



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

**EL23XCV**

ELITE® Series

RESIDENTIAL  
PRODUCT SPECIFICATIONS

Bulletin No. 210987  
January 2023

**ELITE®**  
SERIES



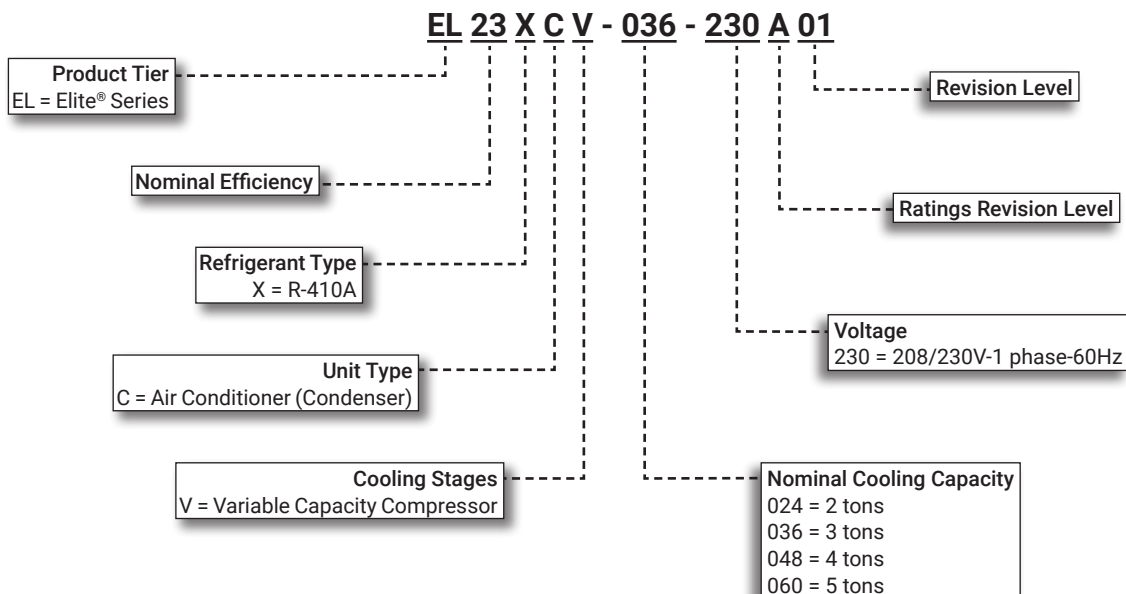
S40 Smart Wi-Fi  
Communicating Thermostat  
(Not Furnished)



SEER2 up to 22.4  
2 to 5 Tons

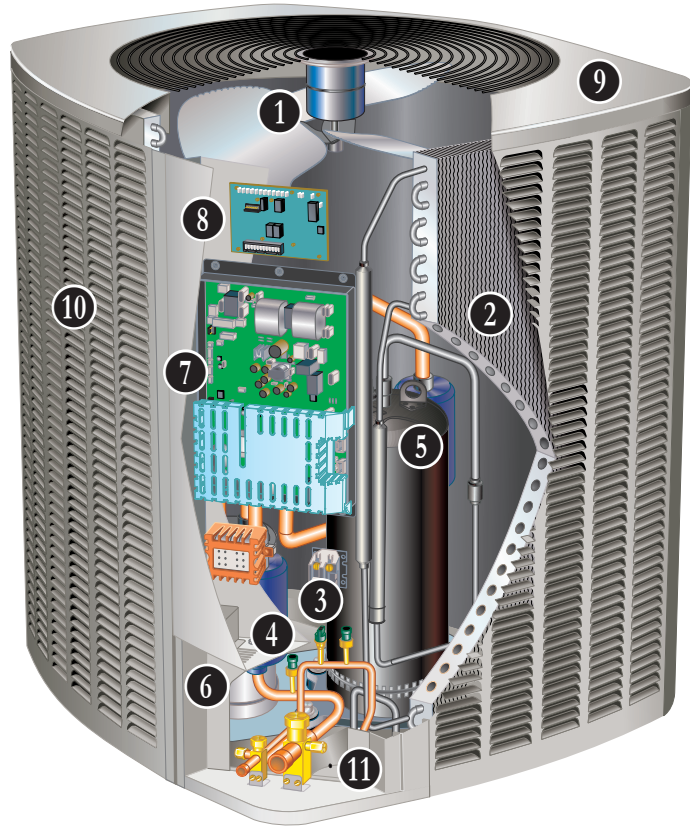
Cooling Capacity - 20,800 to 59,000 Btuh

MODEL NUMBER IDENTIFICATION



## FEATURE HIGHLIGHTS

1. Outdoor Coil Fan
2. Quantum™ Coil
3. Low Pressure Transducer
4. High Pressure Switch
5. Variable Speed Compressor
6. Accumulator
7. DC Inverter Control
8. Lennox® Communicating Control
9. Heavy Gauge Steel Cabinet
10. SmartHinge™ Louvered Coil Protection
11. 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](http://www.LennoxPros.com)

**NOTE** - AHRI certified ratings are based on the following control conditions:

A Lennox® Communicating thermostat matched with a “communicating” indoor unit.

Any conventional non-communicating thermostat matched with a conventional “non-communicating” indoor unit.

- 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 ten 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](http://www.Lennox.com) for additional details.

## FEATURES

### APPLICATIONS

- 2, 3, 4 and 5 ton
- Sound levels as low as 59 dBA
- Single-phase power supply
- Vertical air discharge
- Applicable to indoor air handlers or gas furnaces with indoor add-on coils
- Shipped completely factory assembled, piped and wired

### 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

- Direct drive fan
- ECM motor
- Vertical air discharge
- Totally enclosed fan motor
- Ball bearings
- Inherently protected
- PVC (polyvinyl chloride) coated 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 Suction Line Drier (all models except -060)

- Factory installed in the suction line
- Drier traps moisture or dirt
- 100% molecular-sieve, bead type, one-way drier

#### High Capacity Liquid Line Drier (-060 model only)

- Factory installed in the liquid line
- Drier traps moisture or dirt
- 100% molecular-sieve, bead type, one-way drier

#### 3 Low Pressure Transducer

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

## FEATURES

### REFRIGERATION SYSTEM (continued)

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

#### 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

##### 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

**NOTE** - EL23XCV 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 Rotary Compressor and DC Inverter Control is an integrated system that operates together to reduce overall energy usage when compared to conventional air conditioners.

**5 Variable Capacity Rotary Compressor (024-048 models)**

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

#### Rotary Compressor Operation

- Rotary compressor has a cylindrical chamber
- A roller is mounted to the motor shaft and is offset to rotate in the center of the chamber
- Two spring-loaded vanes sweep the sides of the chamber as the roller rotates
- Roller touches the chamber at a point between the intake and the discharge ports as the roller rotates
- While rotating, the roller draws vapor into the chamber through the intake port
- Vapor is trapped in the space between the chamber wall, the vane, and the point of contact between the roller and the chamber
- As the next vane passes the contact point vapor is compressed
- The space becomes smaller compressing the vapor as the roller rotates
- Vapor is discharged through the discharge port

#### Variable Capacity Scroll Compressor

- Furnished on -060 model only

**6 Accumulator**

- Standard in all models except -060 model

#### Compressor Crankcase Heater

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

#### Compressor Sound Dampening System

- Polyethylene compressor cover
- 2-inch thick batt fiberglass insulation
- All open edges sealed with one-inch wide hook and loop fastening tape

## FEATURES

### PRECISE COMFORT® TECHNOLOGY (continued)

#### 7 DC Inverter Control

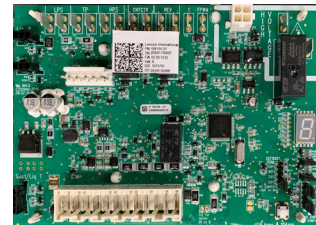
- Converts AC line voltage into filtered variable DC voltage
- Provides continuous compressor operation, while adjusting the capacity according to indoor temperature
- Adjusts compressor output in increments as small as 1%
- The accurate sensing of cooling load prevents frequent changes in capacity and ensures efficient, economical operation
- Power Factor Correction (PFC) circuit monitors the DC bus for high, low and abnormal voltage conditions to protect the compressor
- Two LEDs (red and green) indicate inverter operating status and aid in troubleshooting
- Noise filter reduces unwanted electromagnetic interference (EMI)
- Integrated on the Lennox® Communicating Control for 024 and 036 models,
- Separate external inverter control for 048 and 060 models
- 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

#### 8 Lennox® Communicating Control

- Advanced control communicates information about various operating parameters in the air conditioner to the Lennox® Communicating Thermostat 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 also 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 switch 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** - Two RAST connectors for a conventional heating/cooling thermostat are also provided for connection to the control. A two-stage or single-stage thermostat can be used.

#### 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

#### Lennox® 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)

**NOTE** - The EL23XCV Air Conditioner can be used with an Lennox® Communicating Thermostat matched with a “communicating” indoor unit, or a conventional non-communicating thermostat matched with a “non-communicating” indoor unit.

Thermostat	Model No.	Indoor Unit Type
Communicating	S40	Communicating
Non-Communicating	E30, M30, CS7500	Non-Communicating
	Conventional thermostat	

### Optional Accessories

#### 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



#### E30 Smart Wi-Fi Thermostat

- Wi-Fi enabled, electronic 7-day, universal, multi-stage, programmable, touchscreen thermostat
- 3 Heat/2 Cool
- Auto-changeover
- 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 7 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 Apple HomeKit™, Amazon Alexa®, Google Assistant and IFTTT
- Service Dashboard features online real-time monitoring of installed Lennox® thermostats
- High Definition Color Display with Subbase, Smart Hub Controller, wallplate (for retrofit installations) furnished for easy installation



**NOTE** - See the Lennox® E30 Smart Wi-Fi Thermostat Product Specifications bulletin for more information.

#### Remote Outdoor Temperature Sensor

- Used with the Lennox® Smart Wi-Fi Thermostat
- When installed outdoors, sensor allows thermostat to display outdoor temperature
- Sensor is auto-detected when connected to thermostat

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



#### Thermostat

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

## FEATURES

### **CABINET**

- 9 • Heavy-gauge steel construction
- Pre-painted cabinet finish
- Louvered steel panels surround unit on all four sides
- 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
- 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

#### **10 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



#### **11 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

General Data		Model No. - All Regions	EL23XCV-024	EL23XCV-036	EL23XCV-048	EL23XCV-060
		Nominal Tonnage	2	3	4	5
Connections (sweat)	Liquid line (o.d.) - in.		3/8	3/8	3/8	3/8
	Suction line (o.d.) - in.		3/4	7/8	7/8	1-1/8
Refrigerant		<sup>1</sup> R-410A charge furnished	7 lbs. 15 oz.	8 lbs. 0 oz.	11 lbs. 14 oz.	11 lbs. 15 oz.
Compressor Type			Rotary	Rotary	Rotary	Scroll
Outdoor Coil	Net face area - sq. ft.		23.33	23.33	27.21	27.21
	Inner coil		---	---	26.36	26.36
	Tube diameter - in.		5/16	5/16	5/16	5/16
	No. of rows		1	1	2	2
	Fins per inch		26	26	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 - minimum speed		1270	1979	2997	2997
	maximum speed		2786	4227	4212	4224
	Rpm - minimum speed		467	367	618	618
	maximum speed		756	838	911	939
	Watts - minimum speed		22	25	85	85
maximum speed		68	182	230	245	
Shipping Data - lbs. 1 pkg.			210	220	300	300

## ELECTRICAL DATA

Line Voltage Data - 60Hz	208/230V-1ph	208/230V-1ph	208/230V-1ph	208/230V-1ph
<sup>2</sup> Maximum overcurrent protection (MOCP) amps	20	30	40	45
<sup>3</sup> Minimum circuit ampacity (MCA)	12.6	19.2	23.6	27.4
Compressor Input (amps)	8	13.3	16.8	19.8
Outdoor Fan Motor - Full Load Amps	2.6	2.6	2.6	2.6

## CONTROLS

S40 Smart Wi-Fi Thermostat (Communicating)	22V24	•	•	•	•
<sup>4</sup> Discharge Air Temperature Sensor	88K38	•	•	•	•
E30 Smart Wi-Fi Thermostat	20A65	•	•	•	•
Remote Outdoor Temperature Sensor	X2658	•	•	•	•

## OPTIONAL ACCESSORIES - ORDER SEPARATELY

<sup>5</sup> Freezestat	3/8 in. tubing	93G35	•	•	•	•
	5/8 in. tubing	50A93	•	•	•	•
Refrigerant Line Sets (Liq. x Suc. OD x Insulation Thickness - Length)	3/8 x 3/4 x 3/8 - 20 ft.	89J56	•			
	3/8 x 3/4 x 3/8 - 30 ft.	89J57				
	3/8 x 3/4 x 3/8 - 40 ft.	89J58				
	3/8 x 3/4 x 3/8 - 50 ft.	89J59				
	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.

<sup>1</sup> 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.

<sup>2</sup> HACR type breaker or fuse.

<sup>3</sup> Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

<sup>4</sup> Used with the Lennox® S40 Smart Wi-Fi Thermostat for optional service diagnostics.

<sup>5</sup> Freezestat is recommended for low ambient operation.



## SOUND DATA

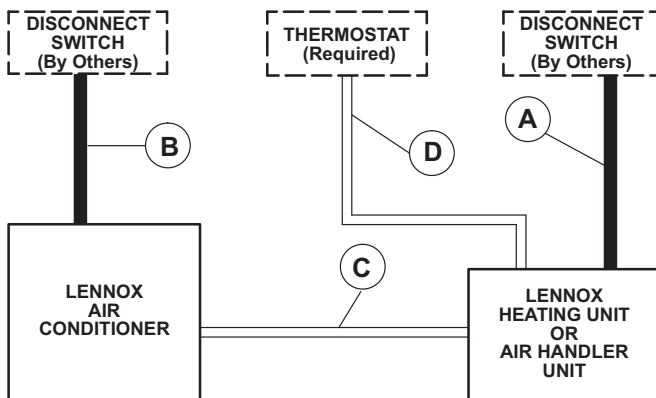
1 Unit Model	Octave Band Sound Power Levels dBA, re 10 <sup>-12</sup> Watts Center Frequency - HZ							1 Sound Rating Number (dBA)	2 Estimated Sound Pressure Level at Distance From Unit (dBA at distance in ft.)				
	125	250	500	1000	2000	4000	8000		3	5	10	15	50
024 Min.	51	53	52	52	52	47	48	59	52	47	41	38	27
024 Max.	53	58	64	63	63	59	53	69	62	57	51	48	37
036 Min.	51	53	52	52	50	48	52	60	53	48	42	39	28
036 Max.	63	62	67	68	66	67	60	73	66	61	55	52	41
048 Min.	54	55	60	59	53	48	45	64	57	52	46	43	32
048 Max.	59	64	70	69	67	63	56	74	67	62	56	53	42
060 Min.	49	56	58	56	53	47	47	62	55	50	44	41	30
060 Max.	57	64	68	69	65	60	55	73	66	61	55	52	41

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

<sup>1</sup> Tested according to AHRI Standard 270-2008 test conditions. Sound rating Number is the overall A-Weighted Sound Power Level, (LWA), dB (100 Hz to 10,000 Hz).

<sup>2</sup> 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

B - Two Wire Power (see Electrical Data)

C - Lennox® Communicating Thermostat:

- Four Wire, 18AWG (RSBus)

C - Conventional Thermostat:

- Four Wire Low Voltage, 18AWG

D - Lennox® Communicating Thermostat:

- Four Wire, 18 to 22AWG (RSBus) standard thermostat cable for terminals (R, C, I+, I-).

D - Conventional Thermostat:

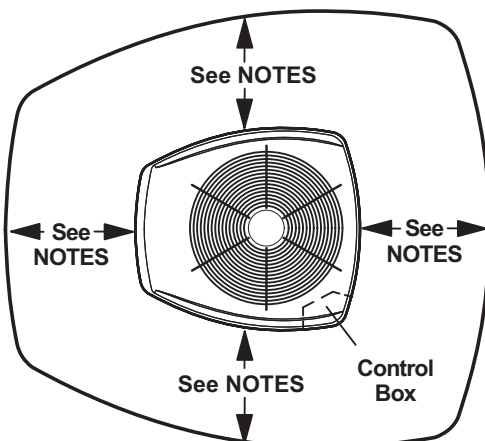
- Six Wire Low Voltage, 18AWG

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 not furnished.

## INSTALLATION CLEARANCES



### NOTES:

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

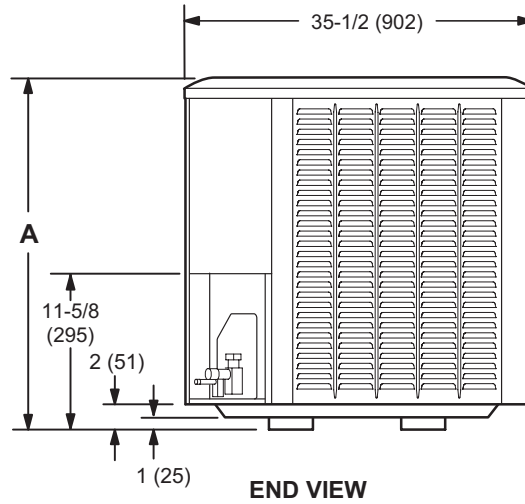
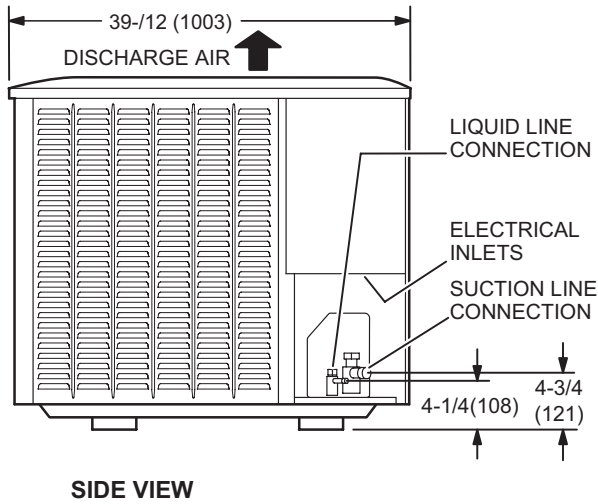
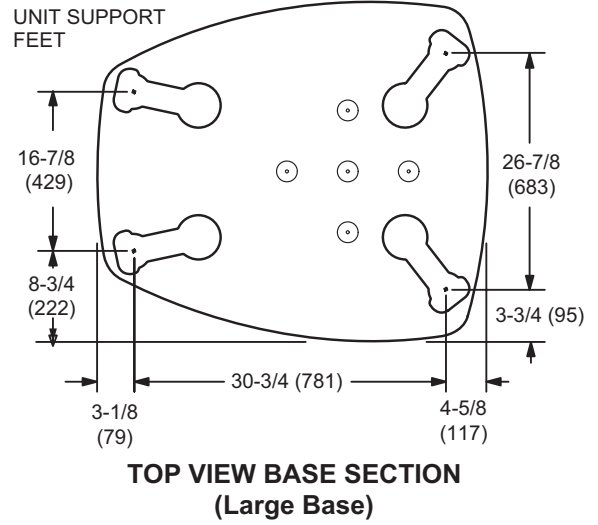
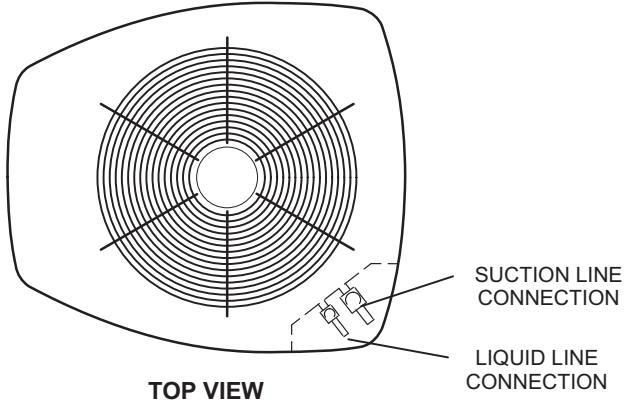
Clearance to one of the other three sides must be 36 in. (914 mm)

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. (610 mm) must be maintained between two units.

48 in. (1219 mm) clearance required on top of unit.

# DIMENSIONS - UNIT



Model No.	A	
	in.	mm
EL23XCV-024	39	991
EL23XCV-036	39	991
EL23XCV-048	45	1143
EL23XCV-060	45	1143

## TXV USAGE

Use this table for C35, CH23 and CR33 Field Installed TXV/Orifice Match-Ups

Outdoor Unit Size	Thermal Expansion Valve (TXV)
024	12J18
036	12J19
048	12J20
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.



Visit us at [www.Lennox.com](http://www.Lennox.com)

For the latest technical information, [www.LennoxPros.com](http://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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