



# THINAIR

power reinvented





# THIN AIR

Creating best in world, energy storage products and anti-viral products, for use in emergency, camping and harsh ( $-40^{\circ}\text{C}/^{\circ}\text{F}$   $+85^{\circ}\text{C}$ ) environment markets.

This is rev L of this pitch deck.



*Thin Air's vision is to provide power technology that works really well, even in extreme conditions, and never wears out.*

*We create patent pending technology solutions using Gen2 and Gen3 supercapacitors.*

*Our tech provides the highest density energy storage on the planet, consistent with long life (>20k cycles) and delivers massive amounts of power, ranging to -40<sup>C/F</sup> +85<sup>C</sup>.*

*We've added patent pending anti-viral capabilities using UVc LEDs to our lighting solutions, expanding our market opportunity.*



# The Team

- **ABOUT James:** James is a serial entrepreneur, having grown his first company (Newer Tech) to >\$60 million revenue; then growing WiebeTech within the emerging market of computer forensics and exiting profitably. More recently, Chipper Aerospace was growing and profitable when destroyed by a fire. James has created IP for more than 40 years in the computer hardware, data storage, aerospace and computer forensic markets. His market direction and designs are the result of insightful product development and consequent feedback from customers. *Supercapacitors* are a very important part of this business. James has 12 years of exposure and design with supercaps, having started his first supercapacitor project around 2008.
- **ABOUT Kathy:** Kathy has focused on operations, financial control and marketing throughout the growth of the businesses. Currently, Kathy is engaged as director of marketing for a small Kansas college.
- **George Bruce** – Legal and corporate advice, Martin Pringle.
- **David Cooper** – Intellectual Property advisor and attorney, partner with Kolisch Hartwell.
- **Bob Ring** – Advisor and investor, former President of the Coleman Company (retired). Bob is an expert on operations, marketing and channel strategies, as well as an avid outdoorsman.
- **Steve Damon** - CAD Engineering / 3D printing (full time employee).
- **Seth Binford** – Videography.
- **Morgan Martinez** – Website and graphics.
- **Patrick Dreiling** – Graphic Development.
- **Cocoa** – James' support dog.

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# Key Technologies



Thin Air products store energy and don't wear out, lasting for up to 10 years and up to 100,000 cycles while working under extreme temperatures. Users can charge and discharge more quickly, store more power, carry less, and be more prepared. None of our products use old school lithium ion batteries.



Instead, our patent pending technology use GraphCaps™ that can be recharged from 20,000 to 100,000 times, lasting up to 10 years. The result is the highest density energy storage on the planet, delivering long life and lots of power, even in sub-freezing or Sahara temperatures.



Our LED lighting solutions offer high performance emergency lighting, and our portable ultraviolet (UVC) sets a new usability standard for germicidal applications.

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# Target Markets for our Tech

- **Power for 10 years.** Our products provide power and lighting, wherever, whenever, and last up to 100,000, pretty much good as new.
- **Anti-viral.** Our lighting product has a unique dual mode operation, supporting visible light and also providing germicidal and anti-viral UVC lighting. Patent pending.
- **Emergency.** The world needs power storage that doesn't wear out.
- **Outdoor, camping, hunting and hiking.** Someday, this bullet point will be important again.
- **Solar.** Many of our products integrate directly with solar power, and portable solar charging is currently a \$443 million market, growing to \$1.7 billion by 2025.



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# Our Best Products

- **Air Light™:** This product family is focused on providing camping and emergency lighting. One side of this credit card size, very thin product is an efficient solar panel, the other side a state of the art LED light panel. Inside is very thin GraphCaps™ and our IP. Ideal and the best for emergency or camping use. Patent Pending. *Ready to go to market now.*
- **Air Virus™:** Using the same core circuitry, GraphCaps™ and solar cells as Air Light, this product includes a patent pending dual LED array circuit including UVc lights, which have strong germicidal and anti-viral properties. Hoping for beta testing later in April.
- **Air Power™:** Our first product family is an energy management and storage device. Utilizing solar power, it provides up to 120 watts of charging power and 35 watt hours of energy storage. It has multiple USB, laptop, and +12V outputs. Input shadow diversity from solar panels for a better consumer charge experience. *Ready to go to market now.*
- **Air Power Pro™:** 580 watt power storage device, chargeable in 30 minutes to 80% capacity from any AC outlet. Outstanding self-discharge characteristics superior to Lithium Ion storage devices. Perfect integration with solar power for off-grid or down-power recharging. Outstanding temperature performance, in charge and discharge mode. *Nearly ready.*
- **Air Power Gen3™:** Utilizes 105 watt hour / KG technology gen3 GraphCap technology, provides capacities from 1.6Kwh to 100Kwh in lightweight packages. As internal resistance is exceedingly low, far lower than Lithium batteries, charging and usage is aircooled for most applications. Now in the lab. *New design validation samples can ship in Q3 2020.*
- **Rollable Solar Panels:** Inexpensive, light weight solar panels which are rollable. Ideal and best for emergency use. Best power to weight ratio in an inexpensive solar product. *Ready to go to market now.*

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# Our Technology

- **Cycle Life:** Lithium batteries charge slowly and wear out after as little as 500 cycles. Our Gen2 and Gen3 GraphCap storage elements are designed to last 20K to 100K cycles.
- **UVc:** Air Virus™ includes this critical feature in a very small, rechargeable size. We think our solution is best in class and is easily scalable.
- **Lifetime:** The typical lifetime of our products is about 10 years.
- **High Capacity and Light Weight:** Our Gen3 technology delivers raw power at 205 watt hours per kilogram. A typical 10KW pack is capable of providing continuous power of approximately 150 *thousand* watts.
- **Temperature:** Lithium batteries generally can't be easily charged or discharged with temperatures below freezing (32f or 0C). Our storage element accepts normal charging all the way down to -40F/C. (Dependent on generation of GraphCap and application. Actual testing data at -25C is available, showing 91% retention of room temperature energy.)
- **Green.** Elimination of battery replacement makes the product 'green'. Use it for years or decades; just make it once. *Green is a driving point for purchasing decisions, especially for pre-boomers.*
- **Green, again:** Use of solar power makes the product green.

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# First to Market & Better

- We believe we are first to market with 100,000 cycle emergency power systems. There are many companies producing emergency and camping power products; all utilize lithium or lead acid batteries.
- We believe we are first to market with a supercapacitor based UVc portable germicidal product.
- We believe we are first to market with a 10 year consumer flashlight.
- We believe that we are offering the lightest 'power to weight' solar panel in the consumer market at an economical price.

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# Business Model

- We generate revenue by selling disruptive hardware products with high margins and growth prospects.
- We also generate revenue by licensing our technology to others.
- AGILITY is extraordinarily important in this new market environment. We add new products for new market opportunities as warranted.



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# Marketing Takeoff: Our Methods

- We have just registered our website, [www.thinairenergy.com](http://www.thinairenergy.com).
- We love video to tell our story. Here's two:  
<https://www.youtube.com/watch?v=wRTNi8BFa8g&t=34s>  
<https://www.youtube.com/watch?v=BvcWDi3g23s&t=87s>
- We think Facebook is awesome. Kathy and James built their aerospace company to 45K+ followers on FB. We maintain communication with them, and they love to hear what James is up to. We're setting up a new FB handle for Thin Air.
- We just hired our PR firm, Interdependence. That's the same firm that launched Groupon, and here's some more of what they've done: <https://www.interdependence.com/case-studies/>
- We plan to use Kickstarter / IndieGoGo to launch products, along with our own website and email push.
- We have 5,000 email followers of our older companies. We're going to use them.



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# Select Products in Development (Appendix material)

- **Air Light™:** This product family is focused on providing camping and emergency lighting. One side of this very thin product is an efficient solar panel, the other side a state of the art LED light panel. Inside is very thin GraphCaps and our IP. Ideal and the best for camping or emergency use.
- **Air Virus™:** Looks just like Air Light, includes a special handle.
- **Air Power™:** Our first product family is an energy management and storage device. Utilizing solar power, it provides up to 120 watts of charging power and 35 watt hours of energy storage. It has multiple USB, laptop, and +12V outputs. Input diversity from solar panel and Power Pump technology for a better consumer charge experience.
- **Air Power Pro™:** 580 watt power storage device, chargeable in 30 minutes to 80% capacity from any AC outlet. Outstanding self-discharge characteristics, superior to Lithium Ion storage devices. (LiOn will self-discharge to 80% in 30 days; Air Power Pro will self-discharge to no less than 85% in 28 days.) Perfect integration with solar power for off-grid or down-power recharging. Outstanding temperature performance, in charge and discharge mode.
- **Air Power Gen3™:** Gen3 technology alpha validation is shown, which produces 205wh / KG.
- **Rollable Solar Panels:** Inexpensive, lightest weight solar panels based on CIGS technology. Ideal and best for camping or emergency use. Best power to weight ratio in an inexpensive solar product.

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# Air Light™



Front Side  
with small  
handle



Solar side, with Key FOB for size comparison

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# Air Light™



Front Side



Swivel Handle

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# Air Light

## FEATURES and BENEFITS:

- Brilliant lighting for camping and emergency usage
- 10 hours of lighting in normal mode on a single charge
- Nightlight mode works for 5 straight days on a single charge
- **Ludicrously bright** mode provides blinding light level
- Built in hook for hanging or posing or charging
- Weight of 82 grams (3 ounces)
- Up to 100K usage cycles; basically lasts forever
- Charges in 2 hours in direct sunlight
- Charges in 30 minutes (80%) when plugged into USB port
- Charges indoors under a bright light
- Green to the max in manufacture, usage and durability
- James says: *“absolutely ideal for camping and emergency, superior to all other camp tent lights!”*
- *Patent Pending as of 4/6/2020. Worldwide IP rights reserved.*

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# Air Light



Air Light (in 'ludicrous' mode) is the only source of light in this room. Unretouched photo taken with Nikon Z7.  
(Model: Cocoa, James' dog.)

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# Air Light



Another demonstration of ludicrous mode. *The only source of light in this entire room is the Air Light*, taped to the top of the Nikon camera. Unretouched photo taken with iPhone.

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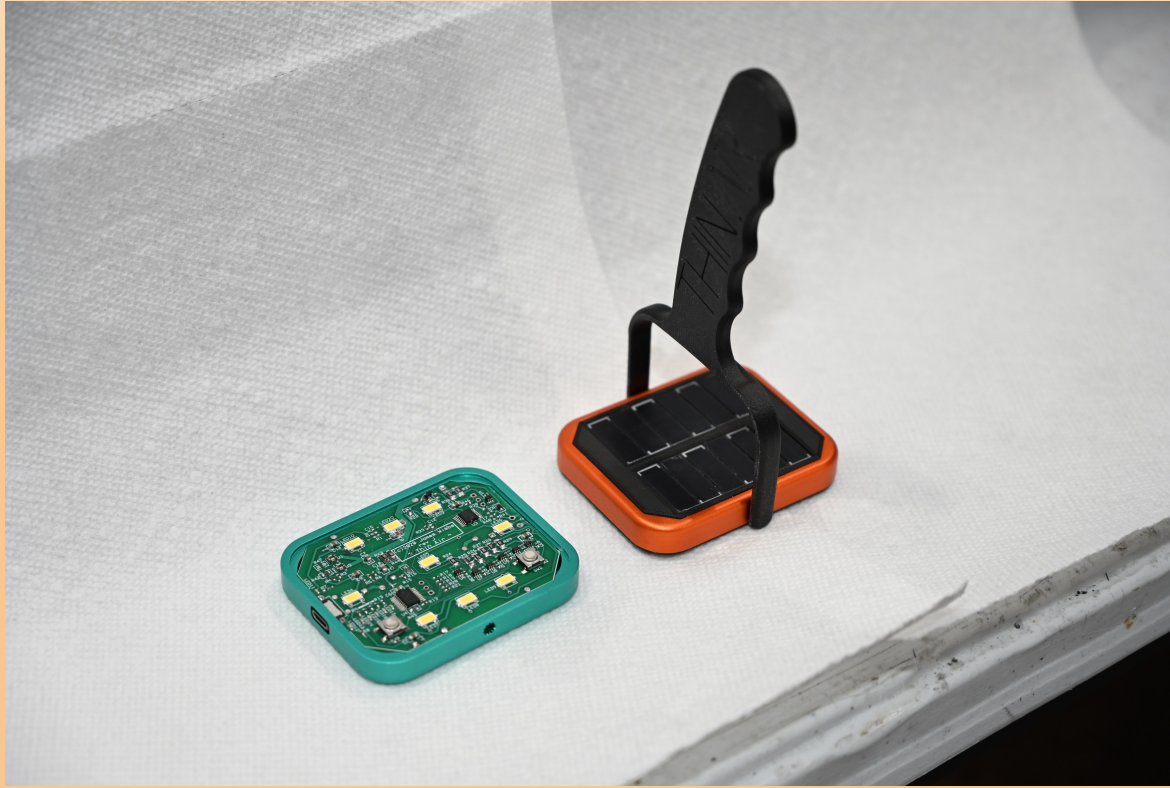
# Lighting with Thin Air



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# Air Virus™

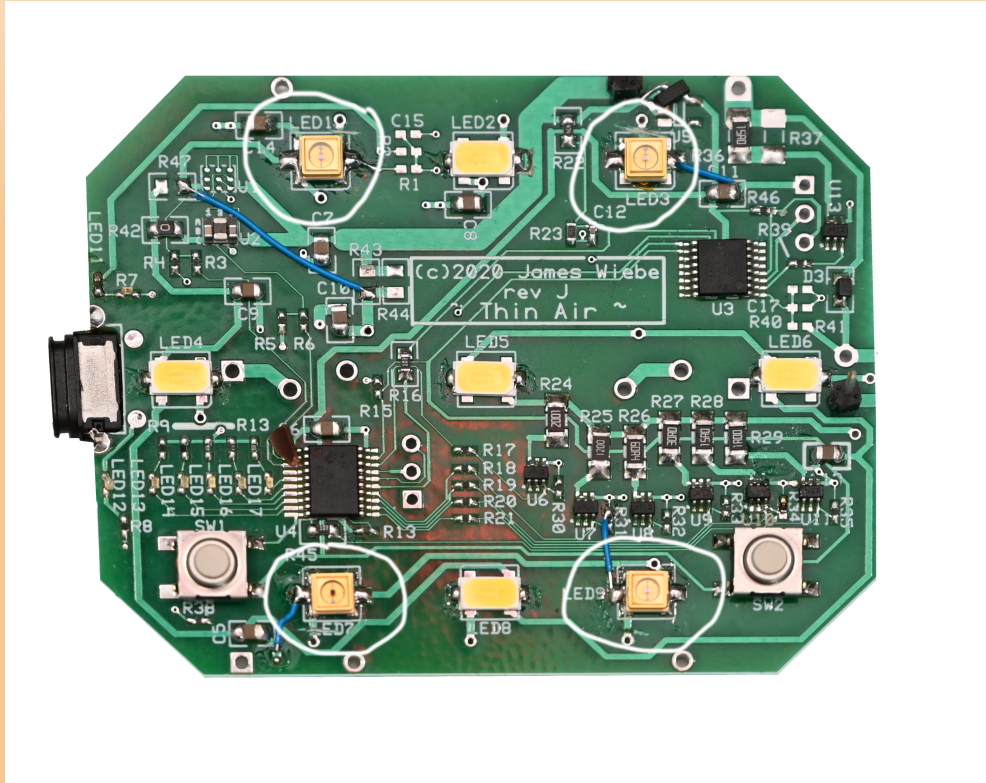


The anti-viral product circuit has been powered up and is producing powerful UVc anti-viral radiation. It has a blue-green case. Same exact case and handle as Air Light.

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# Air Virus™



First board rev powered up and produced UVc power with intake of about 1.4 watts, producing ultraviolet light at about 28 mW at peak wavelength of 279 nm.

*Patent Pending as of 4/6/2020. Worldwide IP rights reserved.*

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Air Power

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# Air Power™

## FEATURES and BENEFITS:

- Power storage is 35 watt-hours. Lots of power in a small package.
- Output charging rate is up to 120 watts, sufficient for 99%+ of laptops.
- Svelte weight of 600 grams (22 ounces). Campable.
- Use it 100,000 times, it still works.
- Supports input solar diversity; charge from up to 4 solar panels. Isn't distracted by shaded panels.
- DC wall wart input also provided. 80% wall charge in 30 minutes! Quick.
- Dual output USB ports. Compatible. 2.1 amps per port. Works well for all USB devices.
- Dual unregulated 12 volt port, ideal for general purpose usage and laptop charging.
- Size: approximately 4" x 4" x 2.5". Very small.
- Four solar inputs for solar input diversity (protection against shadows).
- *Patent Pending as of 4/6/2020. Worldwide IP rights reserved.*

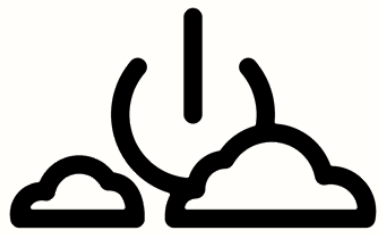
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# Air Panel™

Rollable solar panel produces  
60+ watts of power and  
weighs 2 pounds.

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# Air Power Pro™



Gen2 Power Pack  
in development for “Air  
Power Pro”

350 watt  
hours of  
power.  
100K cycles.  
Extreme cold.

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# Air Power Pro™

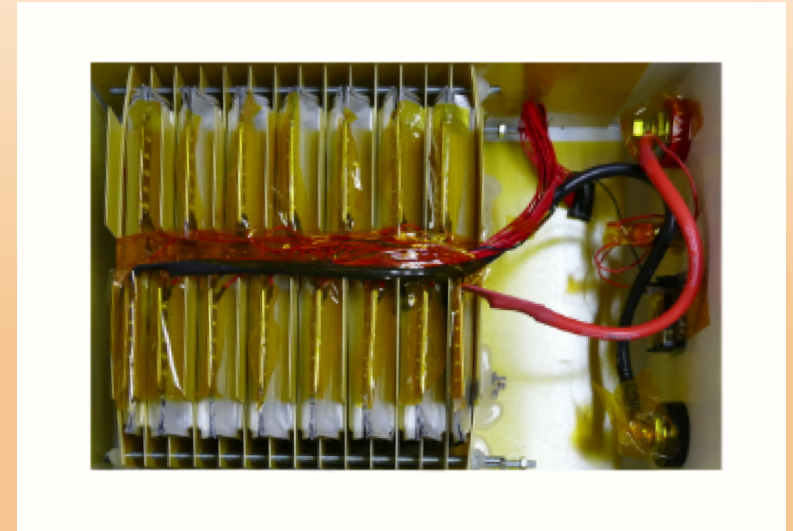


Gen2 Power Pack, 3D  
printed case "Air Power Pro"

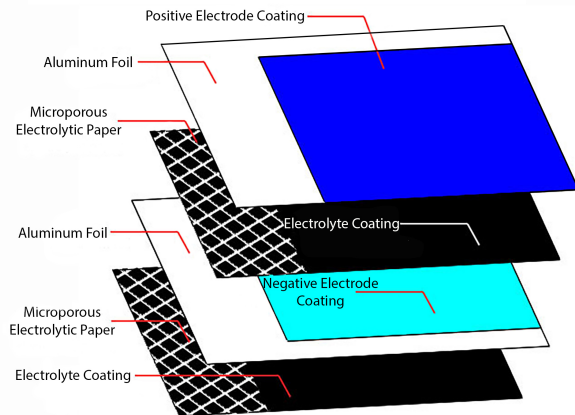


# Gen3

Gen3 Diagram  
Internal Structure  
consisting of Graphene  
Paper and Electrolyte



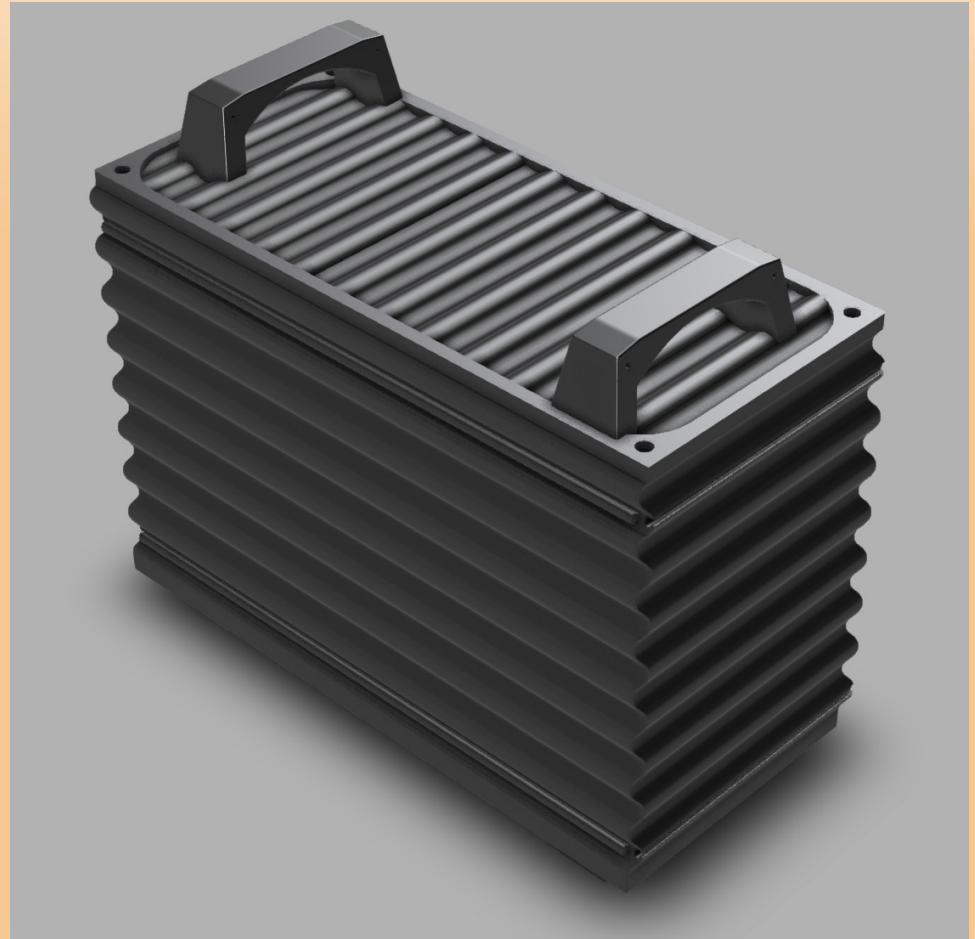
Generation 3 Supercapacitor Diagram  
Graphene paper and lithium electrolyte with 20K cycle technology  
(c) 2020 Thin Air Energy LLC Company Proprietary



Gen3 Sample Configuration  
(Early rough form!)



# Gen3



Gen3: 876 watt hours of energy in a small package with light weight.

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# Gen3



Gen3: 876 watt hours of energy in a small package with light weight.

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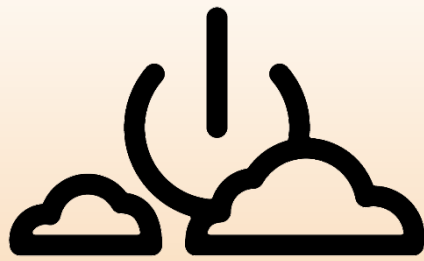


# Gen3

## FEATURES and BENEFITS:

- 205 watt-hours per kilogram. Equivalent to all but the best Lithium Ion batteries.
- 1 milliohm internal resistance per cell. This allows fast charge and discharge without overheating.
- Extreme cold discharging is OK. Tested down to -25C, producing 90.7% of room temperature storage.
- Extreme cold charging is OK.
- Use it 20,000 times, it still works. Predicted life is >40K cycles.
- Prismatic design allows tight packing.
- Ideal for aerospace, defense, space, harsh environment, remote location.

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**Thank you for learning about**

THIN AIR

Creating power storage products for use in camping, emergency and professional markets.

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