



CLIMATEMASTER GROUND LOOP DESIGN SOFTWARE



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## EXCEPTIONAL FUNCTIONALITY

ClimateMaster's Ground Loop Design software provides exceptional functionality via an integrated linking system that connects the building loads modules and the dynamic heat pump database to the geothermal heat exchanger design modules. Once linked, changes made in either the loads or the heat exchanger modules are recognized in the other and the program instantly updates the model.

## SUPERIOR SPEED

Imagine the flexibility of calculating full load hours, managing hundreds of individual zone loads and designing multiple heat exchanger options, including hybrids, in just minutes without any need to navigate through dozens of complicated screens.

## UNSURPASSED ACCURACY

ClimateMaster's Ground Loop Design software is a commercial grade heat exchanger design program which uses the same G-function method utilized by the Department of Energy in its geothermal modeling software to calculate long term thermally stable designs.

## DEPENDABLE LOOP FIELD DESIGN IN 4 QUICK STEPS

### 1. Choose the best method to enter the building load data.

Choose from several options: quickly import data from Excel files, from external load calculation programs such as Trane System Analyzer and Carrier HAP or enter loads directly into the program using a range of fast, easy techniques.

The Zone Manager loads module is a precise analysis tool for an unlimited number of zones and is crucial for complex design applications. Users input loads one zone at a time and may match pumps automatically or manually.

The Average Block loads module offers a rapid method of entering whole systems information for designers who do not desire to input loads for a zoned installation. Rather than matching specific heat pumps to each zone, this module uses a particular heat pump and matches it in an average way to the entire installation.

### 2. Select your heat pump from the ClimateMaster library

ClimateMaster's extensive and dynamic database of water-to-water and water-to-air heat pumps is built-in to the program. Quickly build designs utilizing the model you prefer or the software will choose the best heat pump based on the entered loads.

The Zone Manager software interface displays the following data:

Design Day Loads	
Time of Day	Heat Gains (kBtu/hr)
8 a.m. - Noon	0.0
Noon - 4 p.m.	50.0
4 p.m. - 8 p.m.	20.0
8 p.m. - 8 a.m.	0.0

Design Day Loads	
Time of Day	Heat Losses (kBtu/hr)
8 a.m. - Noon	30.0
Noon - 4 p.m.	20.0
4 p.m. - 8 p.m.	0.0
8 p.m. - 8 a.m.	0.0

Annual Equivalent Full-Load Hours: 700 (Cooling), 600 (Heating)

Heat Pump Specifications at Design Temperature and Flow Rate	
Pump Name	Capacity (kBtu/hr)
TT038_F	34.6
Power (kW)	2.87
EER/COP	12.0
Flow Rate (gpm)	8.6
Partial Load Factor	1.45

The Average Block Loads software interface displays the following data:

Design Day Loads	
Time of Day	Heat Gains (kBtu/hr)
8 a.m. - Noon	0.0
Noon - 4 p.m.	50.0
4 p.m. - 8 p.m.	20.0
8 p.m. - 8 a.m.	0.0

Design Day Loads	
Time of Day	Heat Losses (kBtu/hr)
8 a.m. - Noon	30.0
Noon - 4 p.m.	20.0
4 p.m. - 8 p.m.	0.0
8 p.m. - 8 a.m.	0.0

Annual Equivalent Full-Load Hours: 700 (Cooling), 600 (Heating)

Heat Pump Specifications at Design Temperature and Flow Rate	
Pump Name	Capacity (kBtu/hr)
TT049_F	50.0
Power (kW)	3.35
EER/COP	14.9
Flow Rate (gpm)	12.5
Partial Load Factor	1.00

### 3. Design the heat exchanger

With the power of ClimateMaster's

Ground Loop Design software, designing vertical bore fields, horizontal trench/pit/bore loops, pond loops and hybrid systems has never been easier. Even designing irregularly shaped borefields to optimize land usage is no problem.

Open a vertical, horizontal or pond loop module and "link" to the loads module. Open multiple heat exchanger modules, link them all to the loads and simultaneously compare to select the best design for the site conditions.

### 4. Perform a quick and accurate financial and lifecycle analysis

With your design complete, import it into the lifecycle costing module and quickly estimate the payback time on your system design.

### 5. Communicate and present the finished design

Sending reports and heat pump schedules to vendors, customers, clients and colleagues has never been easier.

ClimateMaster's Ground Loop Design software offers a variety of reporting tools to help you work effectively. At any step in the design process, you can choose from a variety of professional reports including loads/zone and heat exchanger reports.

### Take advantage of other advanced features, such as:

- A hybrid boiler/cooling tower system calculation tool
- Instant English unit/Metric unit conversion
- Built-in reference tables for everything from thermal properties of soil to mean earth temperatures, to fluid properties and grout conductivity values.
- Calculators for circulating pump power, soil diffusivity and equivalent hours
- Fully controllable color graphs

Contact your ClimateMaster representative today to begin using the ClimateMaster Ground Loop Design software. Each Engineering license is offered at the reduced price of \$2,000 and includes a 90-minute web based training class to ensure you are familiar with and will get the most from the software.



# CLIMATEMASTER GROUND LOOP DESIGN SOFTWARE

ClimateMaster Ground Loop Design software ships with many features Standard. However, you may upgrade your package with additional optional features to expand your design capabilities. Contact Thermal Dynamics by calling 763-479-3638 to purchase additional design modules.

Software Features	ClimateMaster Ground Loop Design Software
Design Studio	Standard
StudioLink System	Standard
Maximum Peak Loads	No Limit
Cylindrical and G-Function Engines	Standard
Borehole Heat Exchanger Module	Standard
Monthly Energy Simulation Engine	Standard
Fixed Length Design Mode	Standard
Fixed Temperature Design Mode	Standard
On-demand G-Function Calculator	Standard
"Any Configuration" Loopfield Importer	Standard
Horizontal Module	Standard
Surface Water Module	Standard
Lifecycle Cost Finance Analysis Module	Standard
Average Block Loads Module	Standard
Zone Manager Loads Module	Standard
Hybrid System Tools	Standard
Enhanced Visualization Tools and Graphics	Standard
English/Metric Units Conversion	Standard
Standard Reports	Standard
Advanced Reports	Standard
Automatic Fluids Database	Standard
Data Reference Files	Standard
Customization Options	Standard
Interactive Help	Standard
Thermal Conductivity Module	Optional
Computational Fluid Dynamics (CFD) Module	Optional
Hourly Simulations	Optional
Time of Use Modeling	Optional
Integration with Simulation Tools	Optional
Loopfield Export to AutoCAD	Optional
Enhanced User Interface	Optional



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