Groundhog™ multi-source air-conditioners and heat pumps.

Atlas Controls Division is proud to introduce the first triple source heating & air conditioning system. Heat pumps and air conditioners that use the aid of the ground, the air, and the sun to heat and cool your home.

Atlas Systems now offers solar technology in addition to, or in place of earth taps to heat and cool your home. The solar collector contains patented technology that increases efficiency of Groundhog™ multi-stage heat pumps and air conditioning units.

Whether you are a business looking for an alternative way to cut down on expenses, or a homeowner concerned about using renewable resources, **Atlas** can provide you with the energy reducing solutions you have been waiting for.

- Base unit efficiency in bypass mode of solar and/or ground loop.
  16 SEER. 9.5 HSPF
- AHRI rating conditions @47°F
  COP. 4.12, EER. 14.1
- Calculations based on normal CFM and 70°F indoor dry bulb and boosted efficiency produced by solar and/or ground loop.
- Up to 28.5 SEER, COP. 5.80, EER. 17.4
  32 SEER. 13.5 HSPF
- Systems available from 2 to 30 tons
- Air handlers available with delta-control technology
- 10 year all parts warranty

www.atlas4solar.com
703.335.1730

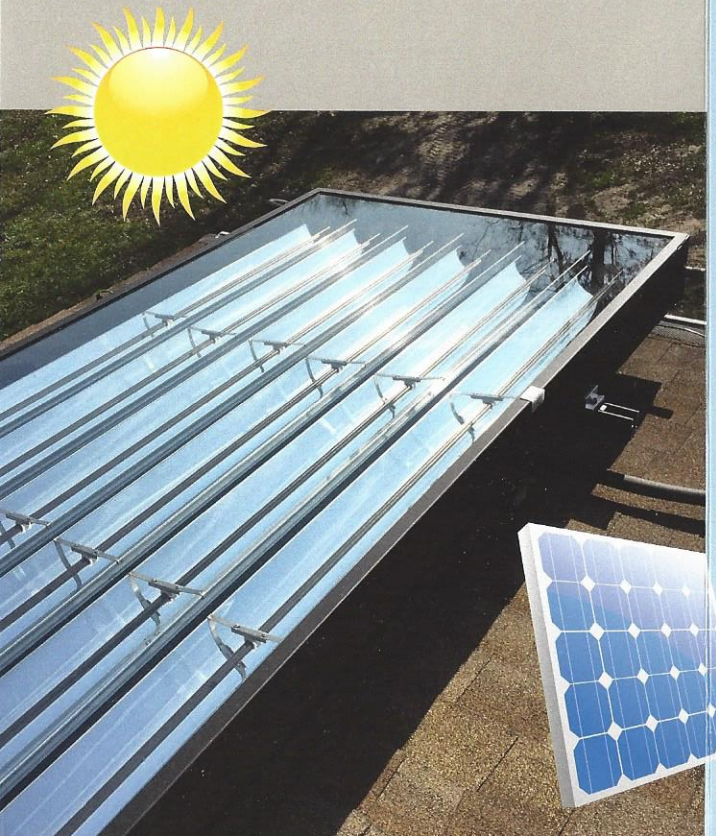
GROUNDHOG TECHNOLOGY

AIR-SOURCE
GROUND-SOURCE
SOLAR

The Groundhog™ solar heat pump is on deck and ready to soak up some rays.

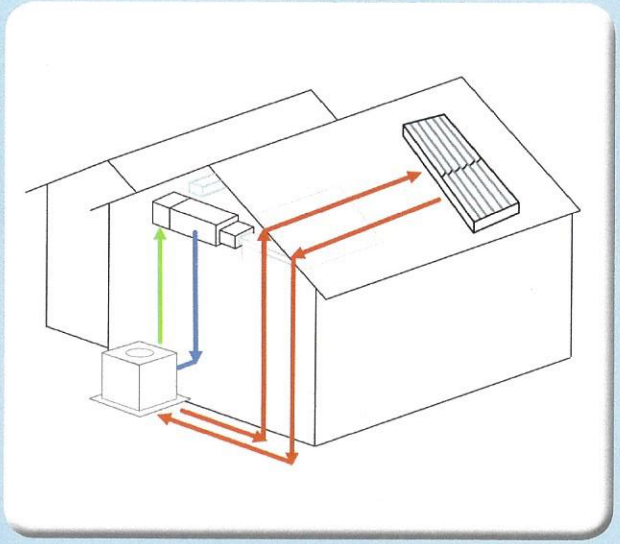
Groundbreaking technology has changed the way solar thermal energy is harvested and implemented. The patented computer controlled parabolic concentrator produces more energy than any other panel of the same size.

This technology has solved two major issues with solar thermal panels; degradation and stagnation. Current solar thermal panels cannot regulate the amount of heat being added to a working fluid or gas. When systems are not in use they can cause extreme heat buildup and even damage the coatings of an evacuated tube panel. When integrated with HVAC equipment this could cause severe damage to the refrigerant which may cause the compressor to fail.

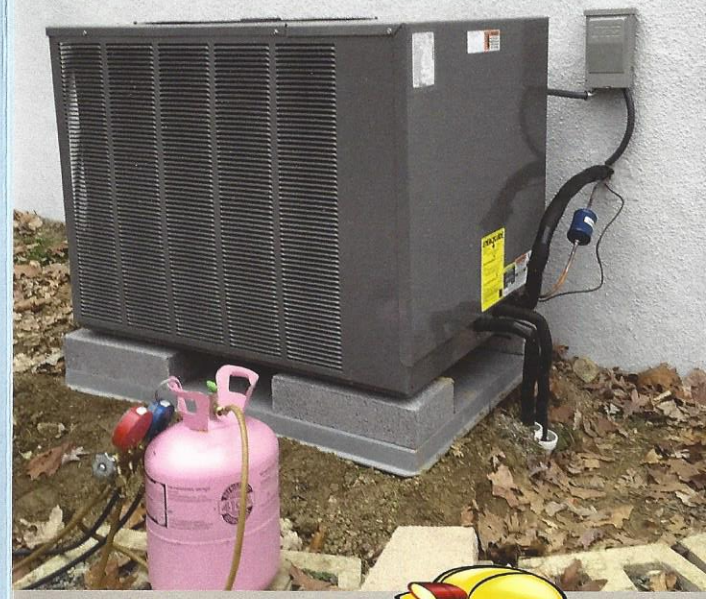


The Atlas Team Goal:

To bring the cost of geothermal down to earth, bring the cost of solar out of the clouds and continue to make tangible contributions to HVAC technology.



The SmartPanel™ has provided the solution by controlling the heat that the solar thermal panels generate. The patented panel design utilizes RiteTemp™ technology which modulates the temperature of the liquid or gas as it exits the panel.



Atlas provides ready to install systems including ground loop and solar collector with pre-installed smart controls.

Systems are also available for our Ground source only, air source, solar boost, and of course all the above with triple source Groundhog technology.

Groundhog combination geothermal systems are the least invasive and the most versatile systems on the planet. They can be installed in as little as one day. The Suntrac solar option is equally innovative offering up to a 40% energy savings with as little as a 4x6 panel.

www.atlas4solar.com
703.335.1730

The Groundhog™ DOMESTIC WATER HEATING OPTION

Heating water with The Groundhog™

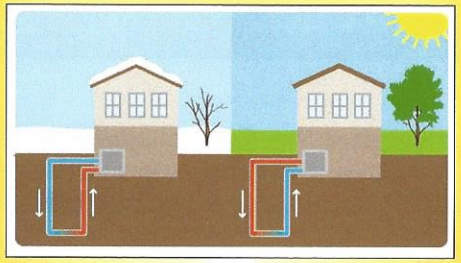
CAN SAVE UP TO 30 PERCENT LESS
in a heating dominated climate,

AND CAN SAVE UP TO 75 PERCENT LESS
in a cooling dominated climate compared to a typical electric, oil, or propane fired hot water heater. At the present cost of natural gas, the savings is about 10 percent less.

In the summer, heating your domestic water is almost free.

This is because the heat that is being removed from your home is transferred into your hot water tank. Since most of this heat is being sent back into the earth anyway, putting it into your hot water tank instead is free. The only cost for the summer water heating is the small cost of running the circulator pump that moves the water. Another added bonus is that heating the water helps cool the refrigerant. This allows the compressor to use less electricity, which usually off sets the cost of running the circulator pump.

Go GREEN and SAVE MONEY



on Heating and Cooling Your Home

with

The Groundhog™
Air Source / Ground Source Geothermal Heat Pump

www.groundhogair.com

For More Information Contact:

The Groundhog™ is our new geothermal heat pump

that combines air source and ground technology to produce a superior geothermal/air source combination heat pump system.

The Groundhog™
Air Source / Ground Source Geothermal Heat Pump

The heat pump that addresses all your fears about ground source and air source heat pumps.

The Groundhog™

What are the advantages of an air source/ground source geothermal heat pump system?

GREATER EFFICIENCY.

Air source heat pumps are often more efficient in less extreme weather. The endless supply of free flowing outdoor air can provide a great source of convection for longer run times without the thermal depletion of the earth field that can occur with geothermal units. Ground source systems are often more efficient in extreme weather conditions. The constant and more stable ground temperatures can provide an efficient source of convection as long as the earth field is not over worked. The ability to utilize both sources gives The Groundhog™ a unique advantage to achieve comfort and efficiency.

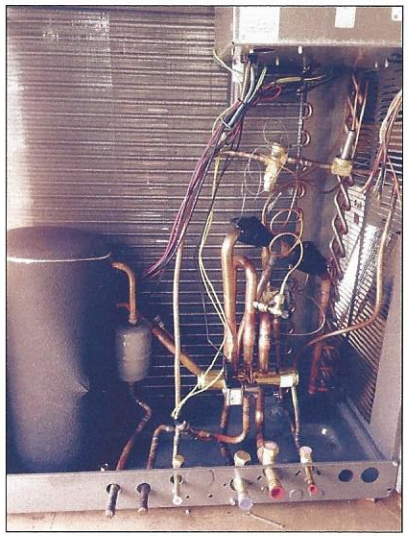
Underground piping utilizes the earth's year-round temperature for heating and cooling.

COOLING
Excess heat from house released in ground

HEATING
Heat extracted from ground and used to heat house

LOWER INSTALLATION COST = LOWER GEOTHERMAL HEAT PUMP COST.

The Groundhog's™ multisource technology requires less drilling to obtain the same BTUH as conventional geothermal systems.



FASTER INSTALLATION TIME.

Less drilling is less time consuming, and better still, The Groundhog™ can function without being attached to the earth field which is ideal when a nonfunctioning system needs to be replaced quickly. The earth field can be installed at a later date, and the homeowner can start enjoying the comfort as quickly as with a typical air source system installation.

LESS THREAT OF A TOTAL SYSTEM FAILURE.

In the rare event of a ground loop failure, The Groundhog™ can still produce adequate heating and cooling.

MORE EFFICIENT DEHUMIDIFICATION.

The Groundhog™ system uses a multi-speed compressor, as well as a variable speed fan motor to remove more unwanted humidity in the cooling mode.

According to the U.S. Environmental Agency,

A TYPICAL HOMEOWNER CAN SAVE IN THE RANGE OF $600 TO $1,200 ANNUALLY

(actual savings vary depending on usage, weather and local utility rates)

WITH THE INSTALLATION OF A GEOTHERMAL SYSTEM.

How? The use of geothermal loops allow geothermal units to use only a relatively small amount of electricity. The unit merely transfers heat to and from the earth, rather than creating it from fossil sources like conventional systems.

WITH GEOTHERMAL YOU WILL ENJOY SAVINGS UP TO 60% OVER CONVENTIONAL SYSTEMS, AND A SHORT INVESTMENT PAYBACK.

Triple source heat pump/air-conditioning and refrigeration systems.

This invention is an air-source, ground-source and sun-source combination heat pump/air conditioning system. The unit uses a solar panel to heat the refrigerant with optional ground loops. This multi-source technology also permits the system to switch from solar source to ground source, or solar source to strait air source. The system also has the capability to utilize all three sources simultaneously.

The technology also applies to refrigeration units, ductless mini-split, and all geothermal heat pump/air-conditioning systems. Systems can be constructed as stand alone units or retrofit kits. Water conductive and direct exchange geothermal heat pump/air-conditioners can also be constructed to extract additional heat from solar panels during sunlight hours and switch off when the sun is not available. Other combinations include adding the solar panels to air source self contained, split system and ductless mini-split heat pumps and air-conditioning units. The technology also permits water conductive geothermal units to add supplemental direct exchange ground loops.

The control center incorporates a series of independent and cooperating pressure and temperature sensors which include but are not limited to, monitoring and controlling compressor head pressure, suction pressure, suction line temperature, discharge line temperature, superheat and sub-cooling. Controls include a temperature comparing relay which also monitors air temperatures at, and across the indoor coil including the delta-T. The outdoor air temperature is also measured to monitor and control various functions of the system. Such functions include system mode, compressor stages, fan speeds, switching or adding conductive sources. Indoor/outdoor temperature and indoor coil delta-T also relayed to indoor thermostat/controller for monitoring and controlling compressor stages and determining the necessity for supplemental sources if available.

Tax Incentives for Solar Space Cooling & Heating Technologies

1) On December 18, 2015, the U.S. Congress approved (and President Obama signed) a bill to extend the Federal Investment Tax Credit for Solar Cooling & Heating Systems (and other renewable energy technologies) with the following Tax Credit percentages and timeframes:

Tax Credit	Date Timeframes
30%	Extension of the ITC through December 31, 2019
26%	ITC: January 1 – December 31, 2020
22%	ITC: January 1 – December 31, 2021
10%	ITC January 1, 2022 and forward

2) In addition, the Modified Accelerated Cost Recovery System ("MACRS") Depreciation was extended and enhanced at the time of the ITC extension. Congress passed the Protecting Americans from Tax Hikes Act of 2015 (http://waysandmeans.house.gov/wp-content/uploads/2015/12/SECTION-BY-SECTION-SUMMARY-OF-THE-PROPOSED-PATH-ACT.pdf) Section 143, which included a 5-year extension of bonus depreciation, with a phase-out that is structured as follows: 2015-2017: 50% bonus depreciation; 2018: 40%; 2019: 30%, 2020 and beyond: 0%. This means that through 2017, the installed cost of a Solar Cooling & Heating System will be depreciated immediately in Year 1 at 50% of its tax basis, plus:

Year 1: 20 percent (70 percent with bonus depreciation added)
Year 2: 32 percent
Year 3: 19.2 percent
Year 4: 11.52 percent
Year 5: 11.52 percent
Year 6: 5.76 percent

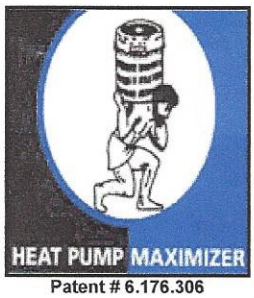
3) 26 USC § 48 of the federal tax code allows the following credits to be available for eligible solar systems: Solar. The credit is equal to 30% of expenditures, with no maximum credit. Eligible solar energy property includes equipment that uses solar energy to generate electricity, to heat or cool (or provide hot water for use in) a structure, or to provide solar process heat. Hybrid solar lighting systems, which use solar energy to illuminate the inside of a structure using fiber-

optic distributed sunlight, are eligible. Passive solar systems and solar pool-heating systems are not eligible.

The definition of assets that are part of a Solar Cooling & Heating System is not clearly defined in the Federal Tax Code for ITC purposes. Consequently, applying the "reasonable man" test, to include only HVAC equipment in a new or upgrade project that is operationally necessary for a SunTrac Solar Hybrid HVAC System, would be the prudent approach.

MAXIMIZER

Heat up your heat pump with the Maximizer and save



Patent # 6.176.306

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How a Heat Pump Works | Alternative Solutions | How MAXIMIZER Works | Easy Installation

How It Works

---The Maximizer's patented technology uses a temperature comparing relay to determine the exact amount of heat produced by your heat pump. Two sensor probes are installed in the heat pump's interior unit. One probe measures the room air temperature entering the heat pump's primary heating coil while the other measures the air temperature leaving the coil. This unique method of calculation lets the Maximizer know when to effectively engage the system's auxiliary heat. The results are less running time for the outdoor unit, reduced short cycling of the auxiliary heat and a warmer home.

We Looked At Alternatives

---Some heat pump installations involve an adjustable outdoor thermostat to engage the auxiliary heat. The problem is there are differences as to what outdoor temperature each heat pump may require auxiliary heat. Unlike the Maximizer, the outdoor thermostat cannot determine those differences independently. Other devices use a supply air sensor to maintain a constant warm air disbursement, but they lack the ability to engage the auxiliary heat at the most economical level.

---Most wall thermostats engage the auxiliary heat by using a secondary sensor or mercury switch located in the thermostat itself. Most of these thermostats engage the heat pump, or 1st stage heat, when the room temperature drops 1 degree below the the desired temperature and will not engage the auxiliary heat until the room temperature falls another 2 degrees below that. This often results in excessive operating time and lack of indoor comfort.

Operation

---The Maximizer is energized at each heat pump start up and will monitor the system's performance for a period of five minutes before determining whether or not the auxiliary heat is needed. This allows the heat pump system enough time to establish a reasonable differential across the coil and prevents premature engagement of the auxiliary heat. The Maximizer will engage the auxiliary heat only if the temperature differential falls below the set point determined by it's logic circuits.

---In the event of a compressor failure or most other system malfunctions, the Maximizer is designed to render itself neutral. This will, hopefully, prevent a false sense of security and allow repairs to be made in a more timely manner minimizing the loss of efficiency.

Easy Install for the Trained Professional

1. Mounting - The Maximizer will magnetically adhere to an air handler, plenum or any metal surface. It can be mounted either inside the furnace or outside using a protective plastic cover with only two screws to secure.
2. Blue Sensor-Installed in the return air duct preceding the indoor coil.
3. Red Sensor-Installed in the air handler at least four inches after the indoor coil, but preceding the heater elements
4. 24volt Wiring-(inside air handler)

    - Yellow wire should be joined with yellow wire of the typical Heat Pump thermostat
    - Blue wire should be joined with the common side of the 24v transformer (typically with other blue wire, but should be determined by technician for variance)
    - White wire should be joined with W2 or the second stage heat terminal (typically with other white wire, but should be determined by technician for variance)

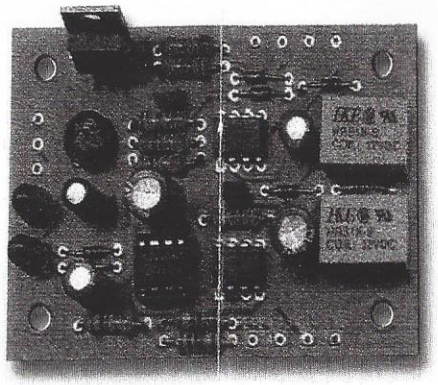
---Installation of wiring is most commonly done color to color; but in some cases it may be necessary to trace wiring to terminals in the thermostat or air handler. This will insure proper installation only if the installer understands the purpose of each wire/terminal of the Maximizer and the heat pump on which it's being installed. Typical installation takes 5 minutes or less for a trained installer and Atlas Controls does offer tech support and installer training. Just a few simple steps, no high voltage wiring and reliable tech support makes the Heat Pump Maximizer the best, reliable solution to the heat pump's shortcomings. Of course, all Maximizer units come with a 100% guarantee.

Atlas Controls L.C. Phone: (703) 335-1730 or Toll Free: (800) 810-2206
For questions about this site, email the Webmaster at: webmaster@heatpumpmaximizer.com

Are you tired of your heat pump failing to produce heat while succeeding to produce high heating bills? The **Heat Pump Maximizer** puts an end to the term cold heat; a term too often used to describe heat pumps. The **Maximizer** gives heat pumps the ability to engage the auxiliary heat at the most economical point of operation. The end result is a warmer home with a lower utility bill.

During some heat pump installations, an adjustable outdoor thermostat is installed to engage the auxiliary heat in colder weather. Unfortunately, problems may arise if the device is not properly adjusted. If it is set too high, the auxiliary heat may engage prematurely causing high-energy consumption If it is set too low, it could result in excessive operating time with very little indoor comfort provided. There are differences from one heat pump to the next as to when they may require auxiliary heat. Unlike the **Maximizer** however, the outdoor thermostat is not equipped to determine those differences on its own.

Newer devices incorporate a sensor located at the supply side of the heat pump air handler. The purpose of this is to maintain a constant warm air disbursement in the heat mode. Some of these devices, however, lack the ability to engage the auxiliary heat at the most economical point of operation. The lower an individual sets their thermostat, the greater the chance the supply air will not meet the factory set point of the sensor in such devices. This can engage the auxiliary heat when it may not be necessary resulting in higher energy consumption and heating bills.



The most common device is a multi-stage thermostat, which activates the auxiliary heat with a secondary temperature control in the thermostat itself. This secondary switch is typically set three (3) degrees colder than the primary. In other words, if the indoor temperature is more than three (3) degrees lower than the desire temperature, the auxiliary heat is engaged. The problem is that once there is a three (3) degree decrease in temperature, not only is it forces to run constantly. In addition, the auxiliary heat is not permitted to satisfy the thermostat, but in fact is disengaged one or two (1 or 2) degrees shy of the desired room temperature. Therefore, the primary system operates continuously and the second stage heat cycles intermittently resulting in excessive energy consumption.

The **Maximizer** can address the shortcomings of all the aforementioned products. Its ability to analyze the performance of any heat pump and to calculate the most precise point of operation to engage the auxiliary heat produces greater efficiency and comfort. Many of our customers here in Virginia agreed that, in fact, they did have lower heating bills and a warmer home after the installation of the **Maximizer**. Contractors who had previously contended that heat pumps lacked the ability to perform in cold weather have since re-evaluated their judgement in light of the results of the **Maximizer**.

Air source/Ground source AC outdoor units
AGAC24-1 $6,214.09
AGAC36-1 $6,788.76
AGAC48-1 $7,297.12
AGAC60-1 $7,799.81

Air source/Ground source HP outdoor units
AGHP24-1 $6,988.07
AGHP36-1 $7,502.88
AGHP48-1 $7,989.66
AGHP60-1 $8,492.76

Air source AC with solar collector
ASAC24-1 $8,978.42
ASAC36-1 $9,490.18
ASAC48-1 $9,996.41
ASAC60-1 $10,493.91

Air source HP with solar collector
ASHP24-1 $9,991.12
ASHP36-1 $10,497.20
ASHP48-1 $10,992.47
ASHP60-1 $11,592.80

AIr source/Ground/Solar AC with collector
ASGAC24-1 $11,586,21
ASGAC36-1 $12,110.47
ASGAC48-1 $12,789.45
ASGAC60-1 $13,500.07

Air source/Ground/Solar HP with collector
ASGHP24-1 $12,894.06
ASGHP36-1 $13,407.77
ASGHP48-1 $13.777.62
ASGHP60-1 $14,578.82

Air/Ground/Solar delta control air handlers
AH24-00 $1,981.09
AH24-10 $2,092.78
AH36-00 $2,436.38
AH36-15 $2,734.47
AH48-00 $2,910.22
AH48-20 $3,199.36
AH60-00 $3,499.76
AH60-20 $3,798.78

RESIDENTIAL

LOWER A/C ENERGY COSTS BY UP TO 40%

SUNTRAC SOLAR
AIR & HEAT

We didn't invent solar A/C, we perfected it.

INTEGRATES WITH YOUR NEW SYSTEM INSTALLATIONS

- Package Units
- Split Units
- Mini Split Units
- Multi Split Units

COMPATIBLE WITH MOST HIGH EFFICIENT HVAC EQUIPMENT

- Variable Speed
- Multi-Stage
- Variable Capacity

SUNTRAC SMARTPANEL™ FEATURES

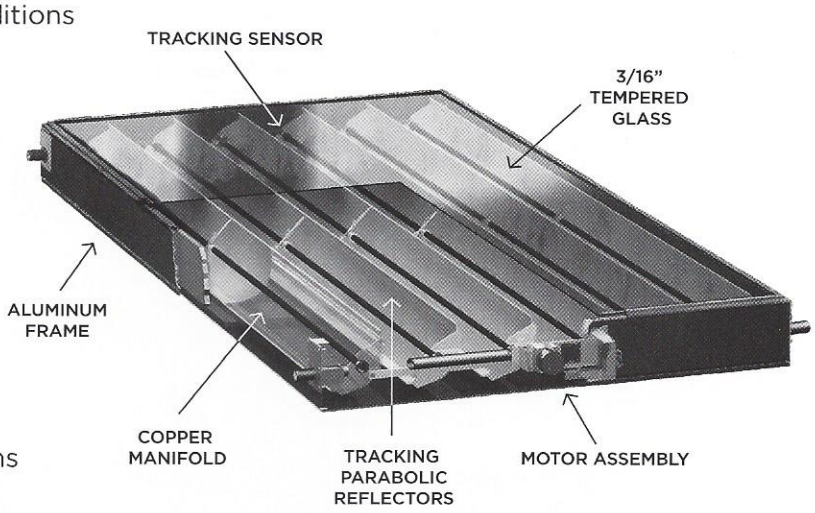
- RiteTemp™ Temperature Control
- Simple Installation
- 12v DC Power
- Self-contained Panel
- 10 Year Warranty

SUNTRAC SOLAR THERMAL SMARTPANEL

SUNTRAC SOLAR
AIR & HEAT
We didn't invent solar A/C, we perfected it.

FEATURES

- RiteTemp™ system eliminates stagnation conditions & controls high temperature limits
- Tracks daily east-to-west & returns to east at the end of day
- Designed for 25-year life
- Low voltage for safety
- Powder coated to resist harsh environments
- Removable glass top for easy access
- Tracking controller & brushless stepper motor are serviceable through motor cover
- Scalable for side-by-side mounting applications
- Tracking controller & brushless stepper motor are serviceable through motor cover



CONSTRUCTION & SPECIFICATIONS

Collector Case/Frame	Aluminum enclosure constructed from .063" 5052-H32 aluminum
Cover	Tempered plate glass, 3/16" thick (0.1875", 0.476 cm)
Cover Sealing	EPDM extruded U gasket, vulcanized corners
Insulation	0.5" (1.27 cm) thick insulation
Capacity	Up to 7.5 tons/90,000 BTU's/26 kW/40 hp of cooling & heating per collector
Net Aperture Area	Reflector area: 4' x 8' = 32 sq. ft.
Weight/Dimensions	190 pounds/86 kg, 96" x 48" x 7" (2.44m x 1.22m x 17.8cm)
Concentrators	Extruded aluminum parabolic reflector; Metalized aluminum foil mirror (for reflector surface); Teflon bearings for high temperatures and low friction
Absorber	Copper tubing: 5/8" ACR (12.7 cm), 1- 1/8" ACR (2.8575 cm) Black selective paint: absorptivity .92/.96, emissivity .2/.4
Sun Trackers	Two shaded phototransistors and brushless stepper motor Brushless stepper motor: 12vdc, 5W
Mounting Provisions	Recessed lip on frame for industry standard fasteners

COMMERCIAL

LOWER A/C ENERGY COSTS BY UP TO 40%

SUNTRAC SOLAR
AIR & HEAT

We didn't invent solar A/C, we perfected it.

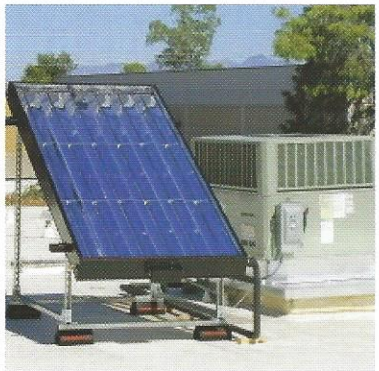
INTEGRATES WITH YOUR NEW EQUIPMENT INSTALLATIONS, AND EXISTING SYSTEM UPGRADES

- Package/Split Units
- Mini/Multi Split Units
- Chiller Systems
- Energy Recovery Units
- Dehumidification Units
- Refrigeration Units

COMPATIBLE WITH MOST HIGH EFFICIENT HVAC EQUIPMENT

- Variable Speed
- Multi-Stage
- Variable Capacity

SRCC · ACCA · DAIKIN · Copeland · KMC CONTROLS · EMERSON Climate Technologies



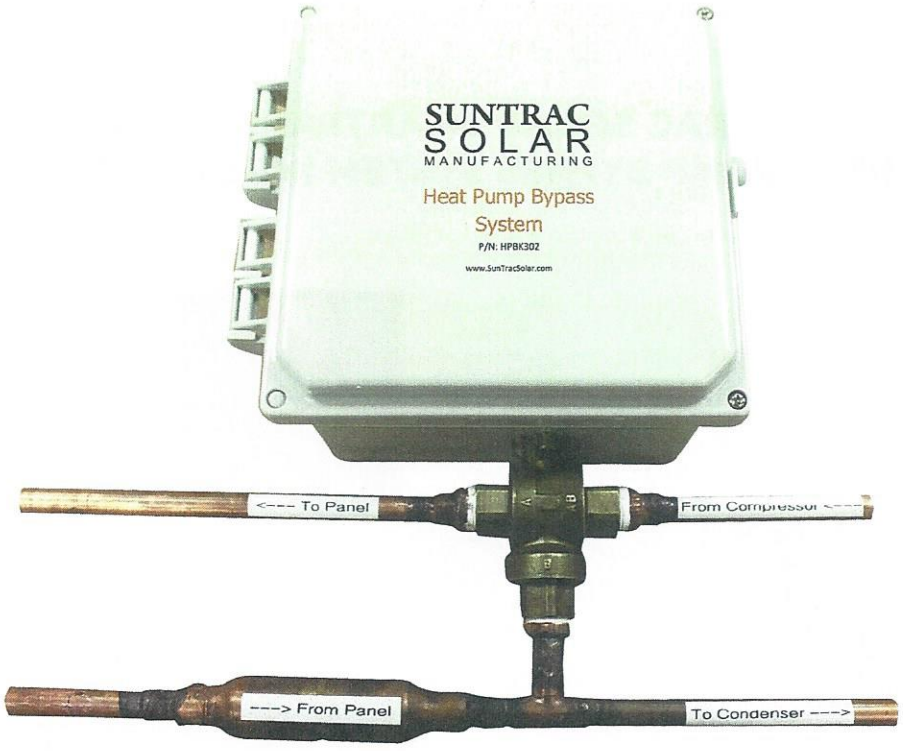
SUNTRAC SMARTPANEL™ FEATURES

- RiteTemp™ Temperature Control
- Scalable To Over 500 Tons
- Simple Installation
- 12v DC Power
- Self-contained Panel
- 5 Year Warranty

HEAT PUMP BYPASS SYSTEM

SUNTRAC SOLAR
AIR & HEAT

We didn't invent solar A/C, we perfected it.



For the integration of SunTrac Solar Thermal SmartPanel™ with a Heat Pump System

- **Featuring KMC Controls and Griswold Control Valves**

Our new Heat Pump Bypass works directly with the SunTrac Solar Thermal SmartPanel controller. This allows the Heat Pump system to bypass the panel when in heat mode, at night or during dark cloudy days, when the SunTrac Solar Thermal SmartPanel is in non-tracking mode.

The SunTrac Solar Thermal SmartPanel controller will automatically operate the SunTrac Solar's Heat Pump Bypass when the SmartPanel is not tracking due to low sun collection or nighttime. This allows the refrigerant that is heated by the compressor to remain in the circuit without any heat loss from the piping to-and-from the panel.

SunTrac Solar Manufacturing recommends installers program the thermostat to preheat the conditioned space during the day when you can utilize free heat from the sun. A well-insulated home or building that is preheated will need less operation at night to keep the conditioned space comfortable.

U.S. PATENT 7665459 - ADDITIONAL U.S. AND FOREIGN PATENTS PENDING

WE OFFER TWO HEAT PUMP BYPASS SOLUTIONS:

- **Residential** Applications use HPBK302 with 1/2" ACR Copper
- **Commercial** Applications use HPBK402 with 1-1/8" ACR copper

KMC CONTROLS

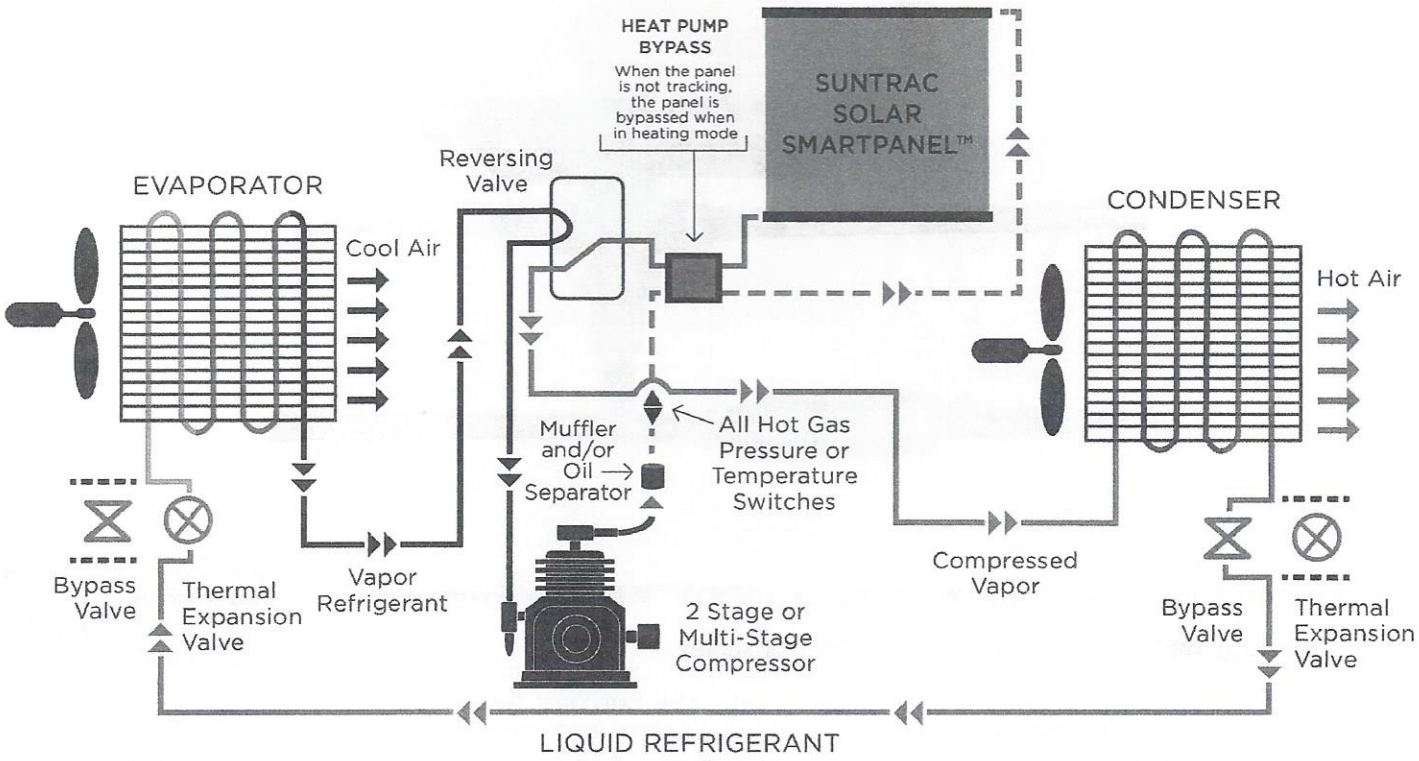
HEAT PUMP BYPASS SYSTEM

SUNTRAC SOLAR
AIR & HEAT

We didn't invent solar A/C, we perfected it.

Made in USA

SUNTRAC SOLAR SMARTPANEL™ AND HEAT PUMP BYPASS SYSTEM INSTALLATION



KMC CONTROLS

SUNTRACSOLAR.COM / SALES +1 (480) 999-6091 EXT. 810

SOLAR HYBRID HVAC UPGRADE

SUNTRAC SOLAR
AIR & HEAT

We didn't invent solar A/C, we perfected it.

Available in various sizes and capacities for HVACR systems ranging from 5-Ton to 500-Ton+, this program can retrofit and upgrade existing R-22, R407C, R134C and R-410A systems and provides HVAC energy savings of 25% to 45%, while qualifying for various federal, state and utility incentives.

- Extend System Life
- Lower Energy Use
- Uses Renewable Energy
- 30% Federal Tax Credit (ITC), including all components, materials, and installation labor

SunTrac Solar Manufacturing has teamed up with Emerson Climate Technologies and KMC Controls to create a new solar hybrid energy-efficient HVACR upgrade solution for legacy commercial HVACR systems.

This program combines three technologies to create the most energy efficient commercial HVACR system available today:

- The SunTrac Solar Thermal SmartPanel™ System
- Emerson's Copeland High Efficiency Compressors & Upgrade Kits
- The KMC Commercial Thermostat System with custom SunTrac programming & features

EMERSON Climate Technologies

KMC CONTROLS

Copeland® brand products

U.S. PATENT 7665459 - ADDITIONAL U.S. AND FOREIGN PATENTS PENDING

SUNTRAC SOLAR THERMAL SMARTPANEL

SUNTRAC SOLAR
AIR & HEAT

We didn't invent solar A/C, we perfected it.

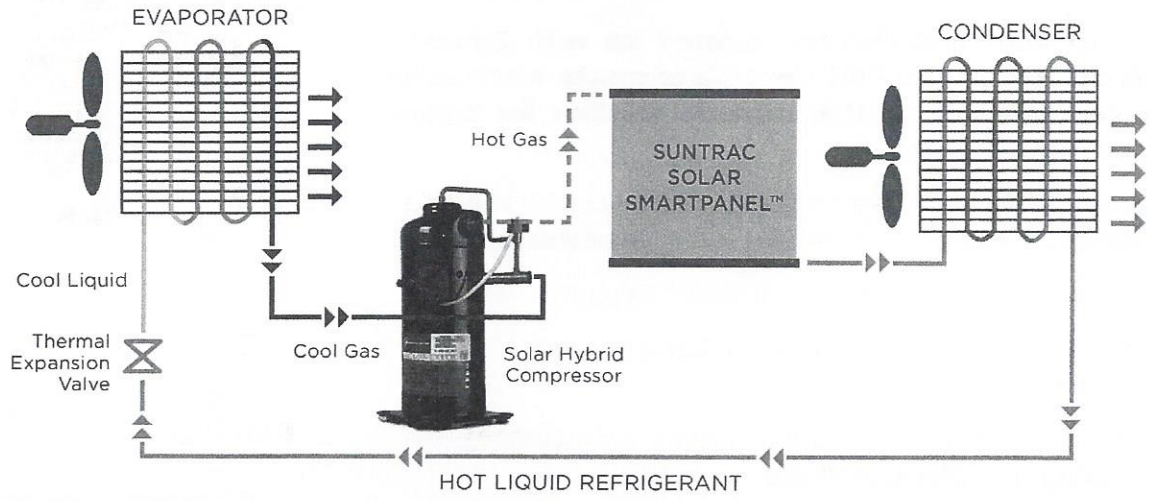
CONSTRUCTION & SPECIFICATIONS

Made in USA

Collector Case/Frame	Aluminum enclosure constructed from .063" 5052-H32 aluminum
Cover	Tempered plate glass, 3/16" thick (0.1875", 0.476 cm)
Cover Sealing	EPDM extruded U gasket, vulcanized corners
Insulation	0.5" (1.27 cm) thick insulation
Capacity	Up to 7.5 tons/90,000 BTU's/26 kW/40 hp of cooling & heating per collector
Net Aperture Area	Reflector area: 4' x 8' = 32 sq. ft.
Weight/Dimensions	190 pounds/86 kg, 96" x 48" x 7" (2.44m x 1.22m x 17.8cm)
Concentrators	Extruded aluminum parabolic reflector; Metalized aluminum foil mirror (for reflector surface); Teflon bearings for high temperatures and low friction
Absorber	Copper tubing: 5/8" ACR (12.7 cm), 1-1/8" ACR (2.8575 cm) Black selective paint: absorptivity .92/.96, emissivity .2/.4
Sun Trackers	Two shaded phototransistors and brushless stepper motor Brushless stepper motor: 12vdc, 5W
Mounting Provisions	Recessed lip on frame for industry standard fasteners

SUNTRAC SOLAR SMARTPANEL UPGRADE INSTALLATION

Straight Cooling and Refrigeration Integration



BECOME A DEALER

SUNTRAC SOLAR
AIR & HEAT

We didn't invent solar A/C, we perfected it.

30% Federal Tax Credit

The entire system including the new a/c equipment, labor, etc. qualifies for the 30% federal tax credit

Simple Installation

We provide installation training classes for our dealers either web based or in our Arizona facility

Tested and Proven Technology

As an OEM manufacturing partner with Emerson/ Copeland ours is an accepted and approved technology

Would you like to increase your average ticket sales 30-40% and add the latest in renewable energy technology to your product mix?

It's simple - Become a SunTrac Hybrid A/C System Dealer

SunTrac offers the most innovative, proven technologies available today for Residential, Commercial and Industrial use.

RESIDENTIAL - INTEGRATES WITH NEW SYSTEM INSTALLATIONS

- Package Units
- Split Units
- Mini Split Units
- Multi Split Units

COMMERCIAL - INTEGRATES WITH NEW SYSTEM INSTALLATIONS AND EXISTING SYSTEM UPGRADES

- Package/Split Units
- Mini/Multi Split Units
- Chiller Systems
- Energy Recovery Units
- Dehumidification Units
- Refrigeration Units

CONTACT RICH COOLEY OR MIKE WEINBERGER TODAY TO LEARN MORE ABOUT BECOMING A SUNTRAC DEALER

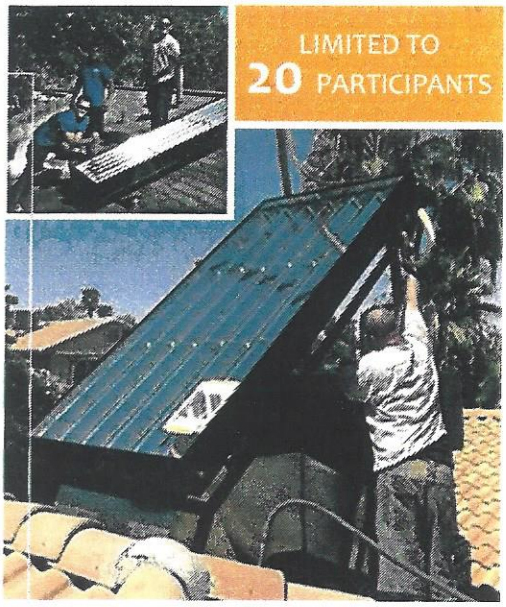
Rich Cooley
rich.cooley@suntracsolar.com

Mike Weinberger
mike.weinberger@suntracsolar.com

SOLAR HYBRID HVAC-A/C INSTALLATION TRAINING COURSE

SUNTRAC SOLAR
AIR & HEAT

BECOME A FACTORY-TRAINED SUNTRAC SYSTEMS INSTALLER



In this 1 and/or 2 day training you will learn how Solar Hybrid Systems work and how to properly install them.

DAY 1 includes installation training of our basic residential system and the Heat Pump Bypass System integration.

DAY 2 will cover commercial / industrial installation, upgrading existing HVAC equipment with the Emerson Copeland Scroll Digital Compressors; converting a single-stage/speed compressor systems to variable-speed with the Emerson VFD and KMC controllers and; panel sizing to the system.

Note: *DAY 1 class required to attend DAY 2 class. Only EPA licensed HVAC personnel will receive a SunTrac Factory Trained Certificate.*

COURSE OUTLINE:

Day 1:

- Product orientation, sales techniques and pricing strategy for residential
- Quick introduction and training outlines
- Short history of solar thermal assisted heating, air conditioning, and refrigeration
- Why SunTrac Solar over other thermal assisted devices (SmarTrac/RiteTemp)
- Mass Flow/Delta T comparison
- Installation of new Hybrid HVAC equipment training
- Heat Pump Bypass training
- Review of training material
- Discussion time
- Solar Hybrid System certificate testing
- Issue Residential Factory Trained Installer certificates

Day 2:

- Product orientation, sales techniques and pricing strategy for commercial
- Quick introduction and training outlines
- Introduction of upgrading existing HVAC equipment
- Emerson VFD and KMC DDC controls; Hybrid system upgrade
- Panels per system sizing explained
- Configuring multiple panels per system
- Review of training material
- Discussion time
- Solar Hybrid System certificate testing
- Issue Commercial Factory Trained Installer certificates

Rev 101905

Location: 2127 S. Priest Drive, Ste. 404 Tempe, AZ
Time: 8:00 AM
Duration: 6 hours per day

Includes lunch, printed installation guide & factory trained installer certificate