

# DANTHERM

COOLING

## HexFlow

*Product User Manual*



## INTRODUCTION

This is the service manual for Dantherm HexFlow heat exchanger units. Please see the table of contents below for further information about the sections of this manual.

## TARGET GROUP

The target group for this service manual are the technicians who install and maintain the HexFlow series units.

## COPYRIGHT

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## RESERVATIONS

Dantherm reserves the right to make changes and improvements to the product and the service manual at any time without prior notice or obligation.

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## UNPACKING, HANDLING, AND INSPECTION

Thank you for purchasing a Dantherm HexFlow heat exchanger. Please carefully review all handling and installation instructions.

- The heat exchanger should be inspected on initial delivery and any damage to packaging noted.
- The unit should be maintained in the upright position at all times.
- Special consideration should be given to correctness of external packing damage or abrasion, loose components and surface marks.
- Any damage should be added to the freight bill and immediately notify the freight company for filing a freight claim.
- All packaging materials should be retained for inspection.

Do not attempt to operate the unit if it appears to be damaged.

## GENERAL SAFETY

- Certain parts of electrical systems are inevitably live or have high operating temperatures. Observe caution at all times.
- Failure to observe these conditions and installation instructions can cause injury and damage.
- The system is to be installed and maintained only by trained and qualified personnel.
- Do not apply power until all ground connections have been made.
- The unit is fitted with pressed and folded metal parts, which could have sheared metal edges. Be cautious handling the unit, especially when working in poorly accessible places.
- Check that no tools, test equipment, torches etc. have been left in or on the equipment on completion of work.
- Ensure the cover(s) and all mounting hardware is firmly secured before leaving installation.
- All cable and connectors must conform to UL standards.

- The heat exchanger is UL recognized and tested to UL1995. It will comply where necessary with the safety requirements as defined in UL1995.

## MODEL IDENTIFICATION

# HF-45-230-T1

### CAPACITY

17 - 17 W/°F  
 22 - 22 W/°F0  
 26 - 26 W/°F  
 35 - 35 W/°F  
 45 - 45 W/°F  
 55 - 55 W/°F  
 100 - 100 W/°F  
 200 - 200 W/°F

### VOLTAGE

115 - 115 volt / single phase  
 230 - 230 volt / single phase  
 24 - 24 VDC  
 48 - 48 VDC

### OPTIONS

L - EXTERNAL PLUG  
 M - STAINLESS STEEL COVER  
 PXX - NON STANDARD PAINT COLOR  
 S - SPEED CONTROLLER  
 T1 - EXTERNAL FAN THERMOSTAT

**Note:** Legacy model number nomenclature contained the following elements (for reference only):  
 "P" - Pinnacle Series HexFlow  
 "S" - Standard Unit Type  
 "OXX" - Designated Nominal Height

Example Model Number: P-S-035-045-230-T1

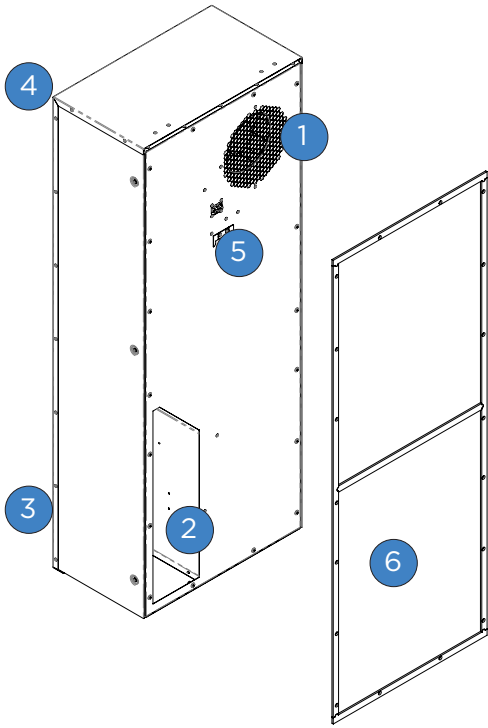
## OPTIONS

### Speed Control (-S)

The controller is designed to slow down the speed of the internal and external fans at lower temperatures to reduce noise and energy consumption. It will also supply either a normally closed (NC) or normally open (NO) alarm signal for fan fault, sensor fault, or high temperature.

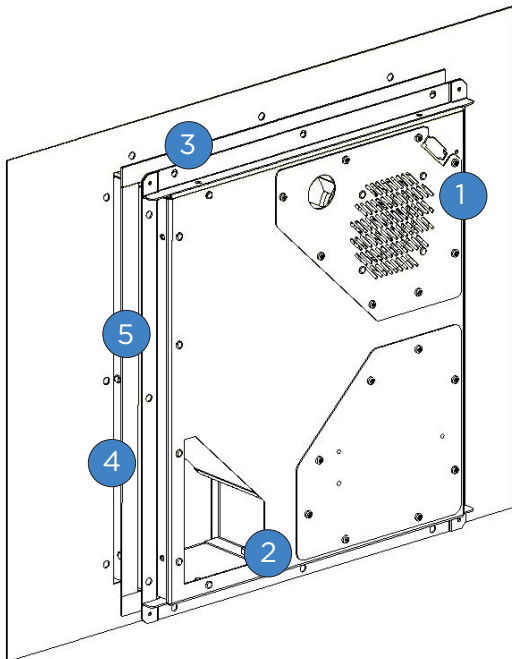
### Thermostat Control (-T1)

A snap disc thermostat controls the operation of the external loop fan. A temperature rise above 80F will cause the fan to be turned on, a temperature decrease below 60F will cause the fan to be turned off; between the range of 60F-80F the fan will be operating based on the previous environmental condition experienced.



**VIEW 1**

PART	DESCRIPTION
1	Cabinet Air IN
2	Cabinet Air Out
3	Ambient Air IN
4	Ambient Air Out
5	Mounting Hook
6	Installation Gasket



**VIEW 2**

PART	DESCRIPTION
1	Cabinet Air IN
2	Cabinet Air OUT
3	Installation Gasket
4	Mounting Face
5	Mounting Flange

## MOUNTING & OPERATION

- The enclosure shall be checked for correctness of cutouts, mounting holes and electrical supply.
- The Mounting Hook is preset to match the recommended cutout openings. If an adjustment other than the factory setting of the hook needs to be made, do so prior to fixing the gasket to the Heat hanger.
- Install the gaskets as shown in section 5.1. A gasket kit is provided with each unit.
- Remove the outer cover of the Heat Exchanger by removing the screws from either the side or bottom of the unit. Depending on options selected, use a #2 Phillips Screwdriver, #20 Torx driver, or #15 Security Torx with pin driver. All screw threads are M4.
- Utilize an appropriate and safe lifting device.
- Mount the Heat Exchanger to the cabinet by using the mounting hook, which supports the weight of the unit. The hook grabs the cut out opening on the cabinet panel.
- Install the mounting hardware as supplied with the unit (M6 x 25 SCKT HD cap screws & washers). The fixings are installed from inside the cabinet into the threaded inserts located in the unit. Use 4mm Allen wrench / driver.
- For Mid Mount units, place the unit for the inside of shelter through cutout opening using an appropriate and safe lifting device.
- Connect the Heat Exchanger power lead to the mains supply located in the cabinet/ enclosure. Refer to the product label on the bottom right hand side panel of the unit for the proper voltage/amp requirement.
- Make sure a properly grounded power supply is used. All installations are to be completed in

accordance with local NEC codes and guidelines.

- The electrical circuit should be protected by a slow blow breaker or fuse. Refer to section 5 in this manual for fuse/breaker rating.
- After final installation and power supply connection the unit should be powered and the unit checked for correct airflow.
- For models containing speed control option, push and hold test button located on control board for 5 seconds, to activate the self test.
- Check to correct airflow and fan speeds
- Please contact Dantherm for more information if required.

## MAINTENANCE

The Heat Exchanger should be examined periodically to determine the required cleaning periods based on the installed environmental conditions. Annual inspections are most typical and will cover the majority of installed locations.

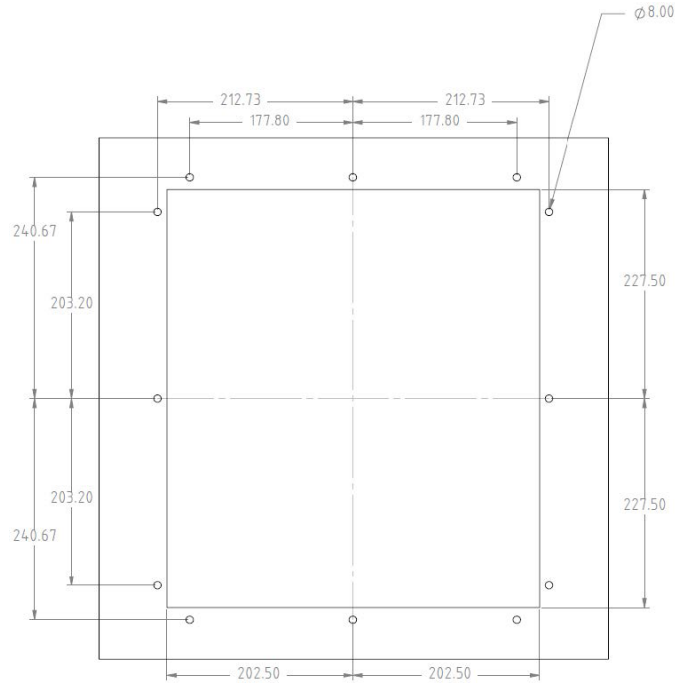
### CAUTION!

Always disconnect power to Heat Exchanger prior to servicing. Scheduled maintenance includes cleaning of fans and Heat Exchanger core as they become contaminated with dust or residue.

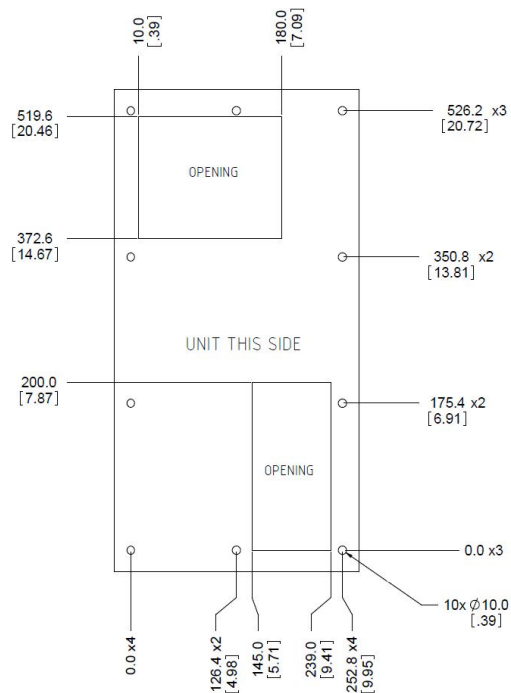
The fans and Heat Exchanger core should be cleaned using a soft bristle brush to remove dust or debris. Water is NOT recommended. Reconnect power after service.

## CUT OUT AND MOUNTING DIAGRAMS

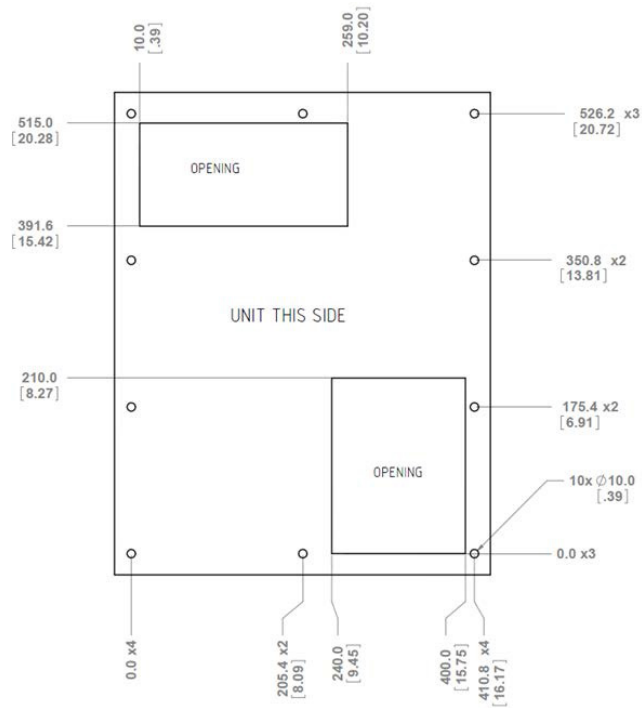
### HF17/22 Mid Mount Models



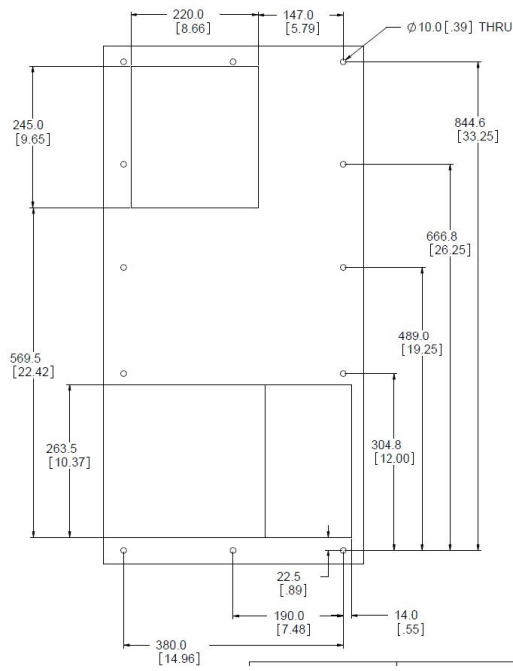
### HF17/22 Models



HF26



HF35/45/55 Models

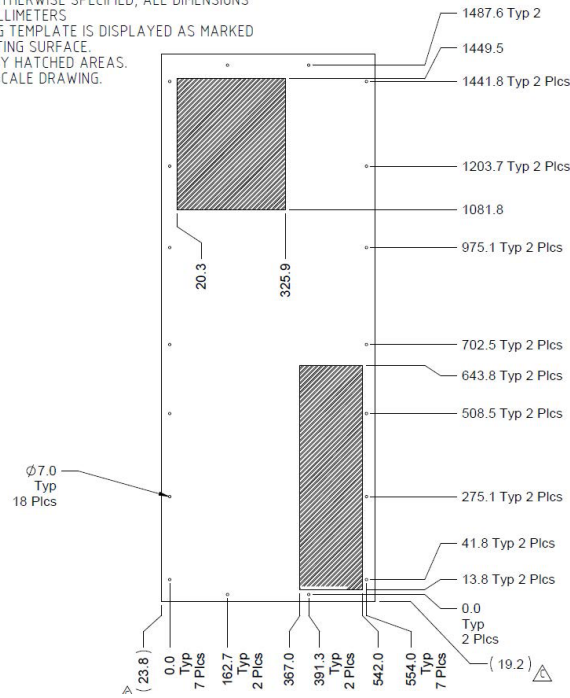




CUT OUT AND MOUNTING DIAGRAMS

HF100

1. UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETERS
2. MOUNTING TEMPLATE IS DISPLAYED AS MARKED ON MOUNTING SURFACE.
3. CUT AWAY HATCHED AREAS.
4. DO NOT SCALE DRAWING.



## DESIGN DATA: GENERAL PERFORMANCE

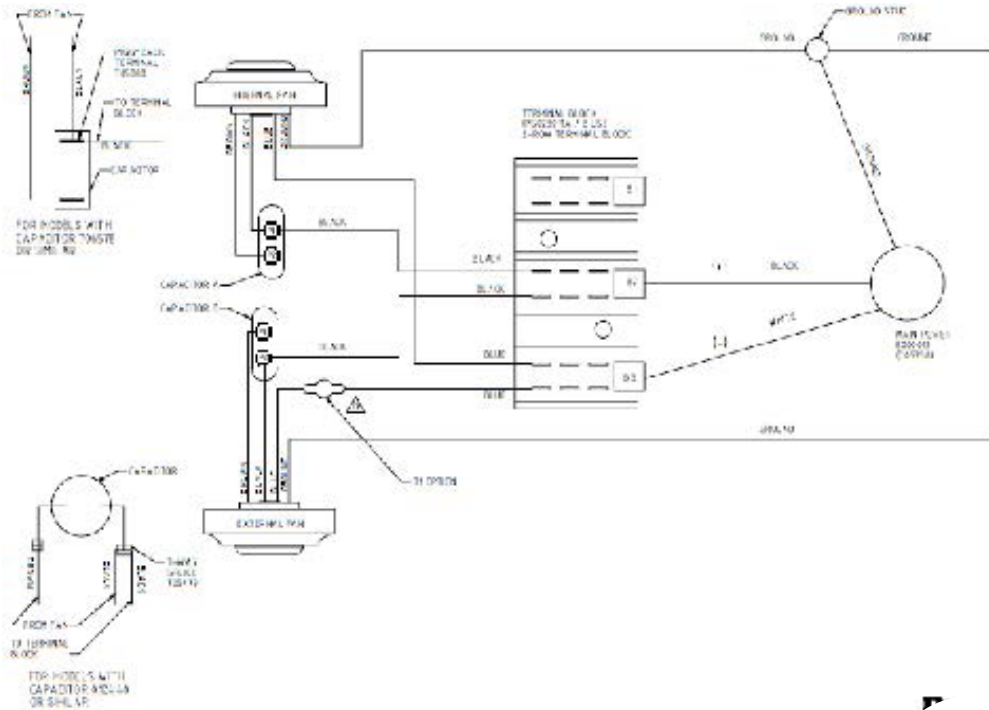
MODEL #	WATTS/°F	VOLTAGE	HZ	PH	FULL LOAD, AMPS	MINIMUM BREAKER/FUSE SIZE, AMPS	APPROX. WEIGHT (LBS/KG)
HF17115	17	115 VAC	50/60	1	0.5	0.7	21/9.5
HF17230	17	230 VAC	50/60	1	0.3	0.4	21/9.5
HF1724	17	24 VDC	N/A	N/A	3.5	4.4	21/9.5
HF1748	17	48 VDC	N/A	N/A	1.75	2.25	21/9.5
HF22115	22	115 VAC	50/60	1	0.5	0.7	23/10.4
HF22230	22	230 VAC	50/60	1	0.3	0.4	23/10.4
HF2224	22	24 VDC	N/A	N/A	3.5	4.4	23/10.4
HF2248	22	48VDC	N/A	N/A	1.75	2.25	23/10.4
HF2648	26	48 VDC	N/A	N/A	1.75	2.25	36/16
HF35115	35	115 VAC	50/60	1	3.4	6	59/27
HF35230	35	230 VAC	50/60	1	0.86	2.5	59/27
HF3548	35	48 VDC	N/A	N/A	4.3	6	59/27
HF45115	45	115 VAC	50/60	1	3.4	5	64/29
HF45230	45	230 VAC	50/60	1	1.86	2.5	64/29
HF4548	45	48 VDC	N/A	N/A	4.3	6	60/27
HF55115	55	115VAC	50/60	1	3.4	5	72/33
HF55230	55	230 VAC	50/60	1	1.86	2.5	72/33
HF5524	55	24 VDC	N/A	N/A	10.0	12.5	68/31
HF5548	55	48 VDC	N/A	N/A	4.3	6	68/31
HF100230	100	230 VAC	50/60	1	1	1.5	135/62

**Note:** The information provided above is a general overview for reference only. The customer is responsible for the correct installation and application of each product. As products and features change, the nameplate on the side of the unit should be referred to for correct voltage / current during installation.

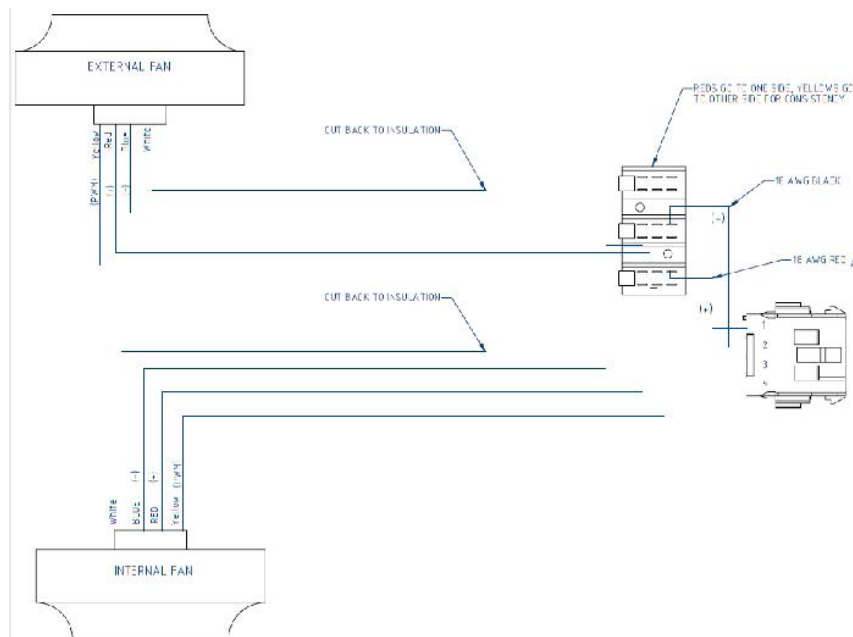
## WIRING DIAGRAMS

The following schematics are of standard products only. Wiring schematics for options or custom products are available directly from Dantherm Cooling.

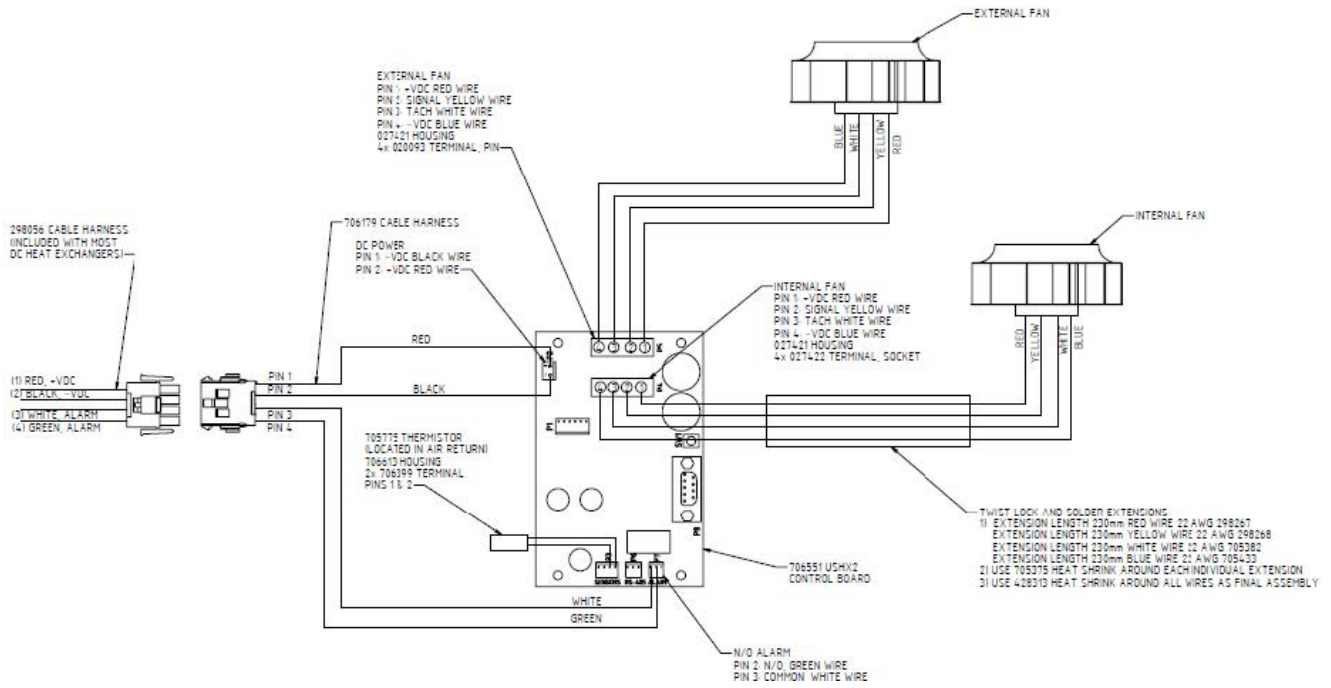
### AC Voltage Diagram: All Models



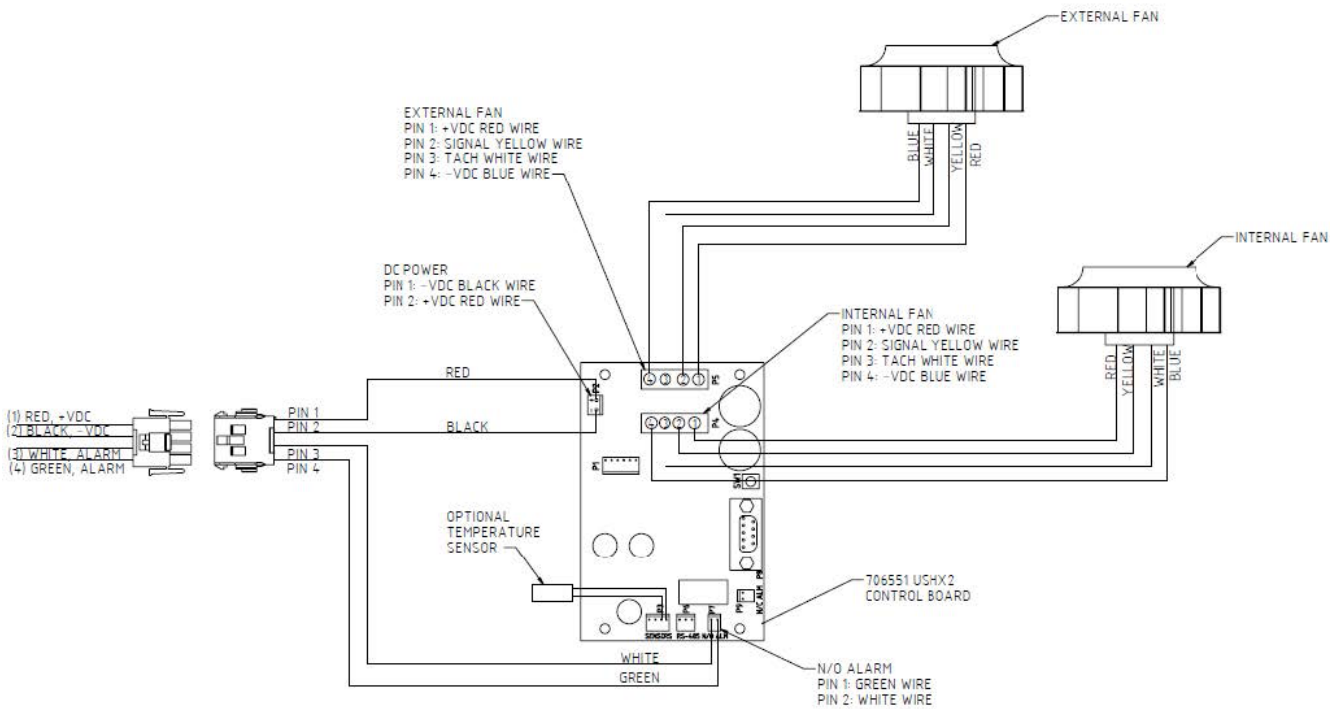
### DC Voltage Diagram: All Models without speed control



**DC Voltage Diagram with HX2 Speed Control (up to batch 130601)**



**DC Voltage Diagram with HX2 Speed Control (batch 130601 and newer)**



**WARRANTY:**

DANTHERM COOLING, INC. (“DANTHERM”) limited warranty extends to the original purchaser only of any DANTHERM heat exchanger and air conditioning unit, and to no other person or entity. DANTHERM warrants that such DANTHERM products will be free from defects in materials and workmanship in normal use for a period of twelve (12) months from the date of the original purchase. Should any part of your DANTHERM product fail because of a manufacturing defect within such twelve (12) month period, DANTHERM terms are set out below.

**IMPORTANT**

Warranty period starts from date of shipment – warranty of replacement parts shall only apply for the remainder of the warranty period of the original product.

Any transportation, related service labor, diagnosis calls, filters, driers, and refrigerant are not included.

In the event all related service labor is performed by DANTHERM nominated service contractors, the replacement part shall be warranted by DANTHERM for the remainder of the warranty period for the original product.

This warranty does not cover damages or repairs caused by improper installation, misuse of the product, negligent servicing, improper applications, unauthorized modifications, improper electrical supply, failure to follow manufacturer’s instructions and rating plate information, accidents, natural disasters, damage in transportation, lack of normal preventive maintenance, or other events beyond DANTHERM’s control.

This warranty is also subject to the following operating conditions:

- 1) voltage variation not greater than 10%,
- 2) frequency variation not greater than 3Hz from nameplate rating
- 3) cooling load is not greater than product label under rated conditions
- 4) unit is not restarted for a period of five minutes after accidental or intentional shut-off
- 5) operation is not subject to abnormal conditions or customer, user misapplication
- 6) customer or user does not modify, abuse, or neglect the product
- 7) refrigerant specified on nameplate is only refrigerant used
- 8) customer or user complies with all other installation, maintenance, and operating instructions. Cost of repair or replacement of consumable parts is not covered under the terms of this warranty.

PRODUCT	WARRANTY PERIOD	IN FIELD WARRANTY	RETURN TO BASE WARRANTY	SHIPMENT LIABILITY IN FIELD	SHIPMENT LIABILITY RETURN TO BASE
AIR CONDITIONER	12 Months	Parts Supply Only	Parts & Labor	Supply of item freight pre-paid by Dantherm. Return of defective part pre-paid by customer.	Return of item freight pre-paid by customer. Supply of item freight pre-paid by Dantherm.
HEAT EXCHANGER	12 Months	Parts Supply Only	Parts & Labor	Supply of item freight pre-paid by Dantherm. Return of defective part pre-paid by customer.	Return of item freight pre-paid by customer. Supply of item freight pre-paid by Dantherm.

- Using Dantherm nominated service contractors – warranty on product continues.
- Using Dantherm non-approved service contractors – warranty on product becomes void.

THIS WARRANTY CONSTITUTES THE EXCLUSIVE REMEDY OF ANY PURCHASER OF A DANATHERM HEAT EXCHANGER, AIR CONDITIONING UNIT AND IS IN LIEU OF ALL OTHER WARRANTIES. THIS ALSO INCLUDES, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR USE, OR FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR USE, OR FOR A PARTICULAR PURPOSE EXCEED THE TERMS OF THE APPLICABLE WARRANTY STATED ABOVE, AND DANATHERM SHALL HAVE NO OTHER OBLIGATION OR LIABILITY, EXPRESS OR IMPLIED. IN NO EVENT SHALL DANATHERM BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE. SOME STATES DO NOT ALLOW LIMITATIONS OR EXCLUSIONS, SO THE ABOVE LIMITATIONS AND EXCLUSIONS MAY NOT APPLY TO YOU.

the RMA number and shipping them prepaid to the designated site specified by Dantherm Cooling, Inc.

IN NO EVENT SHALL DANATHERM COOLING, INC. ACCEPT ANY SHIPMENT WHICH DOES NOT COMPLY WITH THE ABOVE PROCEDURES.

REMOVE THE EMERGENCY HOSE AND ADAPTER FROM THE BOTTOM OF THE UNITS PRIOR TO DISMANTLING THE AIR CONDITIONER AND RESTING IT ON THE GROUND.

## **RETURN MATERIAL AUTHORIZATION PROCEDURE**

In the unlikely event of unit failure, the following return procedure shall be adopted.

- All product returns require a Return Material Authorization number regardless of reason.
- The customer is required to contact the Quality Department at Dantherm Cooling, Inc. in Spartanburg, SC at +1- 864- 595- 9800 to obtain an RMA number.
- The following information must be provided prior to a RMA number being issued:
  - Dantherm Cooling, Inc. part number(s) of product to be returned.
  - Dantherm Cooling, Inc. serial number(s) of product to be returned.
  - Number of units requested to be returned.
  - Reason for return.
  - Contact name, phone and fax number.
  - Date of product receipt.
  - Invoice number and purchase order number covering the unit(s).
- The customer is responsible for suitably packaging the unit(s) securely, ideally in the original packaging, marking all cartons with

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