



## Preserving Security and Operator Safety

### ORBOTECH®

Orbotech designs, develops, manufactures, markets, and services yield-enhancing and production solutions for specialized applications in the supply chain of the electronics industry.

The company's products include Automated Optical Inspection (AOI), production and process control systems for printed circuit boards (PCBs), and AOI test and repair systems for flat panel displays (FPDs). Orbotech also markets computer-aided manufacturing and engineering (CAM) solutions for PCB production.

## The challenge

AOI is a critical element of the manufacturing process for printed circuit board manufacturers. This is because in some cases, machine downtime can halt production lines, costing thousands of dollars in productivity per hour. Traditionally if an issue occurred with an AOI machine, the customer would contact Orbotech customer support by phone and a customer support expert with domain knowledge would attempt to diagnose and troubleshoot the issue. However, without any machine data or access to the machine, the service expert would often need to dispatch parts and field service engineers to repair the issue. With customers in the far reaches of the world, including remote areas of China, travel and resolution time can take days.

“The main issue that we needed to address was providing better service to our customers. That is our primary objective,” Yacov Bar-Haim, Corporate IT Vice President and Chief Information Officer at Orbotech, explained. “Better service means on-time service with the technician for the task and availability to provide service. We knew that a remote solution could help us provide service to customers in remote areas, which was very difficult at that time.”

Orbotech understood the customer service benefits and potential cost reductions of implementing a remote service solution. They were eager to provide enhanced capabilities to remotely detect, diagnose, and repair issues without dispatching service technicians. Since Orbotech’s AOI machines have many moving parts, choosing a solution that preserved security and safety were critical requirements. To ease the adoption of the remote service solution, the company also required capabilities that enabled their end-user customers to control the remote activities performed on the machine.

Finally, with customers located all over the world, Orbotech service and support teams would require a scalable solution that offered consistent performance. “These are sophisticated machines with many moving parts that could be harmful to the person using the machine,” said Bar-Haim. “If someone is giving a command remotely to the machine, the user could get injured.”

## The solution

After conducting a request for proposals with leading remote service software vendors and weighing the costs of building a solution internally, Orbotech chose to implement PTC® Axeda® software.

“When we looked at adding remote service capabilities, we considered several alternatives,” explained Bar-Haim. “We know other companies that have built their own solution, but we decided to buy an off-the-shelf solution because remote service technology is not our core competency. It was an easy decision to choose PTC Axeda

software because of its flexible, agile infrastructure and the ability to connect to our customers via the firewall while maintaining complete security and control. That is a great combination.”

PTC Axeda software with built-in security ultimately provided the capabilities that Orbotech needed. “Only PTC Axeda software supplied the functionality that we required for our initiative while meeting our demanding safety and security requirements,” said Bar-Haim. “The software is a huge differentiator and really helps us with customer adoption. Even though we are connecting to their network, customers have complete control over the actions conducted remotely. This, along with the software’s security, makes our customers more willing to accept our remote service solution.”

With machines located in the far reaches of the world, Orbotech has installed PTC Axeda software in China, Taiwan, the USA, and Europe, ensuring remote access performance is consistent and optimal regardless of the distance between sites. “The software provides critical functionality for remote access performance,” noted Bar-Haim. “Our worldwide deployment of our Secora project (Secure Orbotech Remote Access) relies on this, especially when we are using the remote access capabilities to provide over-the-shoulder training among R&D engineers, service engineers, and customers.”

Using PTC Axeda software, Orbotech created some additional functionality to ensure operator safety. Specifically, the safety mode of Orbotech machines enables service and R&D personnel to take control of the remote machines in view mode only. During safe mode, the machine’s motors will not move since there is a key on the machine that toggles between safe and unsafe modes.

Secora also enables service and support to remotely access their offline machines. Secora is a requirement for Orbotech’s AOI customers, giving them the ability to diagnose and resolve issues without dispatching a service representative.

“Prior to the implementation of PTC Axeda software, inaccurate assumptions were made as to what was needed to resolve issues,” said Bar-Haim. “The diagnosis process has now really improved. With remote service, we can diagnose the exact issue and even simulate the issue safely. We are resolving more issues remotely and if a customer’s system requires a part replacement, we can send an engineer with the right part to resolve the issue on the first visit.”

Orbotech also integrated their service management system with PTC Axeda software. With this integration, Orbotech pushes installed base information from their service management system to their remote software, giving service professionals a complete view of the customer’s machine when diagnosing an issue. In the future, they will set up a bidirectional flow of information between the systems.

Two of Orbotech's largest departments, customer support and R&D, were trained on Secora as it became a mission-critical system for their business.

PTC Axeda software is currently installed on 650 Oracle® Solaris, Windows®, and Linux® based machines located around the world, and Orbotech is actively working with their customers to increase the adoption of Secora.

"Our Response Center Experts readily adopted our remote service solution once they understood its benefits and the capabilities that it provided to them and their customers," explained Michael Goren, Global Customer Support Operations Manager of the PCB Division at Orbotech. "Secora allows them to be more effective and responsive to our demanding customers."

### The results

With Secora, Orbotech has reduced travel time, improved response times, enabled R&D to better collaborate with support and resolve issues faster, increased customer visibility, and improved pre-dispatch diagnostics (reducing false parts demand). And now it is possible to only dispatch service technicians onsite when necessary, bringing the right part on the first visit.

An added benefit of the Secora initiative is remote collaboration. As with their customers, Orbotech has domain experts located in various parts of the world. With Secora, an Orbotech engineer in China can collaborate with R&D in Israel to resolve issues. This connection also increases knowledge sharing externally with customers by taking control of the machine and providing effective training.

Finally, in some areas of the world, such as North Africa, Orbotech does not have response centers due to political strife. Secora is working to enable engineers to gain expertise in those areas. "In some of the remote areas in China where we don't have a local presence, it can take a few days just to show up with the proper tools," explains Goren.

In the next phase of their initiative, Orbotech will proactively monitor and automate the software updates to their PCB inspection and other production machines. "What we have accomplished with Secora so far is a win-win situation for Orbotech and its customers," concludes Bar-Haim. "Providing proactive service to our customers in the next step of this initiative will provide even more value to our customers. This will also provide Orbotech with a competitive advantage."

## PTC Axeda software supports Orbotech PCB Automated Optical Inspection Systems

Orbotech's AOI solutions for PCB offer a new level of AOI performance leveraging field-proven SIP technology to deliver the highest throughput and superior detection down to 10µm with a minimum of false calls.



Our primary objective is to provide better service to our customers. With Secora, we can centralize our experts and have them provide service in a much faster way than we could have done in the past."

Yacov Bar-Haim, Corporate IT Vice President and CIO, Orbotech

### Challenge

To improve customer satisfaction by minimizing downtime of automated optical inspection machines while preserving security and safety

### Solution

Orbotech's use of PTC Axeda software, marketed as Secora, can now remotely service and support their automated optical inspection machines in ensuring high availability and preserving security and operator safety

### Results

- Improved response time
- Resolved complex issues faster by connecting technical experts from various parts of the world for collaboration
- Reduced travel events
- Improved pre-dispatch diagnostics, reducing false parts demand

© 2015, PTC Inc. All rights reserved. Information described herein is furnished for informational use only, is subject to change without notice, and should not be taken as a guarantee, commitment, condition or offer by PTC. PTC, the PTC logo, Product & Service Advantage, Creo, Elements/Direct, Windchill, Mathcad, Arbortext, PTC Integrity, Servigistics, ThingWorx, ProductCloud and all other PTC product names and logos are trademarks or registered trademarks of PTC and/or its subsidiaries in the United States and other countries. All other product or company names are property of their respective owners.

J4928-SLM Orbotech-CS-EN-0115