



EDA
DAVE LENNOX SIGNATURE® COLLECTION
Humiditrol® Whole-Home Dehumidification System

**COMMERCIAL
PRODUCT SPECIFICATIONS**

Bulletin No. 210430
October 2023
Supersedes September 2023



NOTE - EDA is not applicable to variable-capacity outdoor units!

MODEL NUMBER IDENTIFICATION

EDA - 036 C

Model Number
EDA = Enhanced Dehumidification Accessory
(Whole Home Dehumidification System)

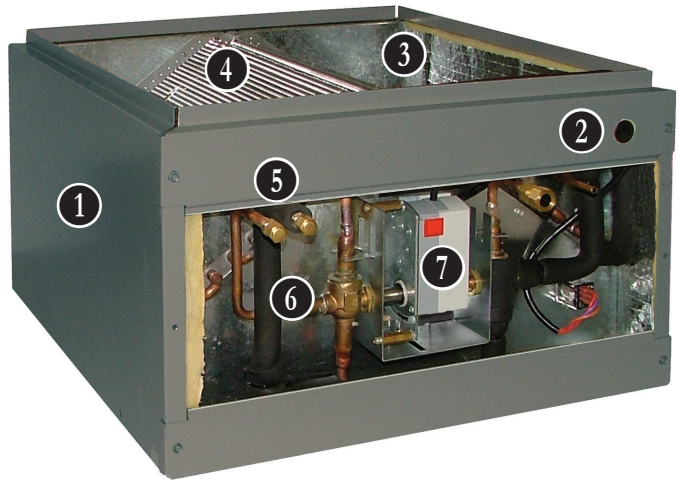
Nominal Capacity
024 = 2 tons
036 = 3 tons
060 = 5 tons

¹ Cabinet Width
B = 17-1/2 in.
C = 21 in.
D = 24-1/2 in.

¹ EDA letter designation in the model number will physically match gas furnaces with the same letter designation in their model number.

FEATURE HIGHLIGHTS

1. Heavy Gauge Steel Cabinet
2. Low Voltage Electrical Inlet
3. Fully Insulated Cabinet
4. Dehumidification Coil
5. Sweat Connections
6. Dual Refrigerant Diverter Valves
7. 3-Way Diverter Valve Actuator



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APPROVALS AND WARRANTY

APPROVALS

- Units are CSA certified according to UL-207 and CSA C22.2 No. 14.3 standards
- ISO 9001 Registered Manufacturing Quality System

WARRANTY

- All 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.

NOTE - Lennox warranties do not cover damage or defect resulting from operation with system components (indoor unit, outdoor unit and refrigerant control devices) which do not match or meet the specifications recommended by Lennox. This unit is intended to operate with specific furnaces and air handlers only. See System Decision Tree on page 12.

FEATURES

APPLICATIONS

NOTE - The Humiditrol® Whole Home Dehumidification System is not applicable to variable-capacity outdoor units.

- The Humiditrol® Whole Home Dehumidification System is designed for use with Lennox R-410A outdoor unit expansion valve systems only that are matched with specific furnaces or air handlers
- See System Decision Tree on page 13 for available matches
- For indoor installations in either upflow or horizontal applications only
- Height, space and air flow restrictions or the unit's stability in a stacked configuration will limit the use of downflow applications

NOTE - Refer to Installation Instructions supplement "Installing Humiditrol® EDA Unit in Downflow Configuration" for more details

NOTE - Sensible to Total Ratios are not available for downflow applications.

OVERVIEW

- The EDA unit is installed in an HVAC system downstream from the indoor coil or air handler
- In dehumidification mode, the coil becomes an extension of the outdoor coil and rejects heat into the indoor air stream
- This dehumidification mode allows significantly improved control of the humidity in the conditioned space without overcooling the space
- The EDA unit includes a set of 3-way diverter valves which route refrigerant through the EDA coil (Dehumidification ON), or which cause the refrigerant to bypass the EDA coil (Dehumidification OFF)

1 CABINET

- Low-profile allows easy installation in upflow or horizontal applications
- Heavy-gauge, cold rolled steel construction
- Pre-painted cabinet finish

- Flanges provided on supply air opening for ease of plenum connection
- Slots on perimeter of inlet opening help facilitate secure connection to indoor coil / air handler flanges

- 2 • Low voltage electrical inlet (for refrigerant valve actuator) provided on front of cabinet
- 3 • Fully insulated with foil faced insulation

COMPONENTS

4 Dehumidification Coil

- Durable copper tubing
- Ripple-edged aluminum fins
- Lanced fins provide maximum exposure of fin surface to air stream
- Rifled tubing provides superior refrigerant heat transfer
- Twin coil construction assembled in an A" configuration for large surface area (036C and 060D models)
- Single slab coil construction (024B model)
- 5 • Sweat connections
- High pressure testing insures leak-proof construction

Combination Check/Flow Limiting Piston

- Furnished with unit for field installation on the EDA unit
- See dimension drawing
- Prevents refrigerant from flowing into the inactive components when the EDA coil is inactive

6 Dual Refrigerant Diverter Valves

- Heavy duty valves control refrigerant flow depending on mode

7 3-Way Diverter Valve Actuator

- Controls operation of refrigerant valves during EDA operation
- 24VAC
- Three position actuator shaft for maintenance - Cooling, Evacuate or Bypass

Outdoor Fan Relay and Wiring Harness

- Required when EDA is used with outdoor units with multi-speed outdoor fans

OPTIONAL ACCESSORIES

REQUIRED CONTROLS

NOTE - Third-party thermostats are not compatible with the EDA Dehumidification System. One of these Lennox thermostats with integrated EDA control logic is required for proper operation.

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.

Units only)

NOTE - A Lennox® Communicating indoor unit (furnace or air handler) is required for proper operation of the Lennox® Communicating Thermostat with a conventional outdoor unit.

NOTE - The Humiditrol® Enhanced Dehumidification Accessory is not Lennox® Communicating but can easily be added and controlled by the Lennox® Thermostat. Dehumidify settings are adjustable from 40 to 60% relative humidity (RH).

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
- See the E30 Smart Wi-Fi Thermostat Product Specifications bulletin for more information



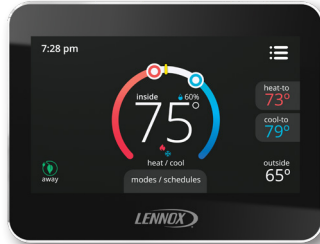
OPTIONAL ACCESSORIES

REQUIRED CONTROLS (continued)

NOTE - Third-party thermostats are not compatible with the EDA Dehumidification System. One of these Lennox thermostats with integrated EDA control logic is required for proper operation.

CS7500 Touchscreen Thermostat

- 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-use, menu driven thermostat with a back-lit, LCD touchscreen
- See the CS7500 Thermostat Product Specifications bulletin for more information



CS7500 Commercial 7-Day Programmable Thermostat

- Electronic 7-day, universal, multi-stage, programmable, touchscreen thermostat
- 4 Heat/3 Cool
- Remote Indoor Temperature Sensing with Averaging
- Outside or Discharge Air Temperature Display
- Occupancy Scheduling with Economizer Relay Control
- Away mode
- Offers enhanced capabilities including humidification / dehumidification / dewpoint measurement and control, Humiditrol® control, and notifications/reminders
- Performance reports
- Economizer relay control
- Easy-to-use, menu driven thermostat with a back-lit, LCD touchscreen
- See the CS7500 Commercial Thermostat Product Specifications bulletin more information



Remote Outdoor Temperature Sensor

- Used with the Lennox® Communicating Thermostats, Lennox E30, Lennox M30 and CS7500 thermostats
- When installed outdoors, sensor allows thermostat to display outdoor temperature



NOTE - Sensor is required for Humiditrol® applications.

NOTE - The outdoor sensor is furnished as standard with Lennox® Communicating outdoor units, optional for conventional units.

REQUIRED COMPONENTS

Insulation and Piping Kit

- Kit includes all necessary piping, fittings and insulation required for EDA installation

NOTE - Some model match-ups require a charge compensator to maintain the proper amount of refrigerant circulating in the system. The compensator stores excess refrigerant when the EDA coil is active and returns it to the system during normal cooling or heating operations. When the EDA coil is active, less charge is required to obtain the proper amount of subcooling because of the additional coil surface and the cooler air which passes over the EDA.

- Charge compensator and related piping and insulation is furnished with certain Insulation and Piping Kits depending on the system match-up

Relay Kit

- Required when use with CBA27UHE air handlers

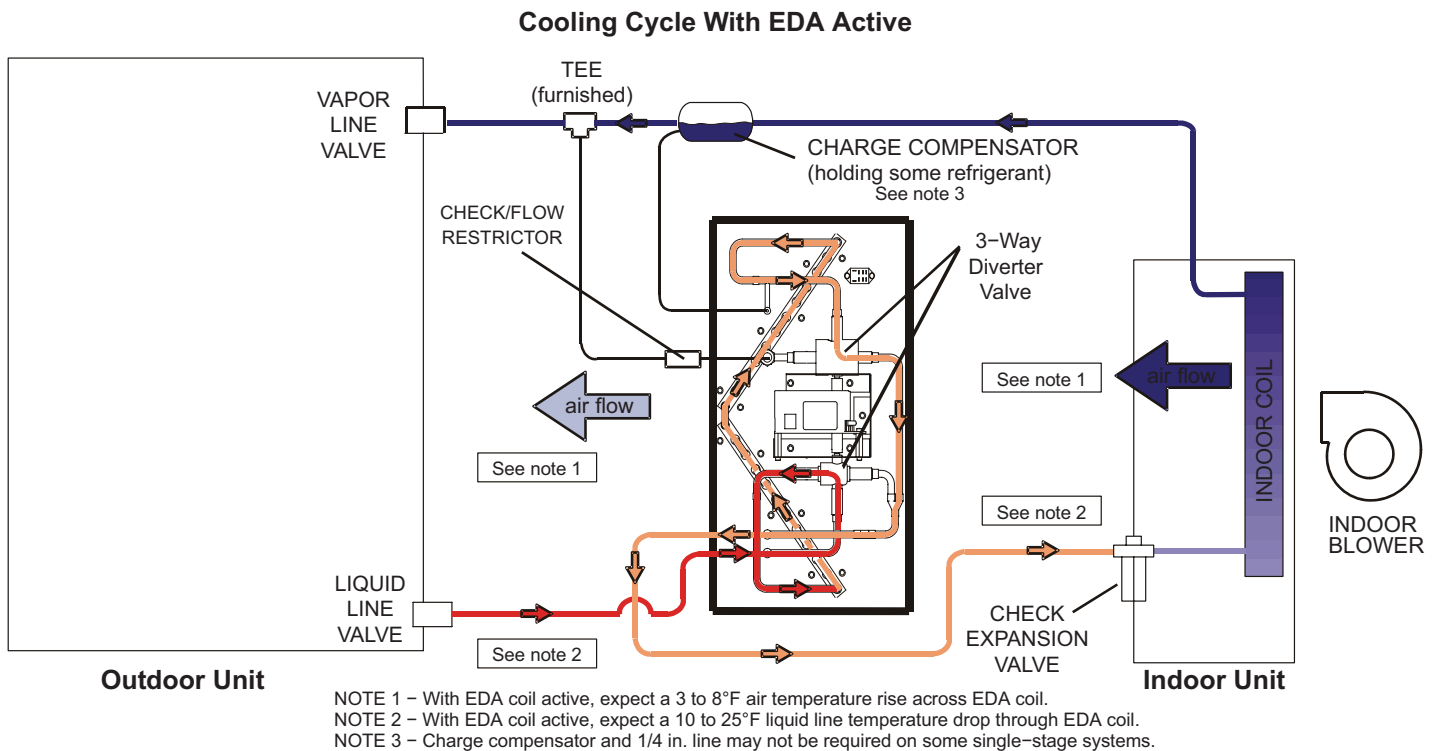
Transformer

- 75VA, 24VAC indoor unit transformer is required when EDA unit is installed with a two-stage heat pump system

SEQUENCE OF OPERATION

Cooling Cycle With EDA Active

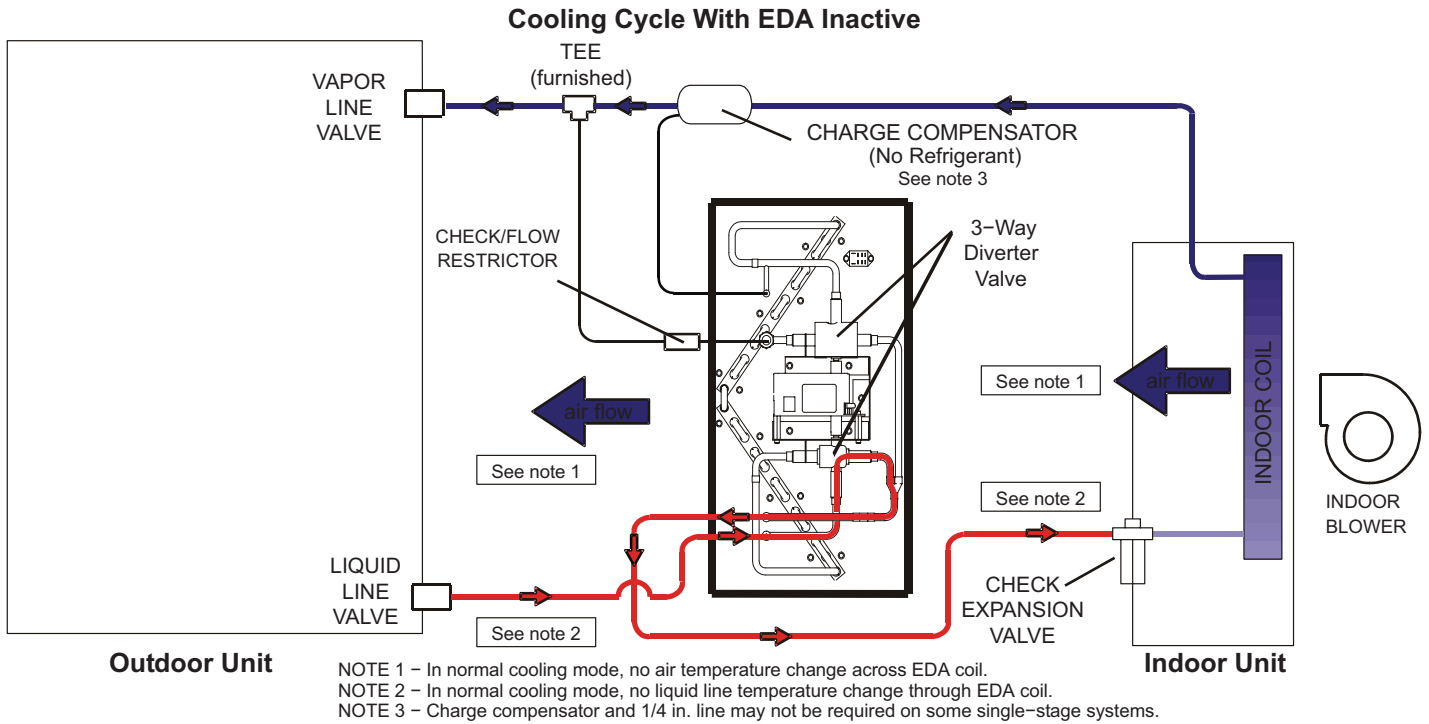
- Dehumidification mode begins when the room thermostat cooling demand has been satisfied but the dehumidification setting has not been satisfied
- The room thermostat sends a signal to the EDA unit's diverter valve actuator to begin operating in the dehumidification mode
- Refrigerant from the outdoor unit enters the EDA unit, passes through the first 3-way diverter valve and then enters the EDA coil
- There, heat from the warm refrigerant is rejected into the indoor air stream
- The refrigerant leaves the coil, passes through the second 3-way diverter valve and into the indoor coil expansion valve in a highly subcooled state
- During dehumidification, the indoor air blower (and multi-speed outdoor fan, if used) operate at a lower air volume
- The warm refrigerant entering the EDA unit from the outdoor unit will be subcooled in the EDA coil and enter the expansion valve at a lower-than-normal temperature
- Liquid temperatures can be in the 65 to 70°F range, with a 10 to 40°F temperature drop through the EDA coil
- The air temperature leaving the indoor coil and entering the EDA coil will be normal for the reduced airflow, but will be warmed as it passes over the EDA coil
- Air temperature rise across the EDA can be from 3 to 8°F, depending on the operating ambient and air-conditioned space conditions
- If the cooling demand has been satisfied, but a dehumidify demand still exists and the room temperature is not more than 2° below the setpoint, the blower will operate at reduced airflow while the compressor operates on 2nd stage cooling (two-stage systems only)
- When outdoor ambient temperatures reach 95°, the system runtime requirements are high and dehumidification requirements are met without activating the dehumidification mode
- By design the system, which is controlled by a CS7500 thermostat or a Lennox® Communicating thermostat, will not allow operation in the dehumidification mode when outdoor temperatures exceed 95°
- The system will operate more efficiently and will avoid unfavorable operating conditions
- When operating in normal cooling (or heat pump heating) mode, all temperatures and pressures will be the same as a standard heating/cooling system



SEQUENCE OF OPERATION (continued)

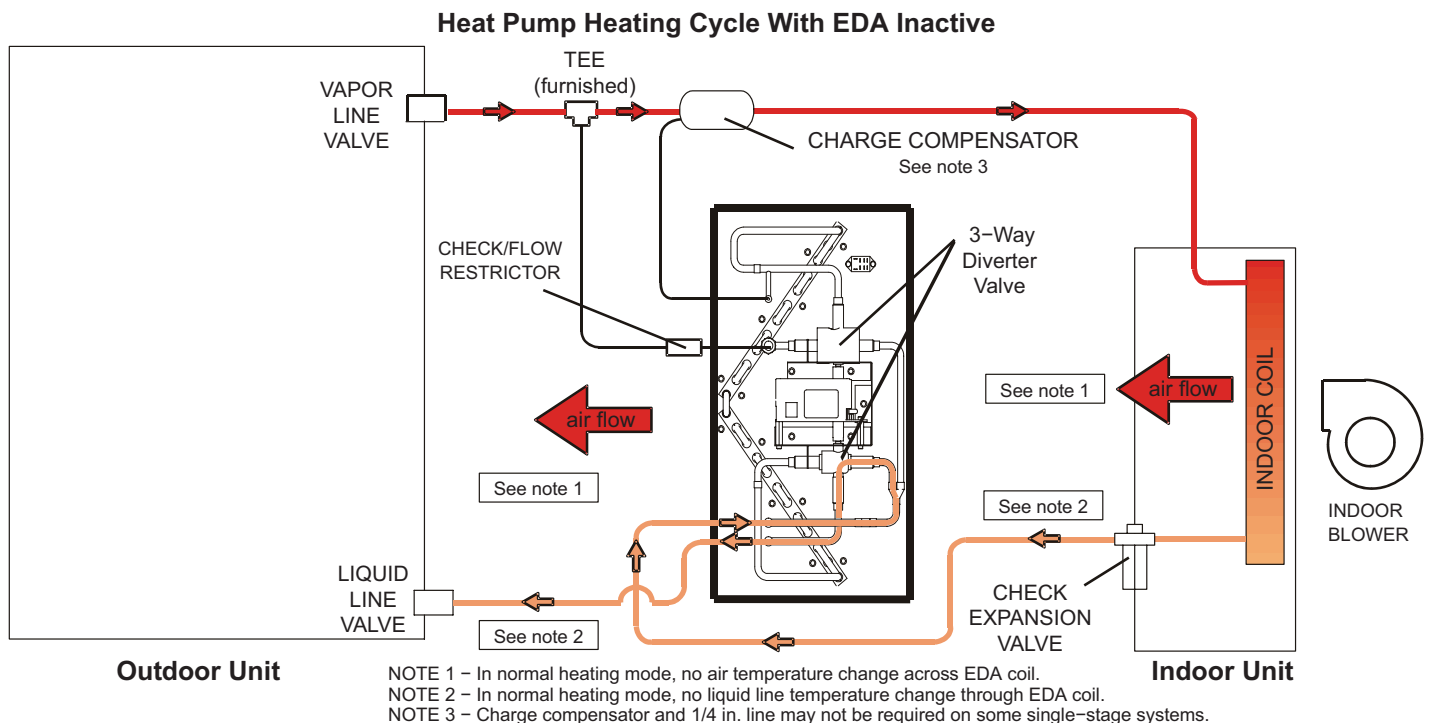
Cooling Cycle With EDA Inactive

- In normal cooling mode (dehumidification mode OFF), the liquid refrigerant from the outdoor unit enters the first 3-way diverter valve
- The diverter valve actuator directs the refrigerant flow to bypass the EDA coil and flow directly to the indoor unit expansion valve



Heat Pump Heating Cycle With EDA Inactive

- In heat pump heating mode, a system that includes an EDA unit will operate as a conventional heat pump; there is no requirement for EDA unit operation in heat pump heating mode



SPECIFICATIONS

General Data		Model No.	EDA-024B	EDA-036C	EDA-060D
Line Connections in. (sweat)	Liquid to Indoor TXV o.d.		3/8	3/8	3/8
	Liquid from Outdoor Unit o.d.		3/8 (9.5)	3/8	3/8
	Check/Flow Restrictor to Vapor Line Tee o.d.		3/8	3/8	3/8
	Charge Compensator o.d.		1/4	1/4	1/4
EDA Coil	Net face area - sq. ft.		2.0	3.0	4.0
	Tube diameter - in.		3/8	3/8	3/8
	Fins per inch		20	20	14
	Number of rows		1	1	1
Shipping Data	lbs. - 1 package		35	39	47

CONTROLS - ORDER SEPARATELY

NOTE - Third-party thermostats are not compatible with the EDA Dehumidification System. One of these Lennox thermostats with integrated EDA control logic is required for proper operation.

Model No.	EDA-024B	EDA-036C	EDA-060D
S40 Smart Wi-Fi Thermostat (4 heat / 2 cool)	22V24	22V24	22V24
E30 Smart Wi-Fi Thermostat (3 heat / 2 cool)	15S63	15S63	15S63
¹ Discharge Air Temperature Sensor (for E30/S40)	88K38	88K38	88K38
M30 Smart Wi-Fi Thermostat (4 heat / 2 cool)	15Z69	15Z69	15Z69
CS7500 Thermostat (4 heat / 2 cool)	13H14	13H14	13H14
CS7500 Commercial Thermostat (4 heat / 3 cool)	24K41	24K41	24K41
² Remote Outdoor Temperature Sensor (all thermostats) (for dual fuel, Humiditrol® and outdoor temperature display)	X2658	X2658	X2658
Dehumidification Relay Kit (for CBA27UHE air handlers)	26W62	26W62	26W62

¹ Optional for service diagnostics.

² Remote Outdoor 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.

REQUIRED COMPONENTS - ORDER SEPARATELY

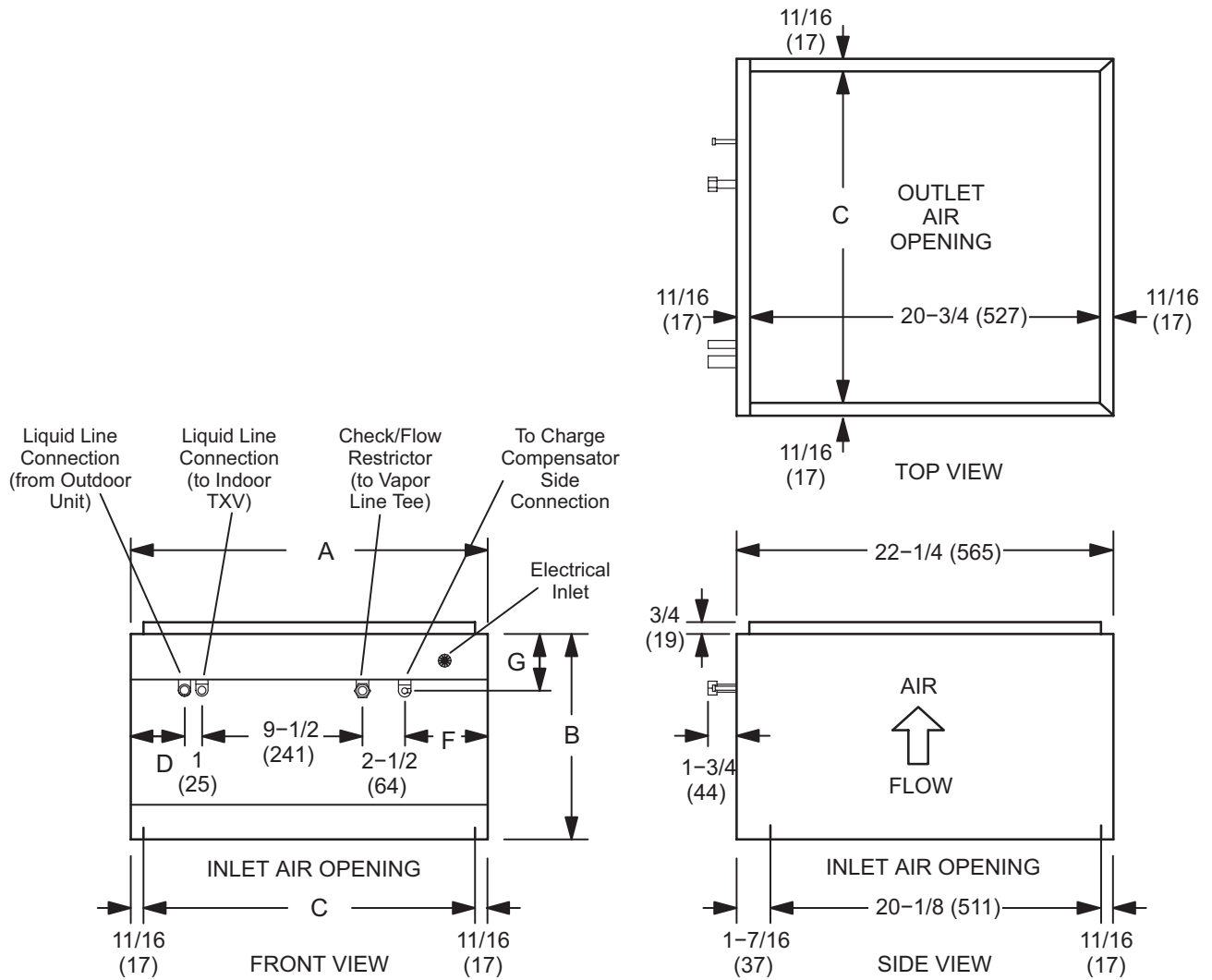
Model No.	EDA-024B	EDA-036C	EDA-060D
ELECTRICAL			
⁴ Transformer	12P61 - 75VA, 120/208/240V primary, 24VAC secondary		
REFRIGERATION			
Insulation and Piping Kits	See System Decision Tree on page 13 for usage		

⁴ Required when EDA unit is installed with two-stage heat pump system.

AIR RESISTANCE

Model No.	Air Volume (cfm)	Total Air Resistance (in. w.g.)
EDA-024B	400	0.05
	600	0.10
	800	0.15
	1000	0.22
EDA-036C	600	0.05
	800	0.08
	1000	0.11
	1200	0.15
	1400	0.20
EDA-060D	1000	0.05
	1200	0.06
	1400	0.08
	1600	0.10
	1800	0.11
	2000	0.13
	2200	0.15

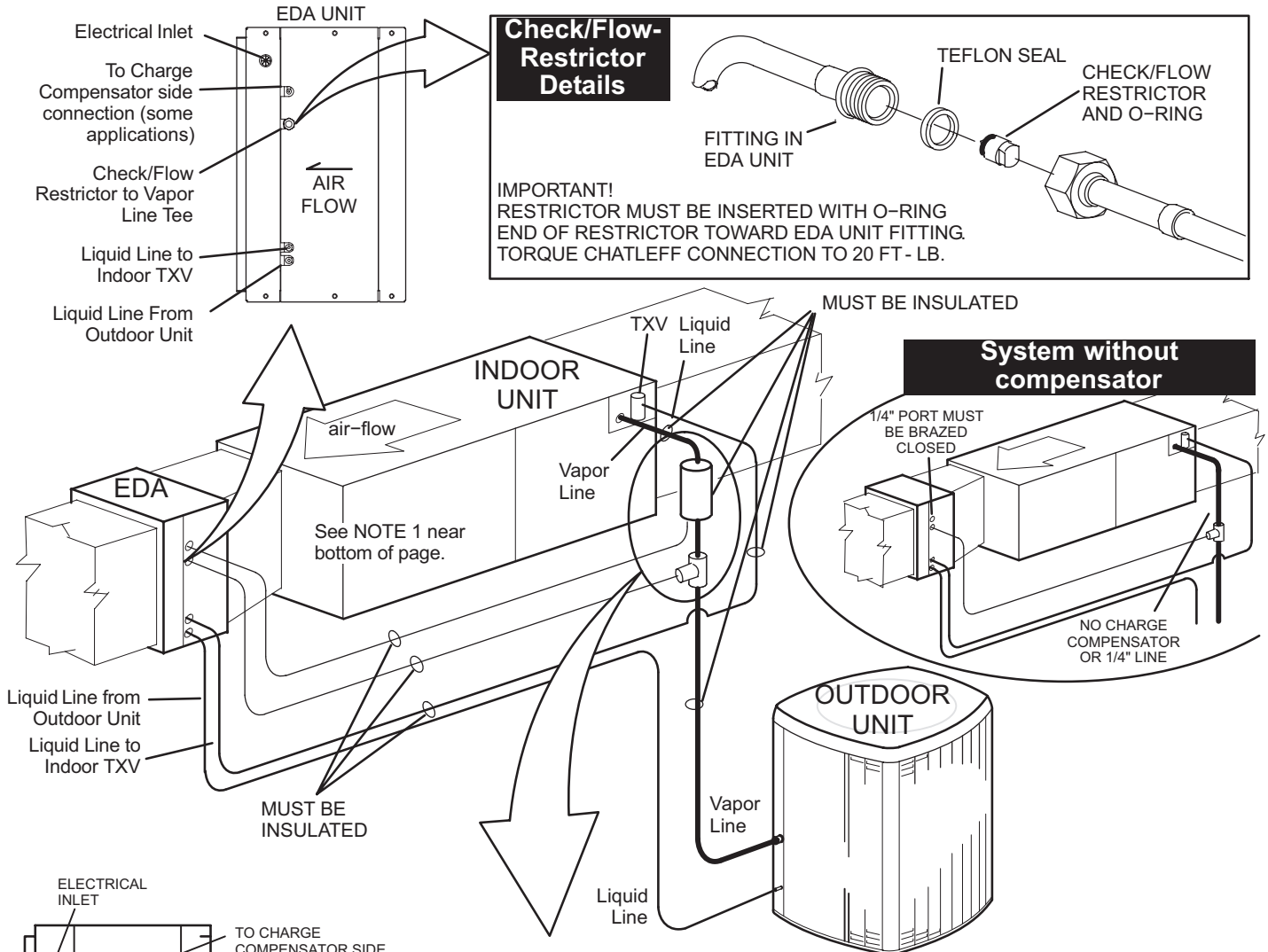
DIMENSIONS



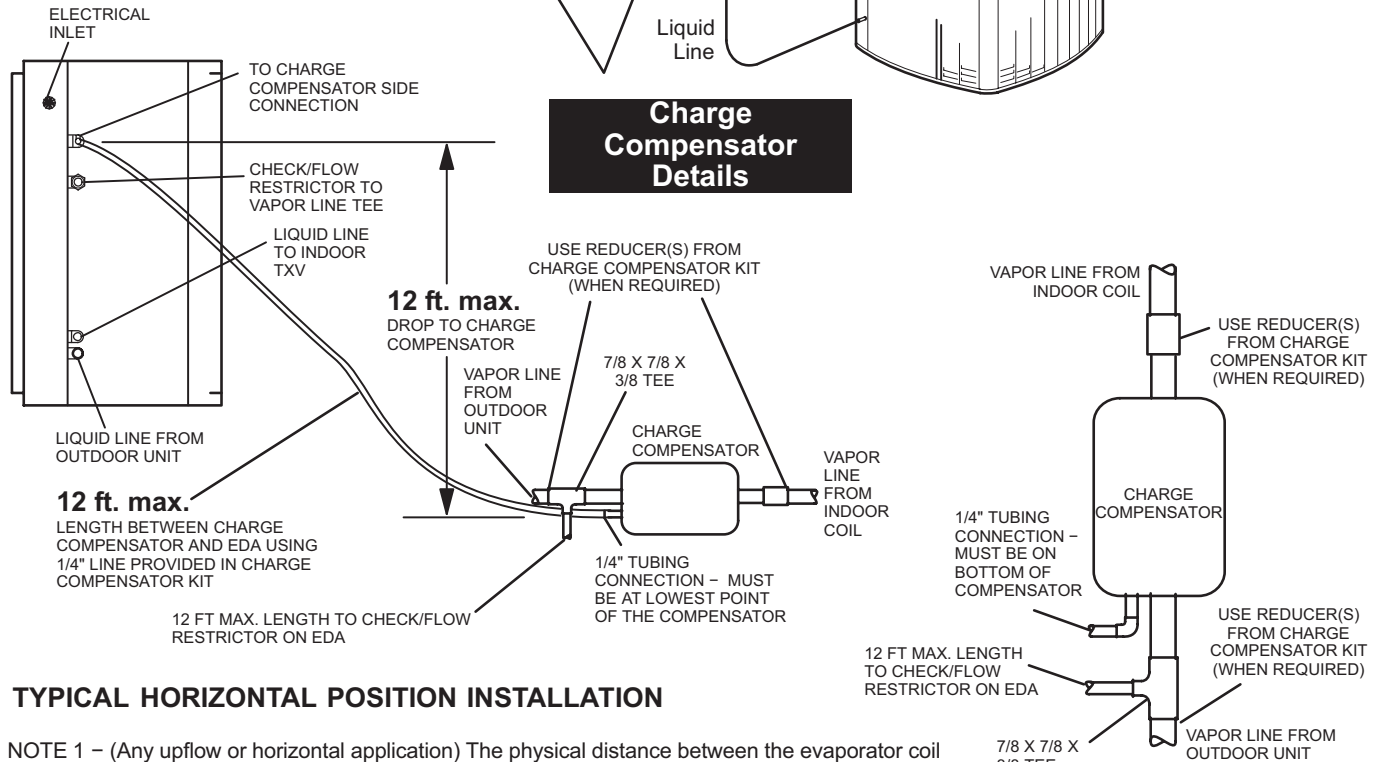
Model No.	A		B		C		D		E		F		G	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
EDA-024B	17-1/2	445	12-1/4	311	16-1/8	422	1-3/8	35	3-1/8	79	3	76	3	76
EDA-036C	21	533	12-1/4	311	19-5/8	498	3-1/8	79	4-7/8	124	3-1/4	83	3-1/4	83
EDA-060D	24-1/2	622	14	356	23-1/8	587	4-7/8	124	6-5/8	168	4-3/4	121	4-3/4	121

TYPICAL INSTALLATION

Typical Installation (Horizontal Air Handler shown)



Charge Compensator Details

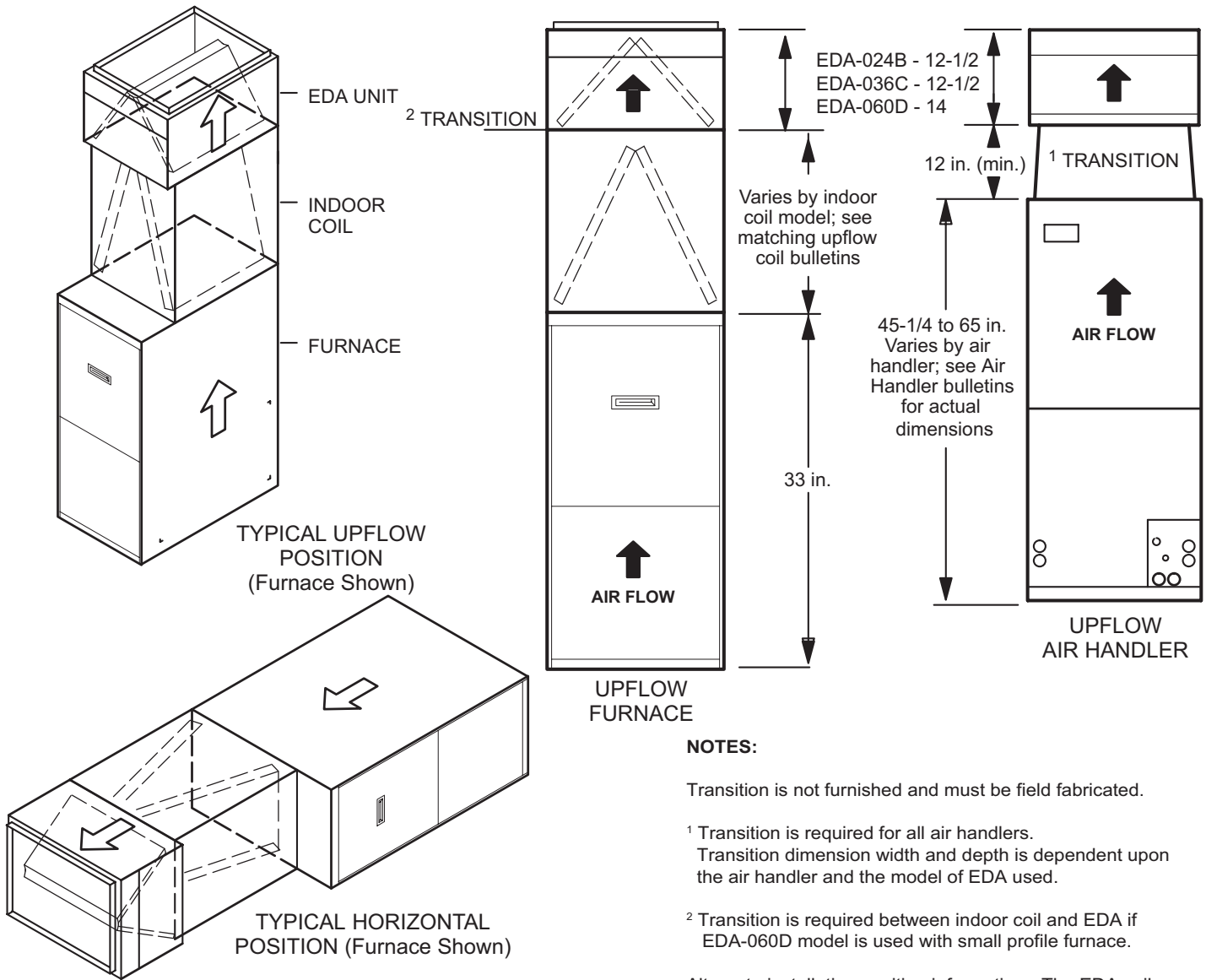


TYPICAL HORIZONTAL POSITION INSTALLATION

NOTE 1 - (Any upflow or horizontal application) The physical distance between the evaporator coil and the EDA unit can be extended so long as all of the evaporator coil air flow also flows through the EDA coil and the 12 foot line length limitations are met.

UPFLOW POSITION

INSTALLATION CONFIGURATIONS



NOTES:

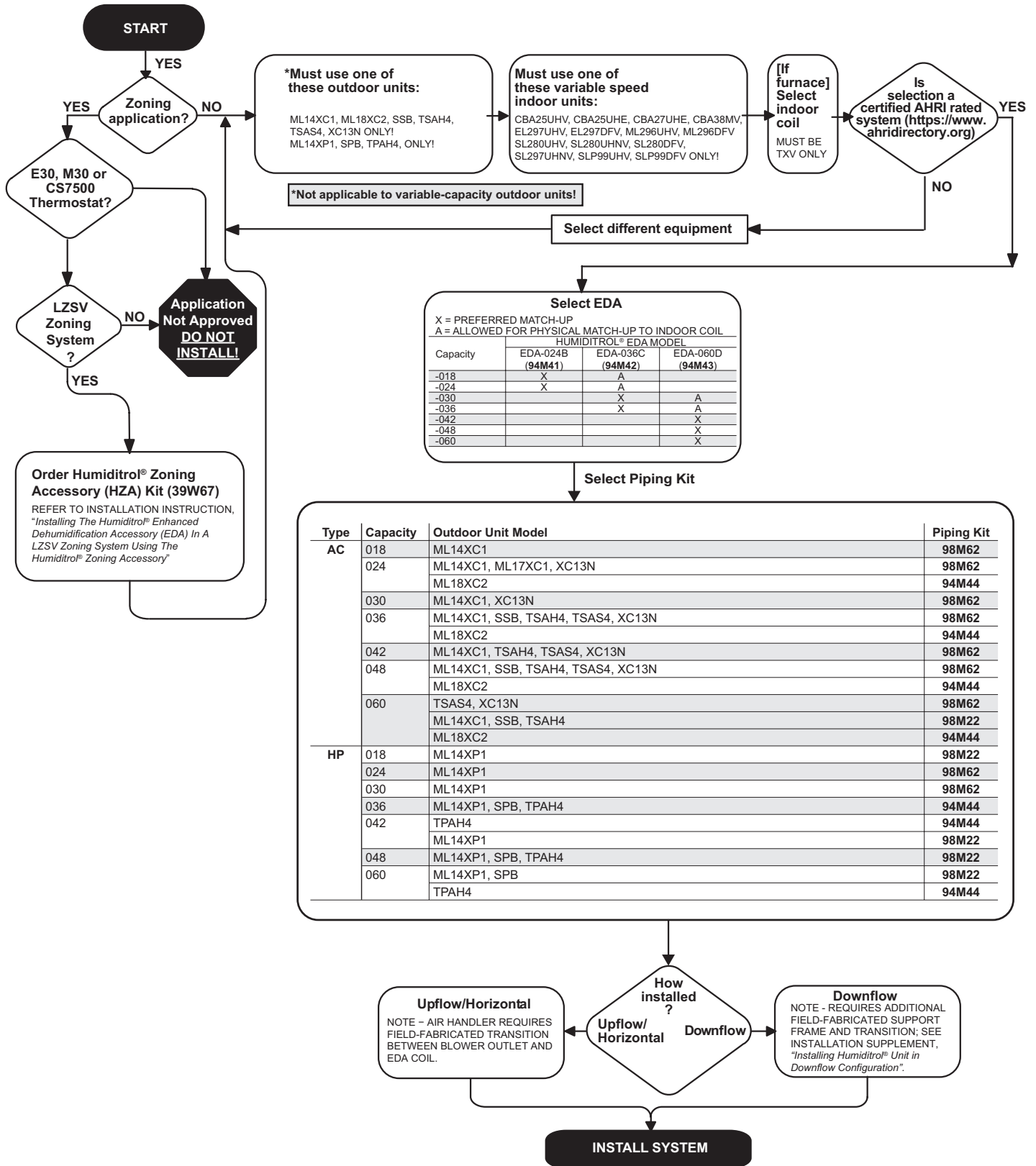
Transition is not furnished and must be field fabricated.

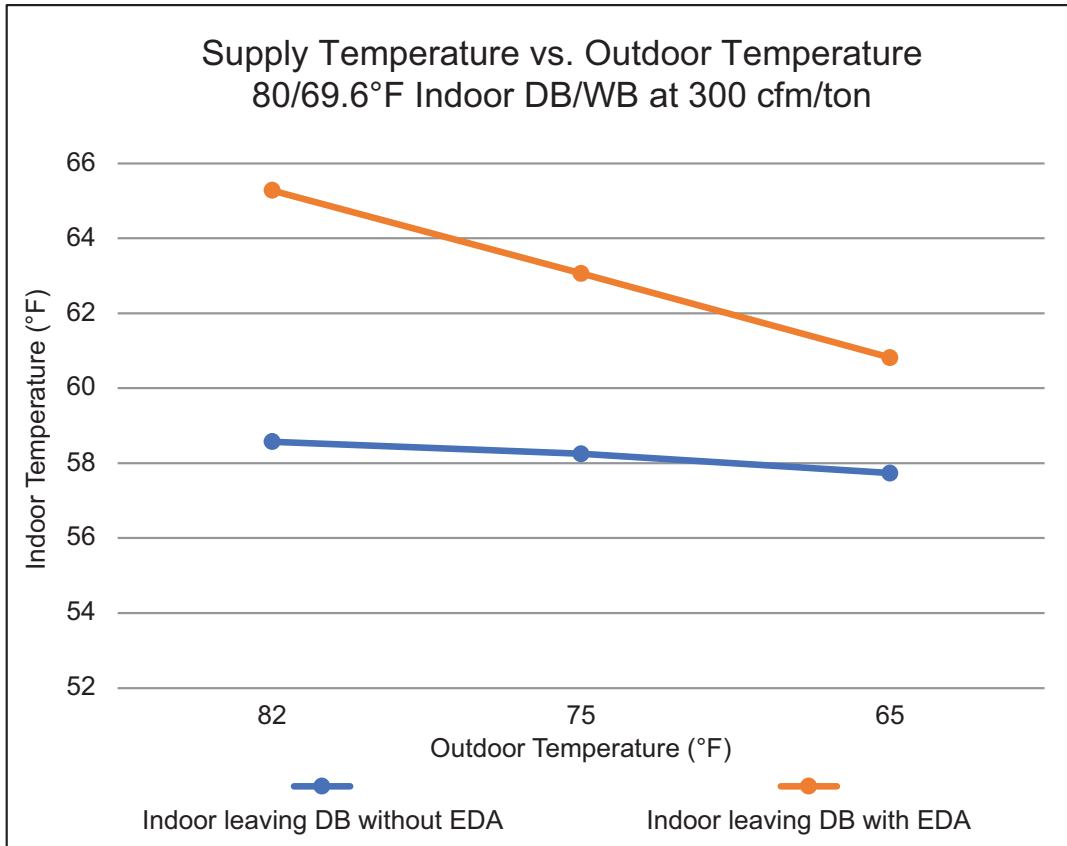
¹ Transition is required for all air handlers. Transition dimension width and depth is dependent upon the air handler and the model of EDA used.

² Transition is required between indoor coil and EDA if EDA-060D model is used with small profile furnace.

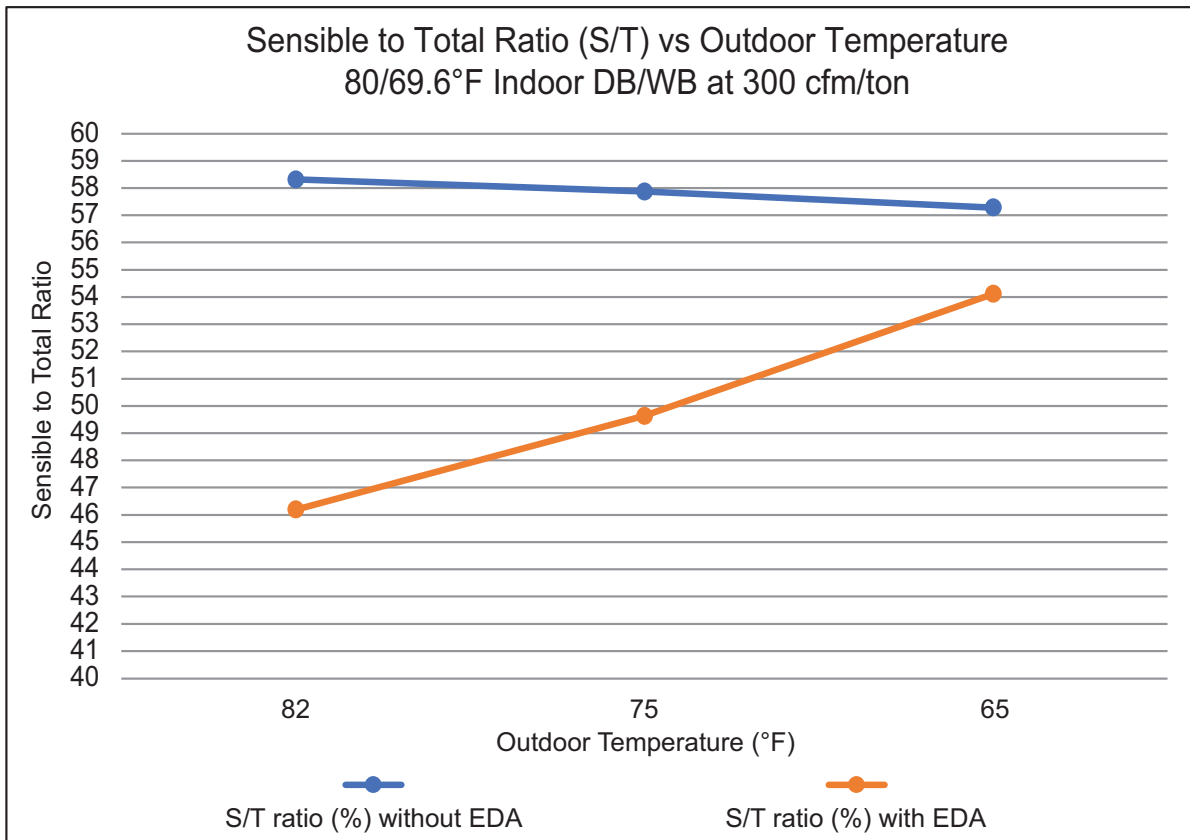
Alternate installation position information - The EDA coil is not position sensitive as long as the correct air flow direction through the coil is maintained. See Dimension Drawing on page 8 for correct air flow.

SYSTEM DECISION TREE



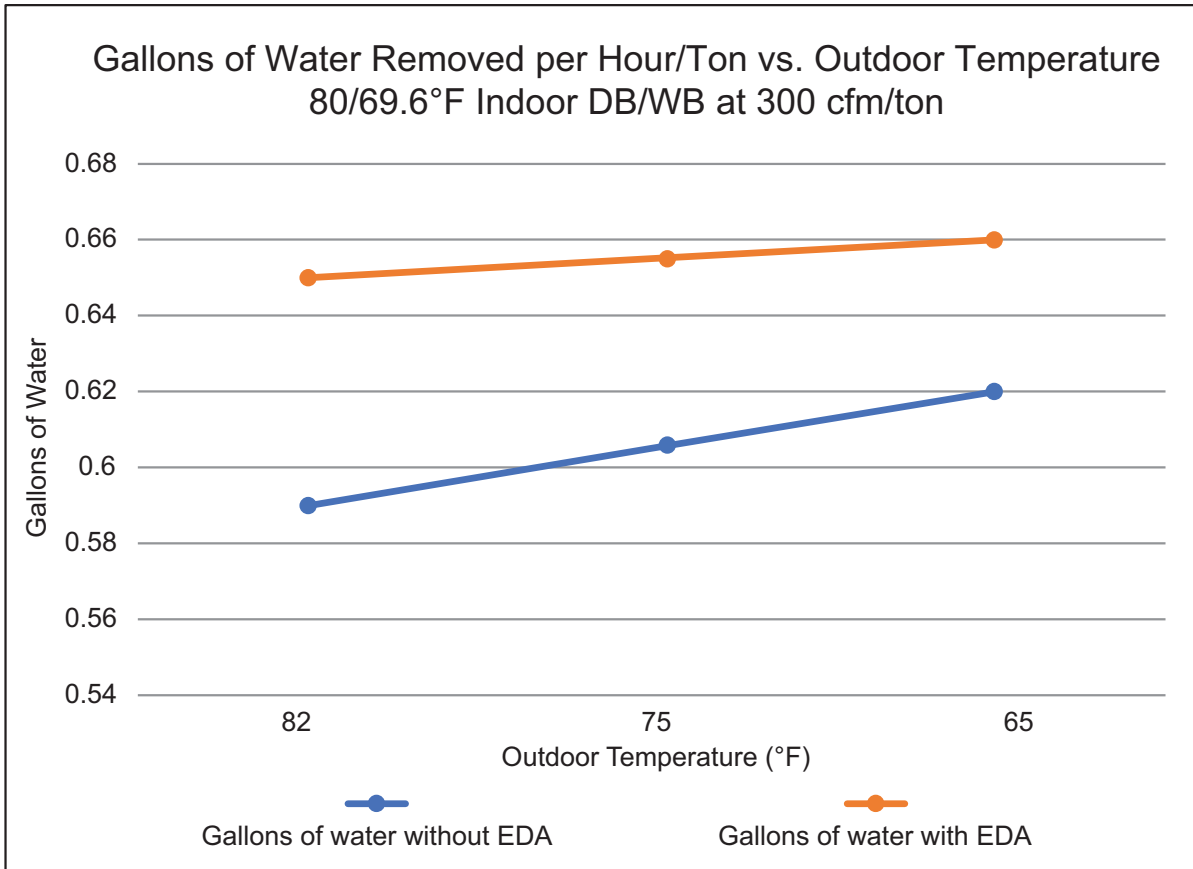


NOTE- Data varies ± 3% for all unit matches.



NOTE- Data varies ± 3% for all unit matches.

PERFORMANCE



NOTE- Data varies ± 3% for all unit matches.

REVISIONS

Sections	Description of Change
Performance	Prerformance data updated.
Sequence of Operation	Air temperature rise changed form 10 to 25°F to 3 to 8°F.



Visit us at www.Lennox.com

For the latest technical information, www.LennoxCommercial.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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