

Inspection of **THT solder joints**



Inline system for complete THT inspection – placement control, solder joint inspection, full-area solder bead detection, and more.

**Double system
for parallel circuit
board testing**

Parallax-free PCB inspection

Multi-LED scan on both sides

The modusAOI systems are optimised for economical and flexible solder joint inspection in PCB production. The inline system for PCB inspection from top and bottom maintains two multi-LED illuminated scanner units, as well as patented special optics which generate a parallax-free image. The system includes two modusAOI control units with the proprietary modusAOI inspection software. For an easy integration into the production line, the modusAOI scanner unit is embedded inside a transportation module.

Features

- Double-sided system for simultaneous inspection of PCB top and bottom surfaces
- Integration of a return conveyor at 380 mm (15 in.) height
- High-resolution, ultrafast RGB CCD line sensor
- Scanning of 1D and 2D codes in any position and quantity on the PCBs
 - Capable of meeting traceability requirements
- Test speed: independent of the number of parts, max. 25 seconds for dual side inspection of our largest FOV



Benefits

- **THT testing** of components and solder side possible in a single step
- **Shadow-free illumination** of tall components
- **Full-surface detection** of solder balls
 - Testing in the production process according to IPC
- **Maximum availability** thanks to very low maintenance requirements



The benefits **For you and your customers**



Cost-effective solution

Small investment, perfect solution for production through 100% quality control.



Utility model protection

Registered design no.:
202 010 004 039.6



Time-saving

Identify production issues early.
Optimise each production step.



User-friendly

Customers are convinced through its ease of use and widespread user acceptance.



Improved quality

Compliance with IPC standard, ensuring stable, reliable production.

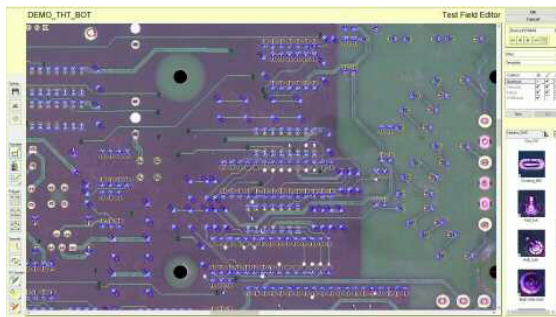


AOI expertise for over 39 years

Continuous adaptation to customer requirements has perfected the system over the years.

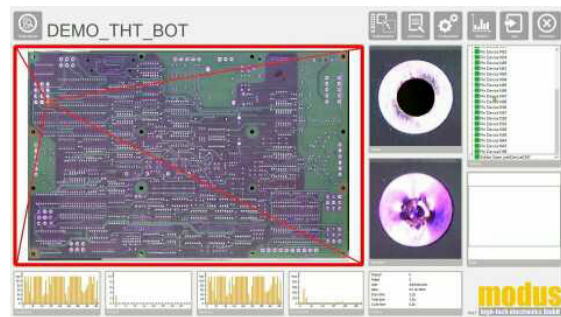
Your production under control – your customers delighted

Our systems help you avoid errors, speed up processes, and deliver consistent quality. This allows you to reduce costs, gain trust, and achieve results that will impress your customers in the long term.



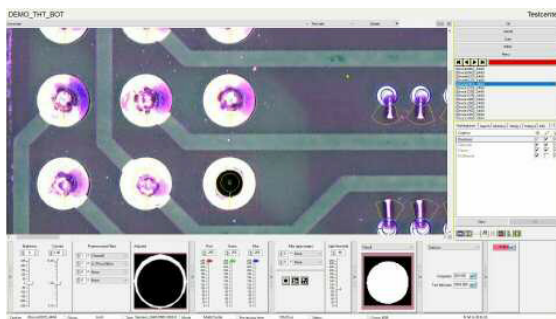
1| User-friendly Test Plan Editor

The graphical editor and preset library allow a quick and easy definition of the test areas.



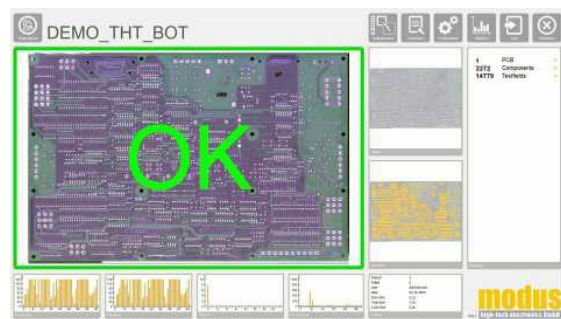
4| Error detection

The system shows the position of the error, compares it with a template, and displays the part number, name, and error description. Detectable errors include: Short circuits bridging, insufficient solder, cold joints, contamination, physical damage, solder balls, and dewetting.



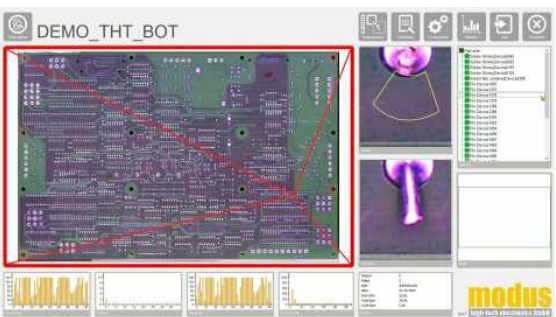
2| Optimisation in Testcenter

Test parameters can be directly adjusted in the Testcenter. Pre-filters and measurement limits are set out clearly and easy to understand.



5| Production statistics

The main panel displays real-time statistics on factors including errors, cycle-time, and scrap rate, allowing full transparency in the production process.



3| Main panel inspection

Allows the system to check for solder balls on the full PCB surface.

THT scanner inspection

Full control over the process

Our inline solution inspects both sides of the circuit board simultaneously – quickly, precisely, and efficiently. With flexible software, Industry 4.0 connectivity, and customisable processes, you can ensure quality and future-proof your manufacturing operations.

Features

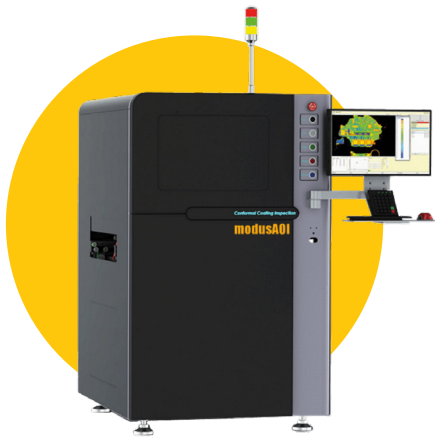
- **Full inline/offline solutions** for top/bottom inspection in a single test cycle
- **Complete set** of statistics and export data
- **Software adaptation** based on customer requests
- **Custom designed** process handling solutions
- **Dynamic board handling** process based on customer needs
- **Closed loop functionality** for coating dispensers
- **Low maintenance cost**
- **Process control** according to Smart Factory (Industry 4.0), including closed loop control
- **Detectable errors include**
Short circuits bridging, insufficient solder, cold joints, contamination, physical damage, solder balls, dewetting, etc.



Our systems for maximum precision

Modular, fast, and seamlessly integrable

Whether inline, offline, or 3D systems, modus offers the right solution for every need. Maximum precision, modular design, and seamless integration into your production.



1| INLINE-SYSTEM modusAOI S-EN-3/S3 -IDF/IOF/IUF

The AOI System can be configured to inspect the top, bottom, or even both sides of the PCB simultaneously. It uses two scanning units with parallax-free vision.

- Scan range and scan time: 25 seconds at 420x530 mm or 9 seconds at 300x400 mm
- Resolution: 21 μm
- Dimensions: 1300x1600x1900 mm, 700 kg

2| OFFLINE-SYSTEMS modusAOI S-EN-3-OS/US/DS

The modusAOI S-EN-3-OS/-US (single-sided) or S-EN-3-DS (double-sided) inspects assembled PCBs from either one or both sides, allowing simultaneous solder joint inspection. Parallax-free scanners ensure precise inspection. A trolley is available as an option.

- Scan area and scan time: 9 seconds at 300x400 mm
- Resolution: 21 μm
- Dimensions: 760x590x490(330) mm, 80-100 kg



3| modusAOI Sense3D

The modusAOI Sense3D is a light field-based 3D AOI system with a modular design and multiple cameras. Each module contains three high-resolution color cameras, whose data is processed in parallel on an FPGA and transmitted at 10 Gbit/s.

The compact design allows for flexible use while maintaining consistently high performance. Modern 3D algorithms deliver parallax-free images and precise 3D data even for large scanning areas without extending the capture time. It will be launched as a flatbed scanner with three modules and a total of nine cameras, as well as a compact single-module version for flexible robot use. The scanner version is compatible with the modus S3 housing, making it easy to upgrade.

- Scanning area: 500x650 mm, adjustable in the robot version
- Scanning time: 30-40 seconds
- Dimensions: 1200x1600x1900 mm, 700 kg

modusAOI – precise and reliable

Solder joint inspection

modusAOI quickly, comprehensively, and objectively inspects all soldered assemblies, reliably detects defects, and thus contributes to greater process reliability and improved product quality.

Automatic inspection with modusAOI ensures fast and complete testing of all soldered assemblies.

Parallax-free scanners and full-area image capture enable 100% detection of solder joints, including wandering solder balls. The combination of multi-color LED lighting and color line scan cameras ensures reliable meniscus and short circuit inspection.

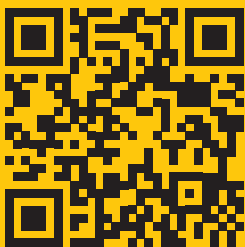
The system is designed for high-speed inspection of solder joints on printed circuit boards. It is suitable for use in production environments with high throughput rates.

The inspection results are objective, reproducible, and independent of the operator. Errors are detected immediately and can be reported directly back to production via closed loop. System settings are conveniently configured via the intuitive AOI software menu, and inspection planning is simple and efficient thanks to highly optimised graphical user interface.

**Variety of options.
Process reliability.
Zero-defect goal.**



Bringing tomorrow's electronics to life.



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