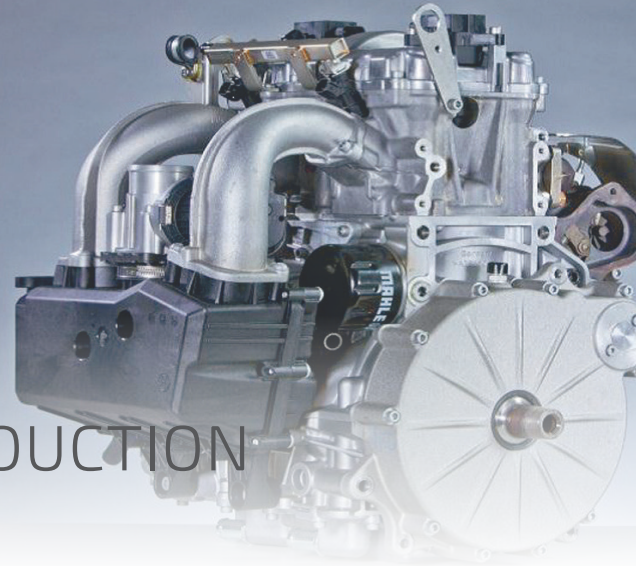


# LINE CONTROLLER FOR COMBUSTION ENGINE PRODUCTION

At Textron Motors GmbH



In early 2014, Textron Specialized Vehicles acquired an assembly line for 2-cylinder engines from Weber Motors. The line consists of semi-automated manual work stations with PLC-controlled tools e.g. for screw tightening and oiling.

Additionally two KUKA robots are handling the engines through several, automated assembly and quality control stations. All stations are connected by an automated transport system, which is controlled by Kontron AIS line controller software.

## 🎯 GOALS

- Replace the existing line controller software
- Optimization of existing S7 PLC programs
- Enhance throughput & support continuous high volume production

## 🚀 CHALLENGE

- Rollout of the new software for Line Controller and PLC
- Implementation of a complex iDoc based SAP interface with SECS/GEM

## 💡 SOLUTION

- 60% reduction of downtime
- 70% enhancement of production output
- Reduction of complexity in SAP configuration

**Textron Motors**

Minnesota, USA

**Project:**

Implementing line controller software for an automated transport system, optimizing PLC programs

**Platform:**

FabEagle®LC Line Controller software with standardized Siemens PLC connector from Kontron AIS; SAP interface

**Kontron AIS Services:**

Consulting, .NET Development, PLC Development, Commissioning and Support

[www.textronmotors.com](http://www.textronmotors.com)

„Kontron AIS helped us to achieve our challenging production goals.“

Sebastian Grassow,  
Plant Manager

**GOALS**

In early 2014 Textron Specialized Vehicles acquired an assembly line for 2-cylinder engines from Weber Motors. The line consists of semi-automated manual work stations with PLC-controlled tools e.g. for screw tightening and oiling. Additionally, two KUKU robots are handling the engines through several automated assembly and quality control stations. All stations are connected by an automated transport system which is controlled by Kontron AIS line controller software.

Kontron AIS was asked to replace the existing line controller software to make Textron independent from the support of the former Line Controller supplier, enhance throughput and support a continuous high yield for the production. In addition, the FabEagle®LC was supposed to provide a higher degree of configuration flexibility to make process flow changes easier. An interface to SAP's ERP system was required to exchange work plans with attached BOMs and post consumption of parts and output of final products to SAP.

After review of the existing concepts and implementations it was decided to also rework and enhance the tool automation software to gather more robust communication, faster transport and higher maintainability.

Textron Inc., headquartered in Providence, RI, is a multi-industry company with a yearly turnover of more than \$13.9B. Textron employs more than 36.000 people in 25 countries and is ranked 228 in the Fortune 500 ranking (2014). Textron Specialized Vehicles is part of Textron Inc., and builds products in five value streams, Golf vehicles, Vehicles for Ground Support and Equipment, Consumer, Aftermarket and Commercial. Essential business of Textron Specialized Vehicles is the production of vehicles and equipment based on their own 2 cylinder base engine manufactured in Bernau near Berlin. The production plant in Bernau was acquired 2014 from Weber Motors and runs a 2 shift production of engines for Marine, Snow vehicles, Industrial and UTV.

**SOLUTION**

The introduced line controller platform FabEagle®LC automatically collects reliable process, performance and material related data online from the production tools without additional work load for the line operators. It provides an easily accessible data archive and management reporting to managers as well as process engineers.

The process flow is fully integrated and controlled by FabEagle®LC. All work steps for automatic and manual workstation are freely configurable.

The customer can create complex work steps and help operators with work instruction and animations. Manual process steps are supported to track feeding parts by scanning and manual data input.

Transport planning was previously done by the line controller which resulted in unnecessary communication and unexpected transport behavior. The logic was transferred into the PLCs so line controller transport logic could be simplified to macro commands.

The exchange of single transport section states between PLC and line controller became obsolete. As a result the transport runs now smoothly and reliably.

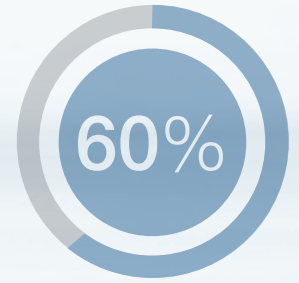
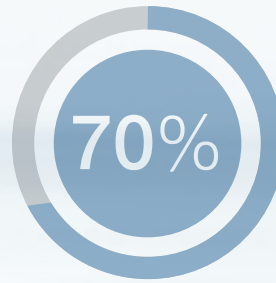
Production progress messages automatically update SAP with consumed parts and assembled products. This results in a fully automated and vertically integrated production IT environment with full transparency and flexibility.

All FabEagle®LC software features were thoroughly tested in a sophisticated simulation prior to rollout to support a quick changeover and migration with a minimum of production interference and downtime.

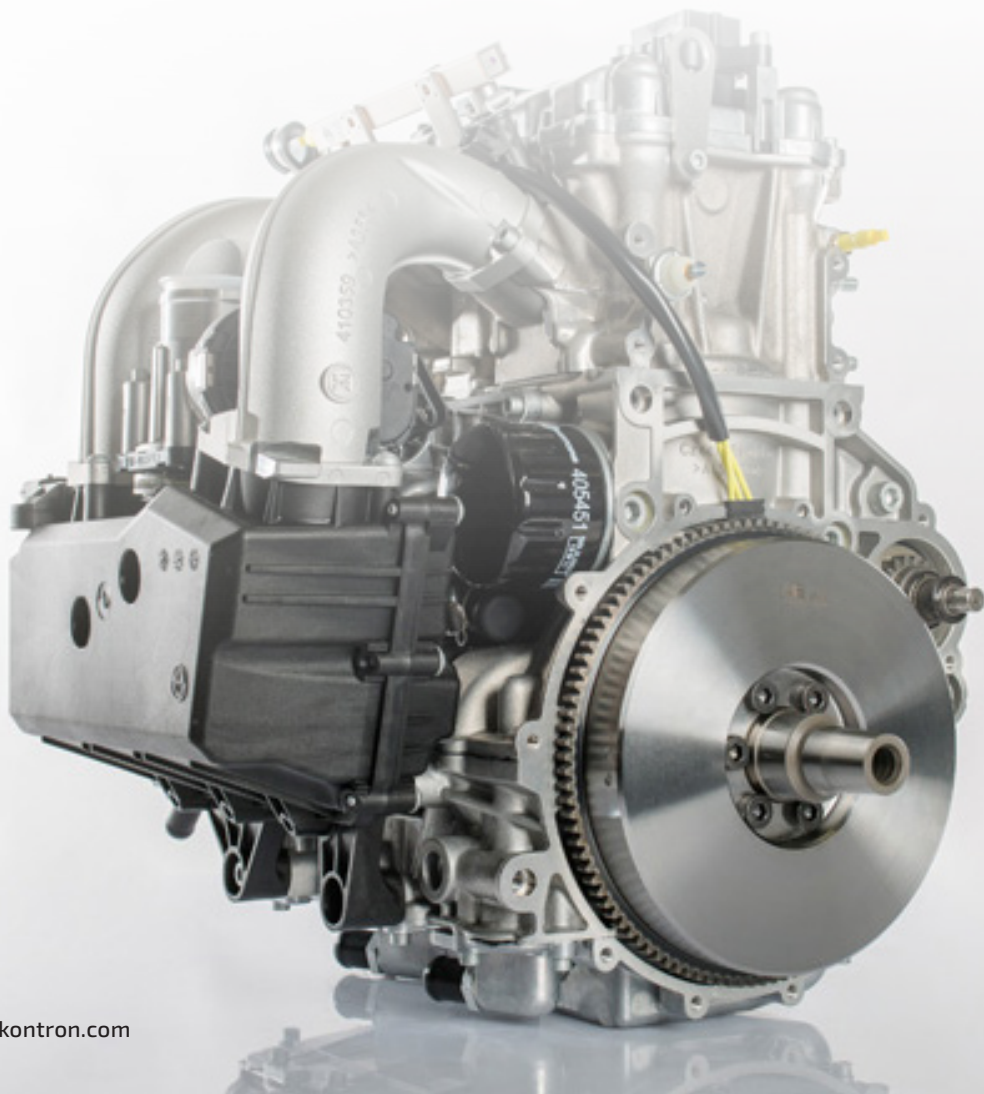
## BENEFITS AND RESULTS

- ▶ Reduction of production line downtime by 60% adding transparency (line errors, data interfaces, PLC procedures) and stabilize IIT environment including interfaces.
- ▶ Enhancement of production output by more than 70% due to full process control, optimization of process flow and increased transparency with data collection and visualization features in FabEagle®LC.
- ▶ Reduced SAP administration effort by automated provision of complete and transparent consumption data by the FabEagle®LC.
- ▶ Easy access and automated creation of management reports and data analysis to facilitate daily work of engineers and shift leaders enabled by the sophisticated reporting engine included in FabEagle®LC.

// Enhancement of production output



// Reduction of production downtime



## Über Kontron – Mitglied der S&T Gruppe

Kontron ist ein weltweit führender Anbieter von IoT/Embedded Computer Technologie (ECT). Als Teil des Technologiekonzerns S&T bietet Kontron über ein kombiniertes Portfolio aus Hardware, Software und Services individuelle Lösungen in den Bereichen Internet der Dinge (IoT) und Industrie 4.0 an. Mit seinen Standard- und kundenspezifischen Produkten auf Basis neuester, hoch zuverlässiger Technologien ermöglicht Kontron sichere und innovative Anwendungen für verschiedenste Branchen. Dadurch profitieren Kunden von einer schnelleren Time-to-Market, niedrigerer Total-Cost-of-Ownership, längeren Produktlebenszyklen und ganzheitlich integrierten Applikationen.

Weitere Informationen finden Sie unter: [www.kontron.de](http://www.kontron.de)

## Über Kontron AIS GmbH – Mitglied der S&T Gruppe

Wir setzen den Benchmark in industrieller Software. Seit mehr als 30 Jahren und mit 160 Mitarbeitern unterstützen wir mit unseren Lösungen Maschinen- und Anlagenbauer sowie Fabrikbetreiber dabei, in der Automatisierung neue Wege zu gehen und dadurch nachhaltig Kosten zu reduzieren. Gemeinsam mit unseren Kunden entwickeln wir Konzepte für Smart Manufacturing und Industrie 4.0 und helfen damit intelligente Digitalisierungsstrategien erfolgreich zu implementieren.

Weitere Informationen finden Sie unter: [www.kontron-ais.com](http://www.kontron-ais.com)



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