



MATRIX Electromagnetic Harvesters

Power Line and Bus Bar Electromagnetic Energy Harvesting Modules

Features & Benefits

Highest performance

- Start-up and operation with low electromagnetic field
- Up to 82% peak conversion efficiency
- Ultra-low quiescent current of 700nA ($V_{OUT} = 4.2\text{ V}$)
- Near-ideal impedance matching with input source

Highly integrated kinetic energy harvesting modules

- Optimized for harvesting energy from electromagnetic fields around current-carrying conductors
- Integrates Mercury3 boost converter with impedance-matched inductive harvester
- Output voltages between 2V to 5V available

Easy to use

- Integrated solution ready for customization
- Connect directly to battery/capacitor to directly power integrated circuits or charge batteries
- Evaluation kit available

Applications



Smart City
Bus Bar Sensors
Power Meters



Power Line Monitor
Railway Sensors
Wireless Sensors



Infrastructure Monitoring
Electromagnetic Energy
Harvesting



Product Brief

MATRIX Electromagnetic Harvesters are energy harvesting modules designed for converting electromagnetic energy into useful electrical output.

Each Electromagnetic Harvester module integrates a MATRIX Mercury3 alternating current boost converter with a miniature impedance-matched inductive harvester. This integrates near-ideal input impedance matching and output regulation in an ultra-compact package requiring no external components. MATRIX Electromagnetic Harvester features the smallest cold-start power of any equivalent competitive solutions under identical conditions, whilst maintaining a high conversion efficiency across most of its operating input power range.

Many maximum output voltages V_{OUT} between 2V and 5V are also available, allowing the module to directly power integrated circuits, or charge various battery chemistries without needing additional charger circuitry. Integrated V_{OUT} regulation prevents voltage overshoot, securing reliable operation with various battery types. Operation temperature is -40°C to $+85^{\circ}\text{C}$, satisfying common industrial and commercial operating requirements.

Electromagnetic Harvesters may be customized for any shape and or size. Evaluation kits are available.

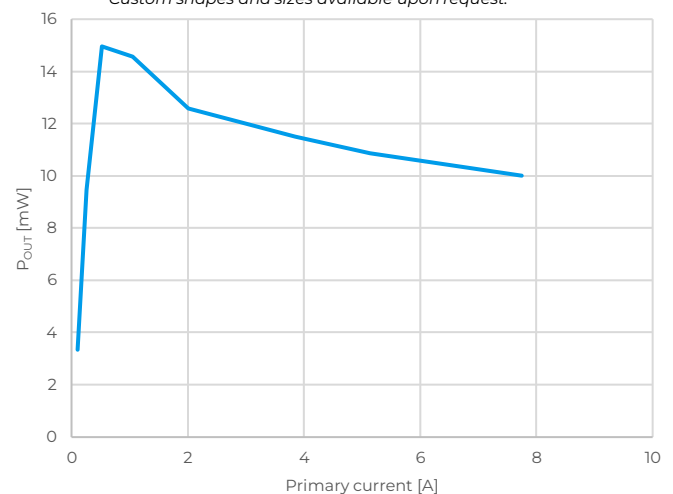


Power Line Harvester



Bus Bar Harvester

MATRIX Electromagnetic Harvesters with transformer (left) and transformer-less (right) inductive harvesters.
Custom shapes and sizes available upon request.



Output power vs primary current for Power Line Harvester with $V_{OUT} = 3.3\text{V}$.

MORE INFORMATION