

# ***International Battery***

***New Jersey Clean Tech Conference***

***October 17, 2008***

***A Green Technology Company***

# Company Overview



**A Green  
Technology  
Solutions Provider**

**Complete  
Battery System  
Solutions**

**U.S.A. Designed,  
Developed &  
Manufactured**

**Environmentally  
Responsible**

## Purpose

- ❑ Designs, develops, manufacturers, markets, and sells environmentally friendly, large format, rechargeable **Lithium Ion Cells, Battery Management Systems (BMS) and Complete Batteries.**

## History

- ❑ Founded In 2004
- ❑ Private Company, Private Equity Funded

## Locations

- ❑ **Corporate Headquarters & Manufacturing Plant**
  - ❑ 93,000 square foot facility located in Allentown, PA, U.S.A.
  - ❑ “Green” factory
- ❑ **Engineering Center of Excellence**
  - ❑ 20,000 square foot facility located in Oakland, NJ USA
  - ❑ Global team of qualified engineers
  - ❑ Develops Integrates and tests complete turn-key modular lithium ion battery systems
- ❑ **State of the Art Testing, Quality Control Verification Laboratory**
  - ❑ Allentown, PA, U.S.A.
  - ❑ Improving Chemistry and Formulations



# Lithium-Ion Cells

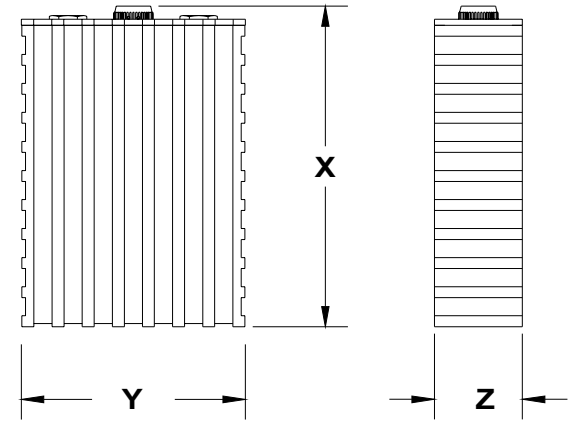
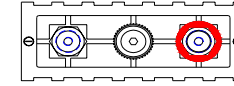
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- Prismatic Cell Geometry**
  - Superior packaging benefits
  - Proven design
  
- Large Format**
  - 40, 50, 60, 90, 160, 200, 300, 400 and 600 Ampere hour (Ah) capacities
  
- Chemistry**
  - LiFP (Iron Phosphate)**
  - LiNCM (Nickel+Cobalt+Maganese)**
  
- Rechargeable**
  
- U.S.A. Designed, Developed & Manufactured**



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## Maximizes the **Safety, Performance and Life** of our Battery Systems

- ❑ International Battery (“IB”) has developed proprietary modular embedded microcontroller Battery Management Systems
- ❑ Specifically designed for large format high energy cells
- ❑ IB’s Generation II BMS
  - ❑ (Example below is a Military BMS application shown with Charger / Discharger Board - not included in EV & HEV BMS)
- ❑ Continuously measures:
  - ❑ Voltage
  - ❑ Temperature
  - ❑ Charge/Discharge Balancing
  - ❑ Isolation Detection abilities
  - ❑ Current
  - ❑ Overall battery pack performance
- ❑ Includes a CPU board capable of managing the entire battery system as well as managing the integration into the customer’s application .
- ❑ Can be customized to meet specific customer requirements.



# High Performance Battery System

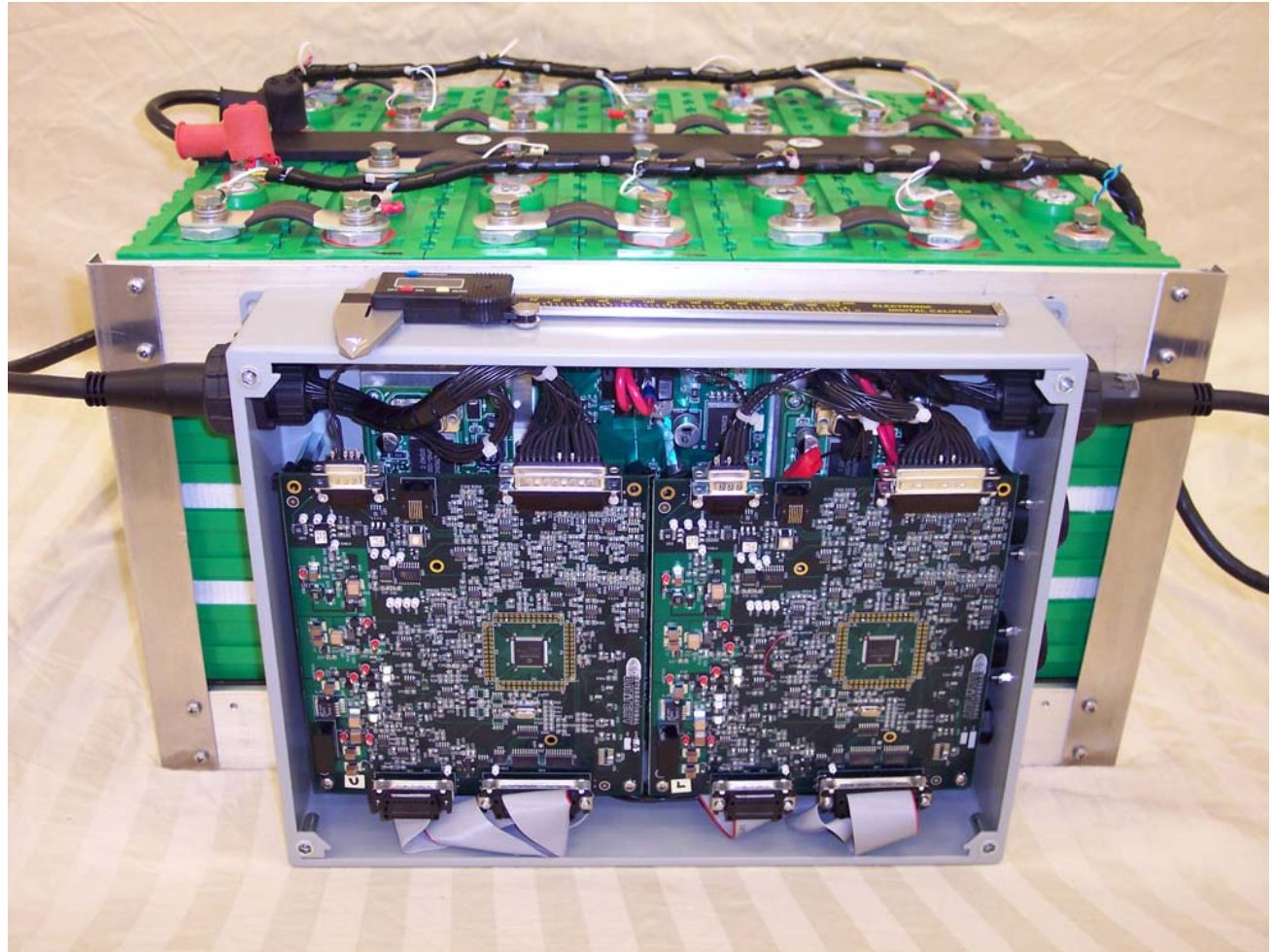


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# Products & Offerings

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**Lithium-Ion Cells**



**Battery Management Systems  
(BMS)**



**Value Added Engineering**



**Complete Battery System  
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# Large Prismatic Cell Advantages

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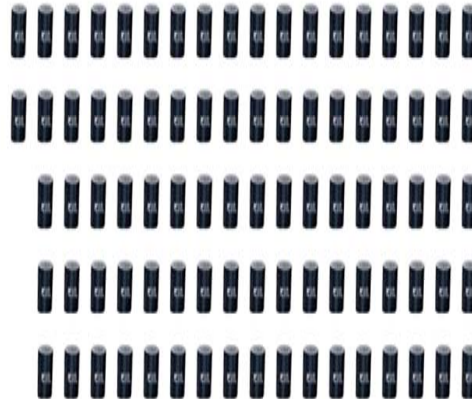
**Environmentally  
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- Small Cylindrical Cells
- 87 cells per 200 Ah
- 9,396 cells for 400V / 200Ah \*

- Small Prismatic Cells
- 40 cells per 200Ah
- 4,324 cells for 400V / 200Ah \*

- Large Prismatic Cells
- 1 Cell per 200Ah
- 108 Cells for 400V / 200Ah

**Eighty-seven**



**One**



**Or**

\* Figures based upon latest available online specifications 8/08

# Product Applications

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## Transportation / Propulsion

- Electric Vehicles (EV), Zero Emissions
- Hybrid Electric Vehicles (HEV)
- Plug-in Electric Vehicles (PHEV)
- Fuel Cell Electric Vehicles (FCEV)
  - Cars
  - Buses / Trucks
  - Boats
  - Trains
  - Utility Vehicles



## Industrial & Commercial

- Uninterruptible Power Supply (UPS)
- Emergency Power Back-Up
- Energy Storage (Wind & Solar)
- Telecom Applications
- Other



## Military / Defense

- Soldier Auxiliary Power Unit (SAPU)
- Non-primary Power System (NPS)
- Silent Watch
- Unmanned Vehicles



# Manufacturing (U.S.A.)

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## U.S.A. Manufactured

- ☐ Only large format lithium-Ion cell manufacturing facility in the U.S.A.
- ☐ Allentown, PA, U.S.A.
- ☐ 93,000 square feet
- ☐ Continuous process improvements
- ☐ Quality Control and Process Optimization
- ☐ ISO 9000 & ISO 14001 – 2009



## “Green” Factory

- ☐ Produces no toxic or harmful byproducts
- ☐ All unused materials and production byproducts are Recycled



# Complete Battery Systems



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***International Battery is one of the few companies in the world that maintains multiple capabilities to design, engineer, and manufacture all the components necessary to produce large format rechargeable Lithium Ion Battery Systems***

**Complete Lithium Ion Battery Systems**

**Complete  
Customer  
Solutions**

**Valued Engineered Solutions to Meet Customer Expectations**

# Contact Information



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## IB Contact Information

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Phone: (610) 366-3925  
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## **Research & Engineering Center of Excellence & Administrative Offices**

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Oakland, NJ 07436  
Phone: (201) 405-1200  
Fax: (201) 405-1400

## Website

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