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JSL-CONNECT

WHITEPAPER

JSL-CONNECT

Unlocking Real-Time PLC Data for Smarter Industrial Operations

JSL was founded with a clear mission: to bridge the gap between industrial automation and modern digital solutions. Since our beginnings, we have been working closely with manufacturers across various industries, understanding their challenges and translating them into practical, reliable, and scalable software tools.

Our team combines expertise in industrial automation, software engineering, and data analytics. What unites us is a shared commitment to delivering solutions that are not only technically robust but also intuitive and tailored to each customer's needs.

IN THIS ISSUE

- Why JSL-Connect?
- What is JSL-Connect?
- Who Should Use JSL-Connect?



JSL-CONNECT IS ALREADY SUCCESSFULLY DEPLOYED AND RUNNING AT CUSTOMER SITES

The development of JSL-Connect is the result of this dedication. From day one, our engineers, developers, and industry experts worked side by side to ensure the platform addresses real-world production challenges. Every feature was shaped by customer feedback and refined with a focus on usability, performance, and adaptability.

Today, JSL-Connect reflects who we are as a team: passionate, customer-oriented, and driven by innovation. We believe that our success is measured not just by technology, but by the trust and long-term partnerships we build with our customers.



SUMMARY

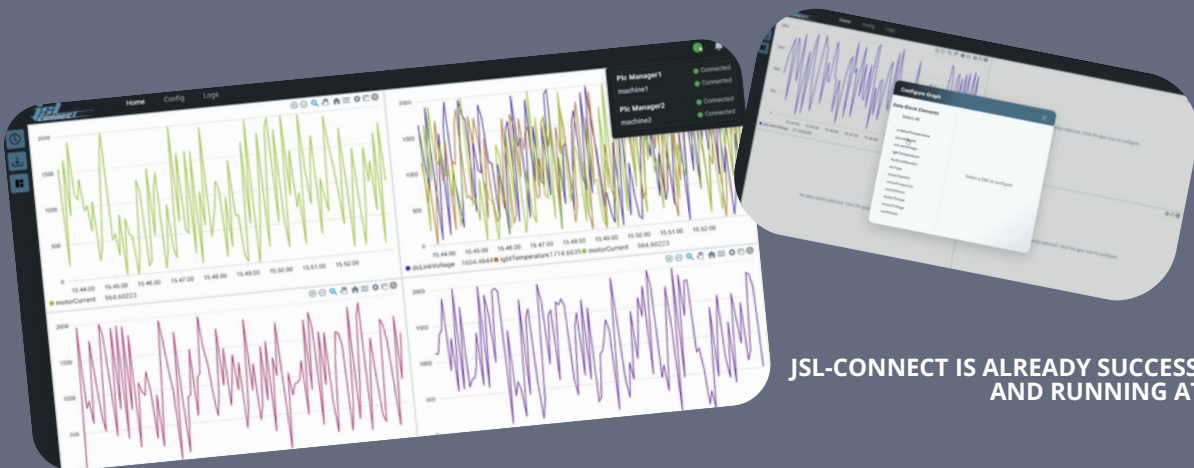
In today's competitive industrial landscape, manufacturers face the challenge of increasing efficiency, ensuring product quality, and reducing downtime, all while managing complex machine environments. At the core of industrial automation are **PLCs** (Programmable Logic Controllers), which operate as the "brains" of machines. However, the valuable data generated by PLCs often remains inaccessible, fragmented, or difficult to analyze.

JSL-Connect addresses this gap. It is a software platform that provides seamless connectivity between PLCs and IT systems, offering secure data transfer, long-term logging, advanced analytics, and powerful visualization.

With its customer-focused customization and scalability, **JSL-Connect** enables companies to transform raw machine data into actionable insights, improving decision-making, predictive maintenance, and overall process optimization.

IN THIS ISSUE

- About Us
- The Challenge
- The JSL-Connect Solution
- Core Features
- System Architecture
- Case Study
- Key Benefits



JSL-CONNECT IS ALREADY SUCCESSFULLY DEPLOYED AND RUNNING AT CUSTOMER SITES

Discover more about our solutions and services, visit our website for the latest updates and insights.

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THE INDUSTRIAL CHALLENGE

Different PLC vendors use different communication protocols (e.g., PROFIBUS, EtherCAT, Modbus). Without a unified solution, integrating data from heterogeneous systems requires significant engineering effort.

Data often remains locked within individual PLCs or machine networks, preventing operators and management from seeing the bigger picture of production performance.

Existing tools are often vendor-specific, inflexible, or difficult to use.

Without real-time insights, companies cannot react quickly to deviations, predict failures, or optimize processes. This results in unnecessary downtime, higher maintenance costs, and lower productivity.

1. DATA ACCESSIBILITY

2. SILOED ENVIRONMENTS

3. HIGH COMPLEXITY

4. MISSED OPPORTUNITIES

Stay connected with us! Follow JSL Automation on LinkedIn and Instagram for the latest updates, news, and insights.





THE JSL-CONNECT SOLUTION

JSL-Connect acts as a bridge between industrial PLCs and higher-level IT systems. It collects, stores, analyzes, and visualizes data in real-time, enabling smarter decision-making and more efficient operations.

1. DATA TRANSFER & CONNECTIVITY

- Support for multiple industrial communication standards (OPC-UA, proprietary bus protocols)
- Real-time reading and writing of PLC data
- Event-triggered or periodic data updates

2. ANALYSIS & AUTOMATION

- Apply customer-specific logic for event detection and process automation
- Detect anomalies and trigger alarms when conditions are met
- Integrate results with existing customer systems for extended functionality

3. LOGGING & STORAGE

- Secure storage of machine and process data in a dedicated database (SQL based)
- Flexible mapping and conversion of various PLC data types into standard formats
- Ensure structured, consistent, and easily accessible historical data

4. VISUALIZATION & INTERACTION

- Interactive dashboards with real-time graphs and KPIs
- Custom-built HTML user interfaces tailored to customer workflows
- Bidirectional communication: transfer of user input back to PLCs for direct control

SYSTEM ARCHITECTURE

JSL-Connect follows a modular architecture:

CONNECTIVITY LAYER:

Communicates with PLCs via multiple supported protocols.

DATA MANAGEMENT LAYER:

Handles accumulation, preprocessing, and secure database storage.

LOGIC & AUTOMATION LAYER:

Executes customer-specific rules for event triggers and automation.

VISUALIZATION LAYER:

Provides dashboards, reports, and interactive UIs for operators and managers.



This architecture ensures scalability (adding new PLCs or protocols easily), reliability (industrial-grade performance), and flexibility (adaptation to different customer needs).

Case study



MID-SIZED MANUFACTURER

A manufacturing company operates automated assembly lines with PLCs from Siemens, Beckhoff, and Mitsubishi. Their challenge was to unify data collection and analysis across heterogeneous systems while meeting compliance requirements for long-term logging.

CHALLENGES

- Monitoring different PLC types with a single solution
- Logging production data for audits and traceability
- Detecting process deviations early to reduce scrap and downtime
- Providing operators with a simple, unified visualization interface

SOLUTION WITH JSL-CONNECT

- Connect PLC via OPC-UA and other protocols
- Implemented reliable PostgreSQL database for long-term data storage
- Developed a custom dashboard with real-time KPI monitoring and alarm functions
- Integrated customer-specific logic to automatically flag deviations in quality metrics



20% reduction in downtime due to faster detection of maintenance issues

Case study



RESULTS

**20% REDUCTION IN DOWNTIME DUE TO FASTER
DETECTION OF MAINTENANCE ISSUES**

**15% IMPROVEMENT IN EFFICIENCY BY OPTIMIZING
PRODUCTION PARAMETERS**

**FULL COMPLIANCE WITH DATA LOGGING
REGULATIONS**

**HIGHER USER SATISFACTION THROUGH INTUITIVE,
ROLE-BASED DASHBOARD**



Integrated customer-specific logic to automatically flag deviations in quality metrics



KEY BENEFITS

Vendor-Agnostic: Works with multiple PLC vendors and communication standards.

Customizable: Tailored by our team to specific customer needs.

Reliable: Built for continuous operation in demanding industrial environments.

Scalable: Grows with customer requirements and supports new features.

Actionable Insights: Turns raw PLC data into real-time business value.



15% improvement in efficiency by optimizing production parameters



**ENGINEERING EFFICIENCY.
EMPOWERING GROWTH.**

„Mit über **10 Jahren Erfahrung** sind wir Ihr verlässlicher Partner für **Automatisierungslösungen in Steuerungstechnik und Robotik.**

Unsere Philosophie: **Einfache und logische Automatisierung**
– für optimierte Prozesse und intelligente Abläufe.“

Familie Mayer

JSL-Connect transforms how companies interact with their PLC infrastructure. By providing a unified, reliable, and flexible platform for **connectivity, analysis, storage, and visualization**, it enables manufacturers to unlock the full value of machine data.

With **JSL-Connect**, companies can move from reactive operations to predictive, data-driven decision-making. Ensuring more efficient production, reduced downtime, and higher quality.



Contact us today to see how JSL-Connect can elevate your industrial operations.

 **Link**