INSTALLATION INSTRUCTIONS

The **Santa Fe Ultra V Series Dehumidifiers** are ventilating dehumidifiers that integrate into the heating and cooling system to provide the ultimate in comfort, health and property protection through:

+ Dehumidification
+ Optional Outdoor Air Ventilation
+ Air Filtration

Serial Number

Install Date

Sold By

SANTA-FE™ 6-YEAR TOTAL PEACE OF MIND WARRANTY
5-YEAR FULL REPLACEMENT + 1-YEAR PARTS

INTERTEK ETL LISTED

ENGINEERED & ASSEMBLED MADISON, WI

Patent: thermastor.com/patents

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FOR REPAIR & TECH SUPPORT: 1-800-533-7533 (follow prompts)
or CONTACT US AT: service@santa-fe-products.com

Santa Fe is committed to manufacturing quality products. To maintain our standards, product specifications may change without notice.

Therma-Stor LLC
4201 Lien Road, Madison, WI 53704 | (800) 533-7533
Thermastor.com | Santa-Fe-Products.com

1. SAFETY PRECAUTIONS

⚠ WARNING!

THIS SYMBOL MEANS IMPORTANT INSTRUCTIONS. FAILURE TO HEED THEM CAN RESULT IN SERIOUS INJURY OR DEATH.

⚠ CAUTION!

THIS SYMBOL MEANS IMPORTANT INSTRUCTIONS. FAILURE TO HEED THEM CAN RESULT IN INJURY OR MATERIAL PROPERTY DAMAGE.

Read the installation, operation and maintenance instructions carefully before installing and operating this device. Proper adherence to these instructions is essential to obtain maximum benefit from the Santa Fe Whole House Ventilating Dehumidifier.

⚠ WARNING!

120 VOLTS MAY CAUSE SERIOUS INJURY FROM ELECTRIC SHOCK. DISCONNECT ELECTRICAL POWER BEFORE STARTING INSTALLATION OR SERVICING, AND LEAVE POWER DISCONNECTED UNTIL INSTALLATION OR SERVICE IS COMPLETED.

⚠ CAUTION!

- Always use caution and wear CUT RESISTANT gloves when handling sheet metal.
- Improper installation may cause property damage or injury. Installation, service, and maintenance must be performed by a qualified service technician.
- The dehumidifier is heavy. Handle with care and follow installation instructions.
- Never operate a unit with a damaged power cord. If the power cord is damaged, it must be replaced by the manufacturer, its service agent, or a similarly qualified person in order to avoid a hazard.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience or knowledge, unless they have been given supervision or instruction concerning the use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.
- The device is designed to be installed indoors in a space that is protected from rain and flooding.
- Install the unit with enough space to access all sides for maintenance and service. The entire shell needs to be removed in order to do repairs.
- Avoid directing the discharge air at people. The dehumidifier should be used in the upright position.
- If used near a water source; be certain there is no chance the unit could fall into the water or get splashed and that it is plugged into a dedicated circuit and Ground Fault Circuit Interrupter (GFCI) protected outlet.
- DO NOT use the dehumidifier as a bench or table.
- Do not place the dehumidifier directly on structural building members without vibration absorbers or unwanted noise may result. Place the Santa Fe dehumidifier on supports to raise the base of the unit.
- A drain pan with a float switch must be placed under the dehumidifier if installed above a living area or above an area where water leakage could cause damage.
- Make all electrical connections in accordance with the current edition of the NEC ANSI/NFPA 70 and any national and local codes or ordinances that may apply.
- Maintain a minimum 1ft. (.3m) clearance to avoid obstructing the air return and supply.
- Not intended for use at altitudes over 6500 ft (2000M).
- The minimum floor area of the storage room shall be 28 m2 (square meters).

⚠ WARNING!

DO NOT USE MEANS TO ACCELERATE THE DEFROSTING PROCESS OR TO CLEAN, OTHER THAN THOSE RECOMMENDED BY THE MANUFACTURER. THE APPLIANCE SHALL BE STORED IN A ROOM WITHOUT CONTINUOUSLY OPERATING IGNITION SOURCES (FOR EXAMPLE: OPEN FLAMES, AN OPERATING GAS APPLIANCE, OR AN OPERATING ELECTRIC HEATER. DO NOT PIERCE OR BURN. BE AWARE THAT REFRIGERANTS MAY NOT CONTAIN AN ODOR.

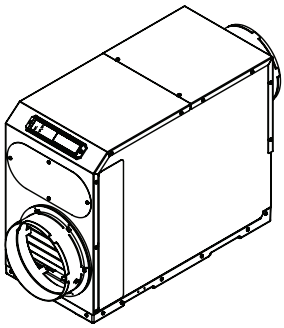
2. ASSEMBLY & REGISTRATIONS

Assembly

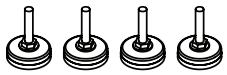
1. Unpack Box.

2. Check that you have all parts:

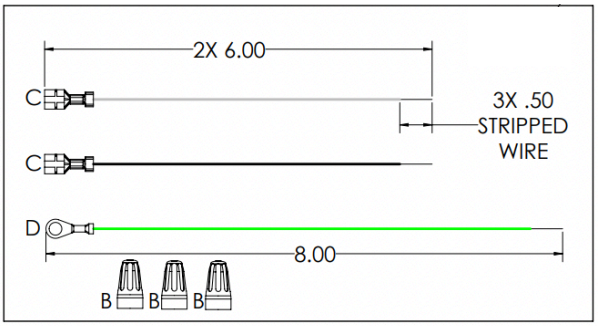
a. Dehumidifier (1)



b. Leveling feet (4)



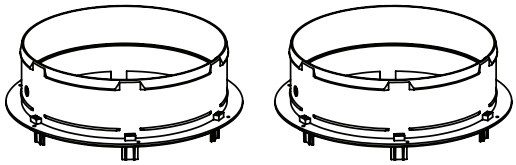
c. Hardwire Kit



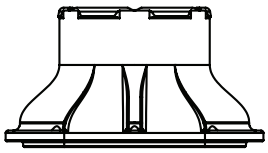
d. MERV-13 Filter (1)

PN 4037722-01

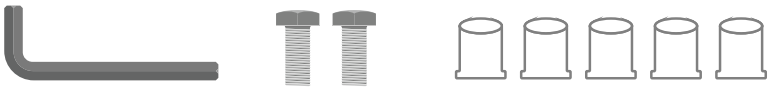
e. 10" Round Duct Collars (2)



f. 8" Round Duct Collar (1)



g. Torx Wrench (1), Screws (2), Plastic duct stanoffs (5)



3. Register warranty at santa-fe-products.com

4. Read all remaining steps and warnings before continuing.

Scan to Register Product

REGISTRATIONS

THESE SANTA FE DEHUMIDIFIERS CONFORMS TO UNIFIED STANDARD UL 60335-2-40 AND CSA STANDARD C22.2.60335-2-40.

Brand Name	Individual Model Number	Basic Model Number	Rating Conditions	Integrated Energy Factor (L/kWh)	Capacity (Pint/Day)
Santa Fe Ultra V100	4047100	V100.1-W	73F/60%	2.63	82
Santa Fe Ultra V125	4047200	V125.1-W	73F/60%	2.45	101
Santa Fe Ultra V155	4047300	155.1-W	73F/60%	2.9	128

3. DEHUMIDIFIER SET UP

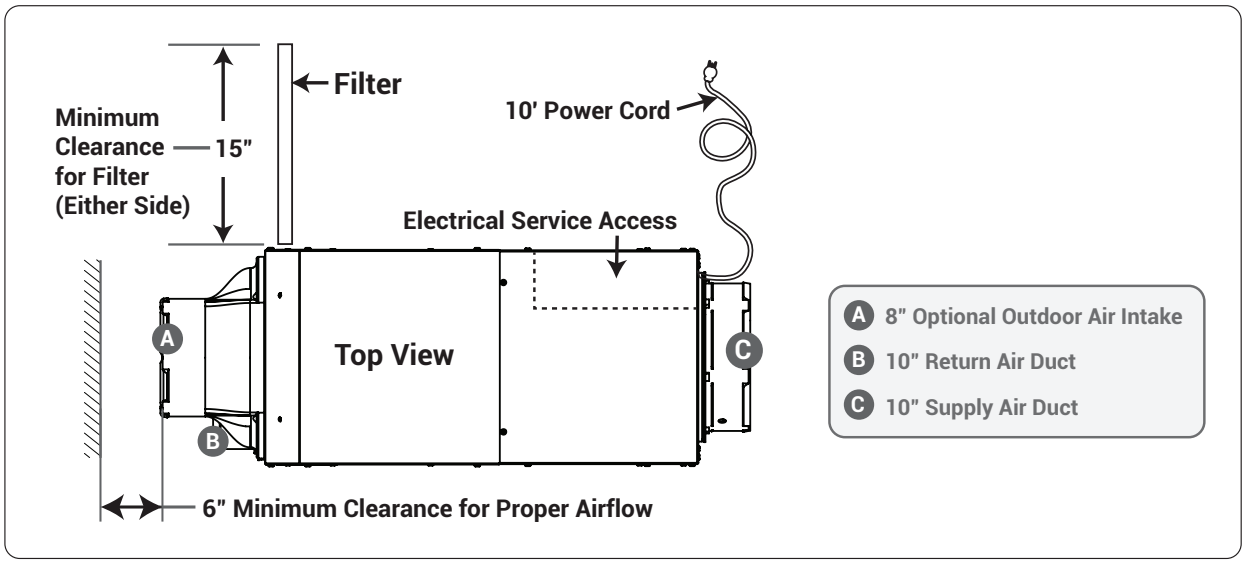
3.1 Location Considerations

The dehumidifier can be installed in a variety of locations to meet the owner's needs. In all cases, keep the following cautions in mind:

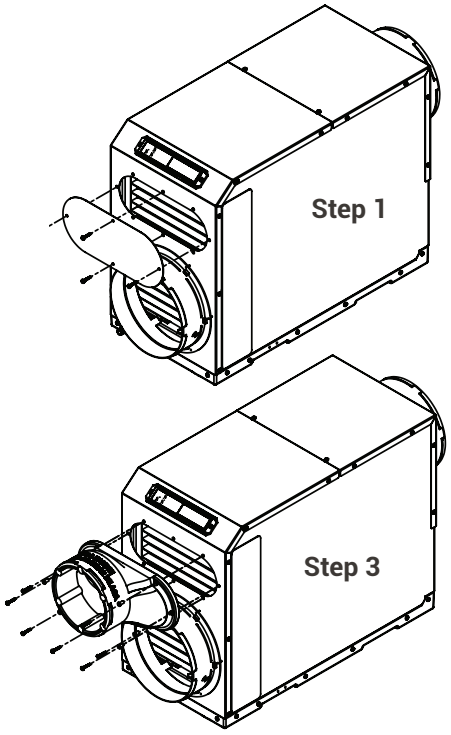
- Allow sufficient clearance to handle the unit's overall dimensions, filter removal, proper airflow, electrical service access and the necessary return and supply ductwork to the unit.
- Allow for proper drainage and routing of needed drain pipes.
- Locate the dehumidifier in an area where the unit's 10 ft. cord can easily reach electrical outlet.
- Locate the dehumidifier in an area where field wiring the control (low voltage) to the unit will be possible.
- A back draft damper is required in the supply duct of the dehumidifier, especially when connecting to the supply ducting system. The backdraft damper prevents supply air from counter flowing through the dehumidifier when it is not operating. The dehumidifier's location should be chosen to allow installation of this accessory if necessary.
- Fasten the dehumidifier on supports that raise the base of the unit 6.75" above the secondary drain pan so a p-trap can be installed.
- The dehumidifier may be suspended with the hang kit or a suitable alternative from structural members, ensuring the assembly supports the dehumidifier's base in its entirety. The unit must be supported from underneath. Do not hang the dehumidifier from its' cabinet. Do no hang from sides or ends. If hanging machine in air, ensure the leveling feet are installed.
- The minimum floor area of the room shall be 6.6 square meters.
- Keep any required ventilation openings clear of obstruction.
- Ducts connected to the dehumidifier shall not contain a POTENTIAL IGNITION SOURCE.
- Supply and return air shall be directly ducted to the space. Open areas such as false ceilings shall not be used as a return air duct.
- This unit is designed to be fixed in place and should not be seasonally relocated.

3.2 Unventilated Areas

- Unventilated areas where the dehumdifier is installed or stored need to be so constructed that should any refrigerant leak, it will not stagnate so as to create a fire or explosion hazard.
- The dehumidifier shall not be stored or ducted into one or multiple rooms with continuously operating open flames (for example an operating gas appliance) or other POTENTIAL IGNITION SOURCES (for example an operating electric heater, hot surfaces). A flame-producing device may be installed in the same space if the device is provided with an effective flame arrest.



4. ATTACHING DUCT COLLARS



Outdoor Air Ventilation Duct

Outdoor air ventilation is optional. If setting up the unit to provide outdoor air ventilation, see section 7.

Step 1. Remove 4 screws from the metal ventilation block off plate.

Step 2. Install plastic bushings into foam ventilation duct.

Step 3. Install 8 screws to fix foam ventilation duct to unit using the 4 screws removed from the metal block off plate.

Foam ventilation duct is V0 flame rated and does not require insulation.

Return Air Inlet

A 10" diameter duct collar is attached to the unit.

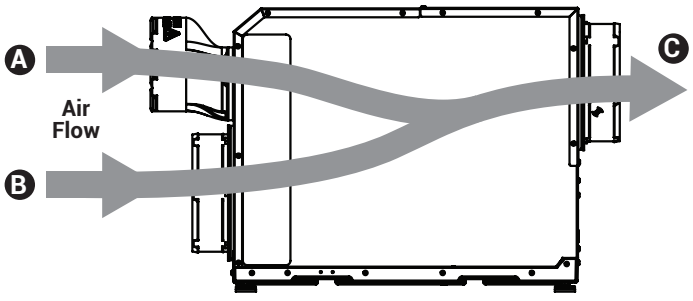
Supply Air Outlet

The back panel of the dehumidifier can be rotated to allow for horizontal flow through or vertical flow through of the supply air.

a. Horizontal Flow Through
   The unit ships configured for a horizontal flow through. A 10" diameter duct collar is attached to the unit.

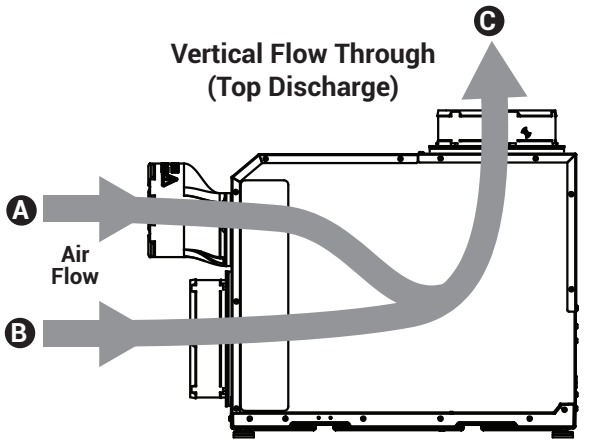
b. Vertical Flow Through
   Remove the exhaust panel using a T25 torx bit. Rotate the panel so the exhaust collar is located on the top of the unit. Align screw holes and snap the panel onto the base. Secure the exhaust panel to the base by replacing the six screws.

Horizontal Flow Through (End Discharge)



A 8" Optional Outdoor Air Intake
B 10" Return Air Inlet
C 10" Supply Air Outlet

Vertical Flow Through (Top Discharge)



A 8" Optional Outdoor Air Intake
B 10" Return Air Inlet
C 10" Supply Air Outlet

5. ELECTRICAL REQUIREMENTS

The dehumidifier plugs into a common grounded 120V AC outlet. Locate the dehumidifier in an area where the unit's 10 ft. cord can easily reach a 120 VAC electrical outlet with a minimum of 15 Amp circuit capacity. Ensure all local electrical codes are followed.

Santa Fe offers a variety of control devices for use with the dehumidifier. The controls are to be located remotely from the dehumidifier and placed in the space to be conditioned. Low voltage (24VAC) controls can be used with the dehumidifier and MUST be connected with low voltage (18-22 gauge) thermostat wire.

⚠ WARNING!

THE REMOTE CONTROLS OF THE DEHUMIDIFIER ARE POWERED BY A LOW VOLTAGE CIRCUIT (24VAC) AND MUST NEVER CONTACT OR BE CONNECTED TO A HIGH VOLTAGE CIRCUIT.

⚠ CAUTION!

DO NOT ALLOW THE 24V TERMINAL TO CONTACT THE COM/DMPR TERMINALS ON THE DEHUMIDIFIER OR DAMAGE TO THE TRANSFORMER WILL RESULT.

⚠ CAUTION!

SOME OF THE SCREWS TERMINALS ON THE DEHUMIDIFIER MAY NOT BE USED WITH CERTAIN CONTROLS AND SHOULD BE LEFT UNCONNECTED.

Electrical Precautions

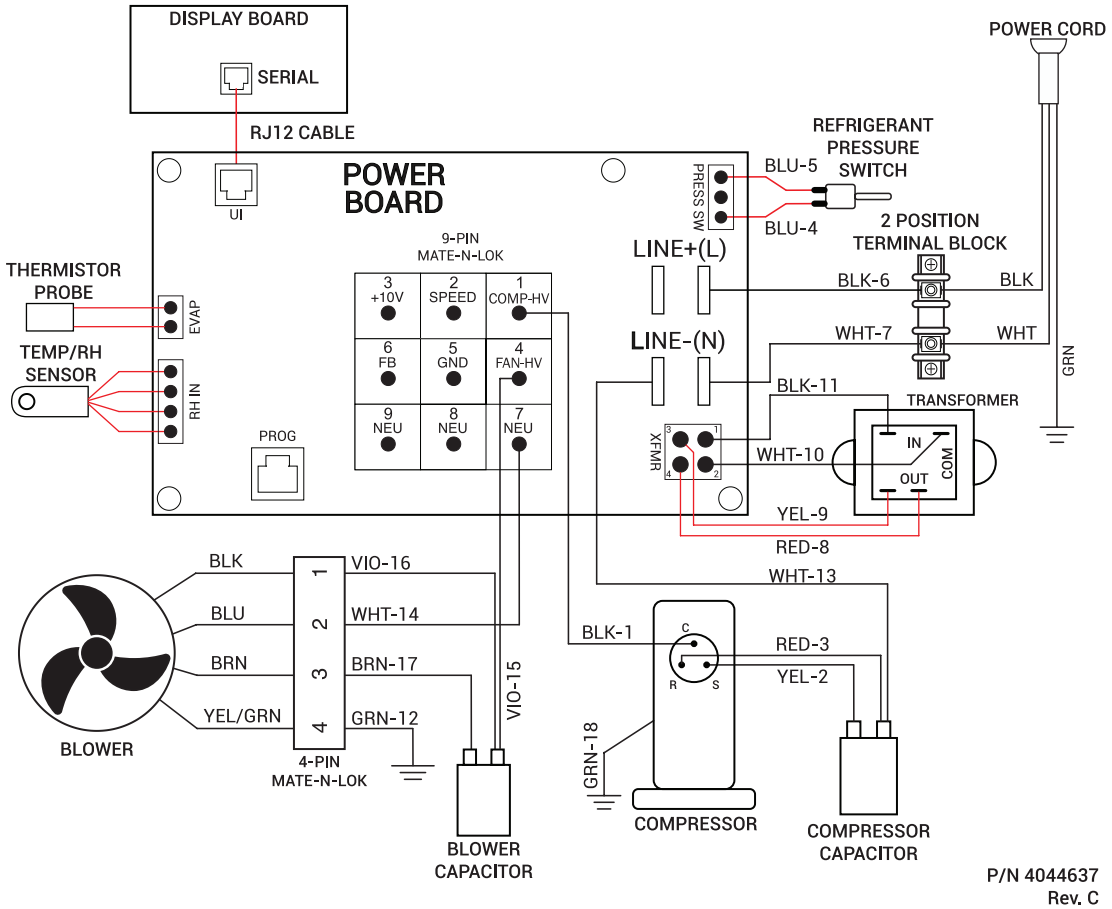
- Do not install the control where it may not accurately sense the relative humidity such as near HVAC supply registers, near exterior doors, on an outside wall, near a window, or near a water source.
- The screw terminals on the dehumidifier and the control are labeled to prevent confusion.
- Be sure to consult the electrical schematic in the CONTROLS Section (pages 20-21) of this manual or inside the access panel of the dehumidifier before making control connections.

5. ELECTRICAL REQUIREMENTS

5.1 Wiring Schematic

Critical Error #	POWER	40	45	50	55	60	EXT	RS	ON	AUTO	Description
3	●	★	O	O	O	O	O	O	★	★	Out of refrigerant
4	●	★	★	O	O	O	O	O	★	★	Float switch tripped
8	●	★	★	★	★	★	★	O	★	★	Comm Error
9	●	★	★	★	★	★	★	★	★	★	High pressure cut-out

● = On, not blinking ★ = Blinking O = Off



5. ELECTRICAL REQUIREMENTS

5.2 Hardwiring

⚠ WARNING!

SERVICING THE ULTRA V155 DEHUMIDIFIER, WITH ITS HIGH PRESSURE REFRIGERANT SYSTEM AND HIGH VOLTAGE CIRCUITRY PRESENTS A HEALTH HAZARD WHICH COULD RESULT IN DEATH, SERIOUS BODILY INJURY, AND/OR PROPERTY DAMAGE. ONLY QUALIFIED SERVICE PEOPLE SHOULD SERVICE THIS UNIT.

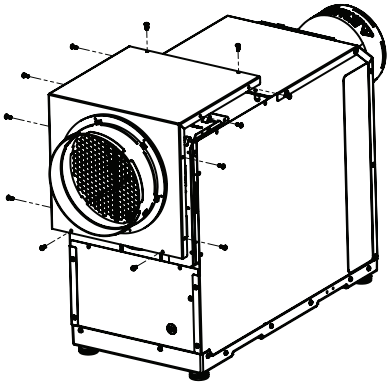
Tools Required

- T25 Torx Driver
- 11/32" Driver

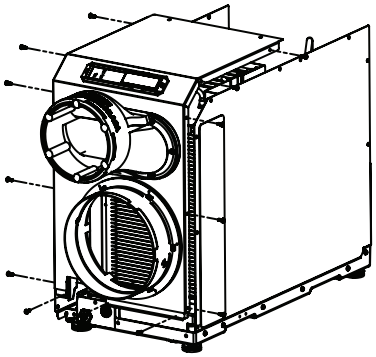
Following all local and national electrical codes and standards, route electrical service to the location that the dehumidifier will be installed. A field-installed disconnect is required when hardwiring this dehumidifier.

Step 1. Remove metal cabinet.

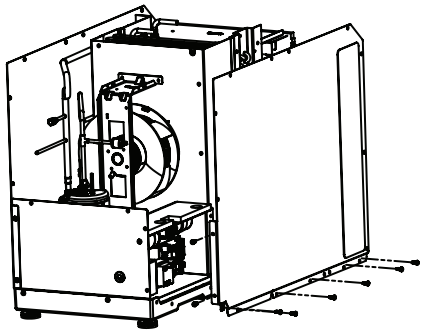
a. Remove 12 Screws



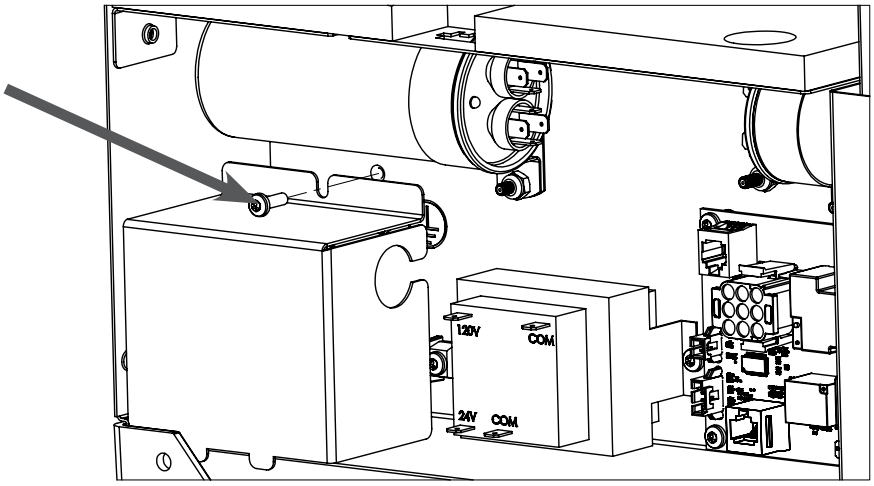
b. Remove 13 Screws



c. Remove 6 Screws

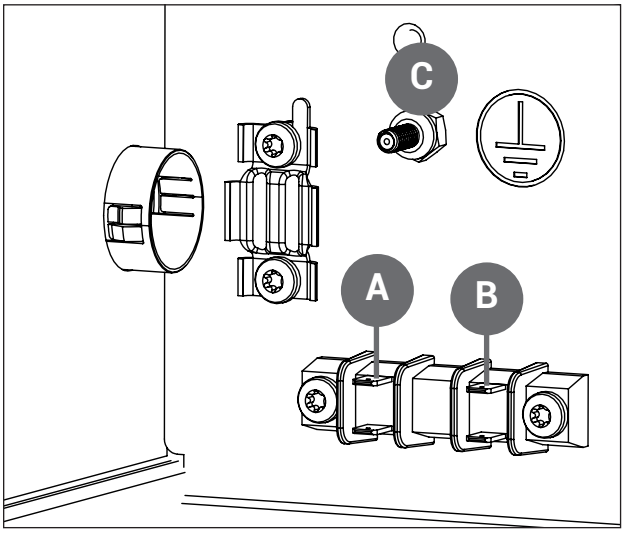


Step 2. Remove hardwire cover.

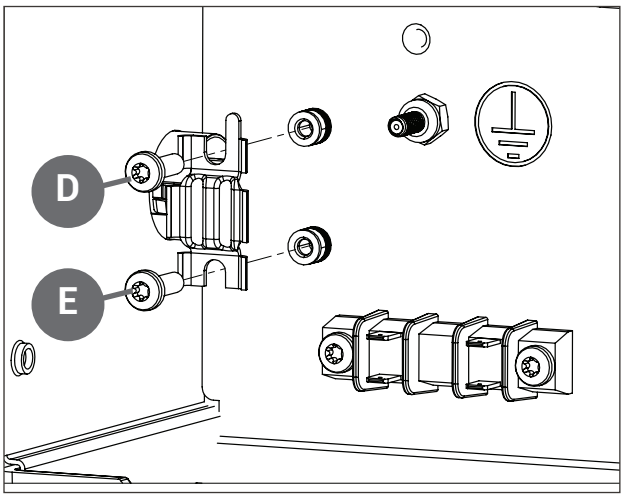


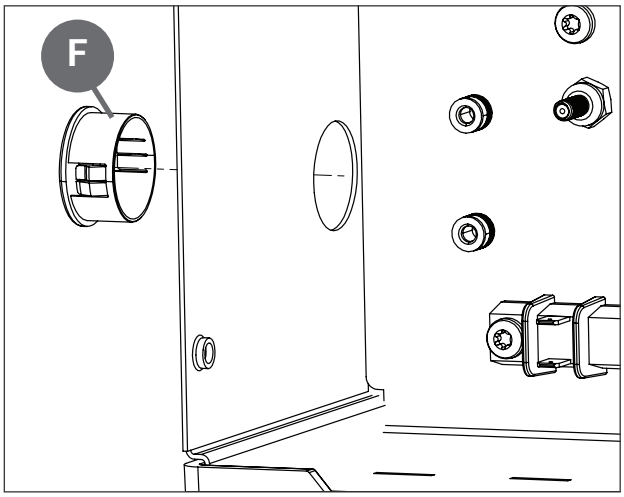
5. ELECTRICAL REQUIREMENTS

Step 3. Remove electrical cord. Remove BLACK and WHITE wires from terminal leading to the power cord (A and B). Leave the internal wire harness wires on the bottom of the terminal. Remove green ground wire from ground stud (C).

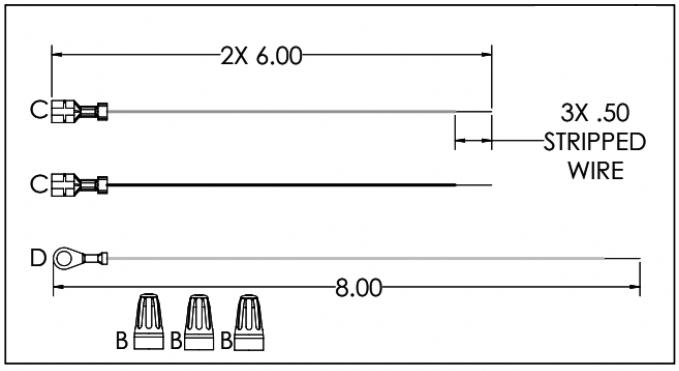


Step 4. Remove power cord retention bracket (D and E) and black cord bushing (F).





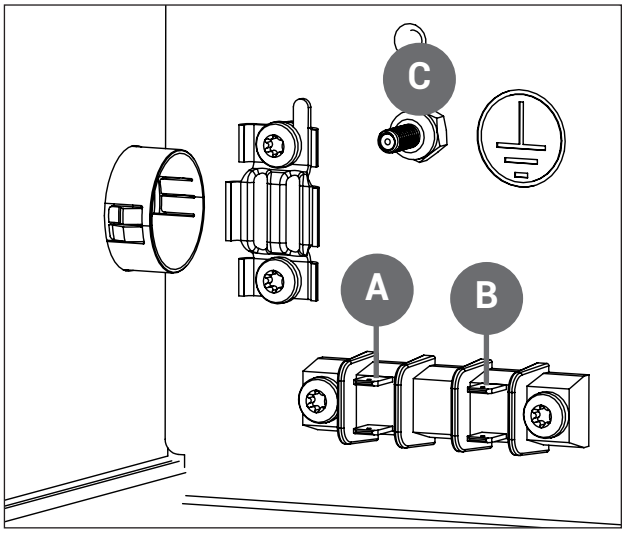
Step 5. Route wires through 7/8" hole and secure using the clamps intended for conduit or cable. There is a hardwire jumper kit included with the unit.



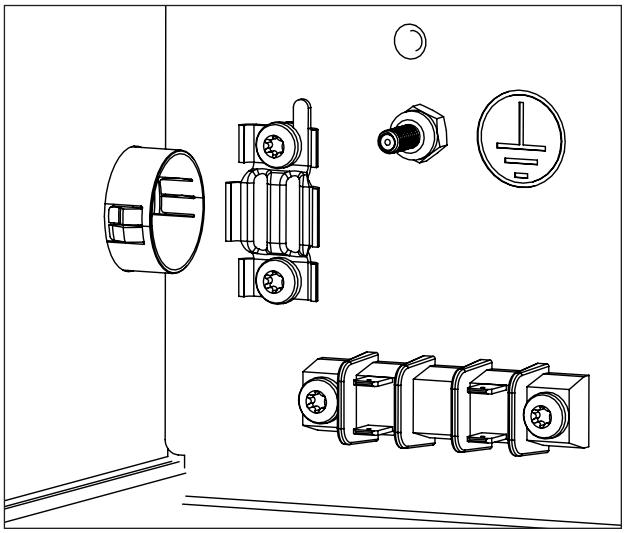
5. ELECTRICAL REQUIREMENTS

Step 6. Connect BLACK and WHITE jumper wires to terminal block (A and B). Ensure the BLACK jumper wire is installed across from the black internal wire harness wire. Ensure the WHITE jumper wire is installed across from the white internal wire harness wire.

Place GREEN jumper wire ring terminal on ground stud (C) and use 11/32" driver to secure nut to stud.



Step 7. Attach incoming hot service wire to BLACK jumper wire with the provided wirenut. Attach incoming common service wire to WHITE jumper wire with the provided wirenut. Attach incoming service GROUND wire to GREEN jumper wire with the provided wirenut.



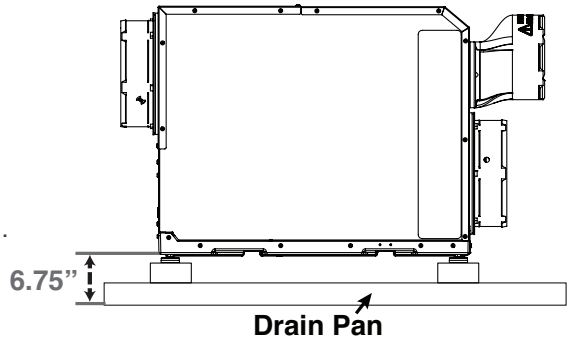
Step 8. Install hardwire cover and screw (reverse step 2).

Step 9. Install all external panels (reverse step 1).

6. DRAIN INSTALLATION

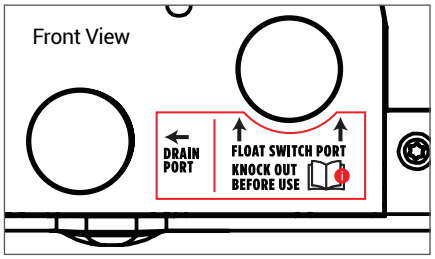
This dehumidifier generates condensate.

Place a secondary drain pan with a float switch under the dehumidifier if it is suspended above a finished area or in an area where water leakage could cause damage. Fasten the dehumidifier on supports that raise the base of the unit 6.75" above the secondary drain pan so a p-trap can be installed.



Install a 3/4" threaded male NPT adapter to the drain pan. Install a drain pipe assembly utilizing 3/4" PVC pipe to transport the condensate to a drain. Pitch of drain should be 1/4" per foot.

The unit features an industry exclusive dedicated float switch port (float switch is not provided and must be purchased separately) to shut the dehumidifier off in the event the main drain port clogs or fails. In order to use this feature the internal plug needs to be knocked out. If the unit is located above or in the living space, according to code, a secondary drain pan is to be placed under the unit and a float switch should be wired to the dehumidifier.



An optional condensate pump kit is available for use with the dehumidifier and may be installed if lift is required to dispose of condensate. Condensate is automatically pumped to a remote location when the water level in the pump's reservoir rises to close the float switch.

The pump also contains a safety float switch. The white leads from this switch extend from beneath the pump cover. This switch should be installed to the FLOAT terminals on the terminal block. Contact a qualified electrician to install the safety float switch to the dehumidifier.

⚠ CAUTION! FOR PROPER DRAINAGE, THE UNIT MUST BE MOUNTED SO THE DRAIN OUTLET IS AT LEAST 6.75" ABOVE THE FLOOR DRAIN, AND MUST BE FULLY SUPPORTED UNDER THE BASE.

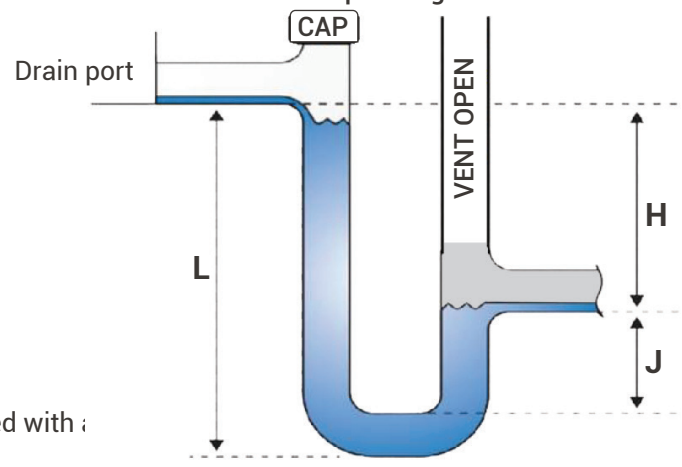
Condensate Water Removal

Condensate drains by gravity via the drain port. Use 3/4" male NPT PVC pipe. An optional condensate pump kit may be installed if a lift is required to dispose of the condensate.

Follow Diagram:

H = 4"
J = 2"
L = 6.75"

Drain Trap Configuration



Vent:
- Place vent after the trap.
- Vent should be open.
- Height of vent should be higher than drain outlet.

Cap:
- A clean out can be placed before trap but must be sealed with a

Drain Line:
- Drain line should go in a downward slope to the drain.
- 1/4" drop per foot.

7. OUTDOOR AIR VENTILATION

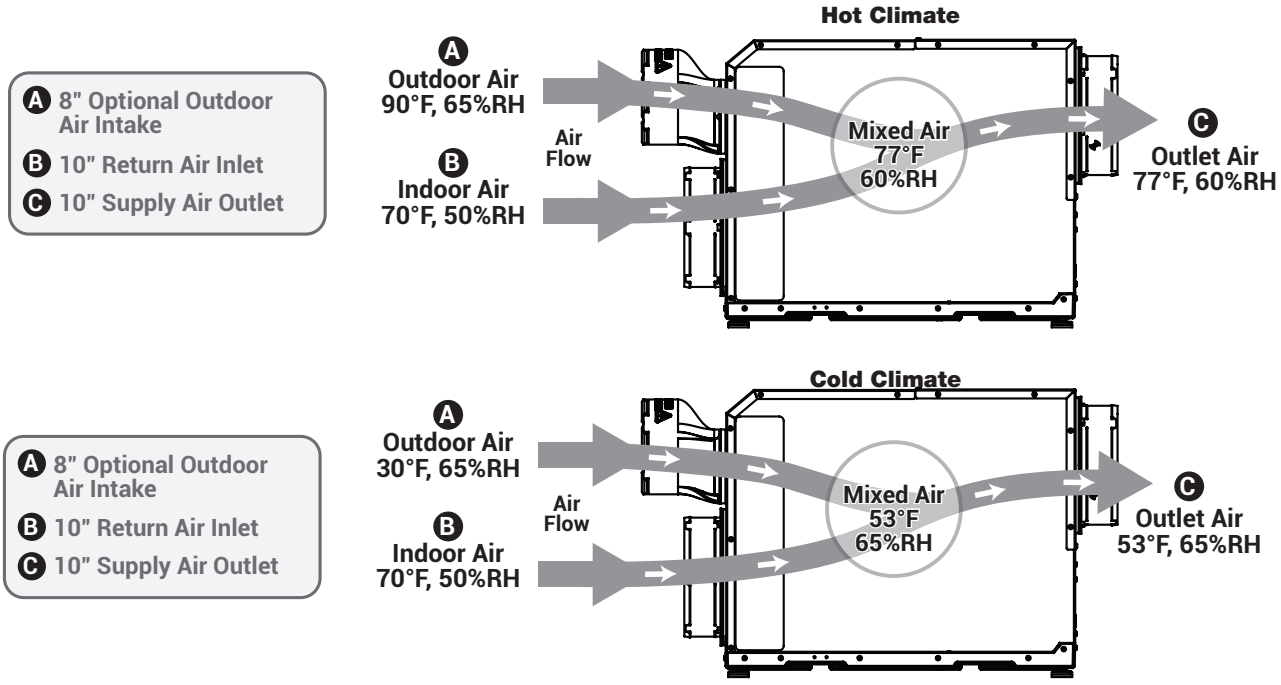
Outdoor air ventilation is optional.

Outdoor air may be brought into the structure by connecting an insulated duct from outside the structure to the 8" inlet of the dehumidifier. A ventilation control is needed to program the time and frequency that the unit introduces outside air. The time and frequency of ventilation should be based on the size and occupancy of the residence.

- The outdoor air ventilation duct should be connected to the 8" round collar on the front of the dehumidifier.
- An insulated 8" diameter duct can provide up to 135 CFM of outside air.
- Performance of the dehumidifier can be impacted by inside and outside air conditions.
- When a 8" motorized damper is used, a digital control is required.
- The Santa Fe SmartAire™ Damper is sold separetly and works with the Ultra V155. The Santa Fe SmartAire™ Power Damper is 6". Transition duct work will be needed to use the damper.
- In cold climates or at times when the dew point is low, ventilation can be used to dehumidify the structure, making the dehumidifier capable of year-round drying.

Outdoor Air Ventilation With Dehumidifier Off and Fan Only Operation

Outside air mixes with return air prior to beginning the dehumidification process. Outside and inside temperature and relative humidity will impact the combined outlet air conditions.



7. OUTDOOR AIR VENTILATION

7.1 Determine Ventilation Requirements

The MINIMUM ventilation requirement is calculated using ASHRAE 62.2-2016. Use one or both of the options below to determine your ventilation requirement. Follow all local and national building and safety codes.

Option 1: Calculating Airflow Requirement Using ASHRAE 62.2-2016 Airflow Equation

ASHRAE Airflow in CFM = [House Area in Sq.Ft. x 0.03] + [(Number of Bedrooms +1) x 7.5]

NOTE: Use 'Number of Bedrooms + 1' or 'Number of Occupants', whichever is larger.

Example 1: Number of Bedrooms + 1
1800 square foot house with 3 bedrooms, 4 occupants = [1800 X 0.03] + [(3+1) X 7.5] = 84 CFM

Example 2: Number of Occupants
1800 square foot house with 3 bedrooms, 5 occupants = [1800 X 0.03] + [5 X 7.5] = 91.5 CFM

Record the required CFM _____

Option 2: Calculating Airflow Requirement Using Table 4.1 from ASHRAE 62.2-2019

Ventilation Air Requirements, CFM

Floor Area (ft^2)	Number of Bedrooms				
	1	2	3	4	5
<500	30	38	45	53	60
501-1000	45	56	60	68	75
1001-1500	60	68	75	83	90
1501-2000	75	83	90	98	105
2001-2500	90	98	105	113	120
2501-3000	105	113	120	128	135
3001-3500	120	128	135	143	150
3501-4000	135	143	150	158	165
4001-4500	150	158	165	173	180
4501-5000	165	173	180	188	195

Table 4.1 from ASHRAE 62.2-2019

Record the required CFM _____

8. DUCTING TO HVAC SYSTEMS

8.1 Dehumidifier Location

Choose whether to place dehumidifier on the floor or to hang the unit.

- If hanging the dehumidfier, an optional hang kit may be purchased. See instructions with hang kit.
- If placing the dehumidifier on the floor, continue with the following instructions in the Ducting To HVAC Systems.

⚠ CAUTION!

INTERNAL STOPS LIMIT FEET HEIGHT. DO NOT TIGHTEN FEET BEYOND THE RESISTANCE PROVIDED BY STOPS.

⚠ CAUTION!

DO NOT CONNECT WITH A STATIC PRESSURE GREATER THAN OR EQUAL TO +0.5 WG. CONTACT TECHNICAL SUPPORT AT (800) 533-7533 FOR ADDITIONAL DETAILS.

⚠ CAUTION!

ALLOW FOR ENOUGH SPACING TO PROPERLY ROUTE THE RETURN AND SUPPLY CONNECTION.

8.2 Ducting Considerations:

- All flexible ducting connected to the dehumidifier should be UL listed.
- A short piece of flexible ducting on all dehumidifier duct connections is recommended to reduce noise and vibration transmitted to rigid ductwork in the structure.
- Use a minimum 10" diameter round or equivalent rectangular duct for total duct lengths of up to 25'. Use a minimum 12" diameter or equivalent for longer lengths.
- Grills or diffusers on the duct ends must not excessively restrict airflow.
- A length of 8" or more of insulated flex duct or any other vibration isolating material on the outlet of the dehumidifier will reduce air noise from the blower.
- Effective dehumidification may require that ducting be branched to isolated, stagnant air flow areas. When ducting to two or three areas, use 8" or larger diameter branch ducting. When ducting to four or more areas, use 6" or larger diameter branch ducting. Provisions must be made to provide airflow from supply locations to the central return location. Proper air distribution is important to ensure even humidity control and heat distribution throughout the structure.
- DO NOT locate the return in a bathroom or a kitchen.

8. DUCTING TO HVAC SYSTEMS

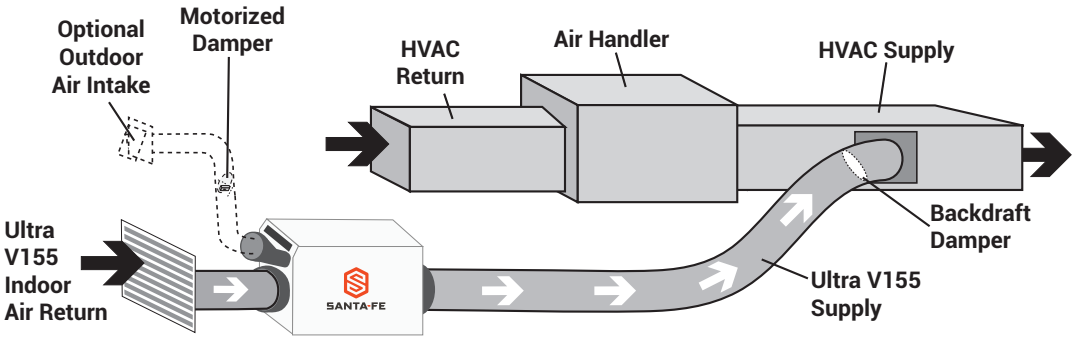
8.3 Recommended HVAC System Installations

a. Attic

The recommended installation draws air from a central location through a dedicated return to the dehumidifier and ducts the supply of the dehumidifier to the air supply of the HVAC system. Utilize the optional outdoor air ventilation duct to provide outdoor air.

- Install a dedicated 10" air return for the dehumidifier from a central area of the structure.
- Duct the supply of the dehumidifier to the supply of the HVAC system with a backdraft damper.
- If the existing system has multiple returns, instead of installing a dedicated return to the dehumidifier, it is possible to select one to disconnect from the existing HVAC system and use it for the dedicated dehumidifier return. Select a return from a central location in the house that is always open to the rest of the structure. DO NOT use a return from a room where doors are kept closed.
- DO NOT locate return in a bathroom or kitchen.
- Control should be located remotely from the dehumidifier and placed in a central location. The Santa Fe SmartAire™ Remote Sensor is sold separetly.

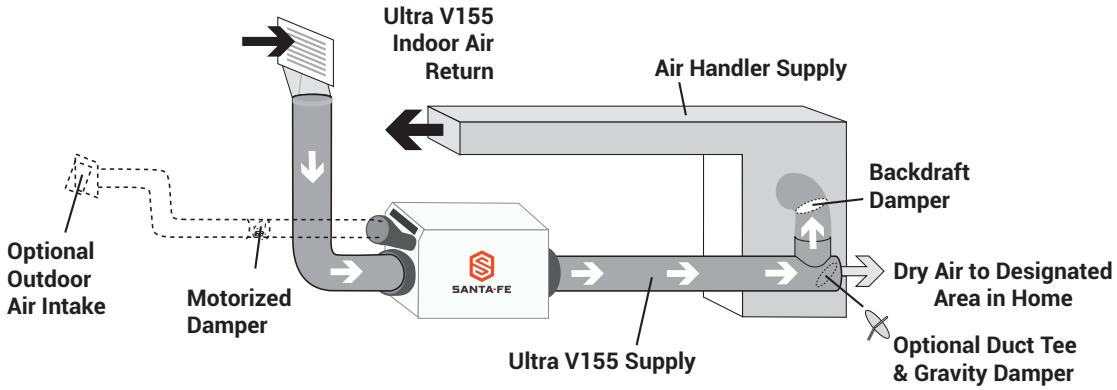
Dedicated Santa Fe Return to HVAC Supply



b. Installation to Designated Areas in the Home using HVAC System

Install a separate 10" return for the Ultra V155 in a central area of the structure. Duct the supply of the dehumidifier to the air supply of the HVAC system with a backdraft damper.

Optional: Duct the supply of the Ultra V155 to a 10" x 10" x 10" tee/damper with a gravity draft damper, adjusted to 20% open to the basement. CAUTION: Air takes the path of least resistance. If the upper levels of the living space are not receiving the appropriate amount of dry air, this damper may need to be adjusted. When the dehumidifier is not running, there is a chance that air from the basement or crawlspace will make its way back through the gravity damper and into the living space.



8. DUCTING TO HVAC SYSTEMS

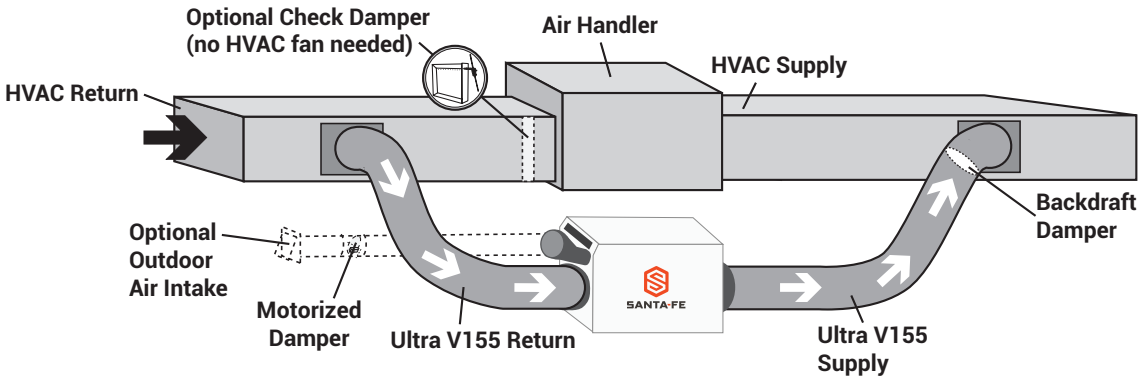
8.4 Alternative HVAC System Installations

If the Recommended Dedicated Ultra Series Return to HVAC Supply Installation is not possible, there are several alternative installation options available.

- DO NOT locate return in a bathroom or kitchen.
- Control should be located remotely from the dehumidifier and placed in a central location.
- For basement and crawl space installations, an optional tee can be installed on the Ultra Series Supply.

a. HVAC Return to HVAC Supply

- Check Damper should be in place between the Return and Supply connections of the dehumidifier.
- If Check Damper is not in place, the HVAC fan must turn on when the dehumidifier is in operation.
- If the system has greater than 0.5" WG the ducting must be reconfigured.

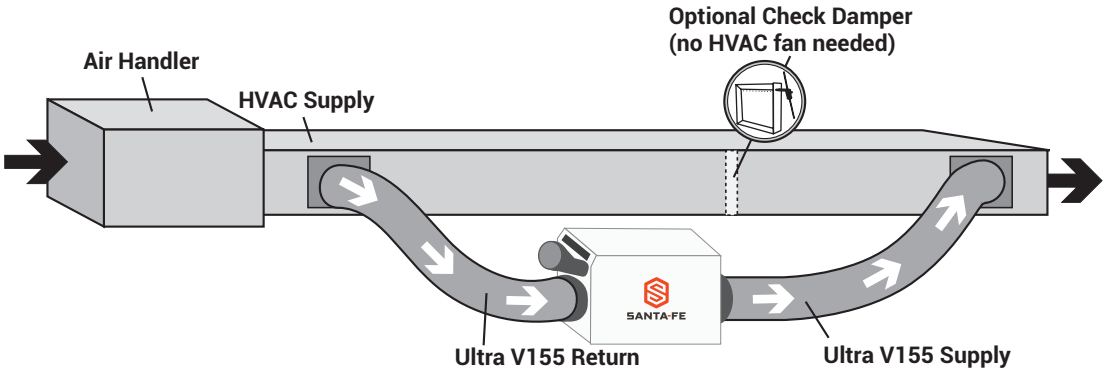


b. HVAC Supply to HVAC Supply

⚠ CAUTION!

TO AVOID THE DEHUMIDIFIER CYCLING IN AND OUT OF DEFROST, IT IS RECOMMENDED THAT THE LEAVING AIR TEMPERATURE OF THE A/C COIL IS NOT BELOW 55°F. ALSO, THIS INSTALL IS NOT RECOMMENDED FOR CLIMATES WERE THE HEATING SYSTEM WILL RUN DURING THE SPRING AND FALL TIMES OF THE YEAR, AS THIS COULD DIMINISH THE WATER REMOVAL CAPABILITY OF THE DEHUMIDIFIER.

If Check Damper is not in place, the HVAC fan must turn on when the dehumidifier is in operation.



⚠ WARNING

DUE TO POTENTIAL OF CONDENSATION IT IS NOT RECOMMENDED TO USE THE OPTIONAL OUTDOOR AIR INTAKE WHEN INSTALLING THE DEHUMIDIFIER SUPPLY TO SUPPLY.

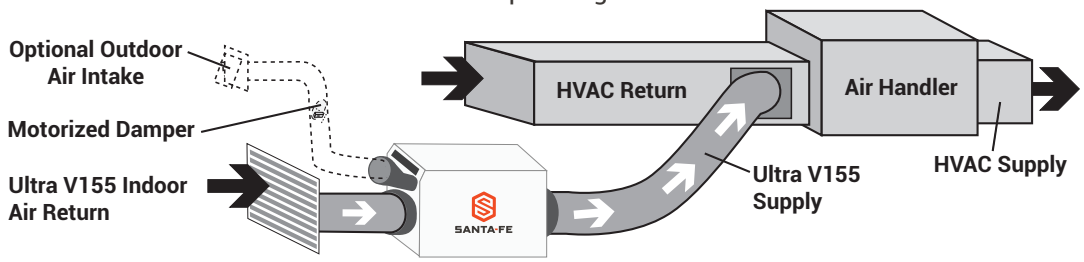
8. DUCTING TO HVAC SYSTEMS

⚠ CAUTION!

PLEASE NOTE: RETURN TO RETURN INSTALLS ARE TO BE CONSIDERED LAST RESORT OPTIONS AND ARE NOT RECOMMENDED. THE DEHUMIDIFIER WILL HEAT THE AC COOLING COILS WHICH DIMINISHES THE AMOUNT OF WATER THE AC SYSTEM WILL REMOVE WHEN OPERATING. IF THIS INSTALLATION IS CHOSEN, THE DEHUMIDIFIER MUST ACTIVATE THE HVAC BLOWER AND AC CALLS NEED TO LOCK OUT THE DEHUMIDIFIER FROM RUNNING. PLEASE CHECK YOUR LOCAL CODES PRIOR TO INSTALLING.

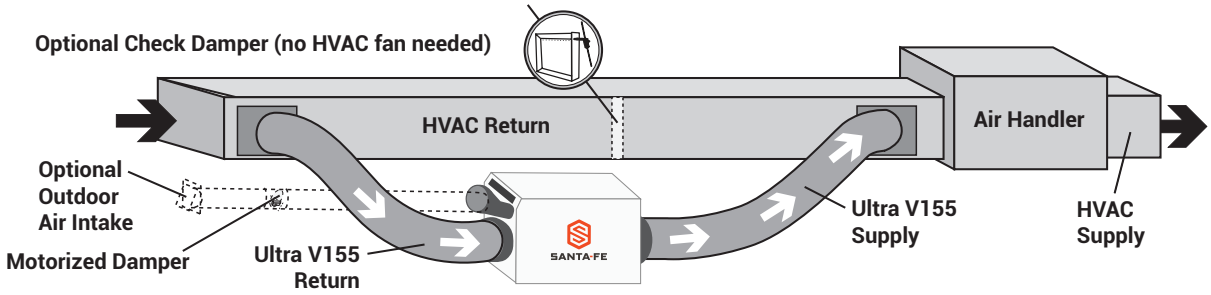
c. Dedicated Santa Fe Return to HVAC Return

- Create a separate return for the Ultra Series Dehumidifier in a central area of the building.
- Installing the supply air from the Ultra Series Dehumidifier to the return of the HVAC system requires the HVAC fan to run when the Ultra Series Dehumidifier is operating.



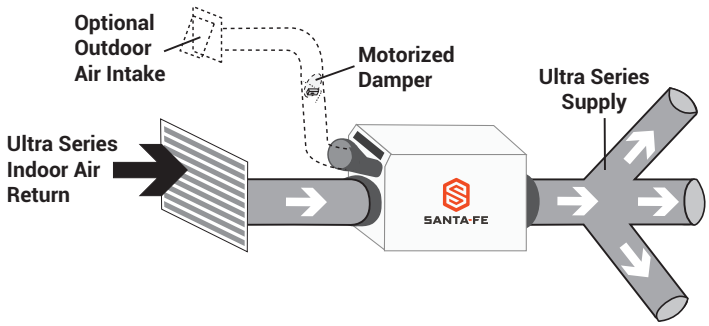
d. HVAC Return to HVAC Return

If Check Damper is not in place, the HVAC fan must turn on when the dehumidifier is in operation.



e. No Existing Ductwork Installation

- When installing the Ultra Series Dehumidifier in a structure that does not have a forced-air HVAC system, a single return for the dehumidifier should be installed in a central location.
- Install an insulated duct from outside to the 8" collar of the Ultra Series Dehumidifier to provide outdoor air ventilation (optional).
- The supply of the Ultra Series Dehumidifier should be ducted to the rooms in the home that have the ductless mini-split heads and as close to the heads as possible. Be sure to utilize multiple rooms to allow air inside the structure to properly circulate. Proper air distribution is important to ensure even humidity control and heat distribution throughout the structure.
- An 8" diameter duct is recommended for branches to bedrooms. A 10" diameter duct is recommended for branches to larger areas.
- DO NOT locate return in a bathroom or kitchen.
- DO NOT locate the supply in rooms where doors may be closed.
- Control should be located remotely from the dehumidifier and placed in a central location.



9. DUCTING TO CLOSET HVAC SYSTEMS

⚠WARNING!

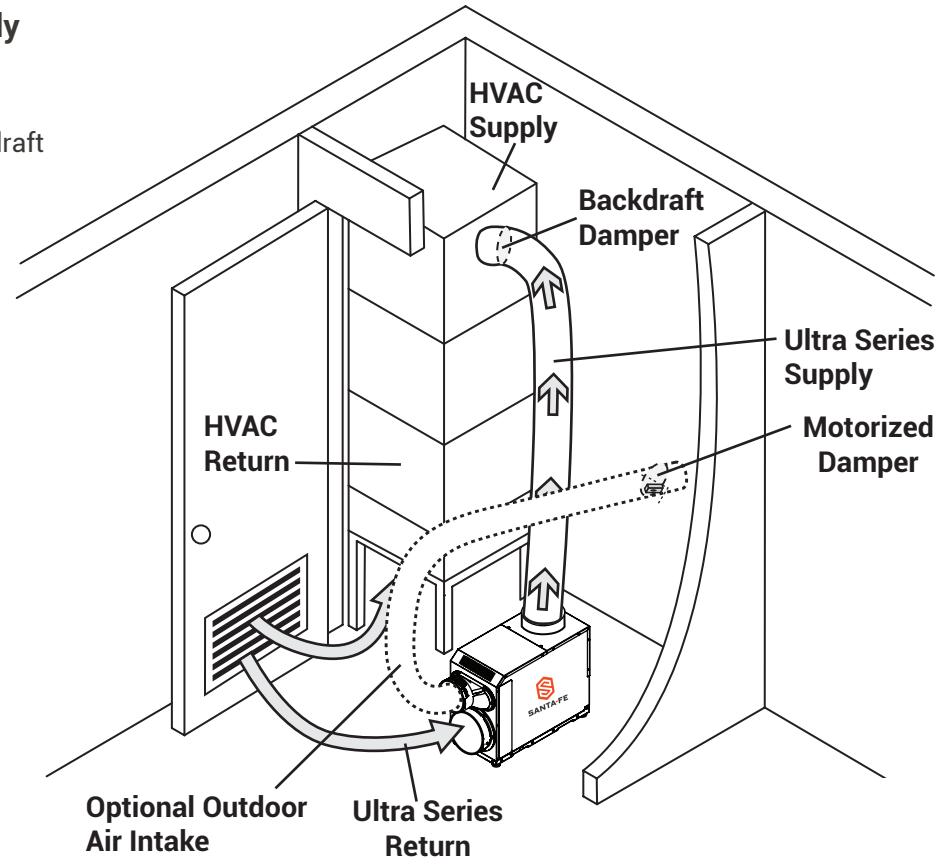
WHEN INSTALLING THE DEHUMIDIFIER AS PART OF A COMBUSTION TYPE HVAC SYSTEM (GAS, OIL, PROPANE, ETC.), FOLLOW ALL LOCAL AND NATIONAL BUILDING AND SAFETY CODES.

9.1 Recommended Closet Installation

- Due to space limitations, a closet installation may require additional considerations. Locate the dehumidifier under or next to the HVAC system as space allows. A passive vent or louver door is required to allow air to be pulled in from the living space.
- No inlet duct is required. Air is pulled through the passive vent or louver door from the living space.
- Install an insulated duct from outside to the 8" collar of the Ultra Series Dehumidifier to provide outdoor air ventilation (optional).
- Control should be located remotely from the dehumidifier and placed in a central location.
- Where outlet space is restricted, the outlet duct collar is optional or vertical flow through may be preferred.

Central Return to HVAC Supply

Duct the supply of the Ultra Series Dehumidifier to the supply of the existing HVAC system with a backdraft damper.



9. DUCTING TO CLOSET HVAC SYSTEMS

⚠ CAUTION!

PLEASE NOTE: RETURN TO RETURN INSTALLS ARE TO BE CONSIDERED LAST RESORT OPTIONS AND ARE NOT RECOMMENDED. THE DEHUMIDIFIER WILL HEAT THE AC COOLING COILS WHICH DIMINISHES THE AMOUNT OF WATER THE AC SYSTEM WILL REMOVE WHEN OPERATING. PLEASE CHECK YOUR LOCAL CODES PRIOR TO INSTALLING.

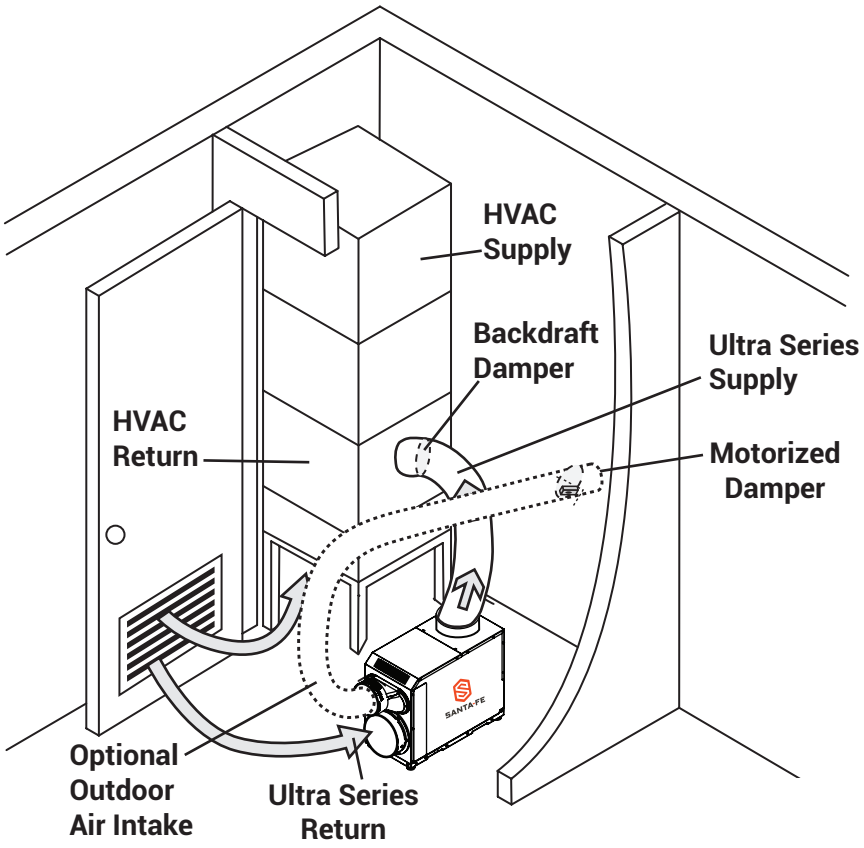
9.2 Alternative Closet Installation

If the Recommended Closet Installation is not possible, there are several alternative installation options available.

- No inlet duct is required. Air is pulled through the passive vent or louver door from the living space.
- Install an insulated duct from outside to the 8" collar of the Ultra Series Dehumidifier to provide outdoor air ventilation (optional).
- Control should be located remotely from the dehumidifier and placed in a central location.

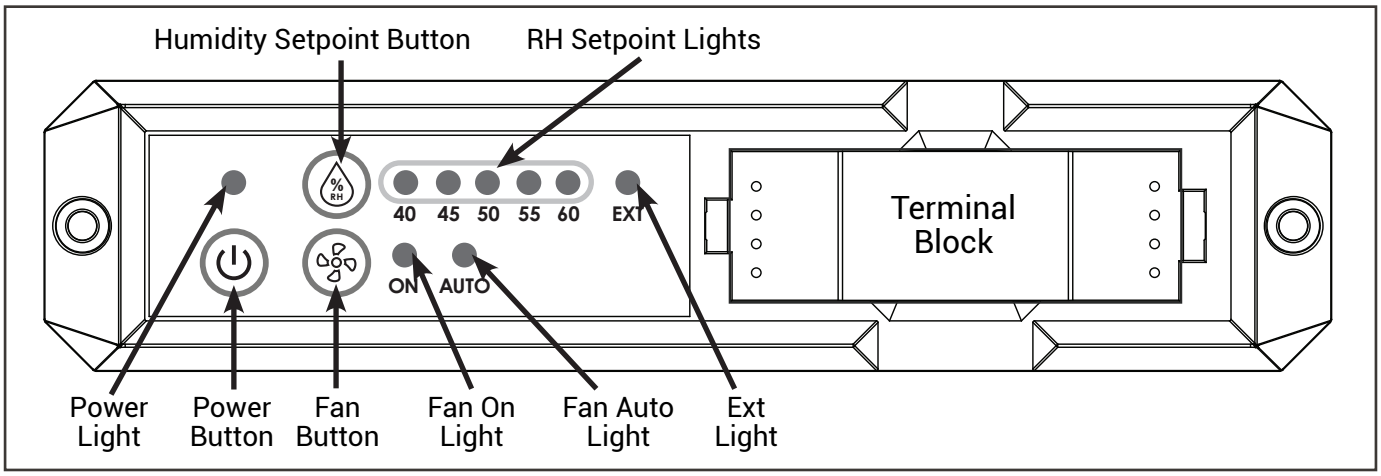
Central Return to HVAC Return

- Duct the supply of the Ultra Series Dehumidifier to the return side of the existing HVAC system.
- In a central return system, the HVAC fan must run when the dehumidifier is running.



10. CONTROLS

The dehumidifier can be controlled by its onboard dehumidistat or with an external control using its low voltage terminal block.



When the Unit is Off: Fan, Compressor, Display and all LEDs are off

To Turn Unit On: Press the Power Button

To Turn Unit Off: Press the Power Button

When the Unit is On: Light above Power Button is illuminated. Light above RH Setpoint is illuminated and fan mode light is illuminated. In the event of a power outage, the unit will resume operation with the same RH Setpoint and Fan Mode once power turns back on.

10.1 Set the Relative Humidity Setpoint

Press the RH Button.

Each press of the RH Setpoint Button will increase the relative humidity by 5%. The light above the RH setpoint will illuminate. After 60% the unit will switch to EXT mode – see section 5.2. To return back to 40% setpoint, push the RH Button again and the setpoint will cycle back and start at 40%. Continue to press the RH Setpoint Button until the desired Setpoint is illuminated.

Note: After the dehumidifier reaches the selected RH Setpoint, the unit will wait at least 15 minutes before turning back on. This is to avoid the unit turning on and off too quickly.

10.2 Set the Fan Mode

Pressing the Fan Button alternates the Fan Mode between On and Auto. When On is illuminated the fan will run continuously. When Auto is illuminated the fan will run when the compressor is on and the unit is dehumidifying.

10.3 Air Sampling

When operating in Internal Control Mode, the dehumidifier will turn on the fan in order to move air through the unit and measure the relative humidity of the air at the end of the sample.

If the relative humidity of the air at the onboard sensor is reading below the RH Setpoint, the dehumidifier will turn the fan on for 1 minute every 60 minutes. After running the fan for 1 minute and the relative humidity of the air is still below the RH Setpoint, the fan will turn off. The dehumidifier will sample the air again in 60 minutes.

If the relative humidity at the onboard sensor is reading above the RH Setpoint, the fan will turn on for 1 minute. If after 1 minute the relative humidity of the air is still above the RH Setpoint, the unit will start dehumidifying. If the relative humidity of the air at the onboard sensor is below the RH Setpoint after 1 minute, the fan will turn off. The unit will turn the fan on again in 15 minutes and resample the relative humidity.

10. CONTROLS

10.4 Ventilation Control
When using the dehumidifier for ventilation control, use the terminal block to wire to FAN and 24V COM. The unit will always respond to a call for fan via the terminal block in both internal control mode and external control mode. See Section 5.2.1 for more information on external control mode.

10.5 Dew Point Cut Out
If the dew point is below 40F at the onboard sensor the unit will stop dehumidifying. If the Fan Mode is set to ON, the fan will continue to run. If the Fan Mode is set to Auto the Fan will turn off. Dew Point Cut Out is designed to protect the dehumidifier as well as turn the unit off when the total moisture in the air is too low. If the dew point is below 40°F, the selected RH set point light will begin to flash. All other lights will remain unchanged (such as power light and fan light). If only the RH Setpoint light is flashing, there is no need for troubleshooting. The unit is operating normally.

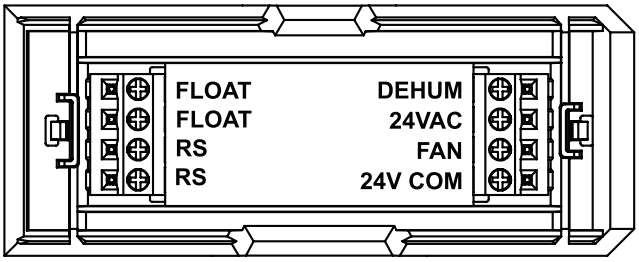
NOTE: The relative humidity of the air maybe above the RH setpoint of the unit but the dew point is below 40°F. In this case the unit will dehumidify. The unit will turn the fan on every 15 minutes and measure the dew point. Once the dew point rises above 40F the unit will resume normal operation.

10.6 Temperature Cut Out
When the temperature of the air after the 1 minute sampling period is above 120F or below 40F the unit will not dehumidify. The unit will turn the fan on for 1 minute, every 15 minutes and measure the temperature. Once the temperature is above 40F or below 120F the unit will resume normal operation.

10.7 External Control Mode
Push the RH Setpoint Button until EXT is illuminated. The unit will now operate only based on commands from the terminal block.

This must be activated when an external control is used to control RH. When Terminal Control is active, the internal RH sensor is disabled.

10.8 Terminal Block Layout



RS is only available on select Santa Fe models.

24VAC COM	24VAC Power Transformer Neutral Side
FAN	Fan Control
24VAC	Transformer High Side
DEHU	Dehumidification (Fan and Compressor) Control
FLOAT	External Low Voltage Float Switch or Water Sensor (Use Normally Closed Switch)
FLOAT	External Low Voltage Float Switch or Water Sensor (Use Normally Closed Switch)
RS	For Santa Fe SmartAire™ Remote Sensor
RS	For Santa Fe SmartAire™ Remote Sensor

10.9 Float Switch Cut Out
The terminal block is shipped with a jumper wire between the two FLOAT terminals. This jumper wire must stay in place unless a normally open float switch is installed using these two terminals. If the terminal block is removed E2 will display because the float switch jumper has been removed. Once the terminal block in reinstalled this error will reset. See page 23 for error codes.

10.10 Remote Sensor
The optional Santa Fe SmartAire™ Remote Sensor can be wired from a remote location to the dehumidifier to monitor relative humidity and activate the dehumidifier based on the RH setpoint on the digital control of the dehumidifier.

10.11 Fan Control
The fan can be controlled by an external controller for ventilation or air circulating by closing a 24V AC dry contact between FAN and 24V COM.

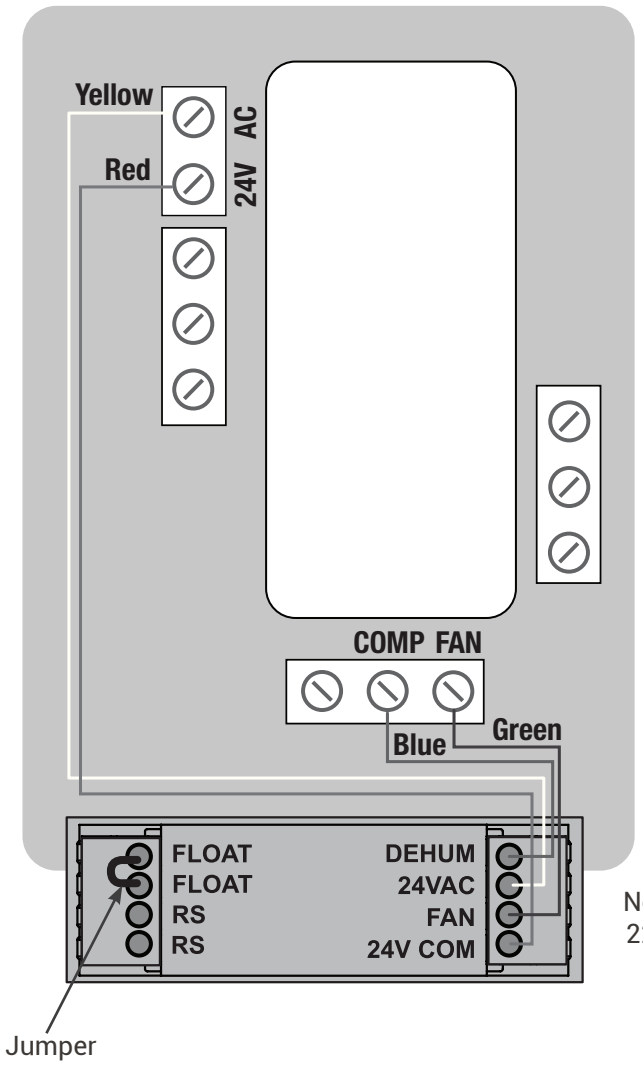
10.12 DEHU Control
The unit can be controlled to dehumidify by closing a 24V AC dry contact between DEHU and 24V COM. The unit will circulate air for 1 minute before starting to dehumidify.

10. CONTROLS

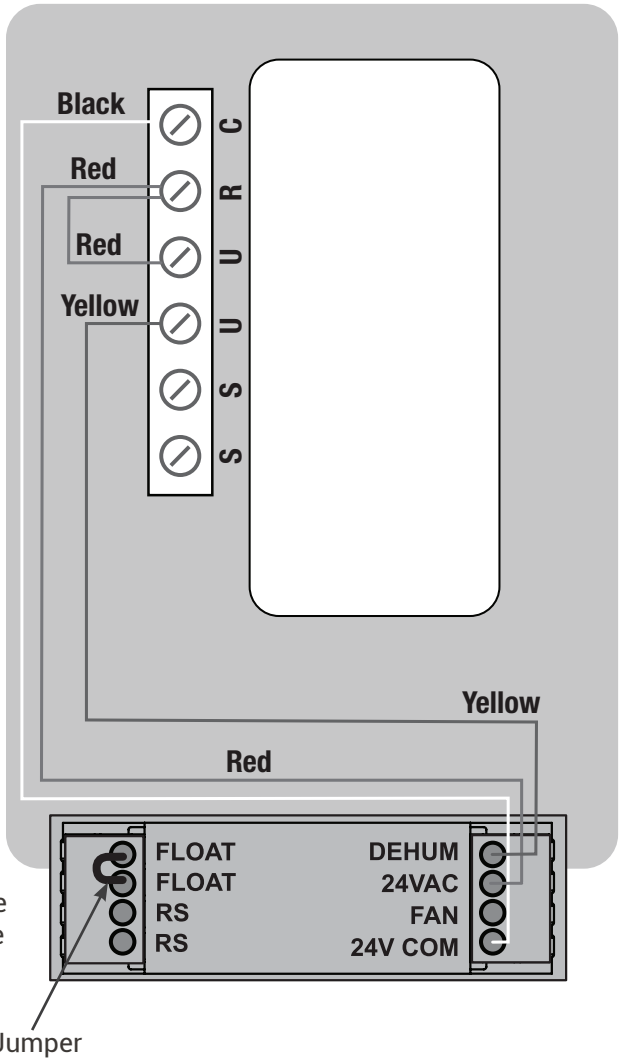
10.13 External Controller Options

Santa Fe offers several external control options such as the DEH3000, DEH3000R, and Honeywell Humidipro. These external controls are solid separately. This unit can also be controlled by any 24 Volt AC dry contact, normally open signal.

4028531
DEH 3000R Wiring Diagram



4041649
Honeywell Humidipro
Wiring Diagram



Note: Use 22 gauge wire.

10.14 On Board Power

This unit has an AC to AC power transformer that can supply 24V AC power. This power is used to power the onboard controls as well as any external accessories. 30 Watts of 24V AC power is available through the terminal block using the 24VAC and 24VAC COM. This should accommodate up to two power dampers. See power requirements of dampers used prior to install.

10.15 Error Codes

This unit is capable of detecting critical errors within the system and displaying them on the interface. If the unit has a critical error the FAN ON and FAN AUTO lights will be blinking along with other lights to indicate the error. The total number of flashing lights indicate the error number in the table below:

Critical Error #	POWER	40	45	50	55	60	EXT	RS	ON	AUTO	Description
3	●	★	O	O	O	O	O	O	★	★	Out of refrigerant
4	●	★	★	O	O	O	O	O	★	★	Float switch tripped
8	●	★	★	★	★	★	★	O	★	★	Comm Error
9	●	★	★	★	★	★	★	★	★	★	High pressure cut-out

● = On, not blinking ★ = Blinking O = Off

10.16 Function Check

During routine maintenance it is sometimes necessary to force the unit to operate without dew point or temperature cut offs to ensure the unit is working properly. To activate this mode, press and hold the FAN and POWER button together for 3 seconds. The RH setpoint lights will cycle back and forth when activated.

⚠ IMPORTANT!

THE UNIT MUST BE RETURNED TO NORMAL OPERATION BY QUICKLY PRESSING THE FAN BUTTON.

11. AIR FILTRATION

The dehumidifier is equipped with a MERV-13 (Dimensions: 1.75"x14"x17.5") air filter. The filter should be checked and replaced every three to six months. Operating the unit with a dirty filter will reduce dehumidifier capacity and efficiency.

DO NOT operate the unit without the recommended filter. Filter non-compliance voids the product warranty.

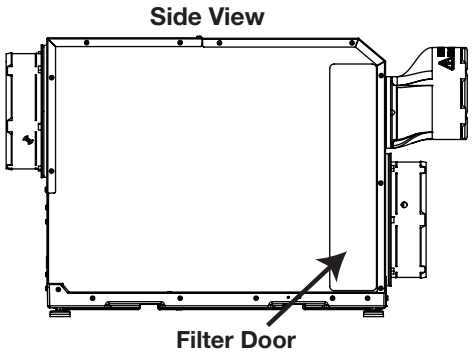
⚠ CAUTION!

MAKE SURE UNIT IS OFF BEFORE CHANGING THE FILTER.

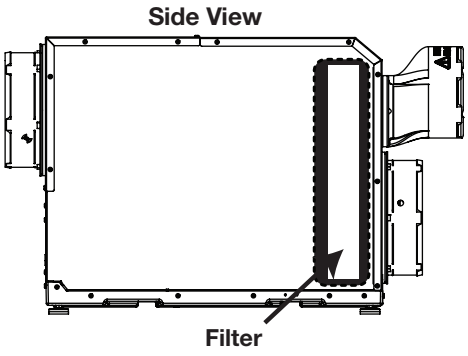
Changing the Filter

For greatest filtration and efficiency of the dehumidifier, it is recommended the air filter be replaced every three to six months with a MERV 13 rated filter.

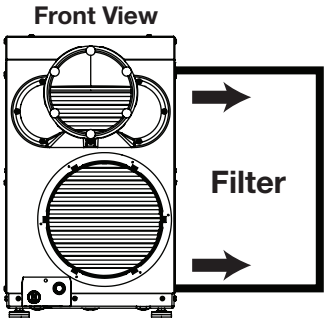
Step 1: Remove the magnetized filter door by pulling it off of the dehumidifier. You can remove it on either side to gain access to the filter.



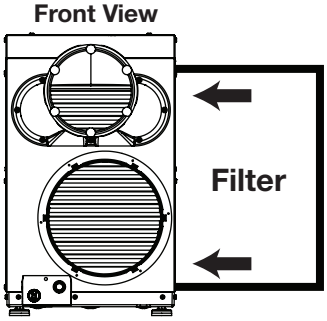
Step 2: Remove the filter by gently pulling straight out of the unit. Insert new filter by gently pushing it straight into the unit. Make sure the AIR FLOW arrow on the filter is pointing into the unit.



To Remove,
pull out straight.

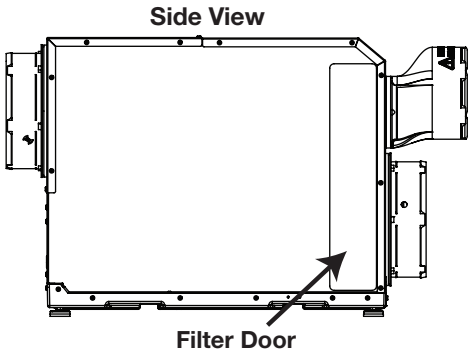


To Replace,
push in straight.



Step 3: Attach the magnetized filter door back into place, ensuring it covers the filter compartment completely.

Check the filter door on the opposite side of the unit to ensure it was not moved out of place when replacing the filter.



11. AIR FILTRATION

11.1 MERV Rating Chart

Standard 52.5 Minimum Efficiency Reporting Value	Dust Spot Efficiency	Arrestance	Typical Controlled Contaminant	Typical Applications and Limitations	Typical Ail Filter/Cleaner Type
20	n/a	n/a	< 0.30 pm Particle Size	Cleanrooms	≥99.999% eff. On 10-20 pm Particles
19	n/a	n/a	Virus (unattached)	Radioactive Materials	Particles
18	n/a	n/a	Carbon Dust	Pharmaceutical Man.	Particulates
17	n/a	n/a	All Combustion Smoke	Carcinogenic Materials	≥99.97% eff. On 30 pm Particles
16	n/a	n/a	0.30-1.0 pm Particle Size	General Surgery	Bag Filter - Nonsupported
15	>95%	n/a	All Bacteria	Hospital Inpatient Care	Micro Fine Fiberglass or Synthetic media, 12-36 in. Deep, 6-12 Pockets
14	90-95%	>98%	Most Tobacco Smoke	Smoking Lounges	Box Filter - Rigid Style Cartridge
13	89-90%	>98%	Proplet Nuceli (Sneeze)	Superior Commercial Buildings	Filters 6 to 12 in. Deep, May Use Lofted or Paper Media
12	70-75%	>95%	1.0-3.0 pm Particle Size Legionella	Superior Residential	Bag Filter - Nonsupported
11	60-65%	>95%	Humidifier Dust Lead Dust	Better Commercial Buildings	Micro Fine Fiberglass or Synthetic media, 12-36 in. Deep, 6-12 Pockets
10	50-55%	>95%	Milled Flour		Box Filter - Rigid Style Cartridge
9	40-45%	>90%	Welding Fumes	Hospital Laboratories	Filters 6 to 12 in. Deep, May Use Lofted or Paper Media
8	30-35%	>90%	3.0-10.0 pm Particle Size	Commercial Buildings	Pleated Filters - Disposable, Extended Surface Area, Thick with Cotton-Polyester Blend Media, Cardboard Frame
7	25-30%	>90%	Mold Spores Hair Spray	Better Residential	Cartridge Filters - Graded Density Viscous Coated Cube or Pocket Filters, Synthetic Media
6	<20%	85-90%	Fabric Protector Dusting Aids		Throwaway - Disposable Synthetic Panel Filter
5	<20%	80-85%	Cement Dust Pudding Mix	Paint Booth Inlet	
4	<20%	75-80%	>10.0 pm Particle Size Pollen	Minimal Filtration	Throwaway - Disposable Synthetic Panel Filter
3	<20%	70-75%	Dust Mites Standing Dust	Residential	Washable - Aluminum Mesh
2	<20%	65-70%	Spray Paint Dust		
1	<20%	<65%	Textile Fibers Carpet Fibers	Window A/C Units	Electrostatic - Self Charging Woven Panel Filter

Table Data Source: United States Environmental Protection Agency

12. SERVICE

⚠ WARNING!

SERVICING THE DEHUMIDIFIER WITH ITS HIGH PRESSURE REFRIGERANT SYSTEM AND HIGH VOLTAGE CIRCUITRY PRESENTS A HEALTH HAZARD WHICH COULD RESULT IN DEATH, SERIOUS BODILY INJURY, AND/OR PROPERTY DAMAGE. ONLY QUALIFIED SERVICE PEOPLE SHOULD SERVICE THIS UNIT.

12.1 Warranty

A warranty certificate has been enclosed in this manual; read it before any repair is initiated. If a warranty repair is required, call the factory first at 1-800-533-7533 for warranty claim authorization and technical assistance.

12.2 Technical Description

The dehumidifier uses a refrigeration system similar to an air conditioner's to remove heat and moisture from incoming air, and add heat to the air that is discharged.

Hot, high-pressure refrigerant gas is routed from the compressor to the condenser coil. The refrigerant is cooled and condensed by giving up its heat to the air that is about to be discharged from the unit. The refrigerant liquid then passes through a filter/drier and expanion device which causes the refrigerant pressure and temperature to drop. It next enters the evaporator coil where it absorbs heat from the incoming air and evaporates. The evaporator operates in a flooded condition, which means that all the evaporator tubes contain liquid refrigerant during normal operation. A flooded evaporator should maintain nearly constant pressure and temperature across the entire coil, from inlet to outlet.

The compressor collects the cool refrigerant gas and compresses it to a high pressure and temperature to repeat the process.

12.3 Service Personnel

Only qualified HVAC or electrical contractors are allowed to conduct maintenance, service and/or repair operations on the dehumidifier. Examples include but are not limited to breaking into the refrigerating circuit, opening of sealed components, and/or opening of ventilated enclosures.

- Prior to beginning work on the dehumidifier, safety checks are necessary to ensure that the risk of ignition is minimized.
- For repair to the REFRIGERATING SYSTEM, a qualified contractor should first establish a controlled procedure so as to minimize the risk of a flammable gas or vapor being present while the work is being performed
- All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided.
- The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.
- If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO2 fire extinguisher adjacent to the charging area.
- No person carrying out work in relation to a REFRIGERATING SYSTEM which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. “No Smoking” signs shall be displayed.
- Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

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The following checks shall be applied to installations using FLAMMABLE REFRIGERANTS:

- Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times Therma-Stor's maintenance and service guidelines shall be followed. If in doubt, consult Therma-Stor's technical department for assistance.
- The actual REFRIGERANT CHARGE is in accordance with the room size within which the refrigerant containing parts are installed;
- The ventilation machinery and outlets are operating adequately and are not obstructed;
- Marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected;
- Dehumidifiers are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

12.4 Checks to Electrical Devices

Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised.

Initial safety checks shall include:

- that capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;
- that no live electrical components and wiring are exposed while charging, recovering or purging the system;
- that there is continuity of earth bonding;

12.5 Sealed Electrical Components Shall Be Replaced

- During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc. If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.
- Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected. This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc.
- Ensure that the equipment is mounted securely.
- Ensure that seals or sealing materials have not degraded to the point that they no longer serve the purpose of preventing the ingress of flammable atmospheres.
- Replacement parts shall be in accordance with Therma-Stor specifications.

12.6 Intrinsically Safe Components Must Be Replaced

- Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use.
- Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere. The test apparatus shall be at the correct rating.
- Replace components only with parts specified by Therma-Stor. Other parts may result in the ignition of refrigerant in the atmosphere from a leak.

NOTE: The use of silicon sealant can inhibit the effectiveness of some types of leak detection equipment. Intrinsically safe components do not have to be isolated prior to working on them.

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

12.7 Detection of Flammable Refrigerants

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.

The following leak detection methods are deemed acceptable for all refrigerant systems:

- Electronic leak detectors may be used to detect refrigerant leaks but, in the case of FLAMMABLE REFRIGERANTS, the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at 25% LFL of the refrigerant and shall be calibrated to 454B.
- Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe.

NOTE: Examples of leak detection fluids are:

- bubble method
- fluorescent method agents.
- If a leak is suspected, all open flames shall be removed/extinguished.

If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. Removal of refrigerant shall be according to Clause DD.9 of 60335-2-40.

12.8 Refrigerant Removal and Evacuation

When breaking into the refrigerant circuit to make repairs – or for any other purpose – conventional procedures shall be used. However, for FLAMMABLE REFRIGERANTS it is important that best practice is followed since flammability is a consideration. The following procedure shall be adhered to:

- Safely remove refrigerant following local and national regulations.
- The REFRIGERANT CHARGE shall be recovered into the correct recovery cylinders if venting is not allowed by local and national codes.
- For appliances containing flammable refrigerants, the system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants.
- This process might need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems.
- When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to enable work to take place.
- Open the circuit by cutting or brazing.
- Ensure that the outlet for the vacuum pump is not close to any POTENTIAL IGNITION SOURCES and that ventilation is available.

12.9 Charging Procedures

In addition to conventional charging procedures, the following requirements shall be followed:

- Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.
- Cylinders shall be kept in an appropriate position according to the instructions.
- Ensure that the REFRIGERATING SYSTEM is grounded prior to charging the system with refrigerant.
- Label the system when charging is complete (if not already).
- Extreme care shall be taken not to overfill the REFRIGERATING SYSTEM.
- Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas. The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

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12.10 Decommissioning

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its details. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of recovered refrigerant. It is essential that electrical power is available before the task commences.

- Become familiar with the equipment and its operation.
- Isolate system electrically.

Before attempting the procedure, ensure that:

- mechanical handling equipment is available, if required, for handling refrigerant cylinders;
- all personal protective equipment is available and being used correctly;
- the recovery process is supervised at all times by a competent person;
- recovery equipment and cylinders conform to the appropriate standards.

- Pump down refrigerant system, if possible.
- If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
- Make sure that cylinder is situated on the scales before recovery takes place.
- Start the recovery machine and operate in accordance with instructions.
- Do not overfill cylinders (no more than 80 % volume liquid charge).
- Do not exceed the maximum working pressure of the cylinder, even temporarily.
- When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.
- Recovered refrigerant shall not be charged into another REFRIGERATING SYSTEM unless it has been cleaned and checked.

12.11 Labelling Decommission Machines

Equipment shall be labelled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. For appliances containing FLAMMABLE REFRIGERANTS, ensure that there are labels on the equipment stating the equipment contains FLAMMABLE REFRIGERANT.

12.12 Refrigerant Recovery

- When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.
- When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.
- The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of all appropriate refrigerants including, when applicable, FLAMMABLE REFRIGERANTS. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt.
- The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.
- If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that FLAMMABLE REFRIGERANT does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.

12.13 Troubleshooting

⚠ CAUTION!

TROUBLESHOOTING SHOULD BE PERFORMED BY A QUALIFIED HVAC TECHNICIAN.

Symptom	Possible Reason	Troubleshooting Procedure
Neither fan nor compressor running. Dehumidification is being called for.	1. Dehumidifier unplugged or no power to outlet. 2. Humidity control set too high. 3. Loose connection in internal or control wiring. 4. Defective compressor relay. 5. Defective control transformer.	**⚠WARNING!** **ELECTRICAL SHOCK HAZARD:** **Electrical power must be present to perform some tests. These tests should be performed by a qualified service person.** **Troubleshooting Procedure for Control Related Issues** This method of diagnosis will test the 3 main components of the control circuit individually to indicate any potential problems. This is to be used when the control will not activate the main unit. 1. Detach field control wiring connections from the terminals on the main unit. 2. Connect the 24V and FAN terminals together; only the fan should run. Disconnect the terminals. 3. Connect the 24V and DEHU terminals together; fan and compressor should run. Disconnect the terminals. 4. If this test works, the main unit is working correctly from a control standpoint. 5. Reconnect field control wiring to the terminals on the main unit. 6. Remove the control panel cover and detach the field wiring from the control connections. 7. Connect the 24V and FAN terminals together; only the fan should run. Disconnect the terminals. 8. Connect the 24V and DEHU terminals together; fan and compressor should run. Disconnect the terminals. 9. If this test works, then the field control wiring is ok. 10. If the problem persists, then the control is most likely faulty.
Compressor is not running. Dehumidification is being called for. Fan is running.	1. Defective compressor run capacitor. 2. Loose connection in compressor circuit. 3. Defective compressor overload. 4. Defective compressor.	
Compressor cycles on and off. Dehumidification is being called for.	1. Low ambient temperature and/or humidity causing unit to cycle through defrost mode. 2. Defective compressor overload. 3. Defective compressor. 4. Defrost thermostat defective. 5. Dirty air filter(s) or air flow restricted. 6. Defective fan or relay.	
Fan is not running. Dehumidification or fan is being called for.	1. Loose connection in fan circuit. 2. Obstruction prevents fan impeller rotation. 3. Defective fan. 4. Defective fan relay.	

Troubleshooting (Continued)

Symptom	Possible Reason	Troubleshooting Procedure
Low dehumidification capacity (evaporator is frosted continuously). Dehumidification is being called for.	1. Defrost thermostat loose or defective. 2. Low refrigerant charge. 3. Dirty air filter(s) or air flow restricted. 4. Excessively restrictive ducting connected to unit.	**WARNING!** **ELECTRICAL SHOCK HAZARD:** **Electrical power must be present to perform some tests. These tests should be performed by a qualified service person.** **Troubleshooting Procedure for Control Related Issues** This method of diagnosis is used to function check the internal components in the dehumidifier. This is to be used when a performance issue is suspected. 1. Set the humidity controller all the way to the most humid setting or off position – Did the unit shut off? 2. If yes, turn the fan setting to the ON position – does the fan start? 3. If fan starts, leave in the fan ON position and set the humidity all the way to driest setting. May have to wait 5 minutes for the compressor to start. 4. Listen for a distinct buzzing/humming sound of a compressor starting up – do you hear this noise? 5. If compressor is running and continues to run, after about 15 minutes you should feel a slight increase in air temperature being discharged out of the discharge air side of the unit. 6. If so, depending on your environmental conditions (temp/Rh%), you should see some water production out of the hose within 30 minutes or so. (Note: If the room temperature is 55 degrees or below and/or in area of low relative humidity, the dehumidifier will produce little to no water.) 7. Collecting the water removed in a 24 hour period will give a measurement of performance.
No ventilation. Ventilation is being called for.	1. Loose connection in ventilation control circuit. 2. Loose connection in damper power circuit. 3. Defective outdoor air damper.	
Dehumidifier removes some water, but not as much as expected.	1. Air temperature and/or humidity have dropped. 2. Humidity meter and or thermometer used are out of calibration. 3. Unit has entered defrost cycle. 4. Dirty air filter(s) or air flow is restricted. 5. Defective defrost thermostat. 6. Low refrigerant charge. 7. Air leak such as loose cover or ducting leaks. 8. Defective compressor. 9. Restrictive ducting.	

11.14 Refrigerant Charging

⚠ WARNING!

SERVICING THE DEHUMIDIFIER WITH ITS HIGH PRESSURE REFRIGERANT SYSTEM AND HIGH VOLTAGE CIRCUITRY PRESENTS A HEALTH HAZARD WHICH COULD RESULT IN DEATH, SERIOUS BODILY INJURY, AND/OR PROPERTY DAMAGE. SERVICE MUST BE PERFORMED BY A QUALIFIED SERVICE TECHNICIAN.

If the refrigerant charge is lost due to service or a leak, the leak should be repaired and a new charge must be accurately weighed in. If any of the old charge is left in the system, it must be recovered before weighing in the new charge. Refer to the unit nameplate for the correct charge weight and refrigerant type.

13. WARRANTY

Effective January 1, 2024

Limited Warranty. Therma-Stor, LLC ("Therma-Stor") warrants as follows: (i) Santa Fe dehumidifiers ("Product") will be free of material defects in workmanship or materials for a period of 5 years ("Five-Year Warranty") following the date of initial purchase of such Product by an original customer purchasing from Therma-Stor or an authorized reseller ("Customer"); and (ii) the Product's components will be free of material defects in workmanship or materials for a period of six (6) years following the date of initial purchase of such Product by a Customer.

Limitation of Remedies. CUSTOMER'S SOLE AND EXCLUSIVE REMEDY UNDER THE ABOVE LIMITED WARRANTY AND THERMA-STOR'S ENTIRE LIABILITY THEREUNDER, SHALL BE, AT THE SOLE OPTION OF THERMA-STOR, REPLACEMENT OR REPAIR OF SUCH PRODUCT OR ITS COMPONENTS ("COMPONENTS") BY THERMA-STOR OR THERMA-STOR'S AGENTS ONLY. REFRIGERANT, PIPING, SUPPLIES, TRANSPORTATION COSTS, LABOR COSTS INCURRED IN REPAIR OR REPLACEMENT OF SUCH COMPONENTS ARE NOT INCLUDED. THIS DISCLAIMER AND EXCLUSION SHALL APPLY EVEN IF THE EXPRESS WARRANTY AND LIMITED REMEDY SET FORTH HEREIN FAILS OF ITS ESSENTIAL PURPOSE. CUSTOMER ACKNOWLEDGES THAT NO REPRESENTATIVE OF THERMA-STOR OR OF ITS AFFILIATES OR RESELLERS IS AUTHORIZED TO MAKE ANY REPRESENTATION OR WARRANTY ON BEHALF OF THERMA-STOR OR ANY OF ITS AFFILIATES OR RESELLERS THAT IS NOT IN THIS AGREEMENT.

Disclaimer of Warranties. EXCEPT FOR ABOVE LIMITED WARRANTY, WHICH IS THE SOLE AND EXCLUSIVE WARRANTY PROVIDED WITH RESPECT TO THE PRODUCT AND ITS COMPONENTS, THERMA-STOR HEREBY DISCLAIMS ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Warranty Limitations. The foregoing limited warranty extends only to a Customer and shall be null and void upon attempted assignment or transfer. A "defect" under the terms of the limited warranty shall not include problems resulting from Customer's or Customer's employees', agents', invitees' or a third party's misuse, improper installation, improper design of any system in which the Product is included, abuse, lack of normal care, failure to follow written instructions, tampering, improper repair, or freezing, corrosion, acts of nature or other causes not arising out of defects in Therma-Stor's workmanship or material. If a Product or Component is replaced while under warranty, the applicable limited warranty period shall not be extended beyond the original warranty time period. The limited warranty does not cover any costs related to changes to a Product or Component that may be required by any codes, laws, or regulations that may become effective after initial purchase of the Product by Customer.

Customer Responsibilities. As a further condition to obtaining warranty coverage hereunder, the Customer must send a valid warranty claim to Therma-Stor such that Therma-Stor receives such claim prior to the end of the applicable warranty period. Therma-Stor shall have no obligation hereunder with respect to any claim received by Therma-Stor after the expiration of the applicable warranty period. As a further condition to obtaining warranty coverage hereunder, the Customer must present forms of invoices evidencing proof of purchase of a Product. If such invoices do not clearly indicate the date of initial purchase by a Customer, the applicable Product's date of manufacture will be used instead of the date of initial purchase for the purpose of calculating the commencement of the applicable warranty period. Warranty service must be performed by Therma-Stor or a servicer authorized by Therma-Stor. In order to obtain warranty service, the Customer should call Therma-Stor at 1-800-533-7533 and ask for the Therma-Stor Products Service Department, which will then arrange for applicable warranty service. Warranty service will be performed during customary, daytime working hours. If the Product must be shipped for service, Customer shall be solely responsible for properly packaging the Product, for all freight charges, and for all risk of loss associated with shipment.

Limitation of Liability. IN NO EVENT SHALL THERMA-STOR, IN CONNECTION WITH THE DESIGN, SALE, INSTALLATION, USE, REPAIR, REPLACEMENT OR PERFORMANCE OF ANY PRODUCT, COMPONENT, PART THEREOF OR WRITTEN MATERIAL PROVIDED THEREWITH, BE LIABLE, TO THE EXTENT ALLOWED UNDER APPLICABLE LAW, UNDER ANY LEGAL THEORY FOR ANY SPECIAL, DIRECT, INDIRECT, COLLATERAL OR CONSEQUENTIAL DAMAGES OF ANY KIND. NOTWITHSTANDING THE ABOVE LIMITATIONS AND WARRANTIES, THE SOLE AND EXCLUSIVE LIABILITY OF THERMA-STOR, REGARDLESS OF THE NATURE OR THEORY OF THE CLAIM, SHALL UNDER NO CIRCUMSTANCES EXCEED THE PURCHASE PRICE OF THE PRODUCT, COMPONENT OR PART UPON WHICH THE CLAIM IS PREMISED.

Applicable Law and Venue. ANY ARBITRATION, ENFORCEMENT OF AN ARBITRATION OR LITIGATION RELATED TO THE PRODUCT WILL BE BROUGHT EXCLUSIVELY IN DANE COUNTY, WISCONSIN, AND CUSTOMER CONSENTS TO THE JURISDICTION OF THE FEDERAL AND STATE COURTS LOCATED THEREIN, SUBMITS TO THE JURISDICTION THEREOF AND WAIVES THE RIGHT TO CHANGE VENUE. CUSTOMER FURTHER CONSENTS TO THE EXERCISE OF PERSONAL JURISDICTION BY ANY SUCH COURT WITH RESPECT TO ANY SUCH PROCEEDING.

Miscellaneous. If any term or condition of this Limited Warranty is found by a court of competent jurisdiction to be invalid, illegal or otherwise unenforceable, the same shall not affect the other terms or conditions hereof or thereof or the whole of this Limited Warranty. Any delay or failure by Therma-Stor to exercise any right or remedy will not constitute a waiver of Therma-Stor to thereafter enforce such rights.

WARRANTY REGISTRATION CARD

IMPORTANT WARRANTY INFORMATION - DO NOT DISCARD

REGISTER YOUR PRODUCT.

WARRANTY

SERIAL NUMBER ▶

PART NUMBER ▶

www.thermastor.com/registration

WARRANTY

Register your product using the serial number and part number above at www.thermastor.com/registration

This is important Warranty Information. Please DO NOT DISCARD!

Santa-Fe-Products.com
1.800.533.7533