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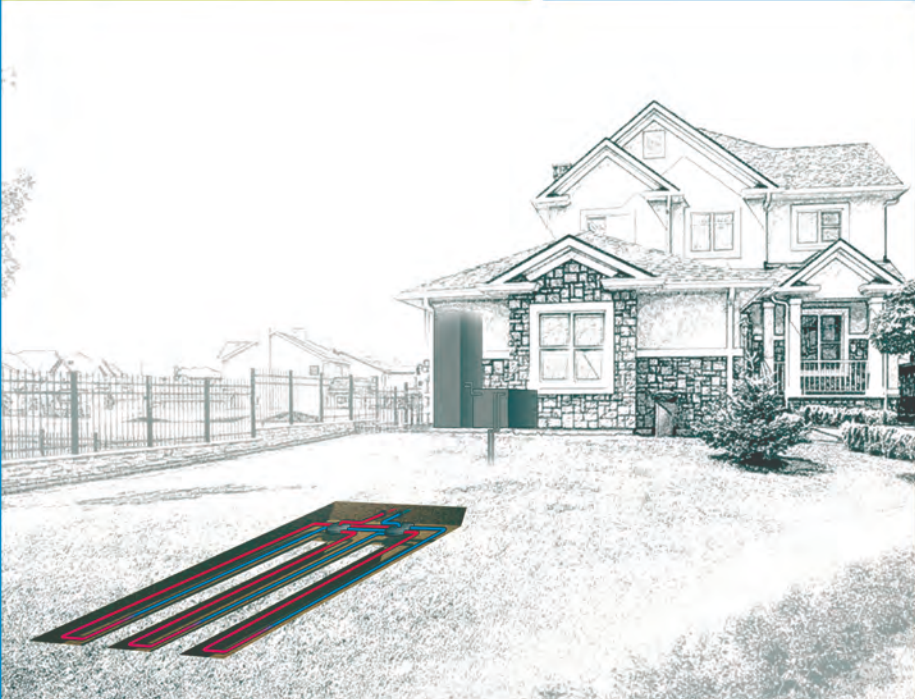




**EARTHLINKED
TECHNOLOGIES**

**OWNER
GUIDE**

**EARTHLINKED
TECHNOLOGIES**
Geothermal Renewable
Energy Systems



**This manual is the property of the owner
and must be left with the equipment user.**

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Introduction

Congratulations on the purchase of your new EarthLinked® Geothermal Renewable Energy System, the most efficient, advanced and reliable heating and cooling system available today.

We hope you will take pride in ownership of this cutting-edge geothermal system which harnesses innovative technology. The EarthLinked Renewable Energy System provides consistent comfort to your home all while saving energy, money and reducing your carbon footprint.

Please acquaint yourself with your new system by reviewing this Owner Guide. This guide will introduce you to the operation of your system and provide some guidance on how to take full advantage of its features, as well as proper care and minimal maintenance instruction.

President’s Address

Welcome to the EarthLinked family. Here at EarthLinked Technologies, Inc. we believe every day should be simple, efficient and effective for both our people, our technology and you. Purchasing an EarthLinked Renewable Energy System is not just a smart heating and cooling choice, but a lifestyle choice.

As president, I would like to thank you for your investment and am honored that you’ve chosen EarthLinked for your home. We are proud of our commitment, not only to the people we serve, but also to the planet we share and future generations to come.

Since 1980 we’ve worked with the best innovators, scientists, engineers and researchers available creating remarkable state-of-the-art technologies. Our experts are committed to providing you with the best geothermal experience available today through your new system.

I look forward to your new EarthLinked system providing you, family and loved ones a lifetime of simple, efficient and effective comfort.


JEFFREY MILLER
President

Table of Contents

Your Benefits..... 3

Comfort Control..... 5

Energy Saving Tips..... 6

How It Works..... 7

System Description..... 8

Maintenance.....10

 Preventive Maintenance.....10

 System Maintenance.....10

 Power Failure.....13

 Service Clearance.....13

 Freeze Protection.....14

Warranty.....15

Service Record 16

Dealer Information..... 17

Earth Loops Location..... 18



WARNING!

Your EarthLinked Geothermal Renewable Energy System has been designed and manufactured for your safety and is certified to Intertek safety standards. Only EarthLinked Technologies trained and authorized technicians shall install, service, repair or adjust this heating and cooling equipment. **Failure to provide installation and service by an EarthLinked trained and authorized technician will void the limited warranty coverage for the system.**

Observe precautions in the literature, labels and tags attached to the equipment components, and any other safety precautions or local safety codes that may apply.

Electrical shock from this system may cause personal injury or death!

Your Benefits

The EarthLinked Geothermal Renewable Energy System has been engineered to provide many years of exceptional comfort and economy while being environmentally friendly.

100%
HEATING
& COOLING

Cost Savings

EarthLinked Geothermal Renewable Energy Systems are the only systems that can deliver 100% of all heating and cooling needs, with no additional pumps or equipment required. The simplicity of our units allow for a more efficient transfer of heat, delivering the most powerful and cost effective geothermal HVAC systems available.



Free Hot Water

The intelligently-designed EarthLinked Geothermal Renewable Energy Systems can heat domestic water or keep a pool warm, while providing comfort to your home. This range and versatility makes the technology a multi-purpose solution that can benefit any homeowner while making life easier for people and planet.



Quiet and Reliable

Since the EarthLinked Geothermal Renewable Energy Systems are fully enclosed and protected from the elements, they require less maintenance. The simpler design has fewer components, no water pump and no extra heat exchanger. This not only boosts the lifespan of the technology, but also decreases maintenance costs associated with owning one.



Quality

Made in the USA since 1980, EarthLinked Geothermal Renewable Energy Systems have been designed to the highest engineering standards and use only the best quality component parts, in a meticulous manufacturing process.

30%
TAX CREDITS

Tax Credits

You can take advantage of up to a 30% federal tax credit, as well as other local and state incentives, rebates and financing by installing an EarthLinked Geothermal Renewable Energy System in your home.

Your Benefits



Increased Property Value

Green building practices, such as geothermal solutions, have been gaining increased attention for their ability to offer energy savings and lower utility bills. Updated guidelines provide real estate appraisers with a specific method for documenting energy efficient upgrades, allowing realtors to better evaluate the values of green homes versus traditional properties.



Decreased Environmental Footprint

Because EarthLinked Geothermal Renewable Energy Systems use the solar energy stored within the earth to heat and cool your home, you can reduce your need for natural gas or oil and other forms of finite fuel resources. This helps you decrease the carbon footprint associated with your home and saves thousands of pounds of greenhouse gas emissions each year. The U.S. EPA and DOE have determined that ground source heat pumps have the lowest environmental impact of all heating systems, and can reduce consumption and corresponding emissions up to 75%.



Comfort and Humidity Control

Humidity causes unnecessary moisture, mold and mildew—problems no homeowner wants to deal with. EarthLinked Geothermal Renewable Energy Systems pull heat and humidity out of your home by utilizing the cool, consistent temperature of the earth. Humidity Control will also contribute to a healthier lifestyle and improved indoor air quality.



Minimally Invasive Installation Options

EarthLinked Geothermal Renewable Energy Systems are compact and require a smaller amount of yard space to install than any other system. They can be installed in any home, regardless of property size. We offer nine different earth loop system configurations, which allow us the flexibility to install geothermal solutions in both larger and smaller properties. Diagonal earth loop configurations can be installed in areas as small as three feet in diameter. Plus, because the technology is placed underground, you will have less equipment inside your home or visible on your property.

Comfort Control

Although thermostats vary widely in appearance and sophistication, they all perform the same basic function: to control the operation of your EarthLinked Geothermal Renewable Energy System and maximize year-round comfort and economy.

Operating instructions are provided by the thermostat manufacturer for each thermostat. Familiarize yourself with its proper operation to realize the maximum comfort with minimum energy consumption.

FAN OPERATION

Auto: With the thermostat fan switch set to "AUTO", the indoor fan will run only when the compressor unit is operating in heating or cooling mode. This position will provide the lowest operating cost.

On: If the fan switch is set to "ON", the indoor fan will run continuously. This provides continuous air filtering and more even temperature distribution throughout the house. In humid climates, it is not recommended to keep the fan on "ON" in cooling mode because this can interfere with the dehumidification process in cooling mode.

HEATING MODE

If the comfort control switch is in the "HEAT" position, the system will start when the indoor temperature drops below the temperature selected on the thermostat. The heating system will operate and the indoor fan will circulate warm air (or circulate warm hydronic water). When the room temperature rises to the temperature setting selected, the system will shut off.

COOLING MODE

With the comfort control switch in the "COOL" position, the system will start when the indoor temperature rises above the temperature selected on the thermostat. The cooling system will operate and the indoor fan will circulate cool, dehumidified air. When the room temperature drops to the temperature setting selected and the humidity level is reduced, the system will shut off.

THERMOSTAT MAINTENANCE

- ➔ Check your thermostat once a month to make sure that, as appropriate, there are no fault signals displayed and that the Emergency Heat is not activated.
- ➔ To clean a thermostat, wipe the surface with a damp cloth. Never spray cleaning solution directly onto the thermostat.
- ➔ Move lamps and other heat generating appliances (computers, TVs, routers etc.) away from the thermostat to enable the thermostat to read the true surrounding air temperature.

Energy Saving Tips

ENERGY STAR: If you have an EarthLinked Geothermal Renewable Energy System comprised of a compressor unit and matched with an EarthLinked Air Handler or Cased Coil, you have already started saving energy, because you have an Energy Star rated system. The Energy Star program, sponsored by the U.S. Department of Energy and Environmental Protection Agency, is a program designed to help homeowners protect the environment using superior energy efficient products.

THERMOSTAT: Adjust your thermostat to a comfortable setting and leave it there. Don't be a "thermostat juggler." Moving your thermostat setting will not make your system heat or cool any faster and can result in higher operating costs.

➔ During times when your home is unoccupied, savings can be realized by setting your thermostat up in the cooling season, or down in the heating season. Do not raise or lower the set point temperature more than 3 degrees from your normal set point. Do not raise or lower the temperature if your home is only going to be unoccupied for a short time. Setbacks should be reserved for times when you are at work, asleep, or on vacation.

CONDITIONED SPACE: Keep exterior doors and windows shut when the system is on. Minimize traffic so exterior doors are not open for excessive periods of time.

AIR CIRCULATION: Placing furniture, rugs, etc. in such a way that they interfere with air vents will make your system work harder to achieve the desired level of comfort. This requires more energy and increases your electric bill.

LAMPS AND APPLIANCES: Locate lamps and other heat producing appliances (computers, TVs, heaters, etc.) away from the thermostat. If they are close to the thermostat, the heat from these items will give your thermostat "false information" about the temperature in the room.

DUCTWORK: As part of yearly maintenance, be sure your EarthLinked dealer checks the ductwork in your house for leakage and insulation. Having sealed, insulated ductwork ensures that you are efficiently delivering conditioned air to the intended rooms.

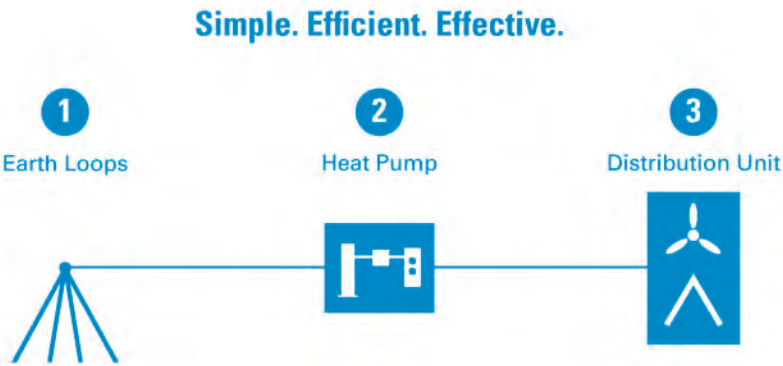
MAINTENANCE: It is strongly recommended that **regular yearly preventive maintenance** be performed on the EarthLinked compressor unit and other system components by an EarthLinked trained and authorized technician. The technician can ensure your maintenance program meets the conditions of the Limited Warranty and that efficiency of the equipment is maintained.

How It Works



EarthLinked Geothermal Renewable Energy Systems work seamlessly with the stored solar energy in the earth. By using small, highly conductive copper **1** earth loops and environmentally friendly refrigerant, only a small yard space is needed to begin the heating and cooling process. In the winter, the EarthLinked **2** heat pump intensifies the warm thermal energy from the earth and converts it into heat for your home.

In the summer months, the process is reversed and the unwanted heat from your home is stored back in the earth. Our patented technology controls this process more simply and efficiently than any other heating and cooling system available. Conditioned air or water is sent to the **3** distribution unit which delivers comfort to your home’s radiant floor or forced air ductwork.







System Description

Your EarthLinked Geothermal Renewable Energy Systems will have different components depending on the application. Below is a description of some of the main components that can come with your system.

Component	Description	Illustration
Earth Loop System (H1B, V1, V1.5, V2, D1, D1.5 or D2)	Made of sealed copper tubes in which refrigerant circulates to exchange heat with the earth.	
Compressor Unit (Prime Series PSC, PSD, PSDH and Classic Series SC, SD, SDH, SCW or SCWD)	The unit contains refrigerant-management components, electronics and the compressor (heat pump that increases the energy in the refrigerant to heat or cool).	
Heating and Cooling Distribution System		
Air Handler (AVS, AVV or HVA)	A device that regulates and circulates the conditioned—heated or cooled—air through the home.	
Cased Coil (CCS)	Installed on fossil fuel furnaces as an add-on coil, it allows the integration of the geothermal system to an existing furnace.	
Hydronic Water Module (HWM)	Generates heated or chilled water for use with a hydronic system (such as radiant floor hydronic heating or chilled water cooling)	

System Description

Component	Description	Illustration
Water Heating		
Heat Recovery Module (HRM)	This module provides domestic hot water while system operates in cooling and heating mode. It recovers waste heat from the system to help heat domestic water.	
Storage Water Heater/Hydronic Buffer Tank (GST Series)	Storage Water Heater stores heated potable water for domestic use. Hydronic Buffer Tank stores conditioned water for use in the Hydronic system and is designed to maximize the runtime and limit the on/off cycling of the compressor.	
Storage Water Tank (GST Series)	This tank stores heated potable water for domestic use.	
Modules and Options		
Hybrid Cooling Module (HCM)	This module can be used in southern applications (cooling dominant) or areas with low thermal conductivity soils to enhance cooling mode system efficiency and performance.	
EarthLinked Diagnostics and Monitoring System (EDM)	EarthLinked Diagnostics and Monitoring System (EDM) is an intelligent communicating system. It is a field installed option for the Classic Series compressors and is already included in all Prime Series compressors. The EDM provides real-time remote monitoring and tracks pressures, temperatures, power consumption and thermostat signals. It connects via Internet, Bluetooth, USB and SD card and helps your dealer make sure that your system operates properly at all times and provides the most reliable performance.	

Maintenance



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Observe precautions in the literature, labels and tags attached to the equipment components, and any other safety precautions or local safety codes that may apply.

Electrical shock from this system may cause personal injury or death!

If anything seems out of the ordinary, get in touch with your dealer.

Before Calling Your Dealer for Service:

- Check that electrical disconnect switches are "ON".
- Replace blown fuses and reset circuit breakers.
- Check room thermostat for proper setting.
- Check air filter to ensure it is clean.
- Have model and serial numbers and installation date available.
- Do not open the compressor or other system components.

PREVENTIVE MAINTENANCE

In order to ensure peak performance, your system must be properly maintained.

Earthlinked Technologies strongly recommends annual inspection and preventive maintenance of this system by an **EarthLinked trained and authorized technician**. This includes EarthLinked compressor unit and all other system components. The dealer can ensure your maintenance program meets the conditions of the Limited Warranty and that efficiency of the equipment is maintained.

See back cover of this manual to keep track of maintenance and servicing.

SYSTEM MAINTENANCE

The system should be maintained in the following schedule:

Maintenance

ITEMS TO MAINTAIN	DETAILS OF ACTION
Regularly	
Regular care of Hybrid Cooling System	Keep the Hybrid Cooling Module free of foliage, grass clippings, leaves, paper and any other material that could restrict the proper air flow in and out of the unit. If the coil becomes excessively dirty, call your dealer.
Sound check of Earth Loop Protection system	The EarthLinked System has an Earth Loop Protection System with the control located inside the compressor unit. If the control emits an audible signal, the system requires service by an EarthLinked trained and authorized technician. Call your dealer but do not open the compressor unit .
Regular care of Storage Water Heater/Tank	Sediment build up in a water heater/tank reduces its efficiency and can potentially shorten the life of externally attached equipment such as circulator pumps and heat exchangers. To prevent excessive sediment build up in your water heater, drain some water from the tank a few times a year to remove sediment. Do this by attaching a garden hose to the drain valve, then run into a bucket until the water is clear.
Every Month	
Air Filters (Air Handlers or Cased Coils)	Disposable air filters: check and replace with the same size filter every month. Cleanable air filters: clean every month as described in the filter manufacturer's instructions.
Water Filtration System (Heat Recovery Module, Storage Water Heater or Storage Water Tank)*	If your cold water supply has a water filtration system supplying the PSD, PSDH, SD or SDH system, Heat Recovery Module, Storage Water Heater/ Tank check the water system filter cartridge every month and, as appropriate, renew it by cleaning or replacing the filter cartridge as directed by the water filter manufacturer. Contact your dealer to set up a maintenance program if you are not comfortable doing this yourself. Guidelines are as follows: <ul style="list-style-type: none"> • Turn OFF electrical power to the system • Close the isolation valves on each side of filter and relieve the water pressure at the filter housing • Remove the filter bowl and clean or replace the cartridge, per the manufacturer's instructions • Replace the filter bowl and gradually open the upstream isolation valve. Check for leaks • Purge the system of air, open the downstream isolation valve, restore electric power to the system and operate normally
EVERY 6 MONTHS	
Sound check of Compressor Unit	Check the compressor unit for anything appearing or sounding unusual, call your dealer if necessary.
Hydronic Water Module cleaning	The Hydronic Water Module should be cleaned twice a year, annually at the very least. Have your dealer test the flow rate to ensure proper functioning.
Condensate drains (Compressor unit and Air Handler/Cased Coil)	<ol style="list-style-type: none"> 1. For indoor compressor unit installation, <u>check the compressor unit at the back of the cabinet</u> to ensure the condensate pan is collecting and draining all condensate that may drip from the refrigerant lines entering the cabinet. See Figure 1 below. 2. Air Handler/Cased Coil: <u>during the cooling season, check the condensate drain pan</u> to ensure that condensate (water condensed on the cooling coil) is flowing freely from the primary drain, but not from the secondary drain as shown in Figure 2. If condensate ever flows from the secondary drain the unit should be shut off and the condensate drains cleaned by an EarthLinked trained and authorized technician to ensure a free flowing primary drain.

Maintenance

ITEMS TO MAINTAIN	DETAILS OF ACTION
Every 12 Months	
Annual inspection and preventive maintenance (Entire system)	Have an EarthLinked trained and authorized technician check your system and ensure your maintenance program meets the conditions of the Limited Warranty and that efficiency of the equipment is maintained.
Flushing (Storage Water Heater or Storage Water Tank)*	<p>Every 12 months the Storage Water Heater/Tank should be flushed of residue as described below. Call your dealer if you're not comfortable doing it yourself.</p> <ul style="list-style-type: none"> • Turn OFF electric power to the system. • Close the isolation valves between the compressor unit or module and the Storage Water Heater/Tank. • Close the cold water supply isolation valve to the Storage Water Heater/Tank. • Open a faucet downstream of the hot water outlet on the Storage Water Heater/Tank. • After connecting the Storage Water Heater/Tank drain valve to a drain hose, open the drain valve and drain the entire tank of water to an open drain. • Close tank drain valve. • Open the cold water supply isolation valve and fill the Storage Water Heater/Tank with clean water until it is approximately 25% full. • Turn off the main cold water supply isolation valve, open the Storage Water Heater/Tank drain valve, and observe the water coming out of the drain valve going into the drain. • Continue to flush the Storage Water Heater/Tank as noted above until the water coming out the drain valve is clear and free of sediment. • Close the drain valve and the faucet. • Open the cold water supply isolation valve and fill the Storage Water Heater/Tank and piping system with water. • Open the isolation valves between the compressor unit or module and the Storage Water Heater/Tank and purge air from system. • Turn ON electric power to the system and initiate normal system operation.
T&P Valve check (Storage Water Heater/Tank)*	Every 12 months the Storage Water Heater/Tank T&P Valve should be checked for proper operation by your dealer.

Maintenance

***Note:** regarding Storage Water Heater/Tank, the maintenance applies to installations involving:

- EarthLinked PSD, PSDH, SD and SDH systems installed in conjunction with EarthLinked Series GSTE Storage Water Heaters, or EarthLinked Series GST Storage Water Tanks or Non-ETI electric storage water heaters/tanks.
- Field applied EarthLinked Heat Recovery Modules installed in conjunction with EarthLinked Series GSTE Storage Water Heaters, or EarthLinked Series GST Storage Water Tanks or Non-ETI electric storage water heaters/tanks.

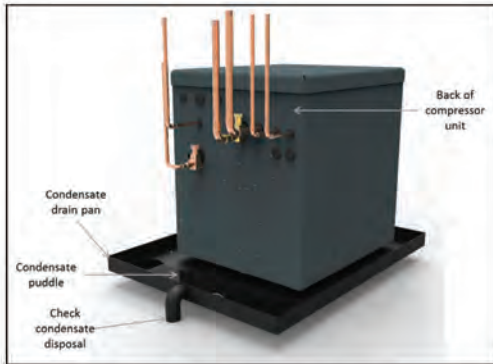


Figure 1 – Condensate drain pan at the back of Compressor Unit

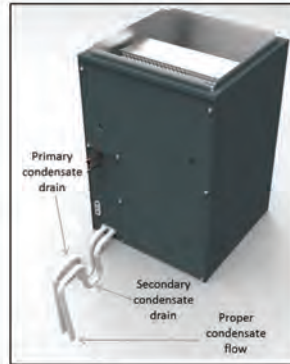


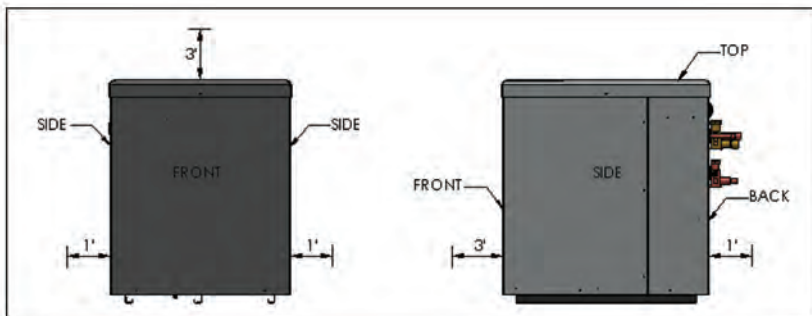
Figure 2 - Condensate drain pan at the Air Handler/Cased Coil

Power Failure

When accidents, wind storms, etc. disrupt electrical power supply to your house and represent potential damage to your EarthLinked System, turn the thermostat "OFF". Turn thermostat "ON" only after power has been reinstated and after determining that there is no visible damage to the compressor unit or other system components such as the Air Handler / Cased Coil / Hydronic Water Module, Heat Recovery Module, Hybrid Cooling Module, Storage Water Heater etc.

Service Clearance

1. For maintenance and service access, be sure to maintain a clearance of 3 feet in front and on top of the compressor unit and a clearance of 1 foot on each side of the compressor unit.



Maintenance

2. To ensure access for servicing, a minimum of 30 inches clearance is to be maintained in front of the:

- **Air Handler or Cased Coil**
- **Hydronic Water Module**
- **Heat Recovery Module**
- **Storage Water Heater / Hydronic Buffer Tank**
- **Storage Water Tank**

3. The minimum clearances that must be maintained should any yard improvements be made around the **Hybrid Cooling Module**. The requirement is a clearance of 36 inches on top and in the front and 24 inches on all sides and back.

4. Your EarthLinked dealer can provide you with a dimensioned plan view of the **Earth Loops** installed with your EarthLinked Geothermal Renewable Energy System. Any improvements made to the area surrounding this Earth Loop field must have the following clearance to avoid any impact on system performance:

- 50 feet clearance from any water well, septic system or collection basin of de-icing salts or barnyard runoff
- One half the branch extremities of a fully grown tree or shrub.
- For Earth Loop fields with an **Earth Loop Protection System**, there should be (1) no underground metal (gas or water lines, electric cables etc.) installed within 20 feet of the anode and (2) no underground metal installed between the anode and the Earth Loop field.

Freeze Protection

If you live in an area where freezing temperatures occur during the winter season:

1. Check with your EarthLinked dealer to ensure that your **Hydronic system** is freeze protected with an appropriate antifreeze solution.
2. The **Heat Recovery Module** and associated water lines should be located in an area where the surrounding temperature does not drop below 40°F. If temperature drops below 40°F, check with your EarthLinked dealer about relocating the Heat Recovery Module (always within 10ft. of Compressor unit).
3. Ensure that the air temperature is maintained at the temperature above 40°F around the **Storage Water Heater** and associated water piping.

Warranty

Register your warranty at earthlinked.com/warranty.

You or your EarthLinked Dealer should register your new EarthLinked® Geothermal Renewable Energy System at earthlinked.com/warranty within 60 days of installation/unit start-up.

The Earthlinked Technologies, Inc. (ETI) limited warranty provides coverage for all EarthLinked System product parts. A part is any factory-supplied part within an ETI system.

Upon a failure of a part during the warranty period, ETI will provide a replacement or repaired part to the trained and authorized technician that is servicing your system. In addition, the servicing technician's company will be paid an allowance in the form of a credit to the dealer's account on parts that are provided by ETI. All freight (return to and delivery from ETI) charges are the responsibility of the servicing technician's company.

The amount of the allowance shall be in accordance with the current In-Warranty Allowance of EarthLinked Heat Pump Products and DIRECT AXXESS® Earth Loops, LIT-66. The allowance is designed to reduce the cost of service. However, it may not cover the entire labor fee charged by the servicing technician.

ETI may not credit the dealer's account for claimed allowances if the appropriate warranty registration is not on file at ETI **within 60 days of installation/unit start-up**. Should EarthLinked not receive the product registration in time, the warranty start date would be the unit ship date.

ETI shall not be liable for any defect, unsatisfactory performance, damage or loss, whether direct or consequential, relative to the design, manufacture, construction, application or installation of field-specified products or parts.

For more information, please refer to the copy of the Earthlinked Technologies, Inc. Limited Warranty sent with this Owner Guide.

Service Record

It is strongly recommended that **yearly preventive maintenance** be performed on the EarthLinked compressor unit and all other system components by an EarthLinked trained and authorized technician. The technician can ensure your maintenance program meets the conditions of the Limited Warranty and that efficiency of the equipment is maintained.

Keep a record of your EarthLinked System Maintenance and Service below:

[illegible]

Dealer Information

Dealer Company Name:		Installation Date:		/ /	
Telephone Number:		E-mail:			
Company Address:					
Compressor Unit Model:		Serial #			
Earth Loop Model:		Earth Loop ProtectionSystem Model:			
Air Handler/Cased Coil Model:					
Hydronic Water Module Model:					
OPTIONS AND MODULES					
EarthLinked Diagnostics and Monitoring System (Mac number):					
Hybrid Cooling Module Model:					
Heat Recovery Module Model:					
Thermostat Manufacturer & Model:					
Hydronic Buffer Tank Model					
Storage Water Tank Model:					
Other: _____					



This image shows a full page of blank graph paper. The grid consists of small, equal-sized squares formed by thin black lines. There are 20 columns and 20 rows of squares, creating a total of 400 square units. The paper is otherwise completely blank, with no margins, text, or other markings.