

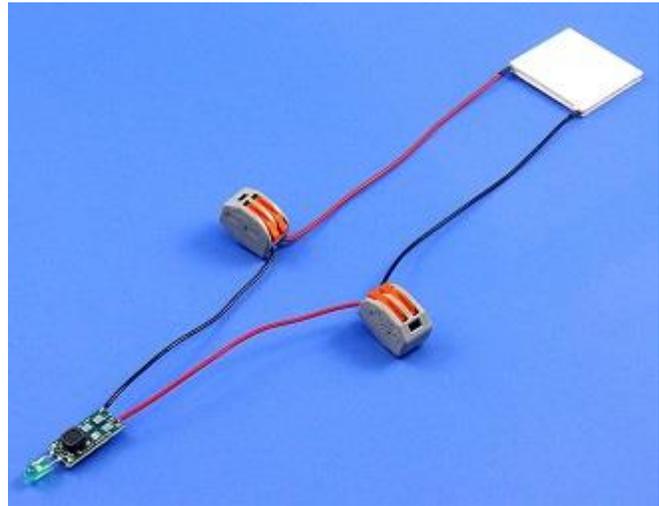
# TXL-DMO-01



## Thermoelectric Hand Heat Demo

This kit contains all the components needed to demonstrate voltage generation from very low level temperature gradients. Using these components, even an energy source as limited as hand heat can be used to do something useful, in this case, light an LED.

Designed and marketed in concert with TXL Group's distribution partner, Custom Thermoelectric, thermoelectric generation can be demonstrated within 60 seconds of opening the box.



## Kit Contents

- 1 TXL-127-25Q thermoelectric generator module
- 1 VB0410-1 bootstrap converter with attached high brightness green LED
- 2 Reusable wire junction connectors
- 1 Instruction sheet with experiments

## Experiments

Key to any successful thermoelectric application is the maintenance of as much  $\Delta T$  across the module as possible. Placing the thermoelectric generator (TEG) face down on a wood table and placing a hand on top of the module will cause a voltage to be generated and this can be boosted in magnitude by the included bootstrap converter to allow the lighting of an LED. Note that polarity matters. If you have difficulty lighting the LED, then swap the electrical connections or swap the hot and cold sides of the TEG (eg: turn the device over).

But while hands are relatively good heat sources (hand heat is constantly being replenished by blood flow), wood is not a very good heat sink and generation will drop as the module reaches an equilibrium. To enhance generation from hands, metal heat sinks allow improved heat transfer, in turn, enhancing  $\Delta T$  and the generated electrical power. Ice can be used on the cold side to enhance generation, highlighting the fact that the absolute temperature is not the important thing – it is the temperature difference that causes heat energy flux to go through the thermoelements and be converted to electrical energy.