

# Human Powered Light Display Owner's Manual



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## Introduction

This educational / interactive human powered light display is extremely effective at teaching people about energy. More specifically it actually allows people to associate a physical level of exertion to a numeric value of “Watts” (a power load provided in the form of a light bulb).

The hand crank generator is setup on a table or on the floor if small children are participating. If desired regular bike pedals can be installed so that people can use this generator as a pedal power generator by putting it on the floor and pedaling with their feet. A yellow cable connects the generator to the light box.

Details on the recommended bulbs to install in this education display are shown below. Note: The total power of all three bulbs turned on at once should not exceed 75 Watts as the display could be damaged or will not work as designed.

### Recommended Bulb Configuration

- 1) 12V LED bulb consuming about 7 Watts
- 2) 12V CFL bulb (AKA compact fluorescent) consuming about 15 Watts
- 3) 12V Incandescent bulb consuming 25 Watts if small children are participating, install a 50 Watt bulb if teenagers and adults are participating.

Note: It does not matter what order these bulbs are put in.

## Unpacking

If your system has been secured with wood crating then un box the structure and remove the 4 wing nuts as shown below.



## Installing the handle

Once the packaging is removed then install the handle on the hand crank using the included wrench to do the tightening. Do not worry about over tightening. It is important to start the threads carefully. If the pedal simply does not want to screw in, then back it out and put a little oil on the threads and try again gently. Once it is in all the way, use the wrench to apply 20lbs of force on it.

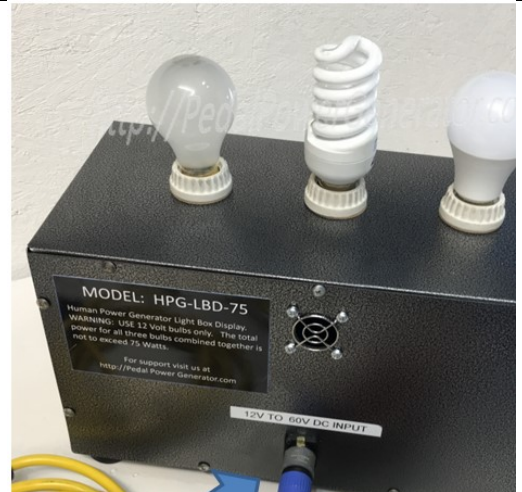


## Installing the power cable

Connect the end of the cable labeled “generator” into the generator as shown below.



Connect the other end of the cable into the LED / Incandescent light box

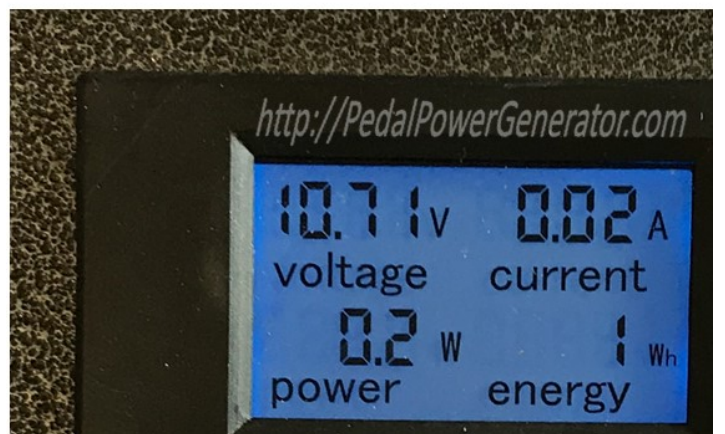


## Verify Your Generator is Working

The light switches turned off turn the cranks of the Human powered generator and verify that the power meter lights up on the front of the light box. In this case one can see that the generator is putting out 10.71 Volt. The current is the second number measured in “Amps” which will always be close to zero when the light switches are left off.

Now turn on an LED bulb and generate power from the human powered generator. At this point the light will turn on once you read a Voltage level of 13 Volts or so. The current will then show a value greater than zero. The power will be around 7 Watts depending on what type of LED bulb is being used.

If a person goes extremely fast and generates a Voltage in the 50 Volt range there is no reason to be concerned. The light box has built in over voltage protection to handle this high voltage.



# Sales & Support

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