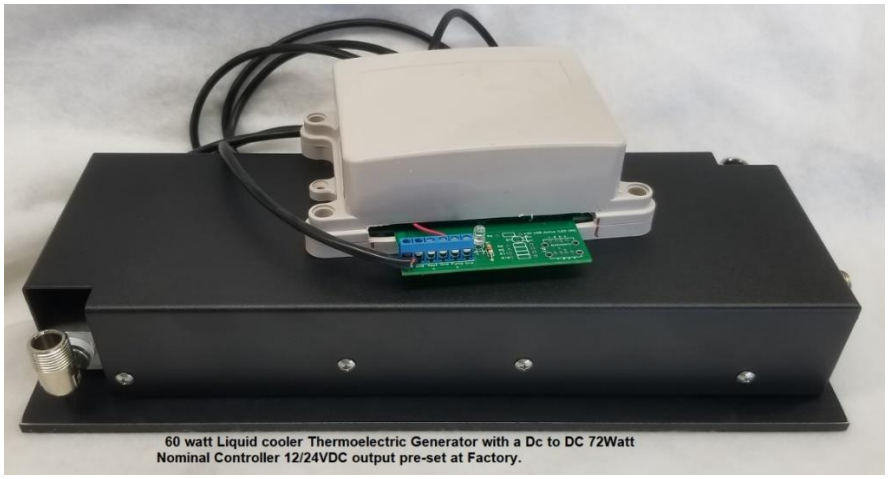
TEG12VDC-24V LIQUID COOLED TEG Generator

The TEG12VDC or 24 VDC is a nominal *60 watt TEG Generator. The TEG Generator works up to a hot surface temperature of 425°C (~800°F). The output is controlled by an ajustable DC to DC converter with a factory output of 13.8 to 14.4V. It is able to charge a 12 VDC battery. Notify factory that you would like to charge 24V battery bank as a different DC to DC converter is required and internal wiring of the TEG Modules is also required! Cold side input is maked with Blue Marker outport is marked with RED marker. Stove tops are typically not hot enough for sufficient heat flow. Direct gases from stove fire onto TEG aluminum plate is advised. An opening of 10” x 4” wide is recommended, with RED RTV silicone seal around the edge of the hot plate of TEG:

**There is an extra cost for a 24V DC to DC Converter.

(*OUTPUT BASED ON MAXIMUM HOT SIDE TEMPERATURE and DT)



60 watt Liquid cooler Thermoelectric Generator with a Dc to DC 72Watt Nominal Controller 12/24VDC output pre-set at Factory.

DESIGNED & MANUFACTURED IN CANADA

PART NUMBER	TEG12VDC-24 LIQUID
OUTPUT POWER	60 watts nominal
OUTPUT VOLTAGE	Variable preset by Factory up to 13.7 Volts
Optional Outputs:	Custom 27.2V for 24VDC charging
DC to DC Converter Constant Volt & amps	Vin:8-30V (72watt max.) Vout:12-24V 6A Max Nominal 72Watt
Recommended Maximum Hot side temperature 400°C	
PUMP	NOT INCLUDED. Recommend a 5 to 15Watt DC pump
Dimensions	13"(33cm) x 5" (12.7cm) x 2.55" (6.50cm)
Weight	10 lbs (4.5 Kgs.)
INLET & OUTLET OD	3/8" NPT Threads

Supplied w/ standard DC to DC voltage Converter

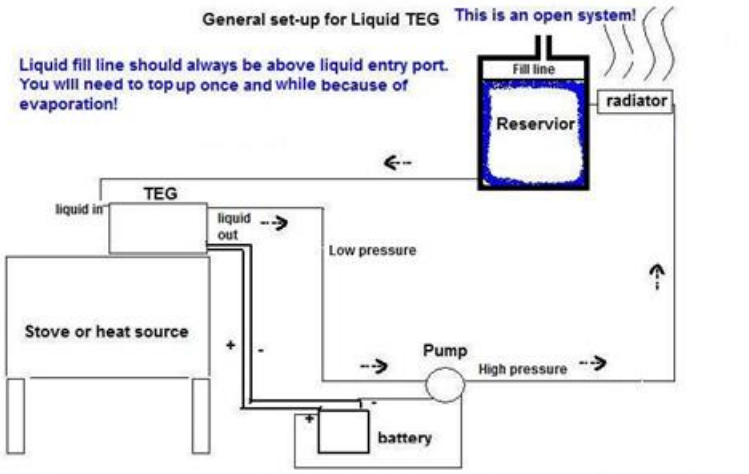
- Input Voltage: From Generator 8-30V **ALWAYS HAVE LOAD ENGAGED battery Hook-up! The open circuit voltage can easily exceed high end of input voltage maximum without a load (Battery, Fan, pump, etc.)**
- Output voltage: 13.8V or (**27.2 for 24VDC charging optional charger is available).**
- Output Power: 60W maximum power
- Short circuit protection: Yes
- Under voltage protection: Yes thru bypass circuit when not enough voltage is being produced

CRITICAL NOTES FOR OPERATION:

If used for charging BATTERIES a diode is incorporated to prevent reverse voltage to TEG.

Liquid sink is design for maximum surface area and based on this design must be operated under low pressure of less than 10 PSI water pressure.

- It is imperative to:
    1. Maintain DT to sustains optimum power generation.
    2. Protects pump from overheating. Maximum cold side of 90°C
- **Do not exceed 850°F temperature on the hot side** or you will damage the TEG modules.
- **Liquid flow must always be operating.**
- **We always recommend charging a battery and drawing loads (lights, motors, etc...) from the Pump output on the Dc to Dc Board.**
- **PUMP NO INCLUDED: Purchase from Amazon https://www.amazon.ca/LPM-temperatures-Pressures-Three-Phase-certificated/dp/B00OJRN1HE/ref=sr_1_24?crid=2CWM6HRUMIZWT&keywords=Mag%2Bdrive%2B12VDc%2Bpump%2Bsolar&qid=1698418303&sprefix=mag%2Bdrive%2B12vdc%2Bpump%2Bsolar%2Caps%2C126&sr=8-24&ufe=app_do%3Aamzn1.fos.b06bdbbe-20fd-4ebc-88cf-fa04f1ca0da8&th=1**



1. Always set the system up to test water flow before engaging TEG on hot surface. This insures that the system is running properly.
2. Pump can be before or after TEG. Sucking my cause Cavitation (lack of water through pump head).
3. Battery should alway be fully charged for new system.
4. These are only suggestions ! Final set up are at discretion of end user.
5. Liquid sink TEG is designed for low pressure under 10 psi.
   For reference city service pressure is 40 psi typical!

For hose hock-up use ½"ID with 1/8" OD wall minimum silicone tubing in and around the stove. Most silicone tubing can withstand 550°F and is fire retardant, or equivalent tubing rated for high heat.

Reservoir should be at least 3 to4 Ft. in the air above pump to reduce possibility of cavitation (Lack of water head pressure to pump).

WHAT IS NOT COVERED: Any damage caused by misuse, abuse, accident (dropping or otherwise shocking the Generator) normal wear & tear, or physical damage. Also any incidental or consequential damage or loss is not covered. Improper installation will Null and void all warranty

There are no warranties of merchantability or of fitness expressed or implied, which extend beyond the description on the face hereof. In no event shall Thermal Electronics Corp. be liable for damages in excess of the purchase price. Thermal Electronics Corp. neither assumes nor authorizes any other person to assume for it any liability in connection with this product. Abuse, misuse or mistreatment (i.e. if you overheat or drop the Generator) VOIDS all warranties. We do our best to make all of our Generators as durable as possible. However there is no way for us to fully prevent all damage due to overheating, or dropping. Warranty is limited to replacement of parts at the full discretion of the manufacturer and is limited to 1 year from date of purchase. Failure to follow the above directs will result in the destruction of the modules. It is the responsibility to the purchaser of this product to follow all direction.

Set–up Procedure

The TEG12VDC-24 liquid has 2 ports. One (IN) port for cold liquid colored BLUE or returning cold loop and one (OUT) port for liquid RED colored that has been heated by the heat passing thru the TEG modules. Markings on the brass elbows will indicate which port to hook –up too. It is recommended that about 2 feet of Silicone tubing be used for hook-up on each (IN) and (OUT) ports. The silicone tubing is HIGH TEMPERATURE and will not catch fire or melt if it comes in contact with the wood stove or heat source. There are many suppliers on the net that can supply this tubing. We recommend using ½" ID and ¾" OD or 1/8" wall thickness. The Fittings on the TEG Unit are 3/8" NPT. Understand that the more surface area contact you can achieve with the direct heat source the better the TEG will perform. This means that if you are able to have the aluminum plate directly contacting the flame (by cutting a window into the wood stove surface smaller than the Hot side Aluminum plate and covering the hole, so flames do not whisk out of the stove) you will achieve a much better and hotter hot side resulting is significantly more power being generated. The plate steel of a stove is a poor conductor compared to aluminum, so it acts as a resistance to heat movement. Therefore, if you are able to have direct contact with the flame in the stove, power output will increase. If direct contact is NOT an option, we recommend welding or fastening fingers or fins to the inside surface of the stove to create a thermal pathway for the heat to travel directly to the surface of the stove where the TEG sits.

About the DC-to-DC controller:

36/72 Watt TEG Power Board – Specifications

Number of inputs for TEG devices:	1 (Terminal block)
Output voltage:	13.7V output charging voltage
Output power rating:	36W nominal charging. 13.7V @ 3 Amps or 13.7V @ 6 Amps.
External Fan/Pump support:	1 output, adjustable output voltage with an internal pot, nominal is set to 14V at the factory.

About the charger

- **Designed to accept a single TEG device.**
- **Use it as a fixed 13.7V supply @ 3A, or a different version is available for order to output 13.7V @ 6A battery charging controller.**
- **External DC cooling fan or water pump support, powered from the TEG input voltage. There is provided an independent and separate Fan/Pump output. The voltage is adjustable with an internal potentiometer and is factory set to and output of 14V for connecting with a 12V fan or pump.**
- **This charger is unique because it prioritizes the fan/pump output by monitoring the input voltage from the TEG device. Internal circuitry senses the input voltage and when the input falls below 14V, the charger disconnects the load from the main charging output while the voltage is below 14V. By removing the main load, which could be a battery, Cell Phone, Laptop, etc…. the current used by the load is also removed and the remaining full output of the TEG device is available to provide additional power to keep the fan/pump output at Operational level. This is especially important to prevent overheating that could result if the TEG cold side getting too Hot above the 160C (320F) maximum. When the TEG input voltage rises again to allow the load charging to continue, the controller will enable the load by switching the output voltage back on.**