



Stratus Heat Exchangers
User Manual



Table Of Contents

Contents

<u>Overview of this Publication</u>	<u>5</u>
<u>Who Should Read This Manual</u>	<u>5</u>
<u>Technical Support</u>	<u>5</u>
<u>Special Symbols</u>	<u>5</u>
<u>Introduction</u>	<u>6</u>
<u>Inspecting the Equipment</u>	<u>6</u>
<u>Unpacking the Heat Exchanger</u>	<u>6</u>
<u>What's In the Box</u>	<u>6</u>
<u>Moving the Heat Exchanger</u>	<u>7</u>
<u>Unit Label</u>	<u>7</u>
<u>Operation</u>	<u>7</u>
<u>Preliminary Testing</u>	<u>8</u>
<u>Mounting the Heat Exchanger</u>	<u>8</u>
<u>Unit Specifications</u>	<u>9</u>
<u>Preventative Maintenance</u>	<u>12</u>
<u>Safety Information</u>	<u>12</u>
<u>Troubleshooting Guide</u>	<u>13</u>
<u>Physical Dimensions</u>	<u>14</u>
<u>Electrical Schematics</u>	<u>15</u>
<u>Notes and Model Information</u>	<u>16</u>

~ WARNING ~

Thank you for purchasing automation equipment from Automationdirect.com™, doing business as AutomationDirect. We want your new automation equipment to operate safely. Anyone who installs or uses this equipment should read this publication (and any other relevant publications) before installing or operating the equipment.

To minimize the risk of potential safety problems, you should follow all applicable local and national codes that regulate the installation and operation of your equipment. These codes vary from area to area and usually change with time. It is your responsibility to determine which codes should be followed, and to verify that the equipment, installation, and operation is in compliance with the latest revision of these codes.

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.

Equipment damage or serious injury to personnel can result from the failure to follow all applicable codes and standards. We do not guarantee the products described in this publication are suitable for your particular application, nor do we assume any responsibility for your product design, installation, or operation.

Our products are not fault-tolerant and are not designed, manufactured or intended for use or resale as on-line control equipment in hazardous environments requiring fail-safe performance, such as in the operation of nuclear facilities, aircraft navigation or communication systems, air traffic control, direct life support machines, or weapons systems, in which the failure of the product could lead directly to death, personal injury, or severe physical or environmental damage ("High Risk Activities"). AutomationDirect specifically disclaims any expressed or implied warranty of fitness for High Risk Activities.

For additional warranty and safety information, see the Terms and Conditions section of our catalog. If you have any questions concerning the installation or operation of this equipment, or if you need additional information, please call us at 770-844-4200.

This publication is based on information that was available at the time it was printed. At AutomationDirect we constantly strive to improve our products and services, so we reserve the right to make changes to the products and/or publications at any time without notice and without any obligation. This publication may also discuss features that may not be available in certain revisions of the product.

TRADEMARKS

This publication may contain references to products produced and/or offered by other companies. The product and company names may be trademarked and are the sole property of their respective owners. AutomationDirect disclaims any proprietary interest in the marks and names of others.

Copyright 2013, Automationdirect.com™ Incorporated

All Rights Reserved

No part of this manual shall be copied, reproduced, or transmitted in any way without the prior, written consent of Automationdirect.com™ Incorporated. AutomationDirect retains the exclusive rights to all information included in this document.

~ AVERTISSEMENT ~

Nous vous remercions d'avoir acheté l'équipement d'automatisation de Automationdirect.com™, en faisant des affaires comme AutomationDirect. Nous tenons à ce que votre nouvel équipement d'automatisation fonctionne en toute sécurité. Toute personne qui installe ou utilise cet équipement doit lire la présente publication (et toutes les autres publications pertinentes) avant de l'installer ou de l'utiliser.

Afin de réduire au minimum le risque d'éventuels problèmes de sécurité, vous devez respecter tous les codes locaux et nationaux applicables régissant l'installation et le fonctionnement de votre équipement. Ces codes diffèrent d'une région à l'autre et, habituellement, évoluent au fil du temps. Il vous incombe de déterminer les codes à respecter et de vous assurer que l'équipement, l'installation et le fonctionnement sont conformes aux exigences de la version la plus récente de ces codes.

Vous devez, à tout le moins, respecter toutes les sections applicables du Code national de prévention des incendies, du Code national de l'électricité et des codes de la National Electrical Manufacturer's Association (NEMA). Des organismes de réglementation ou des services gouvernementaux locaux peuvent également vous aider à déterminer les codes ainsi que les normes à respecter pour assurer une installation et un fonctionnement sûrs.

L'omission de respecter la totalité des codes et des normes applicables peut entraîner des dommages à l'équipement ou causer de graves blessures au personnel. Nous ne garantissons pas que les produits décrits dans cette publication conviennent à votre application particulière et nous n'assumons aucune responsabilité à l'égard de la conception, de l'installation ou du fonctionnement de votre produit.

Nos produits ne sont pas insensibles aux défaillances et ne sont ni conçus ni fabriqués pour l'utilisation ou la revente en tant qu'équipement de commande en ligne dans des environnements dangereux nécessitant une sécurité absolue, par exemple, l'exploitation d'installations nucléaires, les systèmes de navigation aérienne ou de communication, le contrôle de la circulation aérienne, les équipements de survie ou les systèmes d'armes, pour lesquels la défaillance du produit peut provoquer la mort, des blessures corporelles ou de graves dommages matériels ou environnementaux («activités à risque élevé»). La société AutomationDirect nie toute garantie expresse ou implicite d'aptitude à l'emploi en ce qui a trait aux activités à risque élevé.

Pour des renseignements additionnels touchant la garantie et la sécurité, veuillez consulter la section Modalités et conditions de notre documentation. Si vous avez des questions au sujet de l'installation ou du fonctionnement de cet équipement, ou encore si vous avez besoin de renseignements supplémentaires, n'hésitez pas à nous téléphoner au 770-844-4200.

Cette publication s'appuie sur l'information qui était disponible au moment de l'impression. À la société AutomationDirect, nous nous efforçons constamment d'améliorer nos produits et services. C'est pourquoi nous nous réservons le droit d'apporter des modifications aux produits ou aux publications en tout temps, sans préavis ni quelque obligation que ce soit. La présente publication peut aussi porter sur des caractéristiques susceptibles de ne pas être offertes dans certaines versions révisées du produit.

MARQUES DE COMMERCE

La présente publication peut contenir des références à des produits fabriqués ou offerts par d'autres entreprises. Les désignations des produits et des entreprises peuvent être des marques de commerce et appartiennent exclusivement à leurs propriétaires respectifs. AutomationDirect nie tout intérêt dans les autres marques et désignations.

Copyright 2013, Automationdirect.com™ Incorporated

Tous droits réservés

Nulle partie de ce manuel ne doit être copiée, reproduite ou transmise de quelque façon que ce soit sans le consentement préalable écrit de la société Automationdirect.com™ Incorporated. AutomationDirect conserve les droits exclusifs à l'égard de tous les renseignements contenus dans le présent document.

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

We strive to make our manuals the best in the industry. We rely on your feedback to let us know if we are reaching our goal.

Our technical support group is glad to work with you in answering your questions. If you cannot find the solution to your particular situation, or, if for any reason you need additional technical assistance, please call technical support at 770-844-4200. We are available weekdays from 9:00 a.m. to 6:00 p.m. Eastern Time.

We also encourage you to visit our web site where you can find technical and non-technical information about our products and our company. Visit us at www.automationdirect.com.

Special Symbols



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



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).

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"> • (10) - 1/4 - 20 x 3/4 Machine Screws/ Unslotted/ Indented Hex Washer Head, Steel/Zinc
<ul style="list-style-type: none"> • (10) - 1/4 Medium Split Lock Washers, Steel/Zinc
<ul style="list-style-type: none"> • (10) - 1/4 Flat Washer/Machine Screw, Steel/Zinc

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**

Automation Direct • 800.633.0405
www.automationdirect.com

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)

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

* ¹ 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.

*² 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)

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

* ¹ 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.

*² 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)

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

*¹ 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.

*² 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.

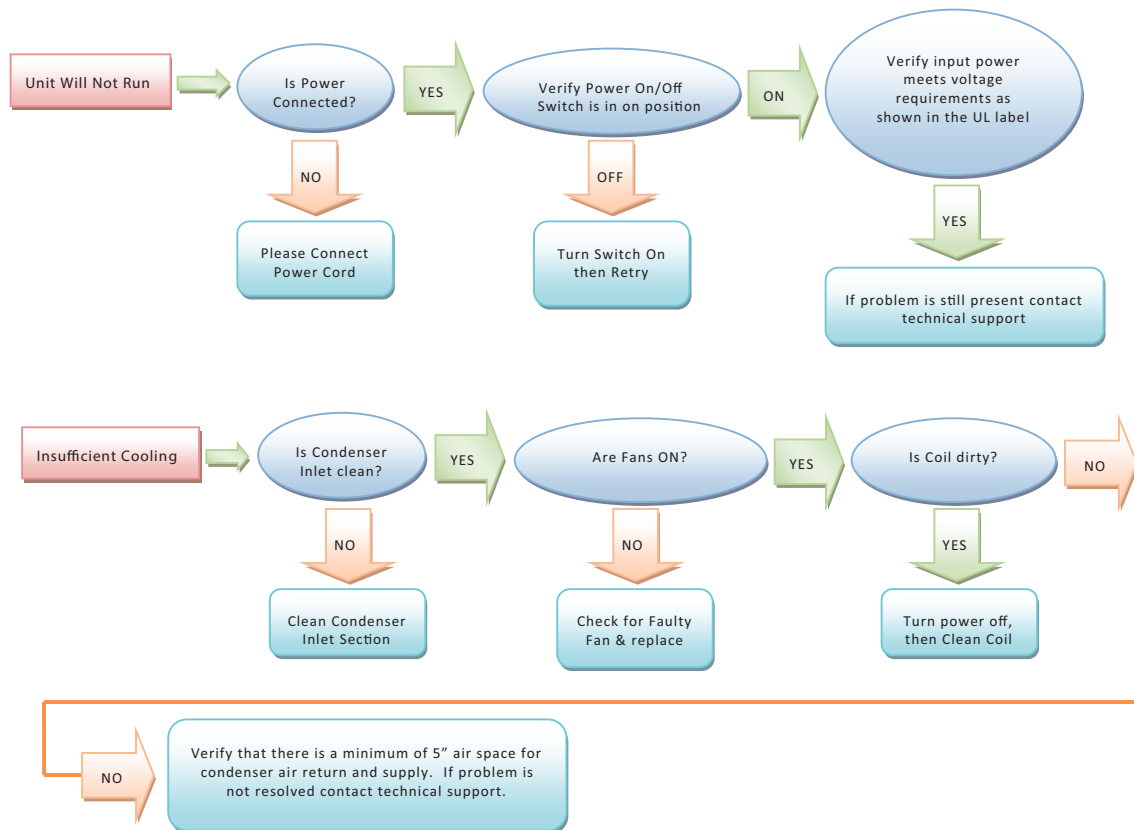
Safety Information

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 technical support for further details on opening the unit and troubleshooting tips.

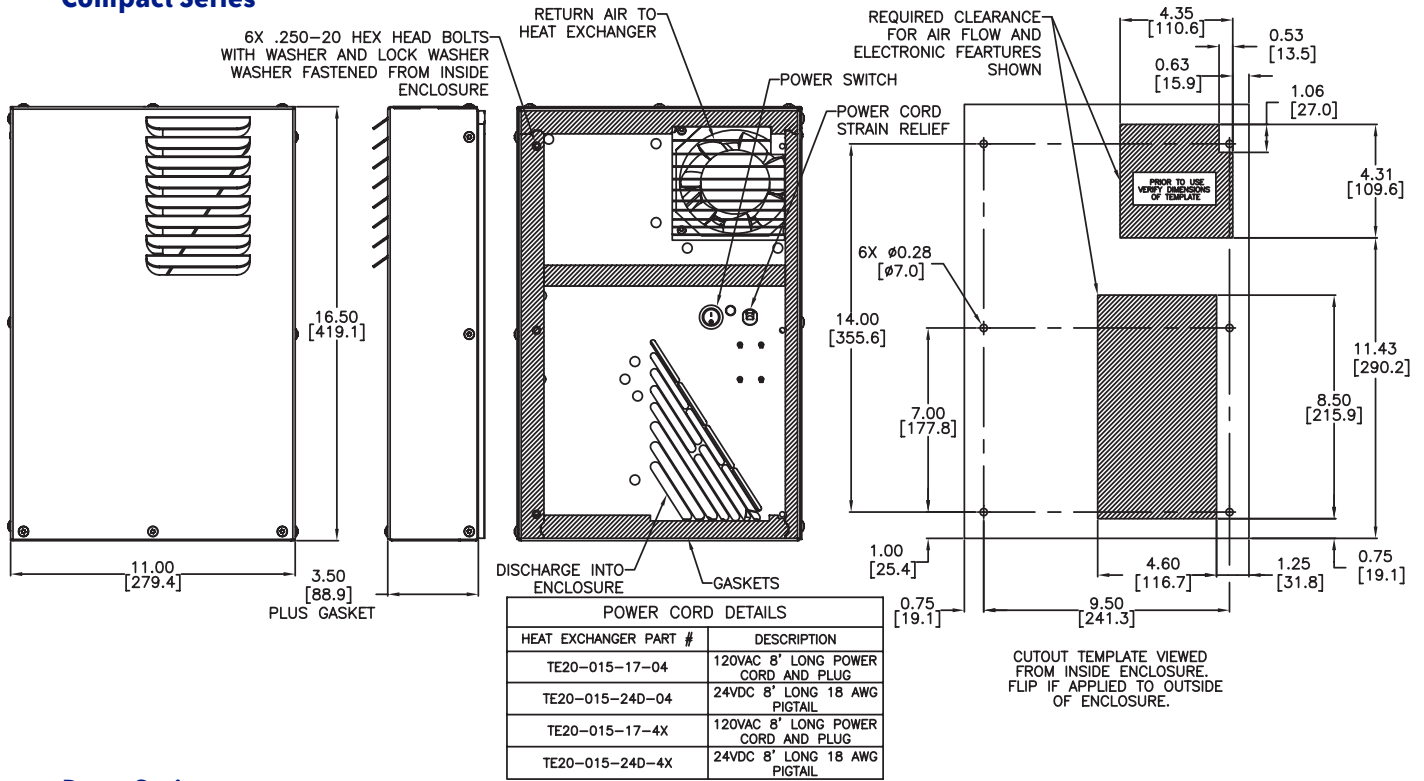
Troubleshooting Guide

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

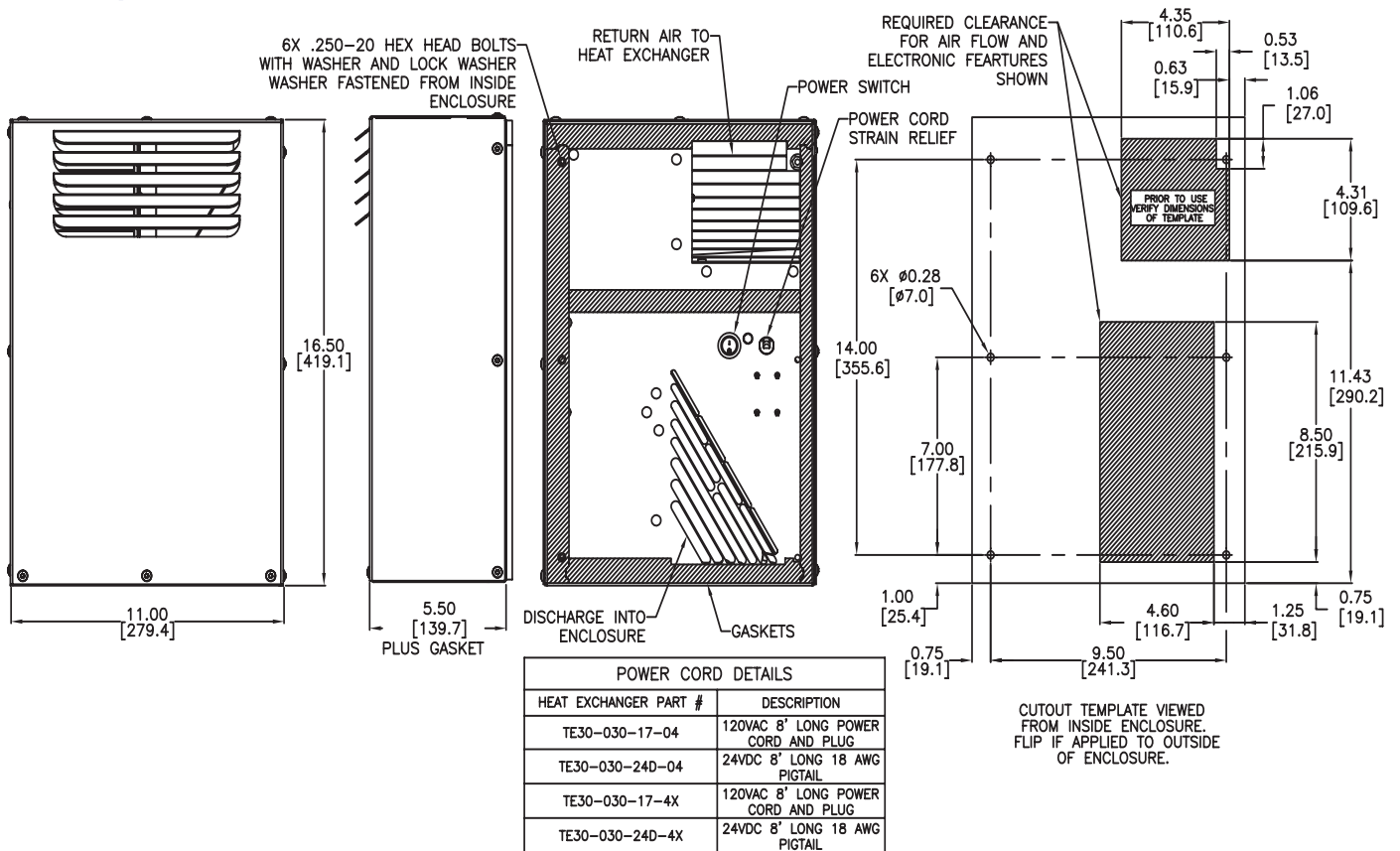


Physical Dimensions

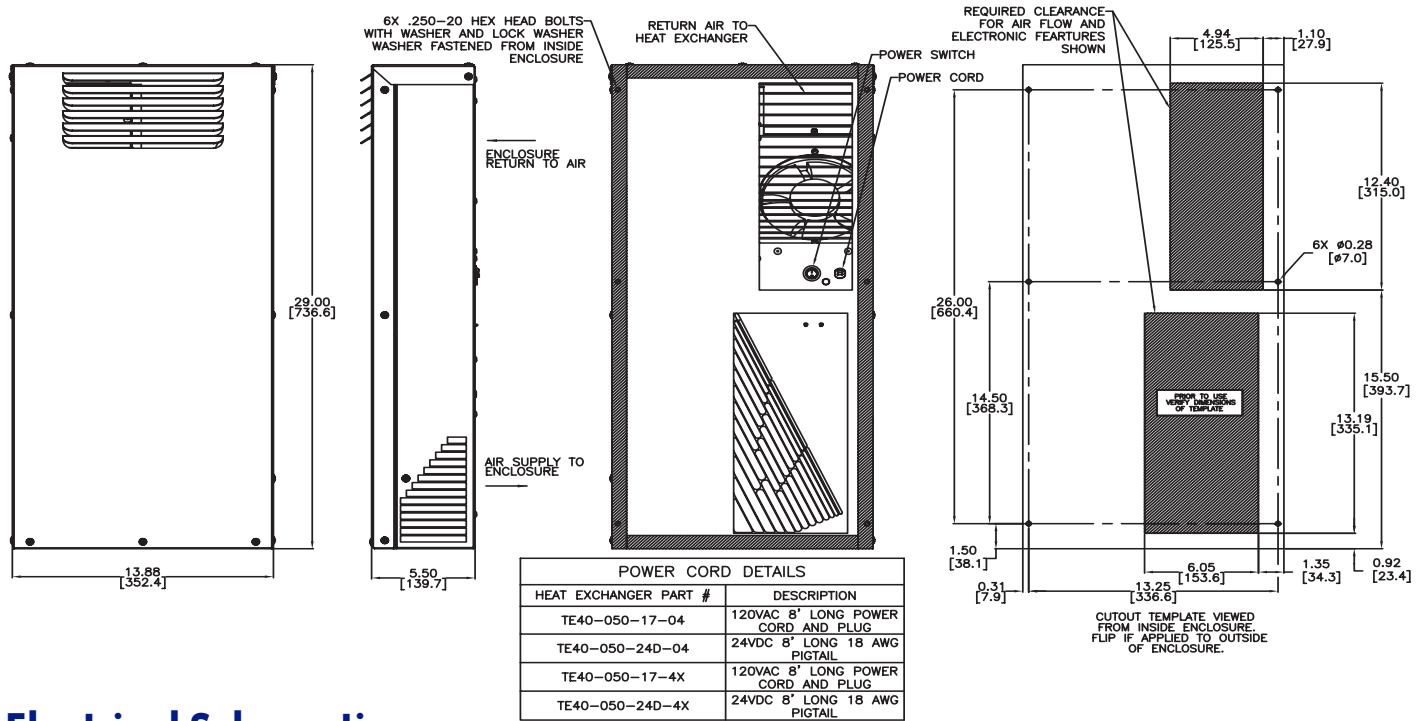
Compact Series



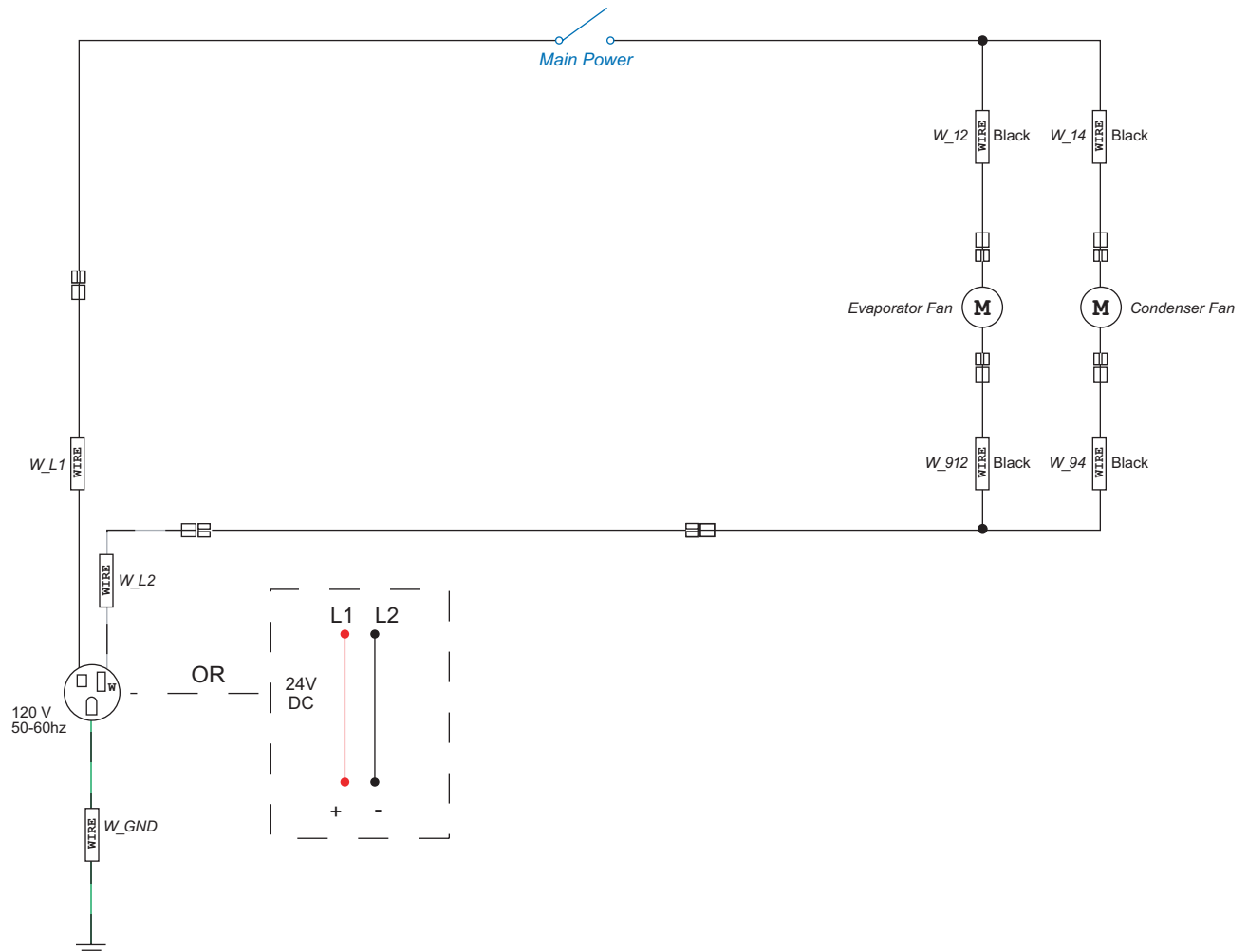
Deep Series



Tall Series



Electrical Schematics



Notes and Model Information

