



Electronics Factory Enhances Quality and Delivery Efficiency with ESOP and MES Integration

400+

ONERugged Panel PCs
Deployed

100%

Digital Operations
and Scheduling

99.5%

Process
Traceability

80%

Quality
Improvement

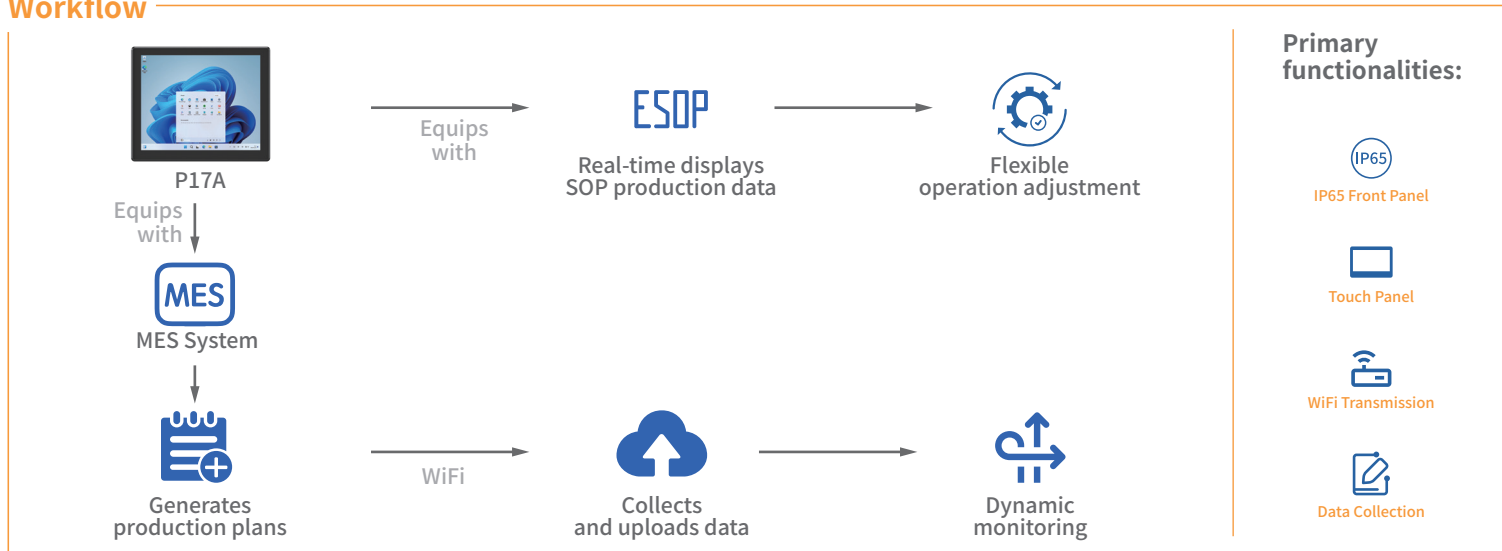
Summary

An electronics manufacturing factory in China has achieved a fully digitalized production process by integrating MES and ESOP systems. Leveraging standardized operation guidelines and real-time data collection, the factory significantly shortened production cycles and stabilized product supply. These advancements enabled efficient production management and agile market responses, ensuring customers receive reliable products within expected delivery times.

Client Overview

The client is a leading player in the domestic electronics manufacturing industry in China, specializing in developing and producing consumer electronics like laptops and industrial devices such as rugged tablets. Serving a wide range of domestic and international customers, the company owns an 8,000-square-meter factory with an annual production capacity in the millions. In recent years, they have been steadily advancing their factory's digital transformation toward intelligent manufacturing.

Workflow



Challenge

A leading electronics manufacturer faces growing product variety and order volumes, exposing the limits of traditional production management. Paper-based SOPs are slow to update and error-prone, causing workflow inconsistencies and quality issues. Frequent model changes add complexity, extending production cycles and reducing efficiency.

Limited real-time data tracking prevents timely issue resolution, while traditional equipment struggles in harsh factory environments, increasing maintenance costs and downtime. These challenges demand an intelligent, efficient production management solution to enhance productivity, quality, and responsiveness.



Solution

To address these challenges, the client implemented a comprehensive digital upgrade by deploying over 400 ONERugged P17A Panel PCs across its production lines. Each workstation was equipped with two tablets seamlessly integrated with MES and ESOP systems, enabling real-time operational guidance and production data management.

The P17A's rugged design and IP65-rated protection allowed it to operate continuously in harsh conditions, such as dust and temperature variations, minimizing equipment failures and ensuring uninterrupted production.

During the production preparation phase, the MES system generated detailed production schedules upon receiving orders, while the ESOP system automatically created digital work instructions, which were instantly shared with each workstation via Wi-Fi. Unlike paper-based instructions, digital guides could be updated quickly and accurately, eliminating delays or errors in distribution. Operators logged into the ESOP system with their credentials to access task-specific instructions displayed on the P17A's high-resolu-

tion touchscreens, ensuring efficient task execution without requiring additional training.

For multi-model production, the MES system dynamically adjusted schedules based on equipment status and material availability, while the ESOP system updated operational instructions in real time. This streamlined process enabled operators to seamlessly switch between tasks and maintain high efficiency.

Throughout the production process, the P17A collected and uploaded real-time data on workstation progress and product quality. Any deviations triggered automatic alerts, allowing operators to make immediate adjustments. Management accessed this data through the MES system to identify bottlenecks, optimize resource allocation, and resolve issues promptly. This data-driven approach significantly improved the factory's responsiveness and decision-making capabilities.

By integrating MES and ESOP with the P17A, the factory achieved a modernized production management system that enhanced efficiency, ensured product quality, and enabled agile responses to multi-model, multi-batch orders.



Benefits

Enhanced Product Quality and Reliability

Real-time monitoring through MES and ESOP ensured every product met strict quality standards, offering customers more reliable and durable products while reducing returns and complaints.

Accelerated Delivery Cycles

Intelligent scheduling allowed the factory to respond quickly to market demands, reducing production and delivery times and enhancing the overall customer experience.

Greater Flexibility and Customization

The digitized production system enabled efficient

adaptation to market changes and personalized product customization, with ESOP supporting tailored operational guides.

Improved Traceability

MES and ESOP provided complete traceability, allowing customers to track production details and factories to swiftly address any issues, enhancing trust and accountability.

Stable Product Supply

Optimized inventory management and material allocation ensured consistent production, minimizing delays and meeting customer expectations for timely product availability.

Sustainability and Cost Efficiency

By improving resource utilization and reducing waste, the factory achieved cost savings and supported global sustainability goals, enhancing its eco-friendly brand image.



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With the integration of MES and ESOP systems, combined with the efficient support of ONERugged P17A Panel PCs, our workshop production management has undergone a significant digital transformation. Operational processes have become more standardized, data transparency has greatly improved, and product supply is now more stable. This is particularly evident in production transitions and quality control, helping us earn greater trust and recognition from our customers.

— Production Manager of Client's Factory

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