

Bionic Energy Harvester Datasheet



The Bionic Energy harvester consists of 2 leg harvester units and a control module. It intelligently targets peak generation during regions of the stride where the muscles are normally performing a braking action. This results in considerably reduced user effort and even assistance to the user on down slopes. The effort level can be adjusted on-the-fly to meet the user's needs through a simple user interface. For flexibility, the control module can also draw power from any low voltage AC or DC source for battery charging (ie vehicle battery, solar array, fuel cell etc.).



Battery Charging:

A microprocessor-controlled charging algorithm is used to optimize charging rate and battery lifetime. The battery type is specified by the user or automatically determined (via SMBus)

Performance:

Nominal power output:	8-14W (1.5m/s walking speed, level ground)
Maximum power output:	25W (15 degree down slope)
Effort Level setting:	10 levels
Output voltage:	5V to 16.8V (2 to 4 Li Ion cells)
Maximum output current:	5A
Battery chemistries supported:	Lithium Ion (others available upon request)
LCD Indicator:	Charge complete, charging, fault, output power
Connections:	Left leg, Right Leg, Battery
Fault Protection:	Reverse polarity, open/short circuit, over/under voltage, temperature faults
External Power Input:	8V to 24V: Solar, vehicle, fuel cell
Operational speed	0.5 to 3m/s (slow walk to fast jog)

Device Dimensions/Weight:

Braces size:	Small, Medium, Large, Extra Large
Strapping:	4 points, w/ quick release
Weight:	750 grams per leg

Environmental Conditions

Operating temperature:	-20C to + 50C
Storage temperature:	-40C to + 70C
Relative humidity	10 – 95%
Sealing:	IP67 (immersion 1M for 1hr)

Reliability

Service interval:	1 year (based on 8hrs/day 200days/year)
Product lifetime:	3 years

Regulatory/Emissions Compliance

Safety:	TBD
EMC:	TBD
Audible noise:	<40dBA at 1M