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RETROFIT OF AN ASSEMBLY MACHINE IN THE MEDICAL TECHNOLOGY SECTOR

Four days, no margin for error: How a mission-critical production facility was successfully modernized under cleanroom conditions

When a production line capable of producing up to 3,000 products per hour comes to a standstill, every hour counts. For our long-standing customer in the medical technology sector, the modernization of a central rotary transfer assembly machine was therefore far more than a technical upgrade—it was a time-critical project with a direct impact on production capacity. Thanks to precise preparation, efficient implementation, and rapid commissioning, the system was successfully modernized within the tight timeframe and returned to production on schedule.

The Challenge

The existing system was equipped with a Siemens S7-300 controller, approximately 250 central inputs and outputs, and extensive analog data processing for thermal processes. The goal was to migrate to a modern Siemens S7-1500 platform in TIA Portal V18, including the adaptation of all peripheral devices.

The time window was extremely tight: the project was to start on Monday morning, with production approval required by Thursday's late shift at the latest. For the implementation, this meant meticulous preparation, quick decisions, and efficient project management.

The Solution

Quality Automation handled the complete planning, implementation, and commissioning of the retrofit within the specified timeframe.

Control System Modernization

The existing S7-300 control system was migrated to a Siemens S7-1513 CPU. Through a targeted analysis of the existing software, approximately 90 percent of the existing program code could be reused. This significantly reduced the engineering effort and enabled particularly rapid implementation.

Integration of Servo Technology

A firmware upgrade was first performed on the Parker-Hauser servo controller to ensure communication with the new control platform. This was followed by full integration into the new TIA environment.

Optimization of control technology

The thermal control loops were converted to modern technology objects. This allowed for standardized parameterization, simplified maintenance, and significantly accelerated future adjustments.

HMI-Upgrade

The user interface was also modernized. The new HMI panel integrated seamlessly into the new system architecture and was put into operation without any issues.

Hardware Adaptation

Approximately 250 inputs and outputs were rewired and successfully put into operation. In addition, the potential concept was revised, the electrical structure optimized, and all labeling and marking renewed to sustainably improve maintainability.

Data Backup and Future-Proofing

A particular focus was placed on fully backing up all relevant system data. Since no backups of the servo and frequency converter parameters were available at the start of the project, these were fully documented and archived. This laid an important foundation for the long-term, reliable operation of the system.

Cleanroom-Compliant Implementation

Thanks to detailed advance planning of all mechanical and electrical modifications, rework in the cleanroom was completely avoided. This minimized risks, reduced downtime, and contributed significantly to the project's success.

The result

Despite the extremely tight timeline, the system was able to be recommissioned on schedule. Production was fully operational again in time for the scheduled late shift on Thursday. The customer now benefits from a modern and future-proof automation solution that offers:

- greater system stability
- improved diagnostic capabilities
- simplified maintenance processes
- long-term availability of spare parts and support
- significantly reduced risk of cleanroom rework

The project impressively demonstrates how Quality Automation GmbH reliably, systematically, and on schedule implements complex modernization projects even under tight deadlines—without compromising on quality, documentation, or operational safety.



Retrofit Instead of a New Purchase

Many existing systems have a mechanically robust foundation but no longer meet today's requirements for availability, maintainability, and spare parts supply. A targeted retrofit offers the opportunity to protect existing investments while integrating modern automation technology—often much faster and more cost-effective than purchasing a completely new system.

For more information about our retrofit services, please visit our Retrofit page:

<https://quality-automation.de/en/services/project-support/retrofit/>



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