

Boosting Process Optimisation with V-ONE®'s Intelligent Control Tower for AOI

Fast-paced world of manufacturing, optimising production processes while maintaining quality standards is crucial.

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In the rapidly evolving landscape of Industry 4.0, the electronics manufacturing sector is swiftly adopting Smart Manufacturing practices to stay competitive. This shift signifies a strategic move towards leveraging advanced technologies and automation to boost operation efficiency, innovation, and overall market standing. Within this context, the optimisation of processes, especially along production lines, becomes a critical factor.

ViTrox's V-ONE® solution, bolstered by its state-of-the-art Multi-source Intelligent Control Tower, takes centre stage in this transformation. Designed with a sharp focus on enhancing process efficiency and precision, V-ONE® embodies the very essence of Smart Manufacturing, promising streamlined operations and improved outcomes. This Intelligent Control Tower is a feature which greatly enhances the user experience for our V510i Advanced 3D Optical Inspection (AOI) solutions users. Explore the fundamental values and benefits of the V-ONE® AOI Intelligent Control Tower in modern manufacturing. With optimisation being crucial, V-ONE® provides an essential tool for businesses to thrive in Industry 4.0 Smart Manufacturing.



A Unified Approach for Effective Data Management

With the Intelligent Control Tower, all collected data is efficiently managed through a centralised server and system. Among the data collected will be the machine's performance training, which involves monitoring various key performance indicators (KPIs) and metrics to assess the efficiency, quality, and reliability of our AOIs. The metrics include the First Pass Yield (FPY), Failures Per Product Million (FPPM) and Defects Per Million Opportunities (DPPM). This centralisation ensures that data remains organised, accessible, and ready for analysis. By establishing a centralised station connected to the majority of production equipment, manufacturers can harness the full potential of V-ONE®'s Intelligent Control Tower.

Centralised Remote Control for Unparalleled Management

V-ONE®'s AOI Intelligent Control Tower introduces an unprecedented level of centralised remote control. With this feature, users could manage and fine-tune multiple AOI machines seamlessly, even if they're part of different ViTrox Database Statistical Process Control (VDSPC) systems. This empowers manufacturers with the flexibility to oversee and optimise various machines from a single control hub, streamlining the entire production process.

Seamless Integration for Enhanced Efficiency

V-ONE®'s Intelligent Control Tower seamlessly integrates task cards from multiple machines across different VDSPCs. This integration ensures that engineers have a comprehensive view of tasks and issues, making it easier to manage and fine-tune various production equipment. The ability to view and remotely fine-tune preferred machines from a centralised location further enhances the overall efficiency of the production process.

Precision Impact Calculation Strategy

The cornerstone of V-ONE®'s Intelligent Control Tower lies in its intelligent impact calculation strategy. This strategy takes into account various critical factors like false call trends, production board run quantities, shift times, and model changes. By combining these factors, the system generates a production impact calculation that highlights the most critical issues across all machines. This insightful calculation guides the

fine-tuning strategy, enabling engineers to prioritise tasks effectively. It streamlines operations, reduces downtime, improves product quality, and enhances the bottom line, all while providing manufacturers with the tools they need to proactively navigate the challenges of modern industry.

Fine-Tuning at Your Fingertips: Remote Fine-Tuning

Gone are the days of manual adjustments on the factory floor. V-ONE® enables remote fine-tuning of AOI machines, empowering engineers to make necessary adjustments without interrupting the production line. By remotely accessing the V-Tune functionality on the V510i 3D AOI system, engineers can perform in-line fine-tuning effortlessly. This not only saves time but also ensures that production continues smoothly, ultimately contributing to improved operational efficiency.

Optimised Task Management and Monitoring

On top of generating impact calculations, the Intelligent Control Tower also takes task management to the next level. Task lists are automatically sorted based on the highest impact percentage, eliminating the need for manual task prioritisation. Engineers can identify parts with the highest impact on production and rectify them swiftly. As tasks are completed, they transition to the Monitoring List, allowing for easy tracking of progress and a clear overview of the fine-tuning process. All rectification work done can also be monitored, as the tasks that have already been addressed enter the Monitoring List. In addition, the Monitoring List can also be used to evaluate the fine-tuning skill of the engineer, using the result of the fine-tuning as the evaluation parameters.

Elevating Production and Engineer Performance with Control Tower Analytics

This dashboard serves as a centralised hub for manufacturers to comprehensively monitor their production processes. It offers a unique advantage by allowing manufacturers to track engineer performance in fine-tuning operations. By analysing data from the Control Tower, manufacturers can assess the effectiveness and efficiency of their engineering teams. This not only aids in recognising top-performing engineers but also highlights areas where additional training or support may be needed, fostering continuous improvement in the fine-tuning process.

Moreover, the default dashboard empowers users to analyse the top part numbers and tasks associated with the highest false call rates. This data is invaluable for root cause analysis and process optimisation. Manufacturers can leverage this information to justify the components contributing to the highest false call rates, incorporating these insights into future New Product Introduction (NPI) program development. This proactive approach ensures that potential issues are addressed preemptively, enhancing product quality, reducing rework, and ultimately leading to greater efficiency and cost savings.

Key Takeaways

In conclusion, ViTrox's V-ONE® solution, powered by the AOI Intelligent Control Tower, redefines process optimisation in manufacturing. Through centralised remote control, fine-tuning capabilities, precision impact calculation strategies, performance monitoring, seamless integration & effective data management, manufacturers can elevate their production processes to new heights.

Interested to know more about how to optimise your production process? Feel free to reach out to us at enquiry@vitrox.com.

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