

End of Line Tester for Optical Sensors

Including Calibration and Validation

About the Cooperation

Konrad Technologies partnered with a leading automotive interface solutions provider to develop an advanced End of Line (EOL) testing system. This collaboration aimed to enhance the testing and calibration of RLFS 4.0 sensors, crucial for controlling various automotive functions such as climate control, windshield wipers, and lighting.

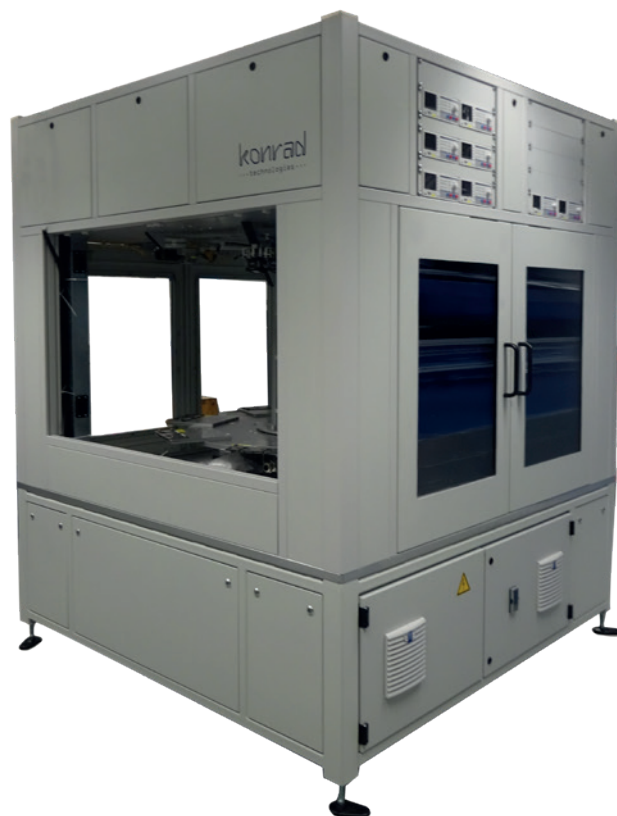
Project Scope

Challenges

- Achieving a cycle time of just 5 seconds per test, which was crucial due to the high volume of parts.
- Coordinating the efforts of multiple companies involved in the project.
- Implementing precise light calibration and solar validation processes.

Objectives

- To design and deliver a compact, efficient EOL tester integrated into the existing manufacturing line.
- To ensure accurate and reliable sensor calibration and validation within the specified cycle time.
- To minimize project realization time and ensure seamless integration of advanced testing technologies.



- **Efficient Cycle Time:** Achieved a cycle time of 5 seconds through optimized processes and advanced technology integration.

Solution

Konrad Technologies developed a compact round table EOL tester featuring:

- **Manual Loading with Digital Monitoring:** A high-resolution camera system for verifying the correct placement of components and seamless synchronization with the customer database.
- **Automated Assembly:** Incorporation of light calibration using an integrating sphere and solar validation with pointed LEDs, ensuring high precision and reliability.
- **Comprehensive Testing:** Included LIN communication for testing, silicone check with cameras, and force measurement of holding clamps.

Customer Benefit

The automotive interface solutions provider benefited from:

- **High Throughput:** The ability to meet the high-volume production requirements with a 5-second cycle time.
- **Enhanced Accuracy:** Reliable calibration and validation ensured the highest quality standards for the RLFS 4.0 sensors.
- **Streamlined Coordination:** Efficient project management and coordination among various stakeholders minimized delays and facilitated timely project completion.
- **Global Support:** Leveraged Konrad Technologies' international presence for planning, building, and supporting the system worldwide.

Our Know-how

- **Expertise in System Construction:** Advanced knowledge in designing and building custom testing systems.
- **Proficiency in Test Systems and Automation:** Utilized cutting-edge technologies for automated assembly and real-time quality control.
- **Single Point of Contact:** Provided streamlined communication and project management to minimize costs and installation times.
- **International Presence:** Facilitated efficient planning, building, and support of systems globally.

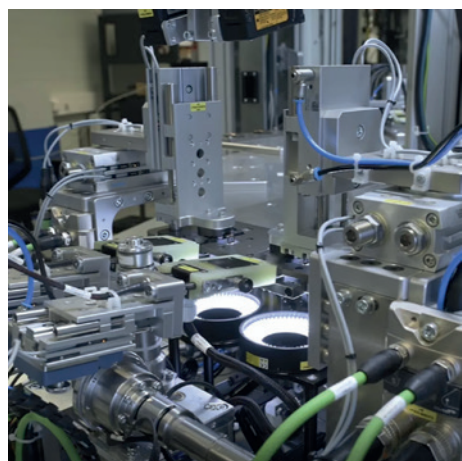


Fig.1 Silicone Conditioning

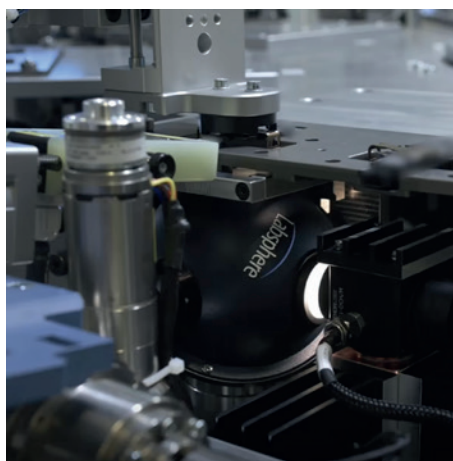


Fig. 2 Integrating Sphere

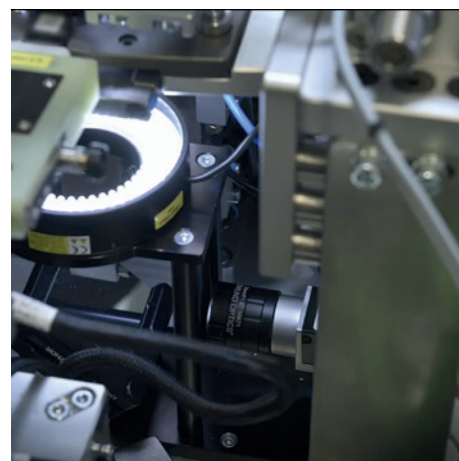


Fig. 3 High-resolution camera system

- **Advanced Camera Systems:** Implemented high-resolution camera systems for precise component verification and quality assurance.
- **Real-time Quality Control:** Ensured continuous monitoring and adherence to high standards throughout the production process.
- **Comprehensive Testing:** Conducted thorough electrical and functional tests to guarantee the highest quality and reliability.
- **Commitment to Precision and Innovation:** Maintained a strong focus on precision, quality, and innovative technology in custom machine construction.

Fully Automated End-of-Line Test including Calibration, Electrical Test, Optical Test and Customised Test Communication

