

**LENNOX**<sup>TM</sup>**ENGINEERING DATA****ZONEMASTER II®****DUAL ZONE CONTROL PANEL****Zone Control For Residential Heating/Cooling Systems**

Bulletin No. 210126

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**SYSTEM OVERVIEW**

Designed to allow Lennox conventional residential heating/cooling equipment ability to condition two independent zones.

System consists of:

- ZoneMaster II® Control Panel
- One Lennox Two-Stage Air Conditioner
- Two Lennox air handlers or two Lennox furnaces with add-on indoor coils.

Each zone is individually sized for the heating/cooling load.

Each zone is controlled by the control panel in conjunction with a thermostat in each zone.

Air conditioner operates on part-load on cooling demand from one zone.

Air conditioner switches to full-load on demand from both zones.

Each indoor coil/air handler must be equipped with a matched expansion valve (see Cooling Ratings tables for selection) and a field installed refrigerant solenoid valve. Refrigerant solenoid valve must be ordered extra.

Using a single air conditioner with dual furnace/indoor coil or dual air handlers results in lower equipment and installation costs for zoned system.

**System Equipment Data**

See two-stage air conditioner bulletin for complete unit information.

See matching air handler or indoor coil bulletin for complete unit information.

See matching gas furnace or oil furnace bulletins for complete unit information.

**Solid-State Control Panel**

Constructed of heavy gauge steel with enamel paint finish.

Removable latching cover.

Panel consists of low voltage terminal blocks for connecting system components.

Solid-state printed circuit board contains all necessary relays and controls to operate system.

Operational mode LED's (green when lit) indicate:

Heating or cooling in each zone.

Air conditioner low (part-load) or high (full-load) compressor operation.

Time delay function prevents short cycling of solenoid valves.

Mounting holes provided in top, bottom and rear of panel.

Dimensions (H x W x D): 10-1/2 x 8 x 1-13/16 in.

Power requirements: 24 VAC.

Shipping weight: 5 lbs.

## OPTIONAL ACCESSORIES - MUST BE ORDERED EXTRA

### CONTROLS

#### Thermostats

One thermostat required for each zone.  
Any single-stage heat/single-stage cool or any programmable thermostat may be used.  
See Thermostat bulletins and Lennox Price Book.

### ELECTRICAL

#### Transformer

24 volt transformer must be ordered extra.  
See Lennox Price Book.

### REFRIGERATION SYSTEM

#### Expansion Valve Kits

Each indoor coil/air handler must be equipped with a matched expansion valve.  
See Cooling Ratings tables for selection.

#### Refrigerant Solenoid Valves

One valve is required for each indoor unit.  
Valve provides separate control of indoor units.  
3/8 in. sweat - **60M52**  
1/2 in. sweat - **60M55**

#### Refrigerant Line Kits

Refrigerant lines (suction & liquid) are shipped refrigeration clean.  
Lines are cleaned, dried, pressurized, and sealed at factory.

Suction line fully insulated.

L15 lines are stubbed at both ends.

Piping manifold from air conditioner connections to beginning of line sets must be field fabricated. See refrigerant piping schematic.

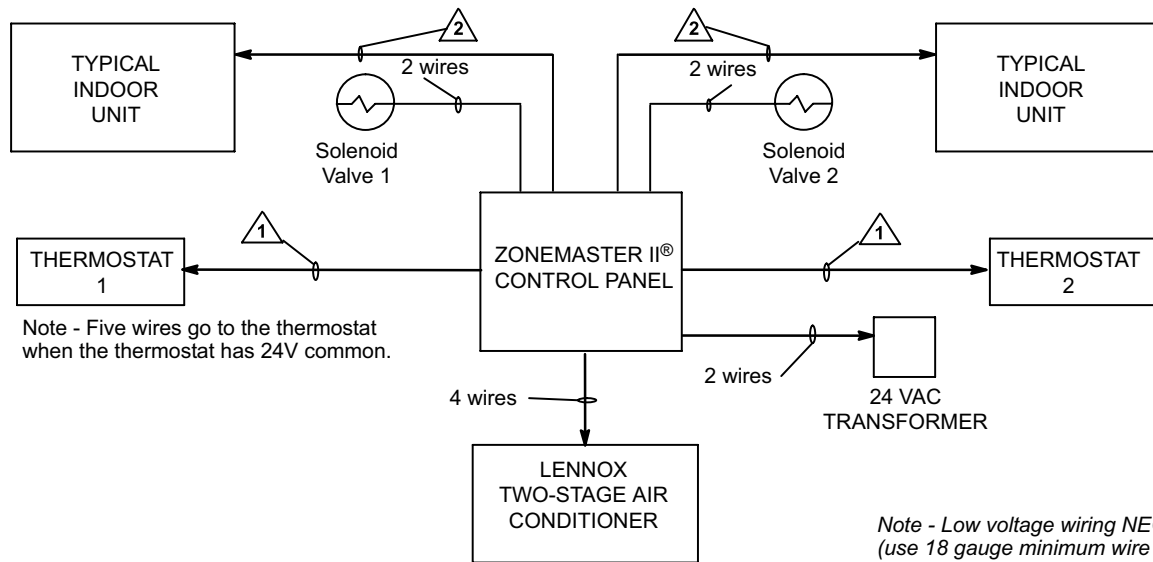
All indoor coils/air handlers require 3/8 in. liquid line size and 3/4 in. suction line size (L15-41 line sets).

L15-41 line sets are available in 20, 30, 40, or 50 foot lengths. See Lennox Price Book for ordering information.

*NOTE - Units are designed for line sets of up to fifty feet. For applications longer than fifty feet, consult the Lennox Refrigerant Piping Guide (Corp. 9351-L9) or contact the Lennox Applications Department. Add piping for both zones to determine whether total footage is in excess of 50 feet.*

## FIELD WIRING

### ZoneMaster II® Control Panel Low Voltage Wire Routing

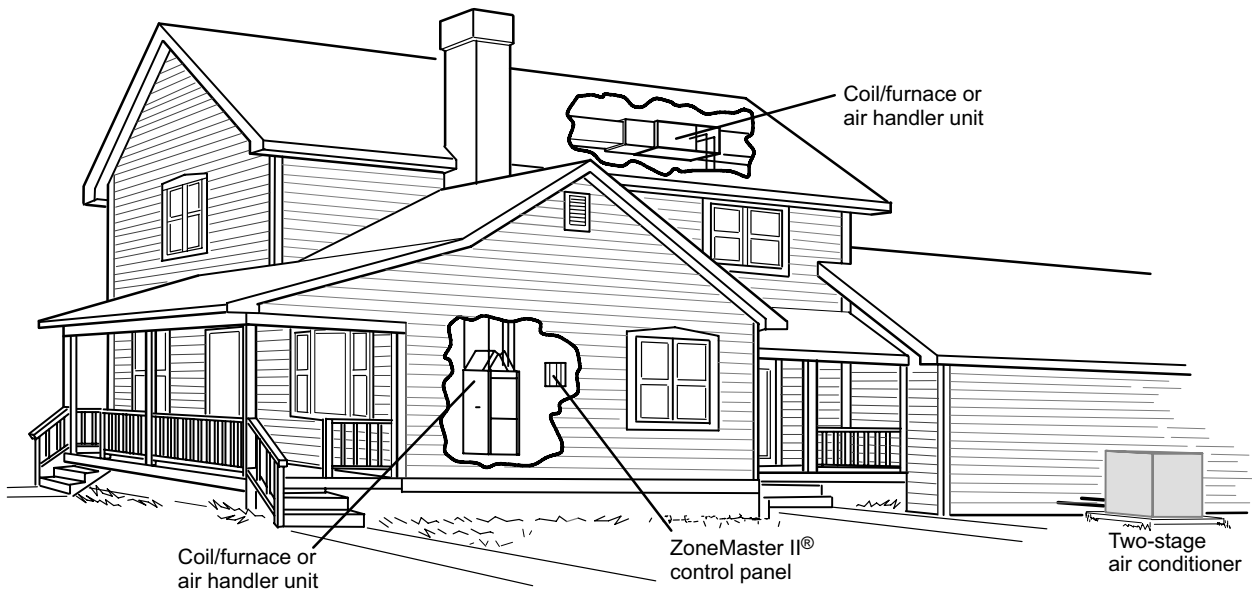


*Note - Low voltage wiring NEC class 2 (use 18 gauge minimum wire size)*

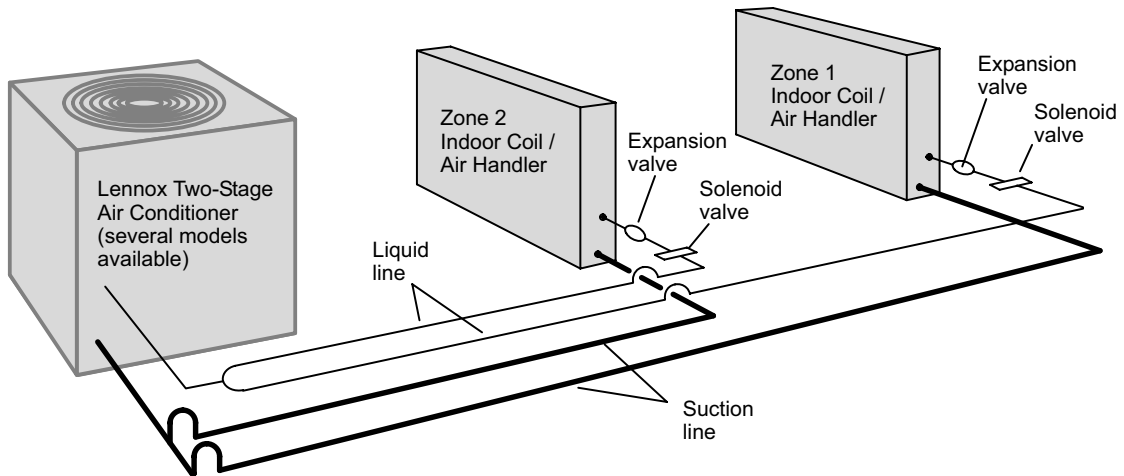
**1** 4 wires with standard single-stage heat/cool thermostat, no common  
5 wires when thermostat has common  
6 wires when thermostat has common and W2  
7 wires when SignatureStat™ thermostat and variable speed indoor unit is used

**2** 5 wires minimum for single-stage heat units  
6 wires with two-stage heat units  
7 wires maximum with SignatureStat™ thermostat, W2 and dehumidification

## TYPICAL APPLICATION



## REFRIGERANT PIPING SCHEMATIC



## COOLING RATINGS (FULL LOAD)

<sup>1</sup> ARI Standard 210/240 Ratings

| Cooling Capacity<br>Btuh       | Efficiency |       | Total Unit<br>Watts     | Indoor Unit Model No.               | Expansion<br>Device |
|--------------------------------|------------|-------|-------------------------|-------------------------------------|---------------------|
|                                | SEER       | EER   |                         |                                     |                     |
| <b>XC21-024</b>                |            |       |                         |                                     | <b>2 TON</b>        |
| <b>Up-Flow Indoor Coils</b>    |            |       | <b>Up-Flow Coils</b>    |                                     |                     |
| 24,800                         | 16.00      | 13.00 | 1910                    | (2) <sup>3</sup> CX34-18/24A/B/C-6F | Factory TXV         |
| <b>Down-Flow Indoor Coils</b>  |            |       | <b>Down-Flow Coils</b>  |                                     |                     |
| 25,400                         | 16.50      | 13.20 | 1925                    | (2) <sup>3</sup> CR33-24A-F         | <sup>2</sup> 37L51  |
| <b>Horizontal Indoor Coils</b> |            |       | <b>Horizontal Coils</b> |                                     |                     |
| 25,000                         | 16.00      | 13.00 | 1925                    | (2) <sup>3</sup> CH33-24/30A-2F     | <sup>2</sup> 37L51  |
| <b>Air Handlers</b>            |            |       | <b>Air Handlers</b>     |                                     |                     |
| 25,200                         | 16.00      | 12.70 | 1985                    | (2) <sup>3</sup> CBX32M-018/024     | Factory TXV         |
| 25,200                         | 17.70      | 14.00 | 1800                    | (2) <sup>4</sup> CBX32MV-018/024    | Factory TXV         |
| <b>XC21-036</b>                |            |       |                         |                                     | <b>3 TON</b>        |
| <b>Up-Flow Indoor Coils</b>    |            |       | <b>Up-Flow Coils</b>    |                                     |                     |
| 37,800                         | 16.00      | 12.70 | 2975                    | (2) <sup>3</sup> CX34-25A/B/C-6F    | Factory TXV         |
| <b>Down-Flow Indoor Coils</b>  |            |       | <b>Down-Flow Coils</b>  |                                     |                     |
| 37,400                         | 16.00      | 12.50 | 2990                    | (2) <sup>3</sup> CR33-24A-F         | <sup>2</sup> 37L51  |
| <b>Horizontal Indoor Coils</b> |            |       | <b>Horizontal Coils</b> |                                     |                     |
| 36,800                         | 15.50      | 12.50 | 2945                    | (2) <sup>3</sup> CH33-24/30A-2F     | <sup>2</sup> 37L51  |
| <b>Air Handlers</b>            |            |       | <b>Air Handlers</b>     |                                     |                     |
| 37,400                         | 16.00      | 12.50 | 2990                    | (2) <sup>3</sup> CBX32M-018/024     | Factory TXV         |
| 38,500                         | 17.20      | 13.70 | 2810                    | (2) <sup>4</sup> CBX32MV-018/024    | Factory TXV         |
| <b>XC21-048</b>                |            |       |                         |                                     | <b>4 TON</b>        |
| <b>Up-Flow Indoor Coils</b>    |            |       | <b>Up-Flow Coils</b>    |                                     |                     |
| 51,000                         | 15.00      | 12.70 | 4015                    | (2) <sup>3</sup> CX34-31A/B/C-6F    | Factory TXV         |
| <b>Down-Flow Indoor Coils</b>  |            |       | <b>Down-Flow Coils</b>  |                                     |                     |
| 50,000                         | 14.70      | 12.50 | 4000                    | (2) <sup>3</sup> CR33-30/36A-F      | <sup>2</sup> 37L51  |
| <b>Horizontal Indoor Coils</b> |            |       | <b>Horizontal Coils</b> |                                     |                     |
| 49,500                         | 14.50      | 12.50 | 3960                    | (2) <sup>3</sup> CH33-25A-2F        | <sup>2</sup> 37L51  |
| 49,500                         | 14.20      | 12.50 | 3960                    | (2) <sup>3</sup> CH33-25B-2F        | <sup>2</sup> 37L51  |
| <b>Air Handlers</b>            |            |       | <b>Air Handlers</b>     |                                     |                     |
| 49,000                         | 14.50      | 12.20 | 4015                    | (2) <sup>3</sup> CBX32M-018/024     | Factory TXV         |
| 50,000                         | 15.20      | 13.00 | 3845                    | (2) <sup>3</sup> CBX32M-030         | Factory TXV         |
| 50,000                         | 15.00      | 13.00 | 3845                    | (2) <sup>4</sup> CBX32MV-018/024    | Factory TXV         |
| 50,500                         | 15.20      | 13.20 | 3825                    | (2) <sup>4</sup> CBX32MV-024/030    | Factory TXV         |
| <b>XC21-060</b>                |            |       |                         |                                     | <b>5 TON</b>        |
| <b>Up-Flow Indoor Coils</b>    |            |       | <b>Up-Flow Coils</b>    |                                     |                     |
| 61,000                         | 14.20      | 12.00 | 5085                    | (2) <sup>3</sup> CX34-38A/B/C-6F    | Factory TXV         |
| <b>Down-Flow Indoor Coils</b>  |            |       | <b>Down-Flow Coils</b>  |                                     |                     |
| 59,500                         | 14.00      | 11.70 | 5085                    | (2) <sup>3</sup> CR33-30/36A-F      | <sup>2</sup> 37L51  |
| <b>Horizontal Indoor Coils</b> |            |       | <b>Horizontal Coils</b> |                                     |                     |
| 58,500                         | 13.70      | 11.70 | 5000                    | (2) <sup>3</sup> CH33-36A-F         | <sup>2</sup> 37L51  |
| 58,500                         | 13.50      | 11.70 | 5000                    | (2) <sup>3</sup> CH33-36B-F         | <sup>2</sup> 37L51  |
| 59,500                         | 13.70      | 11.70 | 5085                    | (2) <sup>3</sup> CH33-36C-F         | <sup>2</sup> 37L51  |
| <b>Air Handlers</b>            |            |       | <b>Air Handlers</b>     |                                     |                     |
| 60,000                         | 14.20      | 12.20 | 4920                    | (2) <sup>3</sup> CBX32M-030         | Factory TXV         |
| 60,000                         | 14.20      | 12.20 | 4920                    | (2) <sup>4</sup> CBX32MV-024/030    | Factory TXV         |

<sup>1</sup> Tested at conditions included in the USE certification program which is based on ARI Standard 210/240; 95°F outdoor air temperature, 80°F db / 67°F wb entering evaporator air with 25 ft. of connecting refrigerant lines.

<sup>2</sup> Factory installed RFC or expansion valve on indoor unit MUST be replaced with expansion valve kit (ordered separately) shown.

<sup>3</sup> Blower must be capable of time-off blower delay. Indoor Blower Off Delay Relay (58M81) is recommended for field installation.

<sup>4</sup> Blower control must be set for a time-off blower delay.

## COOLING RATINGS (FULL LOAD)

<sup>1</sup> ARI Standard 210/240 Ratings

| Cooling Capacity<br>Btuh       | Efficiency |       | Total Unit<br>Watts     | Indoor Units Model No.              | Expansion<br>Device |
|--------------------------------|------------|-------|-------------------------|-------------------------------------|---------------------|
|                                | SEER       | EER   |                         |                                     |                     |
| <b>XC16-024</b>                |            |       |                         |                                     | <b>2 TON</b>        |
| <b>Up-Flow Indoor Coils</b>    |            |       | <b>Up-Flow Coils</b>    |                                     |                     |
| 24,400                         | 13.50      | 11.50 | 2120                    | (2) <sup>3</sup> CX34-18/24A/B/C-6F | Factory TXV         |
| <b>Down-Flow Indoor Coils</b>  |            |       | <b>Down-Flow Coils</b>  |                                     |                     |
| 24,800                         | 13.70      | 11.70 | 2120                    | (2) <sup>3</sup> CR33-24A-F         | <sup>2</sup> 37L51  |
| <b>Horizontal Indoor Coils</b> |            |       | <b>Horizontal Coils</b> |                                     |                     |
| 24,400                         | 13.50      | 11.50 | 2120                    | (2) <sup>3</sup> CH33-24/30A-2F     | <sup>2</sup> 37L51  |
| <b>Air Handlers</b>            |            |       | <b>Air Handlers</b>     |                                     |                     |
| 24,800                         | 13.50      | 11.50 | 2155                    | (2) <sup>3</sup> CBX32M-018/024     | Factory TXV         |
| 25,200                         | 15.00      | 12.20 | 2065                    | (2) <sup>4</sup> CBX32MV-018/024    | Factory TXV         |
| <b>XC16-036</b>                |            |       |                         |                                     | <b>3 TON</b>        |
| <b>Up-Flow Indoor Coils</b>    |            |       | <b>Up-Flow Coils</b>    |                                     |                     |
| 33,600                         | 13.20      | 11.00 | 3055                    | (2) <sup>3</sup> CX34-18/24A/B/C-6F | Factory TXV         |
| <b>Down-Flow Indoor Coils</b>  |            |       | <b>Down-Flow Coils</b>  |                                     |                     |
| 34,400                         | 13.50      | 11.20 | 3070                    | (2) <sup>3</sup> CR33-24A-F         | <sup>2</sup> 37L51  |
| <b>Horizontal Indoor Coils</b> |            |       | <b>Horizontal Coils</b> |                                     |                     |
| 34,000                         | 13.20      | 11.00 | 3090                    | (2) <sup>3</sup> CH33-24/30A-2F     | <sup>2</sup> 37L51  |
| <b>Air Handlers</b>            |            |       | <b>Air Handlers</b>     |                                     |                     |
| 34,800                         | 13.70      | 11.20 | 3105                    | (2) <sup>4</sup> CBX32M-018/024     | Factory TXV         |
| 35,600                         | 14.70      | 12.20 | 2920                    | (2) <sup>4</sup> CBX32MV-018/024    | Factory TXV         |
| <b>XC16-048</b>                |            |       |                         |                                     | <b>4 TON</b>        |
| <b>Up-Flow Indoor Coils</b>    |            |       | <b>Up-Flow Coils</b>    |                                     |                     |
| 48,000                         | 13.50      | 11.70 | 4105                    | (2) <sup>3</sup> CX34-31A/B/C-6F    | Factory TXV         |
| <b>Down-Flow Indoor Coils</b>  |            |       | <b>Down-Flow Coils</b>  |                                     |                     |
| 47,500                         | 13.20      | 11.70 | 4060                    | (2) <sup>3</sup> CR33-30/36A-F      | <sup>2</sup> 37L51  |
| <b>Horizontal Indoor Coils</b> |            |       | <b>Horizontal Coils</b> |                                     |                     |
| 47,500                         | 13.20      | 11.70 | 4060                    | (2) <sup>3</sup> CH33-25A-2F        | <sup>2</sup> 37L51  |
| 47,000                         | 13.00      | 11.50 | 4085                    | (2) <sup>3</sup> CH33-25B-2F        | <sup>2</sup> 37L51  |
| <b>Air Handlers</b>            |            |       | <b>Air Handlers</b>     |                                     |                     |
| 47,500                         | 13.50      | 12.00 | 3960                    | (2) <sup>4</sup> CBX32MV-018/024    | Factory TXV         |
| 47,500                         | 13.70      | 12.00 | 3960                    | (2) <sup>3</sup> CBX32M-030         | Factory TXV         |
| 48,000                         | 13.70      | 12.20 | 3935                    | (2) <sup>4</sup> CBX32MV-024/030    | Factory TXV         |
| <b>XC16-060</b>                |            |       |                         |                                     | <b>5 TON</b>        |
| <b>Up-Flow Indoor Coils</b>    |            |       | <b>Up-Flow Coils</b>    |                                     |                     |
| 60,500                         | 13.00      | 11.50 | 5260                    | (2) <sup>3</sup> CX34-38A/B/C-6F    | Factory TXV         |
| <b>Air Handlers</b>            |            |       | <b>Air Handlers</b>     |                                     |                     |
| 59,500                         | 13.00      | 11.70 | 5085                    | (2) <sup>3</sup> CBX32M-030         | Factory TXV         |
| 59,500                         | 13.00      | 11.70 | 5085                    | (2) CBX32MV-024/030                 | Factory TXV         |

<sup>1</sup> Tested at conditions included in the USE certification program which is based on ARI Standard 210/240; 95°F outdoor air temperature, 80°F db / 67°F wb entering evaporator air with 25 ft. of connecting refrigerant lines.

<sup>2</sup> Factory installed RFC or expansion valve on indoor unit **MUST** be replaced with expansion valve kit (ordered separately) shown.

<sup>3</sup> Blower must be capable of time-off blower delay. Indoor Blower Off Delay Relay (58M81) is recommended for field installation.

<sup>4</sup> Blower control must be set for a time-off blower delay.







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