



Stratus Heat Exchangers  
User Manual





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At a minimum, you should follow all applicable sections of the National Fire Code, National Electrical Code, and the codes of the National Electrical Manufacturer's Association (NEMA). There may be local regulatory or government offices that can also help determine which codes and standards are necessary for safe installation and operation.

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## Overview of this Publication

Thank you for purchasing a STRATUS Air to Air Heat Exchanger. This manual shows you how to install and maintain all STRATUS Air to Air Heat Exchangers in the series.

## Who Should Read This Manual

This manual contains important information for those who will install, maintain, and/or operate any of the STRATUS Air to Air Heat Exchangers. It will provide the information you need to get and keep your system up and running.

## Technical Support

By Telephone: 770-844-4200

(Mon.-Fri., 9:00 a.m.-6:00 p.m. E.T.)

On the Web: [support.automationdirect.com](http://support.automationdirect.com)

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## Special Symbols



*When you see the “notepad” icon in the left-hand margin, the paragraph to its immediate right will be a special note.*



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WHEN YOU SEE THE “EXCLAMATION MARK” ICON IN THE LEFT-HAND MARGIN, THE PARAGRAPH TO ITS IMMEDIATE RIGHT WILL BE A WARNING.  
THIS INFORMATION COULD PREVENT INJURY, LOSS OF PROPERTY, OR EVEN DEATH (IN EXTREME CASES).

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## **Introduction**

Thank you for your purchase of the Stratus Heat Exchanger. Our heat exchanger equipment is carefully designed to cool the air in electronic component enclosures. Stratus heat exchangers are designed for many types of electronic equipment enclosures providing capacity from 22 Watts/°C to 71.6 Watts/°C.

This manual will guide you through the installation, maintenance, diagnostics and advance operations of the Compact, Deep and Tall Series Heat Exchangers. This manual contains important information for the end-user who installs, maintains and/or operates the Heat Exchangers.

## **Inspecting the Equipment**

Stratus Air to Air Heat Exchanger equipment is designed, manufactured and packed to prevent damage from normal handling, shock and vibration during shipment. It is necessary to inspect your equipment upon receipt to insure that there is no visual or hidden damage.

All physical damage to packing or signs of damage to the equipment must be noted on the freight bill of lading. Packages must be opened after receipt and inspected for any visual or concealed damage to the equipment and to verify proper count and order fulfillment. Delivery of equipment without the pallet, with other freight on top, damaged, or wet should be refused.

## **Unpacking the Heat Exchanger**

If the unit is to be transported after initial unpacking, place heat exchanger back in original packing to prevent damage.

For shipment by FedEx or freight carrier, repack as received.



*Shipping without proper packing material will void the warranty.*

## **What's In the Box**

Upon receipt of the Stratus Heat Exchanger, please check for the following:

- **Make sure that the box contains all items required for installation of your unit**
- **Inspect the unit to ensure it was not damaged during shipment**
- **Make sure that the part number indicated on the serial number label corresponds with the part number of your order**

Heat Exchanger
Instruction/Operation Manual
Actual Size Mounting Template
Pre-bagged Hanger Bolt Kit includes:
<ul style="list-style-type: none"> <li>• (10) - 1/4 - 20 x 3/4 Machine Screws/ Unslotted/ Indented Hex Washer Head, Steel/Zinc</li> </ul>
<ul style="list-style-type: none"> <li>• (10) - 1/4 Medium Split Lock Washers, Steel/Zinc</li> </ul>
<ul style="list-style-type: none"> <li>• (10) - 1/4 Flat Washer/Machine Screw, Steel/Zinc</li> </ul>

## Moving the Heat Exchanger

Read this section completely before running or installing your Stratus heat exchanger equipment.



*Note: You will need to perform a Preliminary Test before mounting the heat exchanger. Refer to the Preliminary Test section in this manual for instructions on how to run this test. You will also need to prepare the enclosure that is to be cooled for mounting in accordance with this manual and the template supplied.*

Note: Stratus heat exchanger equipment must be mounted vertically with a minimum of 5” air space for condenser air return and supply. If necessary, equipment may be mounted at up to a 5 degree vertical angle.

If heat exchanger is to be shipped or transported at any time, pack in original packaging to prevent damage. Heat Exchangers are not designed to be shipped attached to an equipment enclosure. Heat Exchangers shipped which have internal damage due to shipping while attached to enclosures are warranty voided.

## Unit Label

Each heat exchanger has a unit label, be sure to record the data from the label to the template below and keep this information in a safe place for warranty and ordering parts.




**HEATING AND COOLING EQUIPMENT**

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UL File #

Volts  Amps  Phase  Hz

Refrigerant   Ounces

NEMA Type

S/N

MODEL No.

UL Type 12, 04, 4X Interface to Electronic Enclosure per UL 50 & 508a

To prevent damage to equipment, electrical panel and wiring, and to prevent personal injury, assure that the power source is compatible with the equipment before operating.

## Operation

Stratus Air to Air Heat Exchanger will lower the temperature inside an enclosure to ensure its proper operational temperature. Our heat exchangers, when sized properly, will provide cooling to a temperature slightly higher than the ambient temperature.

Stratus Air to Air Heat Exchangers operate as a “closed loop” system with no exposure or introduction of outside air. This insures that the enclosure is separated from and is not contaminated with ambient air, dirt, chemicals, dust, moisture or foreign matter so that sensitive enclosure components are protected and are kept at your required operational temperature.

## Preliminary Testing

Before mounting the heat exchanger to the enclosure, test for proper operation. Follow the steps below prior to installation.



*Check the unit label to assure the electric power available to the air conditioner is the proper voltage and phase. Check the electric power source for proper ground wire and neutral wire installation per 2008 NEC. Assure that the electric power is protected by a circuit protection device; Refer to the Unit Specifications section in this manual for proper circuit protection sizing.*

- Connect the unit to your power source and toggle power switch to start the fans.
- Turn the unit off if the equipment makes any unexpected or hard mechanical noises or vibrations and refer to the troubleshooting guide in this manual.
- When you are satisfied that the unit is operating properly, turn unit off, disconnect the power and mount the unit on the enclosure in accordance with the Mounting the Heat Exchanger section in this manual.

## Mounting the Heat Exchanger

Using the template supplied, determine where the heat exchanger is to be mounted and assure that all required cuts and holes will not interfere with or damage the enclosure or its contents. Assure that there is a 5” clearance between walls/obstructions and the heat exchanger condenser supply air and return air flow so they are not restricted. Restricted condenser air flow will affect the heat exchanger’s performance. Mount the heat exchanger high on the enclosure in order to cool the hot air in the top of the enclosure. Position the unit where the cold air can circulate across the width of the enclosure to cool it all the way across.

Once proper mounting placement is determined, turn the enclosure equipment off, if possible. Drill and cut the holes as indicated on the mounting template. Be cautious not to let any cutting debris fall into the enclosure. Attach the hanging bolts as indicated on the template to hold the unit onto the enclosure and then use the mounting screws that are provided.

Hang the heat exchanger on the hanging bolts and from inside the enclosure use the fasteners supplied to attach the heat exchanger to the enclosure. Insure that these fasteners are tight in order to prevent the unit from falling off the enclosure. These fasteners should be checked periodically to insure that they have not become loose due to vibration.

Ensure that the power supplied is compatible with the heat exchanger’s power requirements. Properly attach the unit’s power cord to a circuit that meets the equipment requirements and provide a circuit protection device based on the Unit Specifications section of this manual.

After mounting the heat exchanger, replace/close the enclosure door and start heat exchanger; test for air leaks to assure a proper closed air loop seal and test run the unit to assure proper operation after mounting. If any cold air leaks are found, check for proper mounting and apply silicone-free Lexel seal if leaks persist.



*If mounting the heat exchanger to the enclosure door, confirm with the enclosure manufacturer that the door’s hinges will support the heat exchanger’s added weight (see equipment specifications). Insure that when the door is fully open that the enclosure will not tip over due to the off-center load.*

## Unit Specifications

The following table provides electrical specifications for the Stratus Air to Air Compact, Deep, & Tall Series Heat Exchangers

### Stratus Air to Air Heat Exchangers – Compact Series

- Voltage range  $\pm 10\%$
- Maximum Ambient Temperature: 160°F/71.1°C
- Unit Weight: 16 lbs
- Mounting Dimensions (H x W x D): 16.5 x 11 x 3.5 in (419.10 x 279.40 x 88.900 mm)

<b>Compact Series Air to Air Heat Exchangers</b>		
<b>Part Number</b>	<b>TE20-015-17-xx</b>	<b>TE20-015-24D-xx</b>
<b>Voltage/Hz</b>	120 VAC 50/60	24 VDC
<b>Inrush Current (Start Up Current) (A)</b>	1.92	3.90
<b>Loading Current (Running Current) (A)</b>	0.37	0.80
<b>SCCR (Short Circuit Current Rating) (A) <sup>1</sup></b>	See Footnote <sup>1</sup>	
<b>Recommended Circuit Protection Device Rating (A)<sup>2</sup></b>	1.5	2.5
<b>VA Rating (W)</b>	42	20
<b>Refrigerant Type (oz)</b>	Methanol (0.41)	
<b>Watts/°C (F°)</b>	22 (12)	
<b>Free Air Flow (CFM)</b>	131	127

\*<sup>1</sup> SCCR rating is based on the SCCR rating for the circuit protection device installed in the panel/enclosure, per UL50 & UL508a, to protect the AC unit. Typically 10 KA for Fast Acting Fuses.

\*<sup>2</sup> Fast Acting Fuses are recommended. Do not use Extremely Fast Acting Fuses.

**Stratus Air to Air Heat Exchangers – Deep Series**

- Voltage range  $\pm 10\%$
- Maximum Ambient Temperature: 160°F/71.1°C
- Unit Weight: 19 lbs
- Mounting Dimensions (H x W x D): 16.5” x 11” x 5.5” (419.10 x 279.40 x 139.7 mm)

<b>Deep Series Air to Air Heat Exchangers</b>		
<b>Part Number</b>	<b>TE30-030-17-xx</b>	<b>TE30-030-24D-xx</b>
<b>Voltage/Hz</b>	120 VAC 50/60	24 VDC
<b>Inrush Current (Start Up Current) (A)</b>	1.92	3.90
<b>Loading Current (Running Current) (A)</b>	0.37	0.80
<b>SCCR (Short Circuit Current Rating) (A) <sup>1</sup></b>	See Footnote <sup>1</sup>	
<b>Recommended Circuit Protection Device Rating (A)<sup>2</sup></b>	1.5	2.5
<b>VA Rating (W)</b>	42	20
<b>Refrigerant Type (oz)</b>	Methanol (0.81)	
<b>Watts°C (F°)</b>	44 (24)	
<b>Free Air Flow (CFM)</b>	131	127

\* <sup>1</sup> SCCR rating is based on the SCCR rating for the circuit protection device installed in the panel/enclosure, per UL50 & UL508a, to protect the AC unit. Typically 10 KA for Fast Acting Fuses.

\*<sup>2</sup> Fast Acting Fuses recommended. Do not use Extremely Fast Acting Fuses.

## Stratus Air to Air Heat Exchangers – Tall Series

- Voltage range  $\pm 10\%$
- Maximum Ambient Temperature: 160°F/71.1°C
- Unit Weight: 32 lbs
- Mounting Dimensions (H x W x D): 29.0" x 13.88" x 5.5" (736.60 x 353.06 x 139.7 mm)

<b>Tall Series Air to Air Heat Exchangers</b>		
<b>Part Number</b>	<b>TE40-050-17-xx</b>	<b>TE40-050-24D-xx</b>
<b>Voltage/Hz</b>	120 VAC 50/60	24 VDC
<b>Inrush Current (Start Up Current) (A)</b>	2.59	9.70
<b>Loading Current (Running Current) (A)</b>	0.47	1.94
<b>SCCR (Short Circuit Current Rating) (A) <sup>1</sup></b>	See Footnote <sup>1</sup>	
<b>Recommended Circuit Protec- tion Device Rating (A)<sup>2</sup></b>	2	6
<b>VA Rating (W)</b>	56	47
<b>Refrigerant Type (oz)</b>	Methanol (1.22)	
<b>Watts/°C (F°)</b>	71.6 (40)	
<b>Free Air Flow (CFM)</b>	211	235

\*<sup>1</sup> SCCR rating is based on the SCCR rating for the circuit protection device installed in the panel/enclosure, per UL50 & UL508a, to protect the AC unit. Typically 10 KA for Fast Acting Fuses.

\*<sup>2</sup> Fast Acting Fuses are recommended. Do not use Extremely Fast Acting Fuses.

## **Preventative Maintenance**

Air to Air Heat Exchangers may require regular cleaning of the condenser air inlet section depending on the environmental conditions. Restriction to the flow of air over the condenser section will degrade the performance of the equipment, reduce cooling and can damage the fans.

### **Condenser Air Inlet Cleaning**

In the event of excess dust or particulates, clean the condenser air inlet section with a soft water spray or compressed air not to exceed 90 psi.

### **Condenser and Evaporator Fans**

Stratus Air to Air Heat Exchangers use high efficiency, long life, sealed ball bearing fans engineered for optimum performance that require no maintenance. Fans are removable and employ plug-in electrical connections.

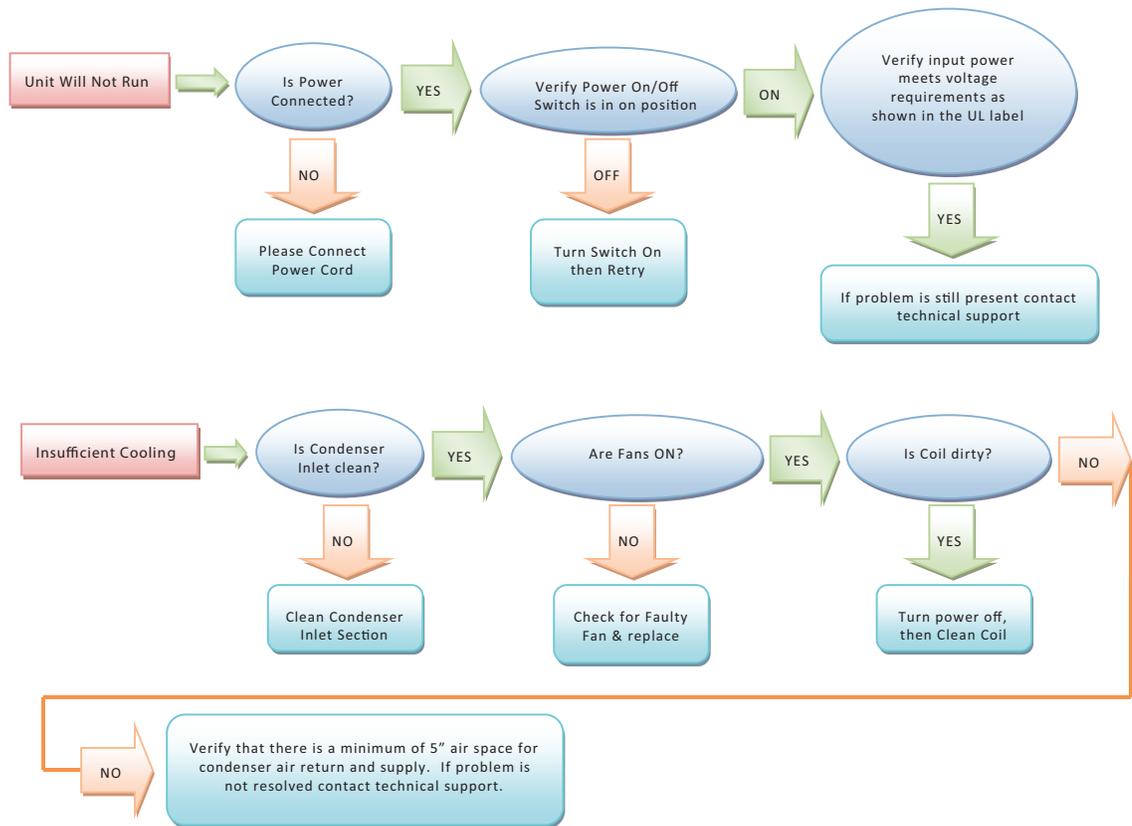
## **Safety Information**

Unit is carefully designed to restrict access to movable parts to minimize any potential injury. This heat exchanger has been tested by UL to meet the safety requirements of the UL1995 specification. When working with the Stratus Air to Air Heat Exchanger always make sure shroud is installed. Verify proper voltage is applied to unit as specified in the UL label of the heat exchanger. In the event of a field service repair, power down unit using the power on/off switch and disconnect power from unit. It is always recommended to use a licensed Air Conditioner Technician for internal diagnostics and repairs issues.

Contact [Automationdirect.com](http://Automationdirect.com) technical support for further details on opening the unit and troubleshooting tips.

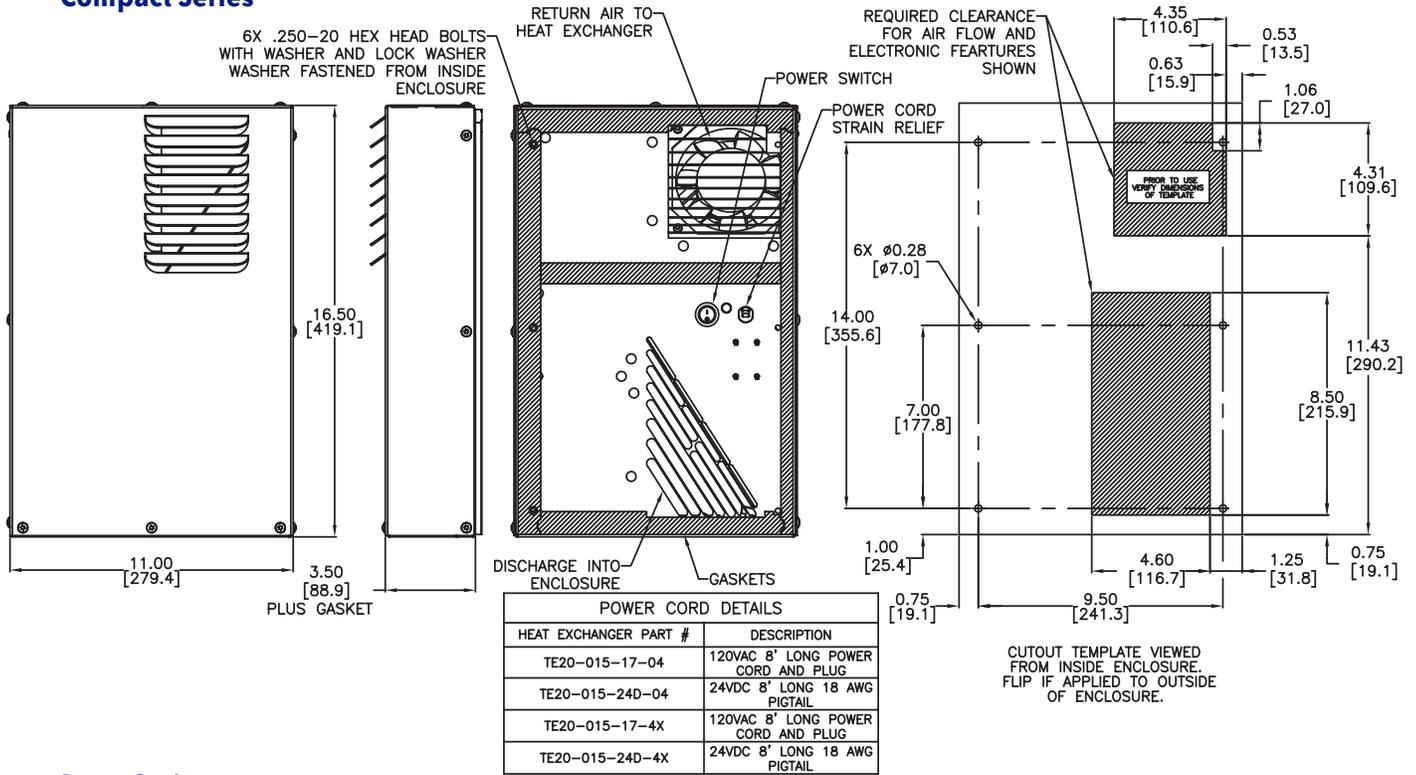
## Troubleshooting Guide

The following guide provides a flow chart to identify a problem, determine the root cause and identify the action needed to correct an issue.

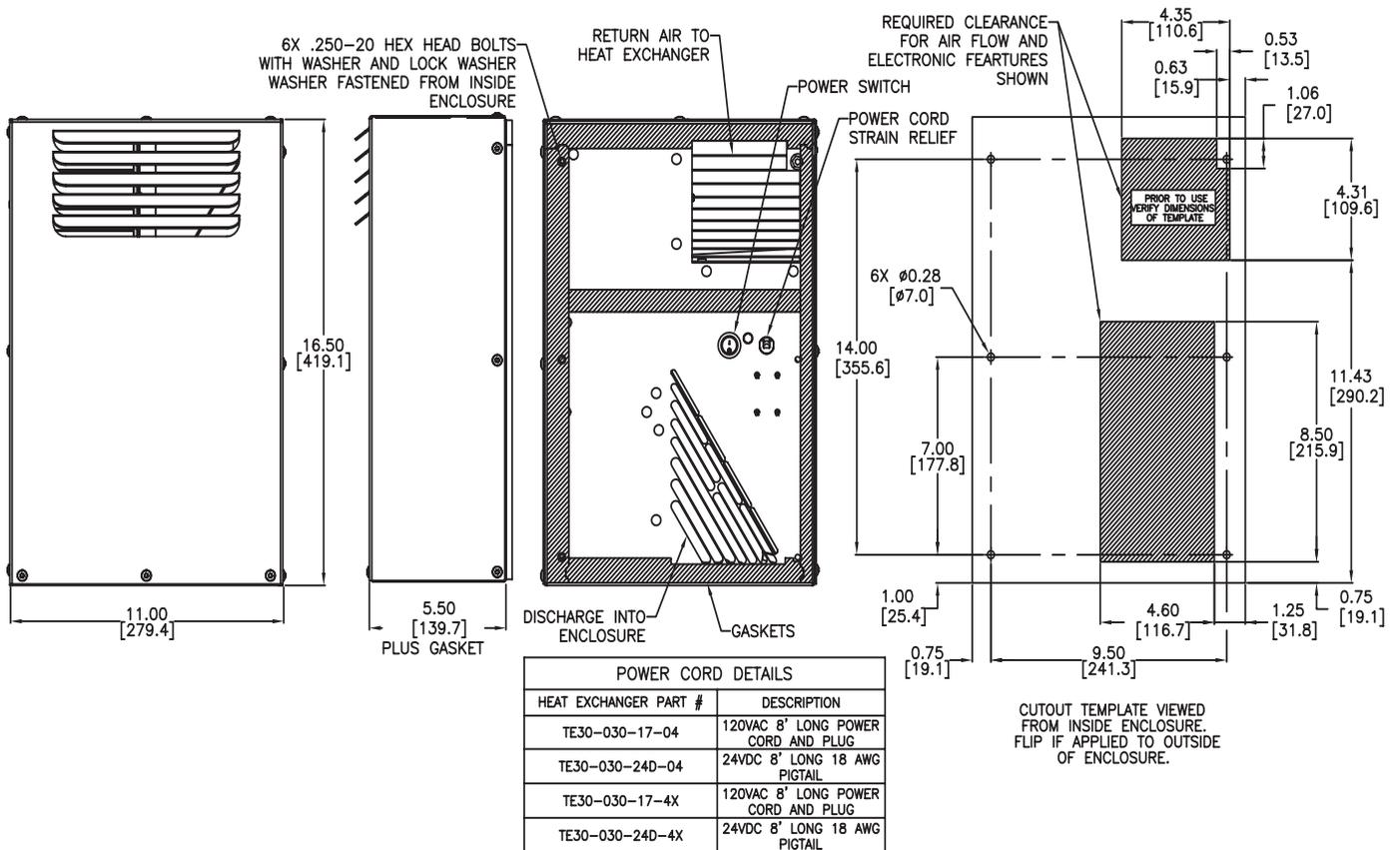


# Physical Dimensions

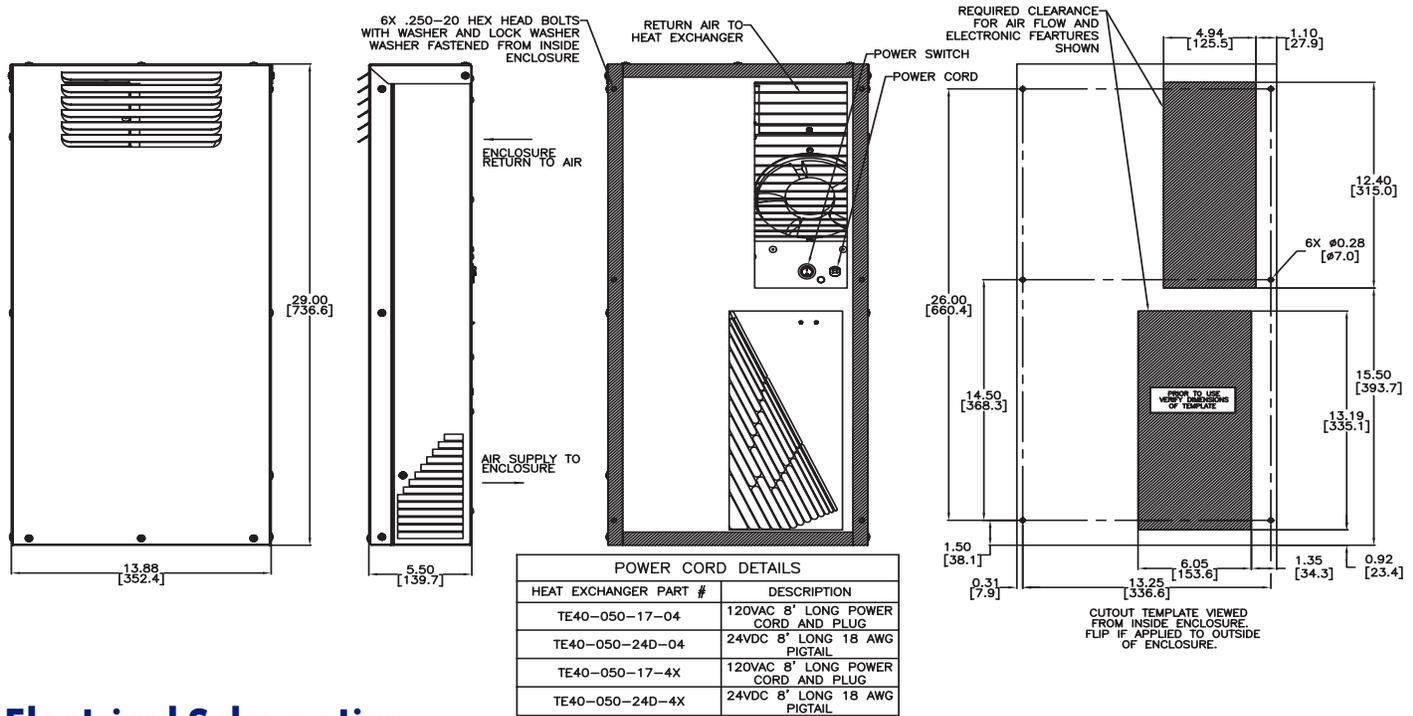
## Compact Series



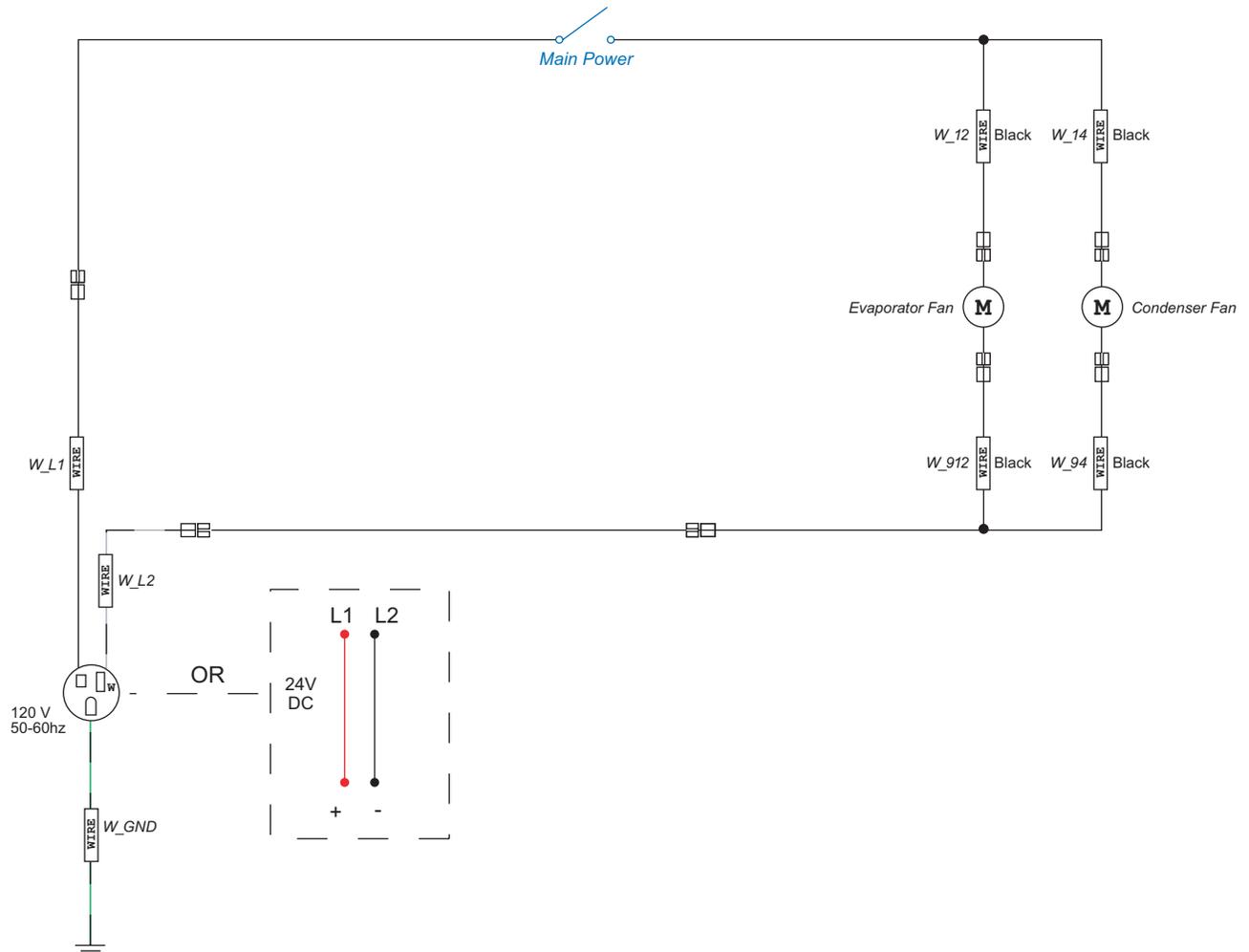
## Deep Series



## Tall Series



## Electrical Schematics



## **Notes and Model Information**

