

Automatic Full Surface Inspection of Lithium-Ion Cells

World's first solution for 360° pouch inspection at line speed: **PouchSTAR**



Fast-changing process requirements

Battery manufacturers are challenged by time to market, high throughput targets, and delivery of 100 % defect-free materials. Therefore, production processes and materials are continuously adjusted and changed to avoid potential liability risks. Consequently, every manufacturer aims to reduce cost, material, and process steps while increasing quality, productivity, and product safety.

Highest precision. Fully automated.

Since the production of flawless materials is the foundation of a perfect Li-Ion battery, inspection at full production speed is required for high productivity and quality. Using inspection systems to monitor product quality for all types of battery cells ensures resource and cost efficiency during production by highlighting the potential for optimization.

For comprehensive process and quality control of battery cells, PouchSTAR, the in-line and off-line inspection solution, performs a complete optical 360° check of cells to ensure 100 % inspection. In addition to dimensional monitoring, the pouch inspection also detects surface defects and contamination. The system also reliably checks barcodes and data codes and performs fully traceable production documentation.

Advantages

- Real 360° automatic optical inspection of Li-Ion cells at line speeds
- Ship only defect-free material to your customer and avoid customer claims
- Improve quality while simultaneously ensuring consistently high standards and process optimization
- Reduce rejects at the earliest production step with reliable defect detection and classification of critical issues
- Get online-validation tools to pass any audit and achieve 100 % documented quality to increase customer satisfaction

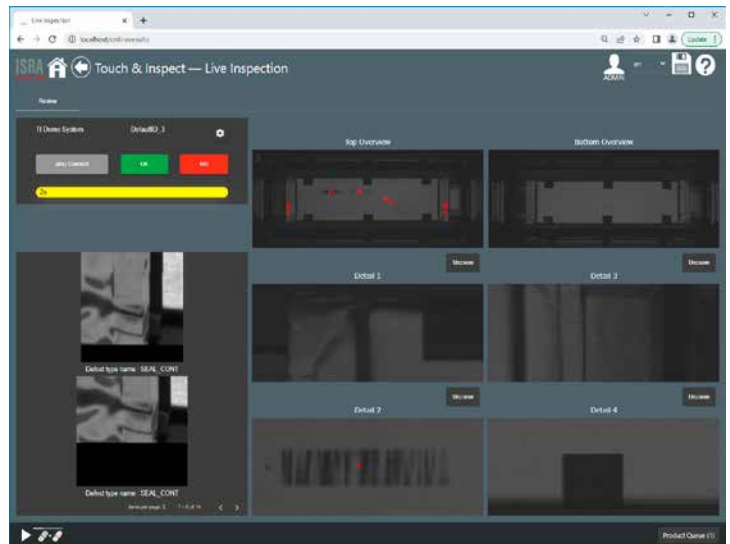
Partner with ISRA for the best results

- Global ISRA service available from the start
- The right partner for operating and managing many inspection systems on parallel production lines
- All solutions based on market-proven systems

Benefits

PouchSTAR enables automatic 100 % optical inspection of Li-Ion cells already during production. Surface defects, labels, barcodes, or dimensional deviations are not only recognized but also classified and evaluated in terms of relevance. Defective cells can be automatically ejected or marked.

The graphical user interface allows the operator to access all information stored in the database or on customer's NAS to simulate the process. The same interface is used for all process steps in order to keep the training effort as minimal as possible.



Mechanical dimensions of housing	<ul style="list-style-type: none"> • 1400x1200x1000 mm • smaller designs available; system size depends on the size of the battery
Inspection side	<ul style="list-style-type: none"> • system allows the battery to be inspected from all 6 sides • possible for hard case battery (black, coloured) and for pouch battery (silver) • Battery size: 580 mm x 112 mm (others on request) • 5-sided simultaneous inspection per step (bottom side after flipping) • gathering multi images with dynamic illumination
Change of cell type	<ul style="list-style-type: none"> • the changeover to other cell types is carried out as a service by ISRA. Existing recipes can be played back as often as required
Cameras / illumination	<ul style="list-style-type: none"> • 1 x combi sensor kit (basic system, combined matrix and line scan) with up to 50µm • illumination; dynamic lighting (6 sides)
Cycle time	<ul style="list-style-type: none"> • 2-4 seconds • depends on the cell size, the resolution, transport speed, and test recipe
Interface	<ul style="list-style-type: none"> • Interface to NAS and simulation/evaluation station etc.
Connection with other systems	<ul style="list-style-type: none"> • system takes over CAD data from customer
Barcodes & Scripture	<ul style="list-style-type: none"> • barcodes readable, decodable and verifiable • scripture readable and inspected • barcode is stored together with all defect images in the database • measurement tasks can be integrated (e.g., distance, width)
Alarms / ejection signal	<ul style="list-style-type: none"> • system delivers alarms and a delayed ejection signal
Benefits	<ul style="list-style-type: none"> • replaces the human inspector = high return of investment • 100 % quality control documented in SQL data • defect classification and grading • minimal operator training

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