



Micro Systems Technologies  
engineering for life

## Battery Technology

- High-performance/high-reliability batteries for medical implants
- Based on Lithium-Iodine or Lithium-Manganese Dioxide
- Standard products lines and customized designs
- High volumetric energy densities
- Low self-discharge



# Battery Technology



For more than 20 years LITRONIK Batterietechnologie GmbH, an MST company located in Pirna, Germany, has been active in the development and manufacture of highly reliable power sources. LITRONIK delivers innovative solutions to manufacturers of implantable pulse generators and implantable cardiac defibrillators in Europe and beyond.

The high-performance/high-reliability batteries and battery packs are based on Lithium-Iodine and Lithium Manganese Dioxide electrochemical systems.

LITRONIK's strong core areas of expertise in electrochemistry, materials science, chemical and physical engineering, powder processing, dry room technology as well as electrical characterization are the foundation for power sources providing today's state-of-the-art in battery technology for implantable medical devices.

The batteries are manufactured within a tightly controlled atmosphere to ensure highly reproducible electrical characteristics. A completely laser or plasma welded stainless steel or Titanium case and a high-precision metal-to-glass feedthrough guarantee hermeticity and safe operation.

The cells and packs are 100% electrically characterized plus mechanically and visually inspected.

## COSTUMIZED SOLUTIONS AND STANDARD PRODUCT LINES

Three base technologies are offered to cover three ranges of performance for standard product lines as well as for solutions tailored to particular needs of an application.

### Li-Iodine High Energy Batteries

- For implantable pulse generators or other medical devices with the highest reliability demands
- Highest volumetric energy densities
- Lowest self-discharge rates
- Solid-state battery
- Long operational safety

### Li-Manganese Dioxide Medium Rate Batteries

- For implantable devices with medium pulse power demands
- Very high power densities
- Direct power supply of telemetric units
- Low self-discharge rates
- No voltage delays

### Li-Manganese Dioxide High Power Batteries

- For implantable defibrillators and other devices with high pulse power demands
- Very high power densities
- Fastest capacitor charging
- Low self-discharge rates
- No voltage delays



## QUALITY

The quality system of the MST Group derives from the stringent requirements of life-sustaining implants and assures 100% traceability of processes and materials.

## MICRO SYSTEMS TECHNOLOGIES

Micro Systems Technologies Group (MST) consists of four technology companies that provide innovative products and services for medical devices and other high-reliability/high-performance industries. The offering includes HDI/microvia PCBs, ceramic substrates, assembly and semiconductor packaging processes, electronic module design and manufacturing, as well as batteries and battery packs for medical implants.

The MST Companies:

DYCONEX AG

LITRONIK Batterietechnologie GmbH

Micro Systems Engineering GmbH

Micro Systems Engineering, Inc.



Micro Systems Technologies  
engineering for life

Micro Systems Technologies  
Neuhofstrasse 4  
CH-6340 Baar, Switzerland  
Phone +41 (44) 804 63 00

Micro Systems Technologies, Inc.  
6024 SW Jean Road  
Lake Oswego, OR 97035, USA  
Phone +1 (503) 744 8900  
Toll free 800 318 7672  
sales.msti@mst.com

Micro Systems Technologies  
Singapore Branch Office  
10 Kallang Avenue #13-10/11/12  
Aperia Tower 2  
Singapore 339510  
Phone +65 9681 3798

info@mst.com  
www.mst.com