

ENHANCING ENERGY STORAGE FOR TOMORROW'S NEEDS

WHY WORK WITH US?

- History of high quality.
- No import taxes into EU. Veru low US import taxes.
- Very competitive Pricing.
- 20 years experience dealing with leading Industires in the US and EU.
- Fully in the certification process. Currently certified in multiple ISO ratings for non-battery technology.
- Reasearch and development partnerships with local universities.
- Material research and analysis.

STARZ RESEARCH LABATORY

Starz Battery Research Lab has an open research infrastructure setup to develop new electrochemical storage solutions.

The research spectrum covers the entire value chain, from material, electrode and cell manufacturing, up to recycling.

All needed equipment is available at the STARZ Laboratory to develop new coin and cylindrical cell technologies.

Our setup allows us to study fundamental application oriented research questions. The focus is on flexible production with the aim to increase the energy density, quality and safety.

TN +216 53 309 000 USA +1 872 302 7403 contact@starzelectronics.com www.starzelectronics.com



03 Rue Hedi Chaker 7000, Bizerte, Tunisia.

US representative: BEL MANUFACTURING - Tel: +1 872 302 7403 - Address: 407 S.New St. champaign, IL 61820

ABOUT US

STARZ ELECTRONICS is an American Tunisian company specializing in electrical & electronic manufacturing. It was founded in 2001.

This history of capability has led us to new grounds. It gives us confidence to go forward in the manufacturing of state of the art batteries.

Our Li-ion batteries R&D laboratory was launched in 2017. It now meets the highest industry standards in Li-ion manufacturing & research technologies.



CUSTOMER BENEFITS

STARZ is ready for an immediate ramp up of production to drastically increase capacity. All this to meet large quantity demands for very competitive pricing.

Our small pilot series production line is capable of reaching up to 2000 cell per day.

STARZ Battery Research Lab is focusing its efforts on promoting the understanding and further development of Li-ion batteries. This determination offers the customer a number of important benefits:

- Important access to research, development, production and marketing.
- Adaptability and reliability in meeting rapidly envolving customer needs.
- Highly qualified experts available for support on short notice.
- Cutomized production of single-cell and multi-cell battery packs to meet specific requirements.
- Detailed technical support for design and application before, during, and after the purchase.

UNIVERSITY

COLLABORATION

We've signed an oriented collaboration partnerships with local universities for research and development

UPCOMING

TECHNOLOGIES

Our researchers are extending their research scope and are currently working on:

- Solid State Battery
- Polymer Cells
- Li-sulfur, Li-air

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MARKETS

Our manufacturing is geared towards Li-ion cell OEM users, Li-ion battery pack manufacturers and Li-ion cell wholesalers.

If you are looking for cell suppliers, don't hesitate to contact us.

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THREE LITHIUM TECHNOLOGIES

With optimized electrochemical profiles and compound purity, our materials and products for battery electrodes meet the highest standards for quality, efficiency and environmental compatibility.

We offer the following technologies:

LFP	LCO	NMC
Lithium Iron Phosphate	Lithium Cobalt Oxide	Lithium Nickel Manganese Cobaltoxide
 Safe Long life High power Cost-effective 	 Longer life High power Ultrafast charging 	 Long life High power Higher Energy density
Standards for fast charging & Hybrid applications.	Standards for motive power applications.	Standards for fast charging & Hybrid applications.

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OUR LITHIUM-ION CELLS

LI-ION CELLS CHARACTERISTICS

	LFP {LiFePO4}	LCO {LiCoO2}	NMC {LiNiMnCo2}
Voltages	3.2, 3.3V nominal, Typical operating range 2.3- 3.65V/cell	3.6V nominal, typical operating range 3.0-4.2V/cell	3.6V, 3.7V nominal, typical operating range 3.0-4.2V/cell, or higher
Specific energy (capacity)	90-120Wh/Kg	150-200Wh/kg Specialty cells provide up to 240Wh/Kg	150-220Wh/Kg
Charge (C- rate)	1C typical, charges to 3.65V, 3h charge time typical	0.7-1C, charges to 4.2V (most cells), 3h charge typical. Charge current above 1C shortens battery life	0.7-1C, charges to 4.2V, some go to 4.3V, 3h charge typical, Charge current above 1C shortens battery life
Discharge (C-rate)	1C, 25C on some cells, 40A pulse(2s), 2.5V cut-off (lower than 2V causes damage)	1C, 2.5V cut-off Discharge current above 1C shortens battery life	1C, 2C possible on some cells, 2.5V cut-off
Cycle life	2000 and higher (related to depth of discharge, temperature)	500-1000, related to depth of discharge, load, temperature	1000-2000 (related to depth of discharge temperature)
Thermal runaway	270°C(518°F) Very safe battery even if fully charged	150°C (302°F) full charge promotes thermal runaway	210°C (410°F) typical, High charge promotes thermal runaway
Applications	Portable and stationary needing high load currents	Mobile phones, tablets, laptops, cameras	E-bikes, medical devices, EVs, industrial

PILOT PRODUCTION

Advanced active materials cannot be brought to market on a large scale without mastering the intricacies of electrodes and cell technologies.

Our laboratory pilot plant has all the needed equipment, including a dry room and analytical tools, to produce highest grades lithium ion cells.

Much of the lab production effort is geared towards developing slurries with innovative cathode and anode materials.

Our pilot production, ranging between 1000 to 2000 cells per day. It meets the highest standards for coin and 18650 cell manufacturing.

STARZ is ready for an immediate ramp up of production to drastically increase capacity, all this to meet large quantity demands for very competitive pricing. Testing and analyzing the causes of cell defects



Battery Impedance Meter BT4560 / Chemical Impedance Analyzer Solartron 1296A



Identify the causes of battery cell defects by measuring AC impedance at multiple frequencies. For example, you can identify batteries that have issues with electrode reactions at the electrode interface by checking impedance at low frequencies. You can also extend this approach to cover multiple channels by combining the instrument with a switching system.

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