

DUAL-SOURCE, AI-POWERED WELD QUALITY MONITORING

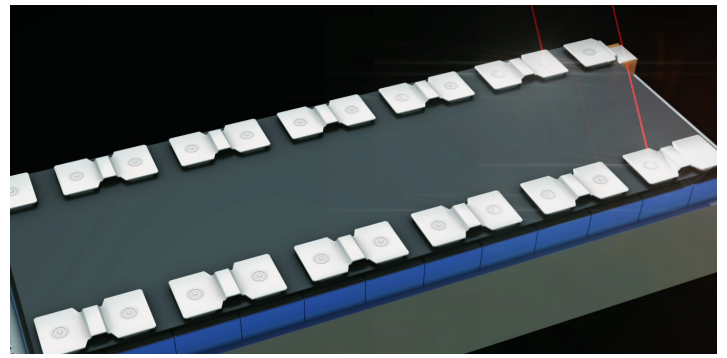
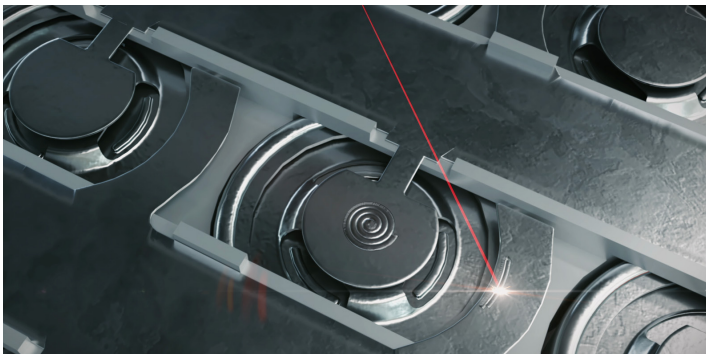
Battery module interconnection is a critical task in the manufacturing of batteries, particularly for EVs, where high-quality welds are essential for safety and performance.

Combined with dynamic clamping, real-time evaluation of weld quality can drastically enhance battery manufacturing processes by improving precision, speed and defect detection, while reducing the need for complex fixtures.

Achieve maximum throughput with in-station automatic rework allowed by combined vision & photodiode AI weld inspection.

- **99.9997% yield**
- **Ultra-low defect escape rate (1/90,000,000)**
- **Near-zero false rejects (up to 20x less than other systems)**





Defect Escape Rate

Our AI-powered weld quality monitoring system is engineered for ultra-low escapes, with a demonstrated path to a **1/90,000,000 rate**.

Such reliability makes end-of-line inspection optional. Real-time, accurate defect identification allows in-machine automated rework to boost the first-pass good parts rate.



False Reject

Through precise, AI-driven classification, Laserax separates truly bad welds from normal variation, drastically reducing false rejects (**up to 20x less**) and boosting throughput.

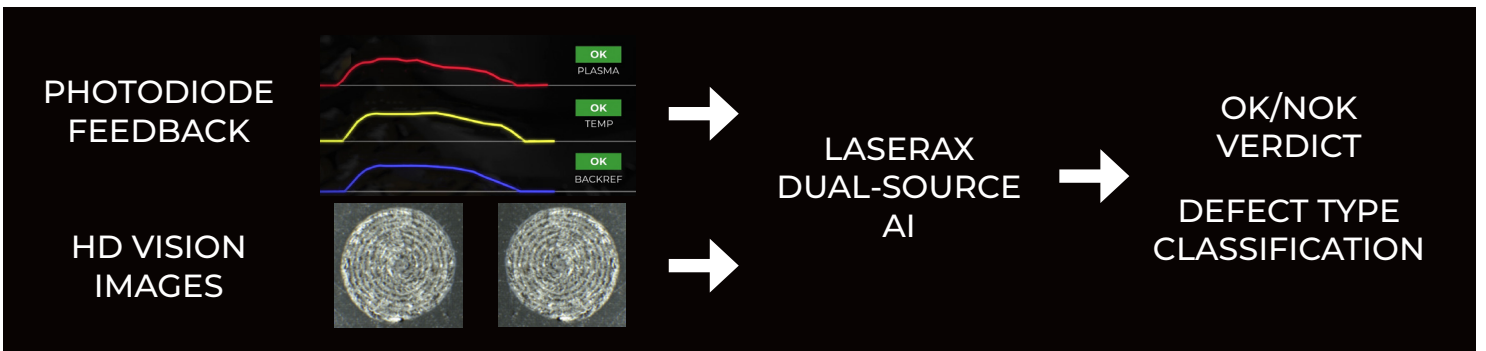
The production line keeps making new parts, and the inspection system limits unnecessary rework or inspection, maximizing OEE.



Yield

A high-yield battery line demands both a robust, adaptable welding process and accurate defect detection. Laserax provides both.

This combination enables automated rework of bad welds to recover parts and increase overall yield (**up to 6 Sigma**).



OK/NOK Verdict

The system learns quickly from a few good and defect-induced modules (4 to 6 250-cell modules, for a total of 2000 to 3000 welds).

No complex zone mapping is required. Weld status and positions are given to the system, and the algorithm takes care of the training, resulting in an accurate inspection model.



Defect Type

Dual-source AI weld inspection auto-identifies defect types and points your team directly to the probable root cause.

Hard-to-detect defects such as laser focus/power changes, contaminated components, and small gaps can be detected and directly addressed.



Traceability

Per-weld records (optical signals, HD weld images, OK/NOK status, defect type, timestamps, station ID) are logged for complete genealogy.

Such data can be used for future analysis or incremental training, while ensuring 100% process traceability.

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