WELL-CONNECT
USER'S GUIDE

Model WCVC16
Model WCVC24

Hybrid Geothermal
WELL-CONNECT

Congratulations on your purchase of a Well- Connect Heating and Cooling System! Your satisfaction is very important to us.

Read and follow this user's guide as it contains instructions and best practices regarding the operation of your Well-Connect.

If you have questions, email, write or call us at*:

Terra Caloric, LLC
PO Box 307
Alpena, MI 49707

Phone: (989) 356-2113
Email: info@terracaloric.com

*Please have the following information available before contacting us.

Model # _____

Serial # _____

Date of purchase: _____

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IMPORTANT SAFETY INSTRUCTIONS

WARNING: To reduce the risk of fire, explosion, electric shock, or personal injury when using your Well-Connect, follow all basic safety precautions, including but not limited to the following:

1. Please read all instructions before using your Well-Connect.

2. As with any piece of equipment that uses electricity and has moving parts, there are potential hazards. To ensure the safe operation of this appliance, proper care must be taken. Therefore, anyone using or installing it must heed all warnings, precautions and instructions.

3. Never install or operate your Well-Connect in an explosive, corrosive or otherwise hazardous environment. Doing so may result in equipment damage, property damage and personal injury.

4. Install your Well-Connect in a dry indoor environment ONLY. Do not install or store this appliance where it will be exposed to the weather. Internal water lines may burst if exposed to freezing conditions leading to equipment damage and potential property damage.

5. Only install your Well-Connect on a level floor that supports the weight.

6. Your Well-Connect must remain in an upright position at all times. If it is subject to any other orientation, even temporarily, contact us before attempting to operate it.

7. This appliance must be properly grounded. Never plug the appliance cord into a receptacle that is not grounded adequately and in accordance with local and national codes.

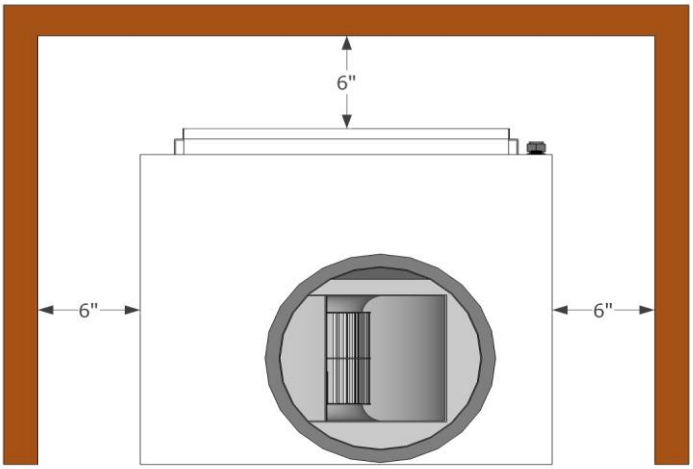
8. Connect your Well-Connect to a water source that can provide a constant flow, at a minimum rate of two (2) gallons per minute for Model WCVC-16 or four (4) gallons per minute for Model WCVC-24 at a temperature of 45°F (7°C) or warmer. Some shallow wells may not be able to produce the flow volume and/or temperature needed for proper operation. If you are unsure whether your well can meet these requirements, consult your Well-Connect dealer or local water well professional/supplier.

9. DO NOT install your unit where surrounding clearances are less than those depicted in Figure 1.

10. DO NOT install or operate the unit where it may be subject to dusty or dirty conditions, such as during a construction phase of building or remodeling.

SUBJECTING YOUR WELL-CONNECT TO ANY OF THE ABOVE UNDESIRABLE CONDITIONS SHALL VOID ALL WARRANTIES.

Top View



Side View

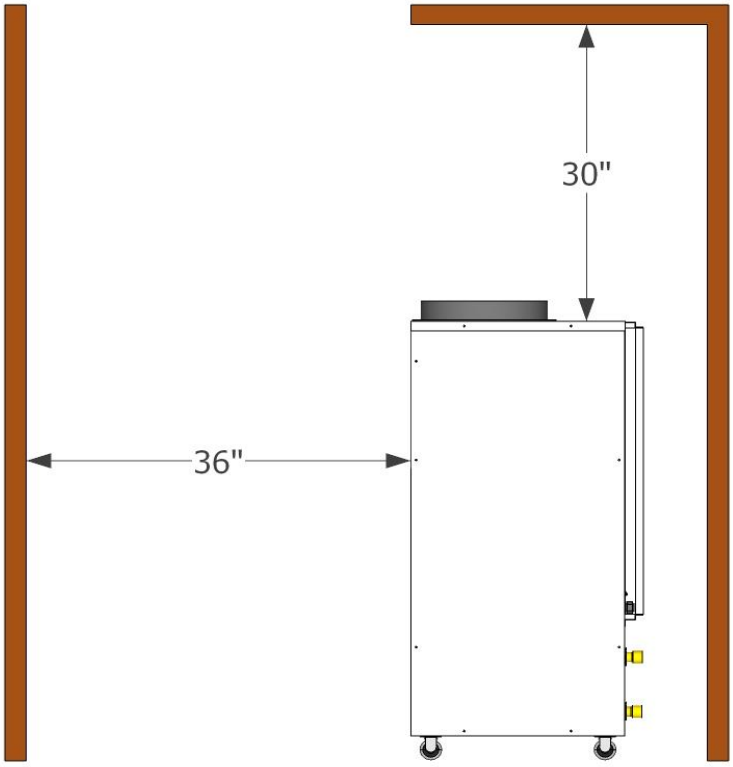


Figure 1

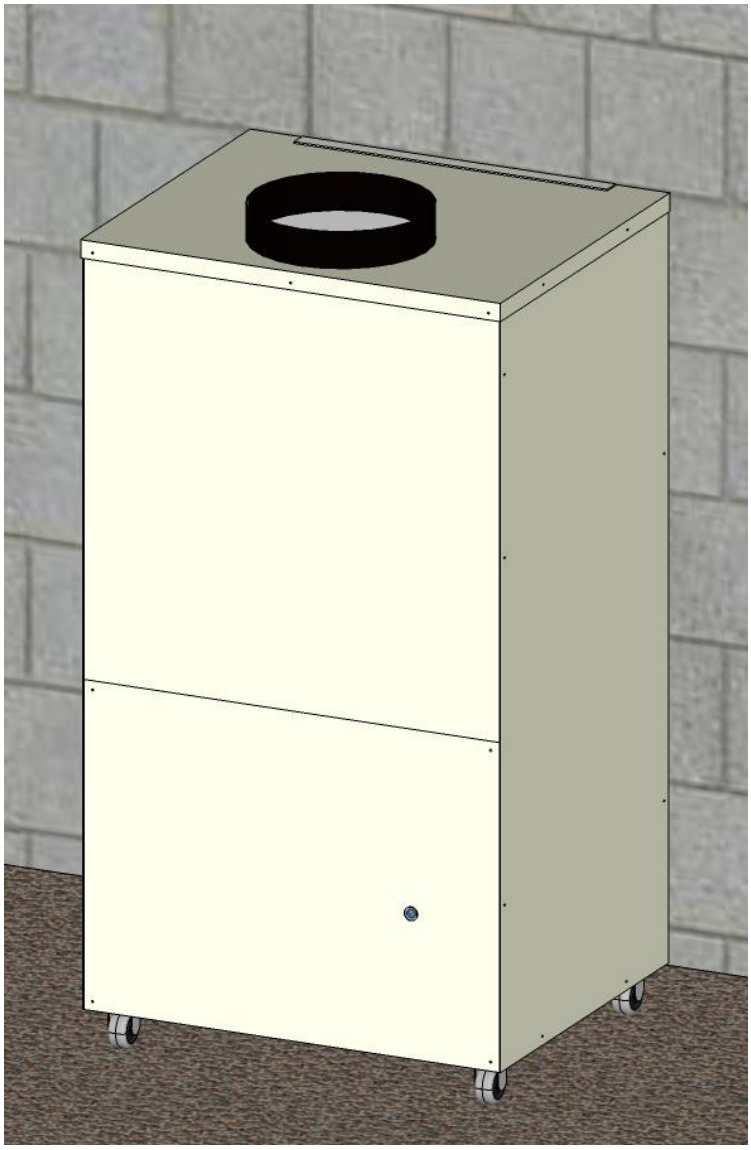
1. Definitions

Stand-Alone (or Free-Standing)- A Well-Connect that is installed in a space for heating and cooling and is not connected to any type of air delivery system or ductwork. Conditioned air is simply delivered from louvers incorporated into the front panel of the Well-Connect and returned to the Well-Connect through the filter area on the back.

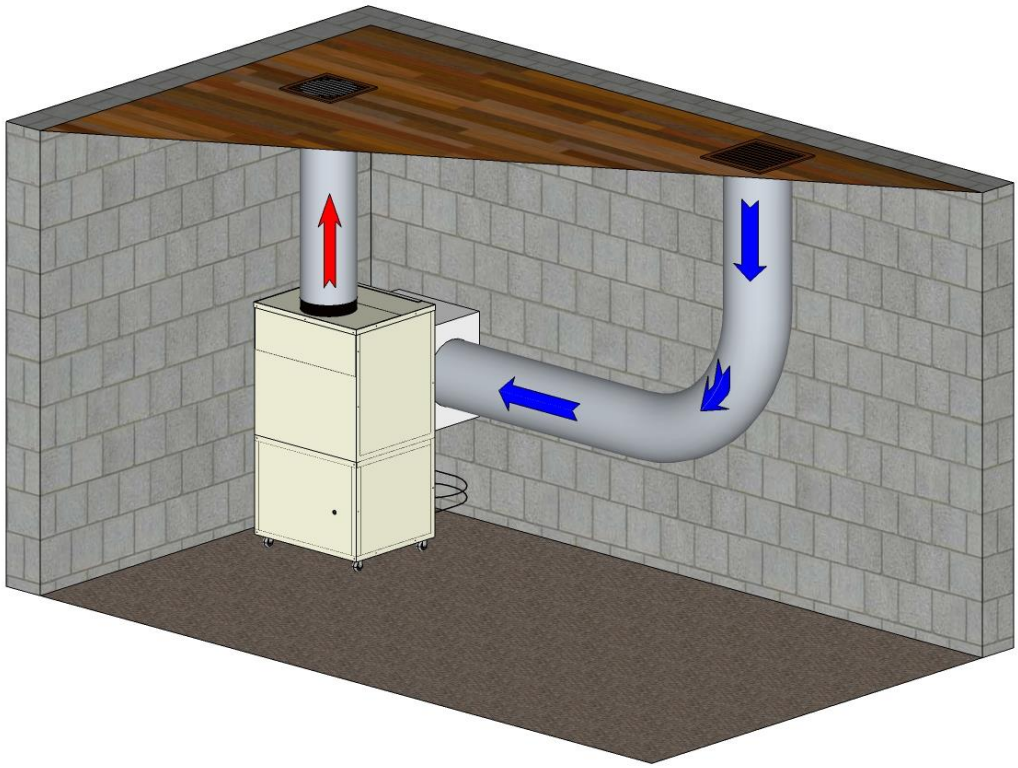


(Stand-Alone system shown with optional wood cabinet cover)

Top Discharged (or Ducted)- A top discharged Well-Connect has a 12" diameter duct collar incorporated into the top panel to facilitate a connection to ductwork. In such a situation conditioned air is delivered from the top, not from front louvers. The Well-Connect can be converted between ducted and freestanding configurations by purchasing the appropriate top panel assembly.



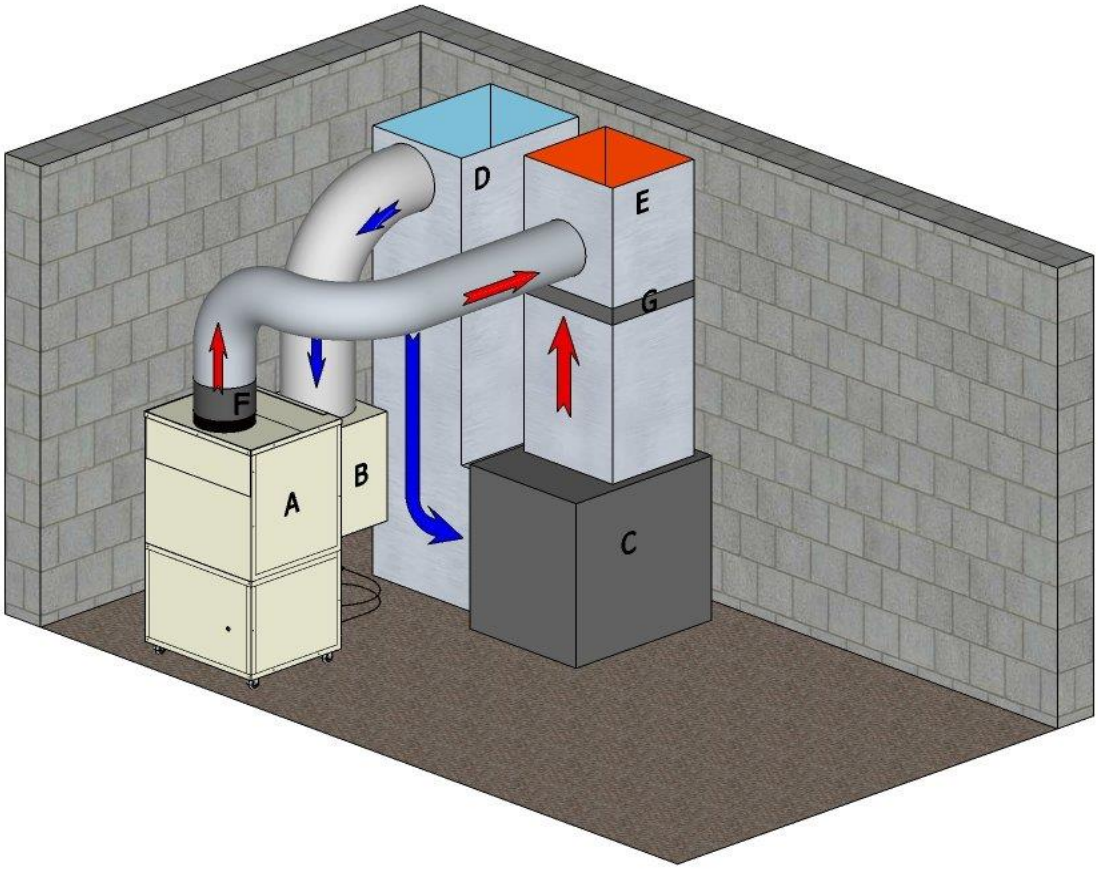
Self-Ducted- A Well-Connect that is top discharged and the conditioned air is delivered to a given space via ductwork separate from any other ductwork. An example would be a Well-Connect that is installed in a basement and ducted to the main floor, or to another room, etc.



(May require return ducting; use industry best practices when designing self-ducted system.)

Hybrid (or Integrated)- A top discharged Well-Connect that is directly connected into the existing heating and cooling system ductwork of the structure, allowing conditioned air from the Well-Connect to be distributed throughout the entire building or home. A Hybrid Well-Connect is a two-stage heating and cooling system that is installed in parallel with the existing furnace system. The Well-Connect becomes the primary heating and cooling system (stage one) and the existing system then becomes the secondary heating and/or cooling system (stage two). See section 4 of this guide for two-stage thermostat setup.

A. Well-Connect
B. Optional Return Air Plenum
C. Fossil Fuel Furnace
D. Return Air
E. Supply Air
F. Round Backdraft Damper
G. Custom Backdraft Damper



2. PLACEMENT

Every installation is unique as far as unit placement. You should consider where the conditioned air must be discharged to provide the best circulation throughout the building or home. For a Stand-Alone or Self-Ducted system, you might consider placing the Well-Connect (or conditioned air discharge) where you spend most of your time. For a Hybrid system, your Well-Connect should be installed in close proximity to the existing furnace.

3. CONTROLS

There is a power switch located on the back of the Well-Connect. A thermostat (not included) is used to set the temperature.

When the Well-Connect is switched on, the thermostat must be set to either the heating or cooling mode, and the desired temperature must be set as well. Expect a short time delay (5-10 seconds) after making your selection.

The Well-Connect is programmed to monitor itself and detect any errors or unfavorable operating conditions during normal operation. In the event that an error or problem is detected, the control board will automatically lock out (shut off) the Well-Connect compressor for five (5) minutes. After the five (5) minute delay, the control board will automatically restart the compressor. Should the system error re-occur, the control board will automatically lock out the compressor for an additional five (5) minutes before trying to restart again. Should the error occur a third time, the control board will lock out the compressor indefinitely and sound a buzzer. Note that during any lockout condition, the fan may remain running. If this happens, check for any obvious problems such as a dirty air filter or a plugged water line. Once the problem has been resolved, you can reset the system by manually turning it 'off' and then 'on' again at the main power switch on the rear of the unit. If the Well-Connect locks out repeatedly, refer to the troubleshooting guide in this manual. If you are unable to solve the problem yourself, call your dealer, a qualified HVAC professional, or the Terra Caloric office for assistance.

WARNING: Only qualified HVAC professionals should perform service to your Well-Connect in the event of a recurring lock out condition. Do not remove the electrical box cover, as hazardous voltage may be present.

4. THERMOSTAT

Thermostat Placement: For Stand-Alone or Self-Ducted systems, the thermostat may be placed almost anywhere in the space to be conditioned. Avoid placing the thermostat in any location where it may be exposed to temperature changes from external sources such as direct sunlight, discharge air from the unit, or any other hot or cold source. **For a Well-Connect Hybrid configuration the thermostat should be placed in close proximity to the existing system thermostat (Figure 2).**



Figure 2

Thermostat calibration: When the Well-Connect thermostat is placed adjacent to the existing system thermostat, both thermostats should ideally display the same temperature. In some cases, the Well-Connect thermostat may need to be calibrated in order for the temperature readings to be the same. After placing the Well-Connect thermostat on the wall, allow at least two hours for it to acclimate. If after two hours the readings on the two thermostats are different, please refer to the thermostat operation manual for detailed instructions on how to calibrate the temperature display.

2-stage operation: The Well-Connect system can be set up so the Well-Connect thermostat will automatically control your Well-Connect as the primary heating and cooling source, and a fossil fuel furnace (or electric heat strip) as second stage heating. This requires a low voltage wiring connection between the two systems and is covered in detail in the "Well-Connect Installation Guide". If your system has been set up to operate in this automatic 2-stage format, it is recommended that your existing furnace

thermostat be set to “heat” at 10 degrees below the Well-Connect heating setpoint. This will provide emergency heating if the Well-Connect should become inoperable for any reason.

Alternately, you may prefer to operate your Well-Connect independently from the existing system, but still use the existing system for supplemental heating or cooling as needed. In this case you would not need the low voltage wiring connection between the two systems.

In that case, set your current heating system thermostat 2 or 3 degrees cooler than the Well-Connect thermostat set point. If the Well-Connect is then unable to maintain its setpoint temperature, the other system will come on to provide additional heat to the space.

If there is a central cooling system, set that thermostat 2 or 3 degrees warmer than the Well-Connect thermostat to provide additional cooling only when the Well-Connect cannot meet the demand by itself.

In any case, keep in mind the Well-Connect will be the most efficient system to operate, and therefore the greatest benefit will be realized if it is allowed to do as much of the heating and cooling as possible.

5. UNATTENDED USE

If you are using your Well-Connect in a building that has limited use in cold weather (such as a camp or cottage), Terra Caloric recommends that the thermostat be powered by a hardwired source (not just batteries). This will ensure that your heating system will continue to run throughout the cold weather season. The thermostat should be set to no less than 50 degrees.

6. REQUIRED MAINTENANCE

Proper maintenance of your Well-Connect is critical to ensure your system operates as efficiently as possible. While some maintenance procedures are quite simple and safe, others are more involved and could be hazardous if performed incorrectly. Most contractors offer a complete maintenance program that can be purchased at any time; contact your installer for details.

Note: Before conducting any maintenance, be sure that you are competent and qualified to perform the maintenance required. If you have any doubt about your ability to perform a specific maintenance operation, contact a competent HVAC professional.

EVERY THREE MONTHS:

Air Filter: There is an air filter on the back of the Well-Connect. The Well-Connect will not operate optimally with a dirty filter. Terra Caloric recommends that you regularly monitor this filter and replace it as needed, usually every three (3) months. Every installation is unique and some may need to be changed more often. To remove the filter, simply slide it out.

Replacement filters can be obtained from your local hardware or building supply store. Use only pleated filters similar to the one that came with your Well-Connect.

Water Hose Connections: The water hose connections should be visually inspected for any sign of leaks or damage to the hoses and connectors on each end (Figure 3). Any signs of leaks or damage MUST be addressed immediately to avoid possible water damage to your home or building.



Figure 3

WARNING: If there is evidence of water leaking from inside the cabinet of the Well-Connect, turn it off, pull the plug from the wall and then shut off the water supply to the Well-Connect. Contact your HVAC contractor for instructions on resolving the problem. DO NOT remove any cabinet panels unless the unit is disconnected from the power source.

EVERY SIX MONTHS:

Thermostat: If using a battery powered thermostat, check the batteries and replace them according to the schedule suggested by the thermostat manufacturer.

OTHER COMPONENTS:

Sediment Filter

Every Well-Connect comes with a spin-down style sediment filter in a clear canister (Figure 4) which should be installed somewhere in the water supply line such that it will filter out impurities before they reach the Well-Connect. This filter should be inspected every few months and cleaned if necessary. (This filter does not need to be replaced, simply cleaned.) Much like the air filter, every home is a little different and therefore the frequency with which it must be cleaned may vary significantly.



Figure 4

To clean the filter, turn the Well-Connect off and open the valve at the bottom of the filter, shown in black above.

NOTE – water will spray out! Do this over a bucket, or run a hose from the bottom of the valve to an appropriate location!

In most cases, the force of the water will flush the sediment off the surface of the filter. Close the valve again and you're done!

However, if the debris does not break loose, you may need to physically remove the filter to clean it. To do this, shut off the water valves on BOTH sides of the filter. Carefully unscrew and remove the clear canister. The filter itself may then be pulled straight out and gently cleaned with a brush.

7. STORING A WELL-CONNECT

Before storing your Well-Connect, disconnect the power and water lines and purge all water from inside the unit. Remove the batteries from the thermostat (if applicable), and store your Well-Connect in a dry indoor environment only.

8. TROUBLESHOOTING

View indicator lights through the clear plastic lens on the lower front panel. DO NOT OPEN THE CONTROL BOX UNLESS YOU ARE QUALIFIED!

Problem	Possible Cause	Solution
The Well-Connect will not run at all on a call for heating or cooling.	No power to unit or weak thermostat signal.	Verify that the Well-Connect is connected to power and there are fresh batteries in the thermostat. If using a wireless thermostat, move it closer to the thermostat receiver.
	Different house codes in thermostat and receiver.	Consult thermostat owner's manual for house code programming procedure, if applicable.
The Well-Connect runs briefly then shuts off; the green High Pressure error light is on.	The Well-Connect is tripping on high refrigerant pressure due to insufficient airflow (heating mode only).	A high-pressure condition in heating mode indicates an inability to reject heat to the air. Ensure there are no obstructions to the airflow; change the filter if needed. If the problem persists contact an HVAC technician.
	The Well-Connect is tripping on high refrigerant pressure due to poor heat exchanger performance (cooling mode only)	A high-pressure condition in cooling mode indicates an inability to reject heat to the well water. If the problem persists, contact a competent HVAC technician.

Problem	Possible Cause	Solution
The Well-Connect runs briefly then shuts off; the amber Low Pressure error light is on.	The Well Connect is tripping on low refrigerant pressure due to loss of refrigerant, insufficient airflow, or low return air temperatures (cooling mode only) The Well-Connect is tripping on low refrigerant pressure due to loss of refrigerant or poor heat exchanger performance (heating mode only)	A low-pressure condition in cooling mode indicates an inability to absorb heat from the air. Ensure there are no obstructions to the airflow; change the filter if needed. Also make sure the incoming air is above 65°F (18°C). If the problem persists, contact a competent HVAC technician. A low-pressure condition in heating mode indicates an inability to absorb heat from the water. If the problem persists, contact a competent HVAC technician.
The Well-Connect runs briefly then shuts off; the red Water Flow error light is on.	The Well- Connect is tripping due to insufficient water flow.	Reasons for loss of water flow include loss of supply water pressure, an obstruction in the supply or discharge water line, or excessively low water temperatures resulting in a freezing condition in the heat exchanger (in heating mode). Ensure there is sufficient water flow through the unit, and incoming water temperatures are above 45°F (7°C).
The Well-Connect runs briefly then shuts off; the yellow Condensate Overflow error light is on.	The Well-Connect is tripping due to a condensate overflow condition (cooling mode only).	In cooling mode, a condensate overflow condition may arise if there is a blockage in the condensate pan or drain piping, a failure of the condensate pump, or excessive pressure in the discharge line. Unplug the Well-Connect and remove the left side panel to inspect the condensate lines. Clean if needed. If the problem persists, contact an HVAC technician.

Problem	Possible Cause	Solution
The Well-Connect runs but capacity seems noticeably diminished.	The Well-Connect is low on refrigerant or has a fouled heat exchanger.	If the problem persists, contact a competent HVAC technician.
The Well-Connect fan runs, but the compressor does not even though the thermostat indicates a heat or cool run command is present.	The anti-frost switch on the air coil vapor line has tripped.	The Well-Connect is equipped with an anti-frost switch that opens (breaking the run command to the compressor) if the air coil vapor line gets near freezing, to prevent a block of ice from forming on the air coil in instances where there is either too little airflow in cooling mode or the return air is too cold. This switch may also trip if the Well-Connect has been sitting in a cold location where the ambient temperature is at or near freezing. Once tripped, the switch will not close again until it is above 50°F (10°C).
	The compressor run capacitor has failed.	If the compressor run capacitor has failed, the compressor will not be able to start. When this happens, it will hum briefly, then shut down on an internal overload which will automatically reset periodically. If you suspect this is what's happening, turn off power to the Well-Connect until a replacement capacitor is available. Contact your local HVAC technician or the Terra Caloric office for more information.

If the control board is operating in normal mode, the green Status LED will be blinking to indicate power is applied to the board and the controller is in normal operation. The board will go into lock out mode if the incoming power is plus or minus 20% from nominal voltage. NOTE: Power cycling the unit will clear a fault lockout, however doing so repeatedly without addressing the root cause of the lockout may result in severe damage to the unit. Either remedy the cause of the lockout promptly, or turn the unit off at the thermostat while waiting for a service technician to address the issue.

Limited

Terra Caloric, LLC ("TC") warrants to you, the original purchaser, that your Well-Connect will be free from defects in materials or workmanship under normal use and maintenance for a period of Sixty (60) months from the date of installation. If a part fails due to defect during the warranty period TC shall, at its sole option, repair or replace the defective part at no charge. Such remedy shall be the purchaser's sole remedy with respect to any defect in the product. The warranty for the repaired or replaced part will last only for the remainder of the warranty period for the original part. This warranty shall apply only to products installed in the United States or Canada and cannot be assigned to any other party without the prior written approval of TC.

Proof of Purchase. Proof of purchase is required to file a warranty claim. The owner's registration on file with TC or your contractor's invoice, bill of sale, or similar document approved by TC will be sufficient. Any Well-Connect installed by a homeowner or other third part that is not a certified Well-Connect installer, must have a signed Start-Up Report on file with TC. The Start-Up Report is found in the Installation Manual and certifies the Well-Connect's performance on the date of installation. If the Proof of Purchase or Start-Up Report is not provided, the warranty will begin on the date the Well-Connect was shipped from TC.

This Warranty Does Not Cover. Defects or malfunctions which result from causes beyond TC's control, including but not limited to, 1) failure to start due to voltage conditions, blown fuses, open circuit breakers, or inadequate electric service; 2) failure to perform routine maintenance in accordance with TC's recommended care and maintenance procedures including appropriate attention to air filters and water filters; 3) failure, damage, or repairs due to faulty installation or installation by unqualified persons, misapplication, abuse, improper servicing, unauthorized alteration, or improper operation; 4) failure or damage due to floods, winds, fires, lightning, accidents, corrosive environments, or other conditions beyond the control of TC; 5) use with parts or devices not intended for the product; 6) normal wear and tear; 7) electricity or fuel costs, or increases in electricity or fuel costs from any reason whatsoever including additional or unusual use of supplemental heat sources; 8) any costs, fees, or penalties incurred as a result of installation or application that is not in compliance with applicable local and state law or building codes; 9) any special, indirect, or consequential property or commercial damage of any nature whatsoever.

How to Get Service Under This Warranty. To file a warranty claim, you should first contact your certified Well-Connect installer. The installer's contact information can be found on the front of your Well-Connect or on the invoice or bill of sale. You may also contact TC for assistance. You will not be charged for repairs, including the cost of labor, that are covered by the warranty. You will be charged for non-warranty items such as air-filters and labor related to normal maintenance if needed. Warranty repairs will be performed by authorized Well-Connect contractors.

Limitation of Warranty and Liability. **TO THE EXTENT PERMITTED BY LAW, THIS WARRANTY, AS LIMITED HEREIN, SHALL BE IN LIEU OF AND EXCLUSIVE OF ALL OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED, ON THE PART OF TERRA CALORIC LLC, WHETHER ARISING FROM LAW, COURSE OF DEALING, USAGE OF TRADE, OR OTHERWISE, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY LIABILITY FOR COMMERCIAL LOSSES BASED UPON NEGLIGENCE OR MANUFACTURER'S STRICT LIABILITY, EXCEPT AS EXPRESSLY PROVIDED HEREIN. TERRA CALORIC WILL NOT, IN ANY EVENT, BE LIABLE FOR LOST PROFITS, COSTS OF PROCESSING, INJURY, GOODWILL, OR ANY OTHER CONSEQUENTIAL DAMAGES OF ANY KIND ARISING FROM BREACH OF THIS WARRANTY.**

SOME STATES OR PROVINCES DO NOT ALLOW THE EXCLUSION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, OR LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY OR CONDITION LASTS, SO THE ABOVE MAY NOT APPLY TO YOU. THE EXPRESS WARRANTIES MADE IN THIS WARRANTY ARE EXCLUSIVE AND MAY NOT BE ALTERED, ENLARGED, OR CHANGED BY ANY DISTRIBUTOR, DEALER, OR OTHER PERSON, WHATSOEVER. THIS WARRANTY SHALL EXTEND ONLY TO THE ORIGINAL PURCHASER AND CANNOT BE TRANSFERRED OR ASSIGNED WITHOUT THE PRIOR WRITTEN APPROVAL OF TC.

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Issued 4/13/20 - Terra Caloric reserves the right to make changes without prior notice

Hybrid Geothermal

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Rev 04-25-22