Joule-Thief™ EHD Modules Important Notice

AdaptivEnergy LLC (AE) provides enclosed product(s) under the following conditions:,

This prototype module is intended for use for **Engineering Development, Demonstration, or Evaluation Purposes Only** and is not considered by AE to be a finished end product fit for general consumer use. Persons handling the product(s) must have electronics knowledge and observe good engineering practices. As such, the goods being provided are not intended to be complete in terms of required design, marketing, and/or manufacturing related protective considerations, including product safety and environmental measures typically found in end products that incorporate such semiconductor components or circuit boards. This evaluation kit does not fall within the scope of the European Union directives regarding electromagnetic compatibility, restricted substances (RoHS), recycling (WEEE), FCC, CE or UL, and therefore may not meet the technical requirements of these directives or other related directives.

The user assumes all responsibility and liability for proper and safe handling of goods. Furthermore, the user indemnifies AE from all claims arising from the handling or use of the goods. Due to the open construction of the product, it is the user's responsibility to take any and all appropriate precautions with regard to electro-static discharge.

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AE assumes **no liability for applications assistance, customer product design, software performance, or infringement of patents or services described herein.**

Please read the User's Guide and, specifically, the Warnings and Restrictions notice in the User's Guide prior to handling the product. This notice contains important safety information about temperatures and voltages.

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FCC Warning- This evaluation prototype module is intended for use for **Engineering Development, Demonstration, or Evaluation Purposes Only** and is not considered by AE to be a finished product fit for general consumer use. It generates, uses, and can radiate radio frequency energy and has not been tested for compliance with the limits of computing devices pursuant to part 15 of FCC rules, which are designed to provide reasonable protection against radio frequency interference. Operation of this equipment in other environments may cause interference with radio communications, in which case the user at his or her own expense will be required to take whatever measures may be required to correct this interference.

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Joule-Thief™
Capacitive EHD Modules

Quick Start and Operation Guide

Part #	Catalog #	Description
PT103320	JTF050-e5	50 Hz EHD Module
PT102984	JTF060-e5	60 Hz EHD Module
PT103279	JTF120-e5	120 Hz EHD Module

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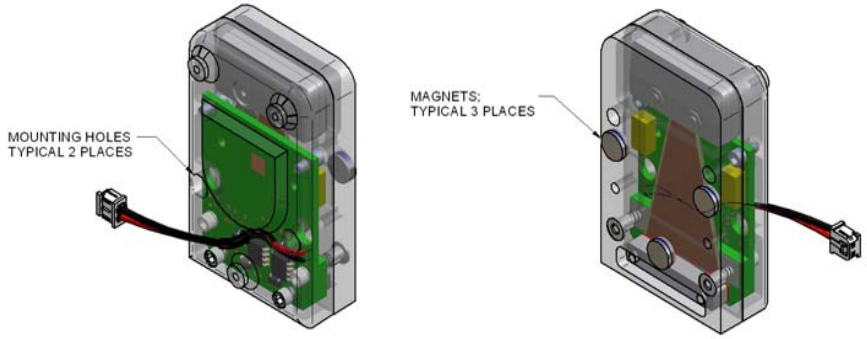
Operating Instructions

1. Attach the EHD module to the vibrating surface (or a suitable shaker table). This can be accomplished using

a) Two #2-56 fasteners through the unused holes in the central edges of the device to attach it to the vibration source. The fasteners are not provided with the module

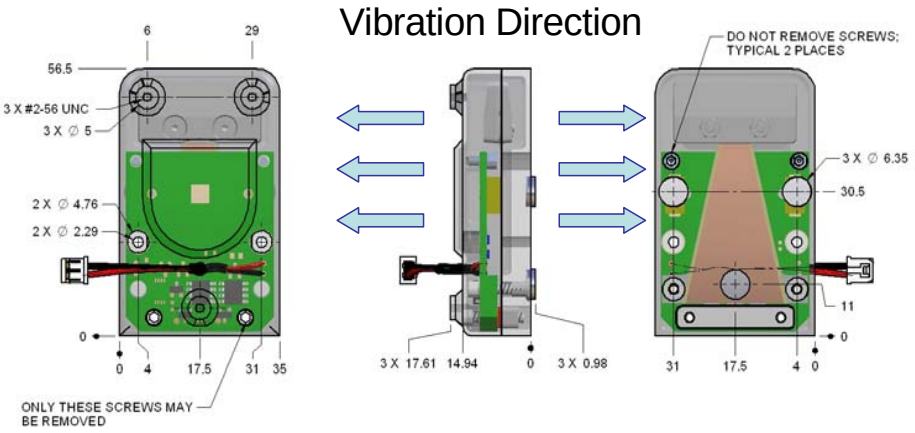
b) Or, three magnets mounted in the locations indicated in the figure. While the magnets are provided with the module, user has to ensure that the vibrating surface is sufficiently magnetic to get a rigid attachment.

Do not drill holes in the module.



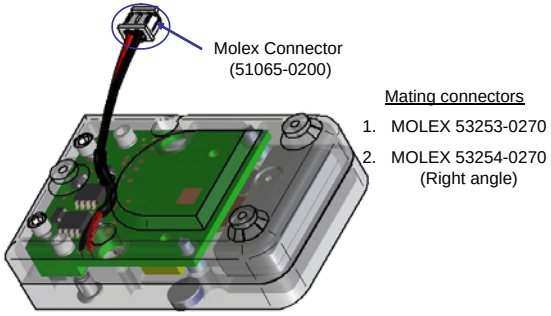
The mounting locations for both methods are depicted in the figure above.

2. The EHD module should be rigidly attached to the vibration source to maximize power transfer. This may require inserting a rigid "spacer" between the energy harvesting module and the source of vibration to attain the desired rigidity.



The vibration input should be perpendicular to the base of the housing to maximize the power output from the device. The orientation is indicated in the figure above.

3. The two leads with the connector protruding from the energy harvesting module is the capacitor output in the circuit. The connecter at the end of the wire leads is a Molex female connecter, part number 51065-0200. The mating connector for this part is Molex 53253-0270 that is required to be attached to component being powered in the application such as, sensor boards, transmitters etc.



4. Excite the device with either a shaker table or other suitable source of vibration. The device is designed to operate in resonance with a 50 Hz, 60 Hz or a 120 Hz input at 100 milli-g_{rms}. A higher (or lower) input frequency will result in decreased power output from the harvester.

5. Upon excitation, the EHD will begin to charge the storage element and continue to do so as long as the energy harvesting module is subjected to a vibration input.

a) It should be noted that the module will not work when not subjected to any vibration.

b) The circuit is designed to supply energy only when the output voltage of the capacitor reaches the 3.6 V threshold and shuts off when the voltage falls below 1.8 V.

CAUTION:

1. The EHD module should never be subjected to extreme vibration or sustained impact.
2. The acceleration input should never exceed levels that result in the end masses striking the inner housing.