



PATENT PENDING RABBIT EARS THERMOELECTRIC GENERATOR

Introduction:

The Rabbit Ears CHP (Combined heat & power) is a Thermoelectric wood stove Generator Nominally rated at 100 watts. It has the ability to supply reliable solid-state power. The ONLY moving device for this system is a 12VDC thermal pump. As long as the stove is running the system will charge batteries. Its unique design coupled with a Smart controller /PLC operated by direct inputs from wireless sensors automatically operates all functions of the generator. Once installed the unit has multiple failsafe* that protect its function and the user*. Any part close to the flue is metal. This is reliable **BASE LOAD POWER** and is ideal for winter use when solar and other power systems may not supply the required constant power output. The unit basically operates 24/7 providing constant power charging to a battery bank. The added feature of the unit is that it also distributes and stores hot water for both supplementary hot water and hydronic on base board heating. This allows the user to save on fuel as a distributed system maintains an even heat over a larger area, thereby reducing the need to over work the stove to get it to isolated areas of the house. Because of this the stove can be set into a safe area away from small children and partitioned off to protect children from burns.

Thermal Electronics Corp. is also working with a technology that can take an older less efficient stove and turn that stove into a gasifier with a simple retrofit, reducing fuel use by up to 25% over a season without the lose of equivalent heating and reducing pollution by reburning gases that would otherwise go up the stack (not presently available in Canada). These 2 systems are designed for retrofits of older stoves.



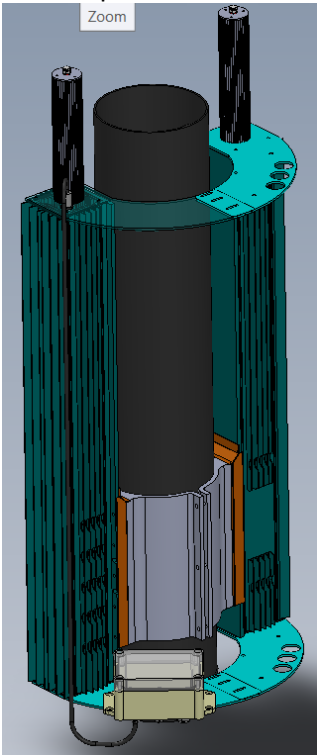
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Introducing the first PATENT PENDING solid state self-regulating THERMOELECTRIC GENERATOR. Covered by 4 Patent applications. This novel thermoelectric TEG system will provide continuous power as long as a heat load is present on the hot side. No need to drill or cut into your wood, gas, or coal stoves. The Rabbit Ears system comes with a pump, DC to DC 100Watt controller with a custom designed integrated PLC system to regulate, monitor and operate the system autonomously. The unit comes semi assembled out of the box and includes a settable 12V to 24V Custom Charge Controller, 2 heat sinks clamped to a (6" exhaust pipe included) already cut to fit the penetrating heat sink couplers.



Passive option for outdoor application!

The RABBIT EARS TEG GENERATOR will run both 12V & 24V direct loads & or bulk, trickle charge functionality for battery charging up to 24 Volts DC. The board will also control & advise on low liquid levels in the towers via LED Light, and Audible buzzard. The embedded thermistor/thermocouple provides a feedback loop to the board to direct the pump to turn on/off cooling towers within set tower temperatures. Heat exchangers are mounted inside the outer towers with PEX ends for easy hook up to a 1/2" circulating liquid system. Vent plugs equalize atmosphere pressure to tower pressure. The heat collectors penetrate the flue gas stream maximizing heat absorption which in turn produces max heat flux for optimal power output.



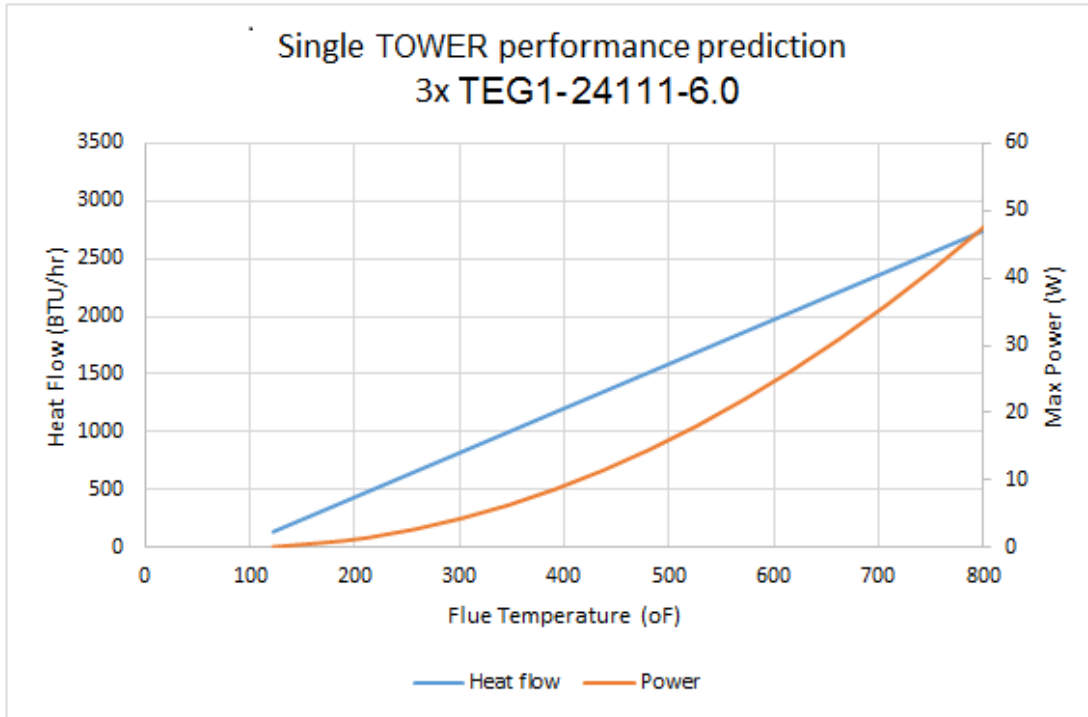
Passive unit shown



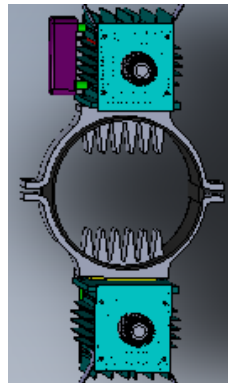
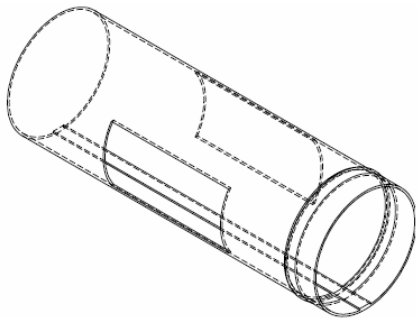
Liquid unit shown



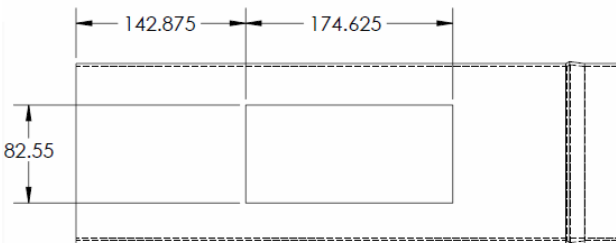
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Above graph based on 1 tower only. Rabbit ear system comes with 2 towers



Fins on heat sinks penetrate flue pipe to provide exceptional heat transfer which provides maximum power production.



Cut out for 6" stove pipe in mm Imperial conversions to right

Cut out for 6" stove pipe in mm:

82.55mm = 3 1/4"

174.625mm = 6 14/16"

142.875mm = 5 10/16"

Stove pipe cut out dimensions:



PATENT PENDING RABBIT EARS THERMOELECTRIC GENERATOR SMART MVPT/PLC Controller Specifications:

100W PEAK TEG Input Battery SMART MVPT Charging Board – Specifications

Number of inputs for TEG arrays:	2 (Terminal block for series-parallel connected arrays) Low drop diodes for parallel array isolation included on board.
Output voltage ranges:	12V & 24V output charging voltages Switch selectable direct load drive or battery charging.
Output power rating:	80W PEAK charging.
Water level and temperature:	2 capacitive water level sensor and water temperature thermistor sensors.
External Fan voltage support:	2 outputs, individually adjustable. 12V nominal output, PWM output voltage adjustable with on-board Flash memory output voltage selection.
Relay Contact outputs:	2 relay driver outputs. Assignable via software. Transistor output to ground.
Opto-coupled inputs:	2 digital inputs, isolated optical inputs.
Analog Inputs:	1 Analog voltage inputs, 0V to 24V maximum.
Thermistor Inputs:	2 independent inputs, function assignable via software.
Communications options:	GSM modem, European or N. American frequency assignments as required. Software assigned as per user requirement for remote function activation or error reporting as desired via SMS text messaging to named cell phone number, bi-directional operation. RS-232 Serial port for local communication, configuration options including external data logging & monitoring.



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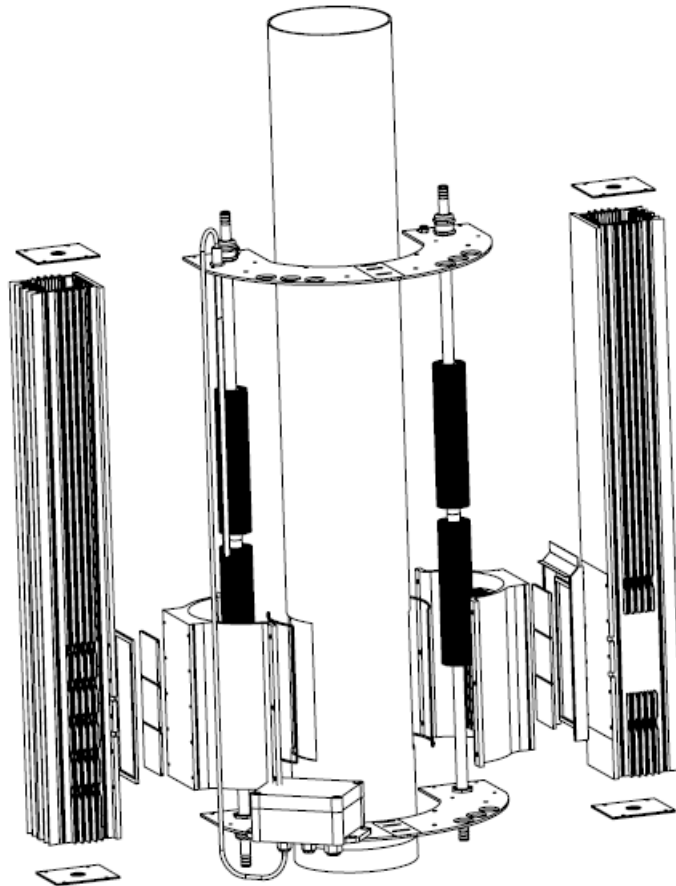
About the charger

- Designed to accept a single or dual TEG array. Alternatively, this charger can be used with an appropriately matched and sized solar panel.
- Use it as a fixed 12V or 24V supply, or a full featured 12V /24V battery charging controller with automatic microcontroller-based control for Constant Current/ Constant Voltage charging with float battery voltage charge termination.
- Built in support for widely available, low cost GSM wireless communication modems, allowing SMS text message capability. Receive a text message on your cell phone for low liquid level for example or send a text to the system to receive operational status.
- Liquid level and temperature sensors for reliable operation, with status LED error indication or receive a text message for low water level and temperature.
- External DC cooling fan support, PWM driven and powered from the TEG input voltage will keep the tower liquid level temperature at the optimum point with higher ambient temperature conditions prevailing.
- External analog and digital isolated inputs and transistor outputs for interfacing with off-board systems or control systems.
- Expandable for additional functions or custom requirements with the additional of an expansion circuit board, where quantities are favorable to the addition of a custom designed hardware and firmware solution.
- Front panel switch selects operation modes for main operating conditions to quickly select various options. For more detailed setup and configuration a Windows compatible setup program will allow the user to set and change the parameters or view the system status. Can be used for remote data logging and collection if GSM modem is not used.
- Specifications can change without notice. We recommend before buying you consult our qualified staff.





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The PLC is feed by several sensors. These sensor parameters are set by the user. The Rabbit Ears automatically maintains the cold side at the programmed set temperature, multiple defaults are employed to build in redundancy should any temperature input exceed operational limits always maximizing Delta Temperature. The pump is maintaining the set temperatures by turning on/off based on inputs from multiple program inputs cooling the towers.