oz.	12 lbs. 8 oz.
Outdoor Coil	Net face area - sq. ft.	Outer coil	27.21	27.21	27.21	27.21
		Inner coil	26.36	26.36	26.36	26.36
		Tube diameter - in.	5/16	5/16	5/16	5/16
		No. of rows	2	2	2	2
		Fins per inch	22	22	22	22
Outdoor Fan		Diameter - in.	26	26	26	26
		No. of blades	3	3	3	3
		Motor hp	1/3	1/3	1/3	1/3
		Cfm - Max. Speed	2775	3345	4050	4400
		Min. Speed	1680	2170	2560	2035
		Rpm - Max. Speed	662	801	788	858
		Min. Speed	395	514	495	390
		Watts - Max. Speed	69	112	163	196
		Min. Speed	19	35	50	29
Shipping Data - lbs. - 1 pkg.			284	286	296	296

ELECTRICAL DATA

		Line Voltage Data - 60h Hz	208/230V-1ph	208/230V-1ph	208/230V-1ph	208/230V-1ph
		[2] Maximum Overcurrent Protection (MOCP) amps	15	25	35	50
		[3] Minimum Circuit Ampacity (MCA)	11.3	17.8	22.4	29.5
Compressor Input (amps)			6.8	12	15.8	21.5
Outdoor Fan Motor - Full load amps			2.8	2.8	2.6	2.6

REQUIRED COMPONENTS - ORDER SEPARATELY

S40 Smart Wi-Fi Thermostat		**22V24**	•	•	•	•
[4] Discharge Air Temperature Sensor		**88K38**	•	•	•	•

OPTIONAL ACCESSORIES - ORDER SEPARATELY

[5] Freezestat	3/8 in. tubing	**93G35**	•	•	•	•
	5/8 in. tubing	**50A93**	•	•	•	•
[6] Refrigerant Line Sets (Liq. x Suc. OD x Insulation Thickness - Length)	3/8 x 7/8 x 3/8 - 30 ft.	**89J60**	•	•	•	
	3/8 x 7/8 x 3/8 - 40 ft.	**89J61**				
	3/8 x 7/8 x 3/8 - 50 ft.	**89J62**				
	3/8 x 1-1/8 x 3/8 - 30 ft.	**X0570**				•
	3/8 x 1-1/8 x 3/8 - 50 ft.	**73P91**				

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

[1] 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.

[2] HACR type breaker or fuse.

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

[4] Used with the Lennox® S40 Smart Wi-Fi Thermostat for optional service diagnostics.

[5] Freezestat is recommended for low ambient operation.

[6] Refer to the Installation Instructions for Line Set Requirements and Refrigerant Piping Guidelines.

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
024 Min.	45.2	43.3	49.8	50.3	44.8	47.7	45.3	56	49	44	38	35	24
024 Max.	48.5	54.1	62	62.7	57.6	59	52.9	68	61	56	50	47	36
036 Min.	46.6	51	54.1	54.2	49.1	46.4	42.3	59	52	47	41	38	27
036 Max.	54.1	60.3	67.8	65	63.3	56.8	46.1	71	64	59	53	50	39
048 Min.	46.6	50.3	52.5	52.8	47.5	42.5	39.5	58	51	46	40	37	26
048 Max.	54.9	64.2	69	66	67.3	59.4	49.8	73	66	61	55	52	41
060 Min.	44.7	46.3	48.8	53.1	49	45.1	39.6	57	50	45	39	36	25
060 Max.	55.7	62.5	68.1	67.3	65.8	59.9	52.4	73	66	61	55	52	41

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

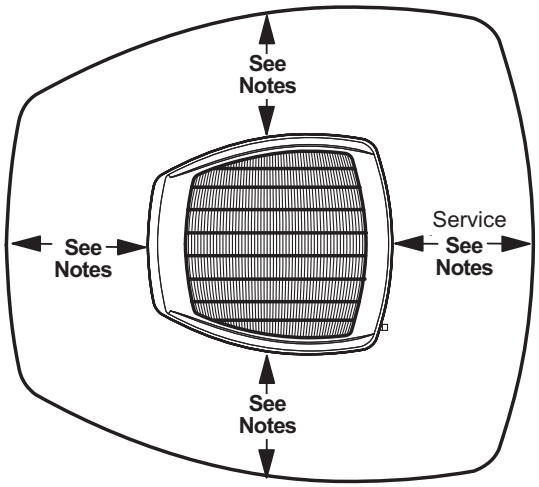
[1] Tested according to AHRI Standard 270 test conditions. Sound rating Number is the overall A-Weighted Sound Power Level, (LWA), dB (100 Hz to 10,000 Hz).

[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.

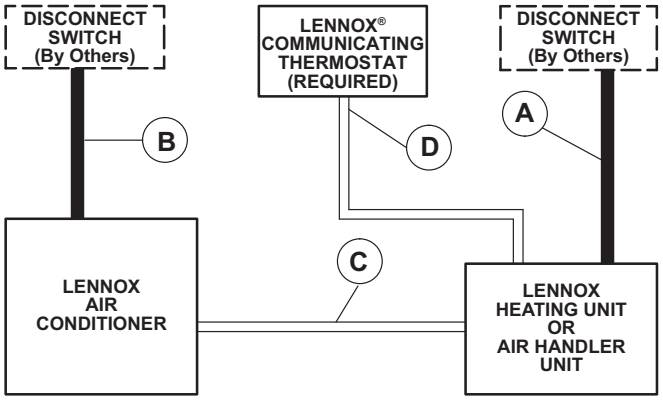
INSTALLATION CLEARANCES

NOTE - One of these 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).

Service Clearance – 30 in. (762 mm)
48 in. (1219 mm) clearance required on top of unit
24 in. (610 mm) required between two units



FIELD WIRING



A - Two Wire Power

B - Two Wire Power (see Electrical Data)

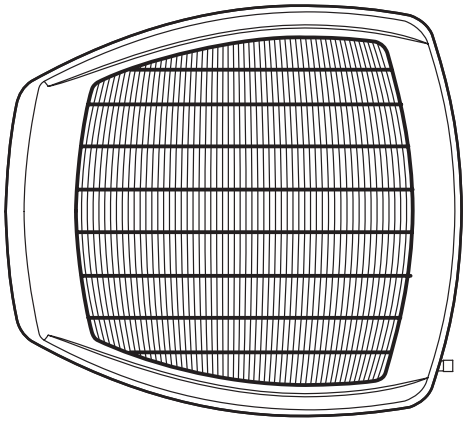
C - Lennox® Communicating Thermostat:
- Four Wire, 18AWG (RSBus)

D - Lennox® Communicating Thermostat:
- Four Wire, 18 to 22AWG (RSGBus) standard thermostat cable for terminals (R, C, I+, I-).

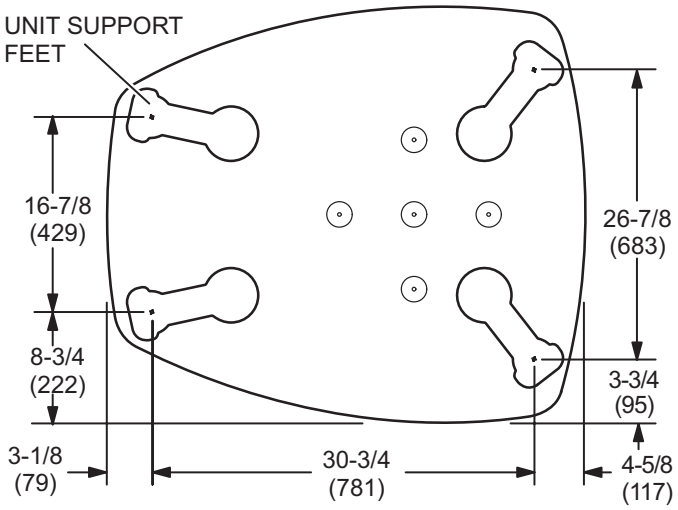
NOTE - All wiring must conform to NEC or CEC and local electrical codes.

NOTE - Refer to the S40 Installation Instructions for optional wiring connections for communicating thermostats.

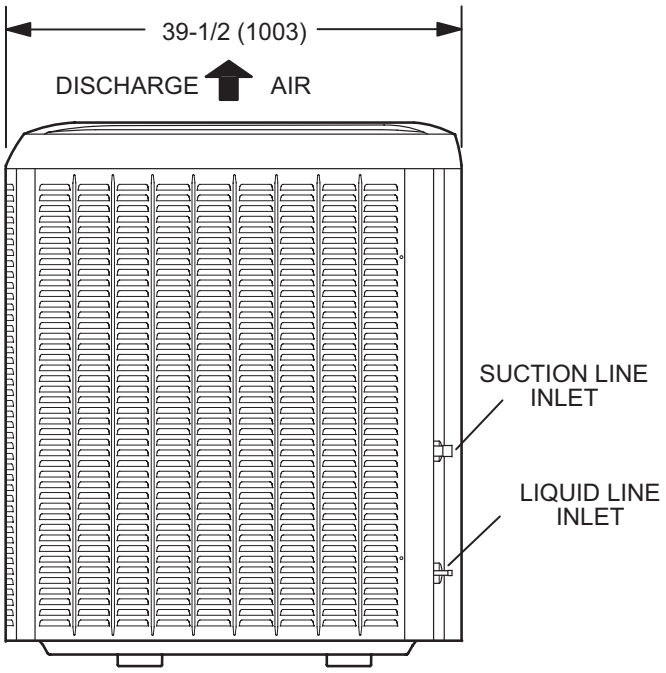
NOTE - Field wiring is not furnished.



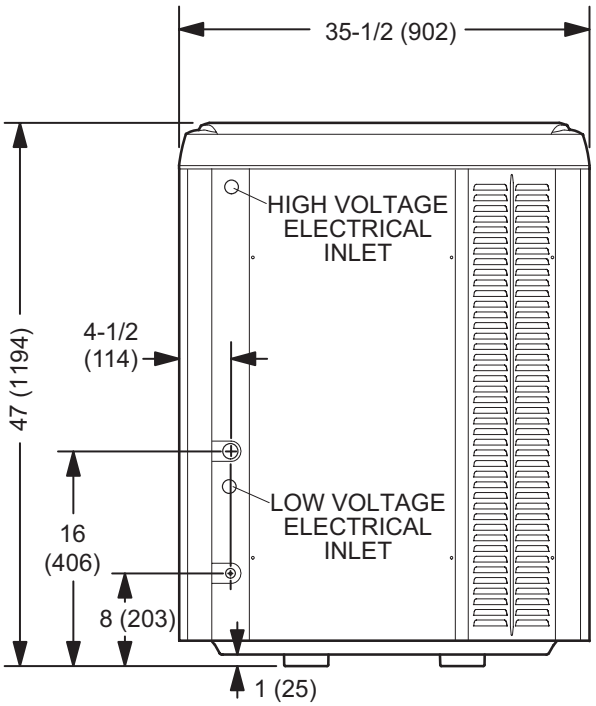
TOP VIEW



TOP VIEW BASE SECTION
(Large Base)



SIDE VIEW



ACCESS VIEW

TXV USAGE

Use this table for C35, CH23 and CR33 Field Installed TXV Match-Ups (if a valid match)

Outdoor Unit	Order Number
SL28XCV-024	**12J18**
SL28XCV-036	**12J19**
SL28XCV-048	**12J20**
SL28XCV-060	**12J20**

CX35 and CHX35 coils and all Lennox air handlers are shipped with a factory installed TXV. In most cases, no change out of the valve is needed.

If a change out is required it will be listed in the "TXV SUBSTITUTIONS" table by size. The correct TXV must be ordered separately and field installed.

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

CR33 and CH23 coils - Use the expansion valve listed.

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

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

Outdoor Unit		Indoor Unit		TXV Furnished	TXV Replacement
Size	Tons	Size	Tons		
024	2	42	3.5	**12J20**	**12J18**
024	2	48	4	**12J20**	**12J18**
024	2	49	4	**12J20**	**12J18**
024	2	50/60	5	**12J20**	**12J18**
024	2	51/61	5	**12J20**	**12J18**
024	2	60	5	**12J20**	**12J18**
036	3	24	2	**12J18**	**12J19**
036	3	30	2.5	**12J18**	**12J19**
048	4	30/36	2.5/3	**12J19**	**12J20**
048	4	36	3	**12J19**	**12J20**

TXV Ranges:

12J18 - 1.5 to 2.5 ton systems - Use on 2.5 ton (030) and lower systems.

12J19 - 3 ton systems - Use down to 2 ton (024) systems.

12J20 - 3.5 to 5 ton systems - Use down to 3 ton (036) systems.

REVISIONS

Sections	Description of Change
Optional Accessories	Updated Line Sets available.

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.