



Manufacturing Visualization in the Construction Industry

25 Controllers

15,000 Tags

Redundancy

Customer:

Liapor GmbH & Co. KG
Cooperation since: 2018
Implementation: 2025



ABOUT THE COOPERATION

For more than 60 years, Liapor has been manufacturing lightweight expanded clay aggregates and related construction materials that combine strength, low weight, insulation properties, and long-term sustainability. As part of its production optimization efforts, the company decided to modernize its manufacturing processes in cooperation with mySCADA, which provided a comprehensive solution tailored to internal requirements.

PROJECT REQUIREMENTS

- **Ensuring redundancy in the event of failures** (without the need to stop production)
- **Visualization of the production process** (production overviews, consumption monitoring, etc.)
- **Multi-user support** (allowing simultaneous monitoring by multiple employees)
- **Unlimited data logging**

PROJECT SCOPE AND SIZE

The system is designed as a **multi-protocol solution** that enables data collection and integration from diverse control systems and technological sources across the entire production process.

- **24 Rockwell PLC systems** (Micro, MicroLogix, SLC500, CompactLogix, ControlLogix)



- **1 Siemens SIMATIC ET200S PLC** (certified control of a multi-fuel burner)

SIEMENS

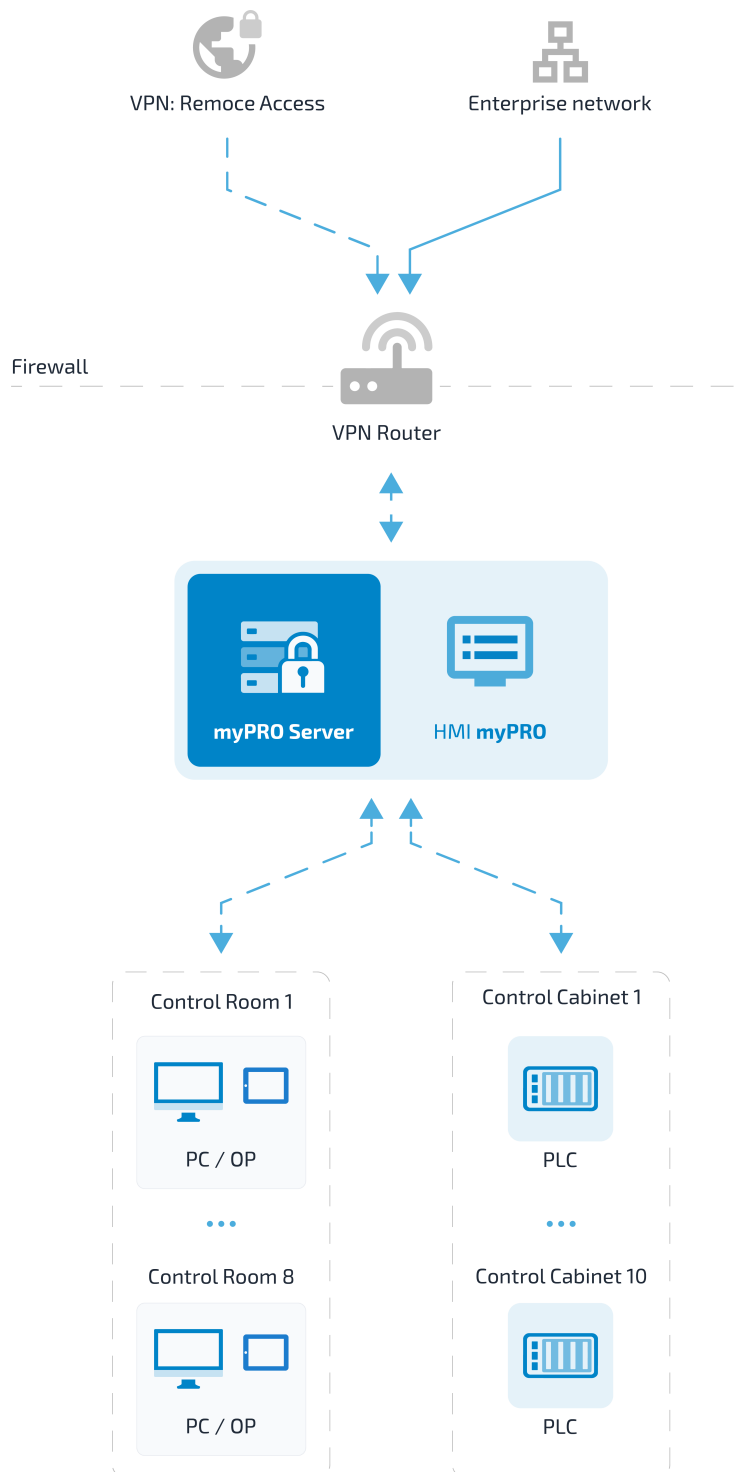
SCOPE OF I/O AND DATA VARIABLES

The total number of physical input/output signals (I/O) throughout the production process is approximately **10 000**.

The number of visualized variables (tags) within the central HMI/SCADA system reaches approximately **15 000**.

PROJECT SOLUTION

- Local visualization within production facilities is implemented using touchscreen panels (Rockwell PV800, mySCADA myPANEL 10")
- Visualization in dedicated control rooms runs on PC workstations with local Rockwell FactoryTalk View ME software, while simultaneously connecting to the central visualization system running on a Linux Debian server (myPRO, approximately 15,000 tags)



Visualization and HMI

The central HMI/SCADA system, myPRO, operates on a dedicated hardware platform and provides data acquisition, processing, and visualization from all production control systems.

- The system **visualizes data from all production PLCs** and stores selected operational data in databases without time limitations. Historical data remains available from the moment logging begins for each tag.
- **Alarms are evaluated separately** for individual production sections, as are the corresponding visualizations, which are accessible according to user permissions.
- The system **supports simultaneous real-time access by more than 20 users** without negatively affecting HMI server performance or reliability.
- **Mobile devices (tablets) are connected via VPN** and mobile data networks, enabling selected personnel to **monitor and control production directly in the field**.
- In addition to standard data logging, the system provides **advanced production reports and analyses**.

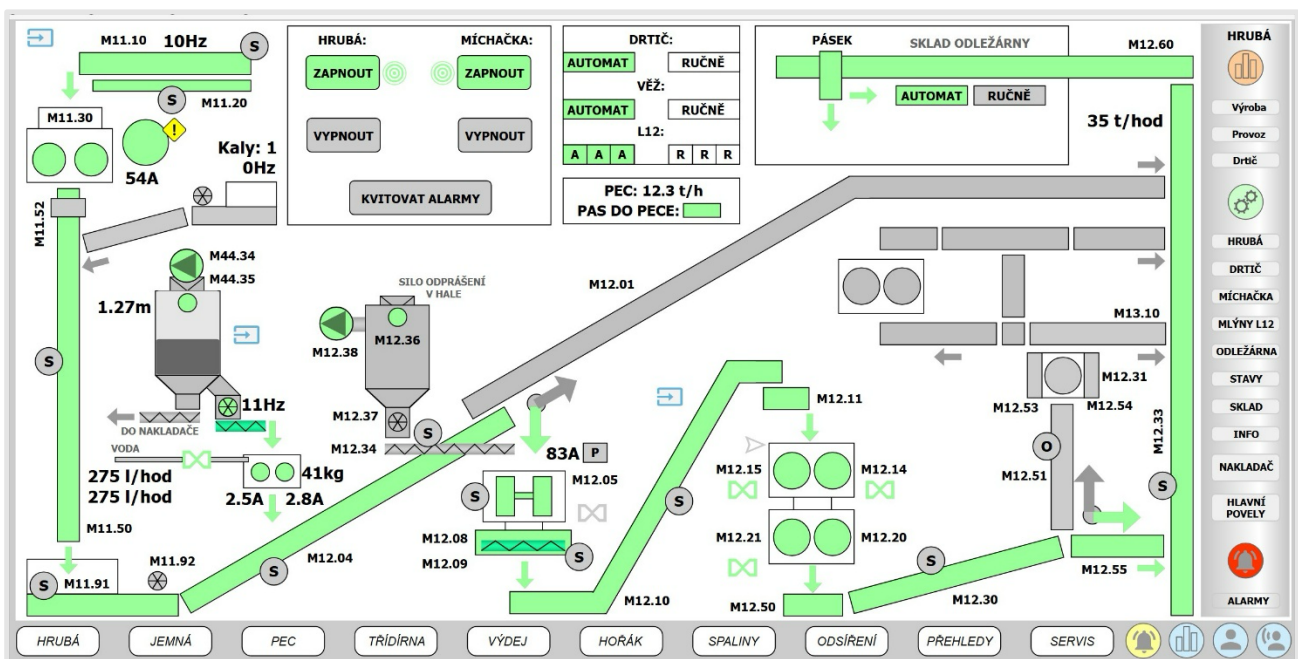


Figure 1 – Production Overview: Initial Raw Material Processing

The system processes incoming raw material delivered by rail and stores it in an intermediate warehouse after processing. It allows switching between visualizations of individual production units, displaying complete or local alarm lists (red icon in the lower-right corner), Access to all data logs and user logins through control icons within the interface.

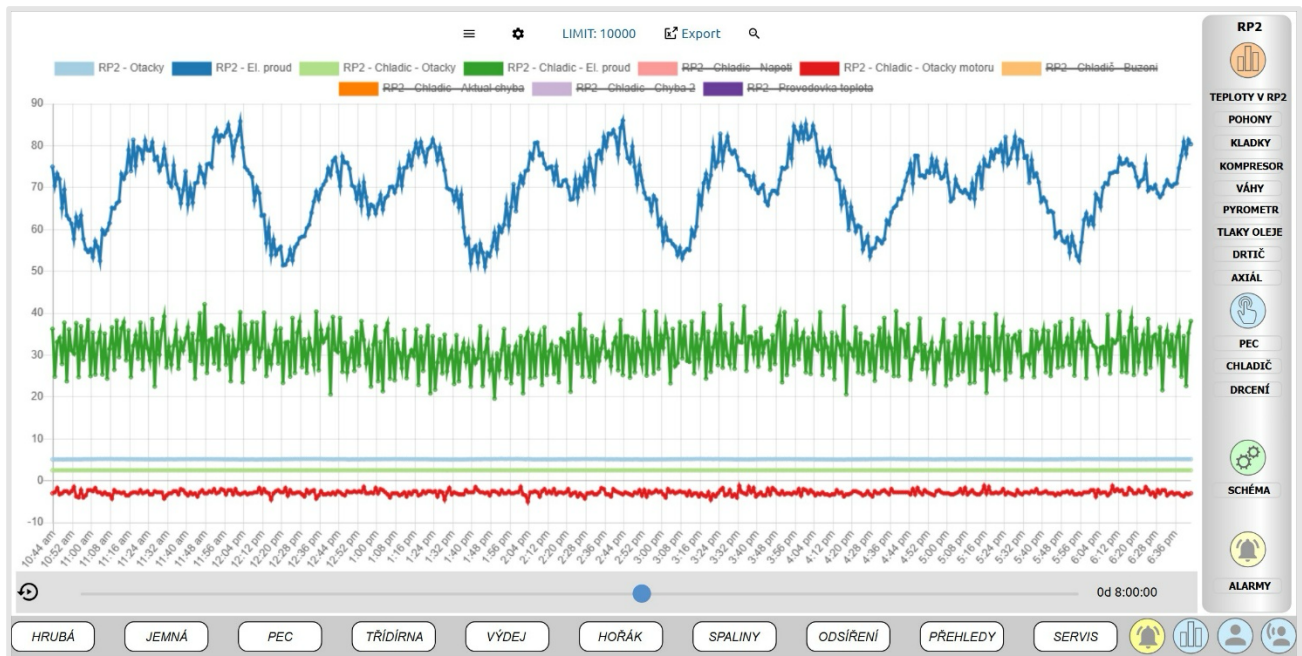


Figure 2 – Trend Chart of Two Main Drives (Rotary Kiln and Rotary Cooler)

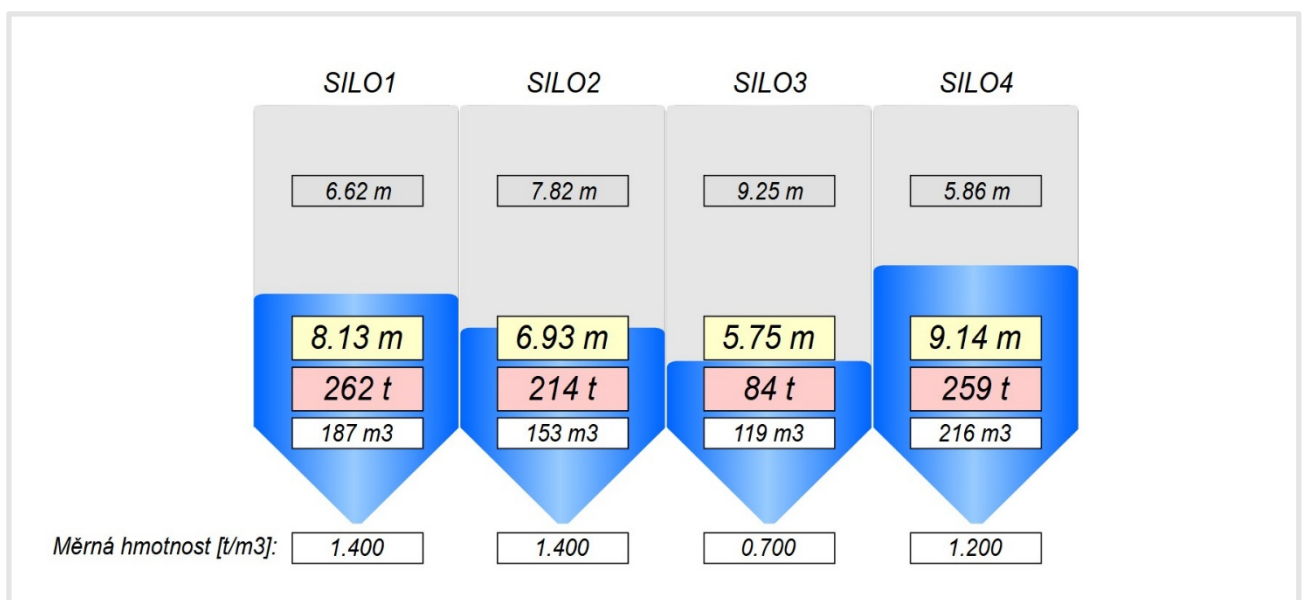


Figure 3 – Graphical Representation of Silos Including Basic Parameters

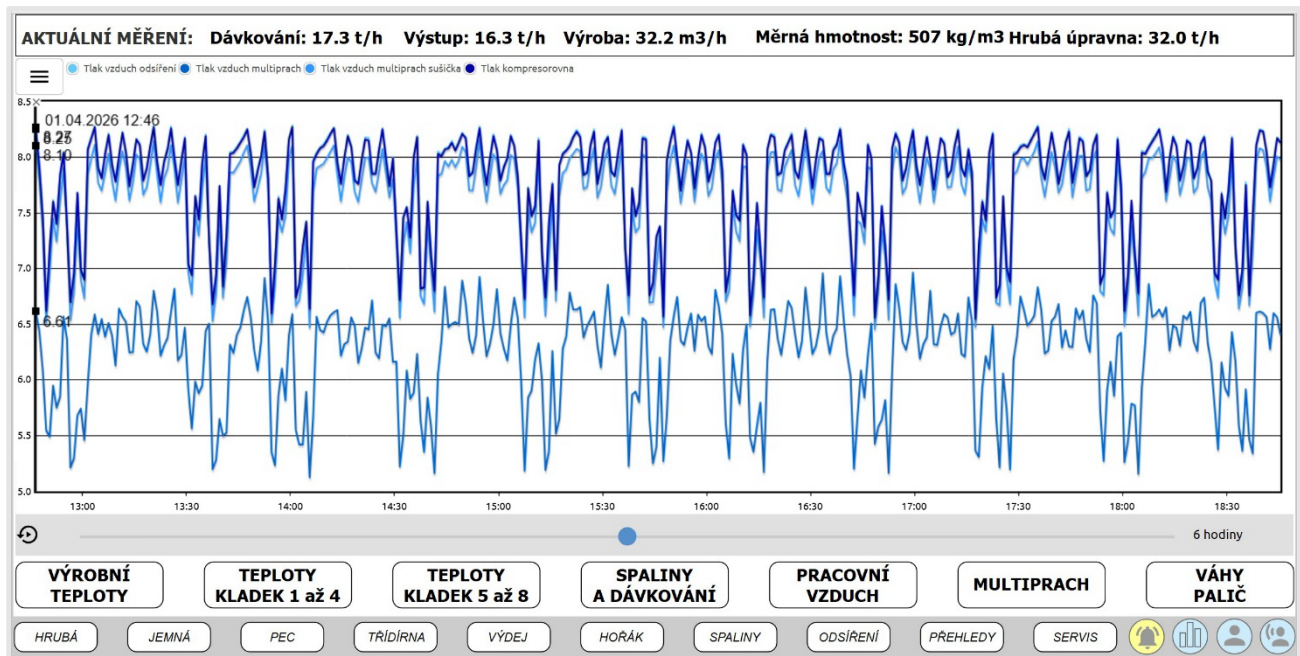


Figure 4 – Compressed Air Pressure in Various Stages of the Process

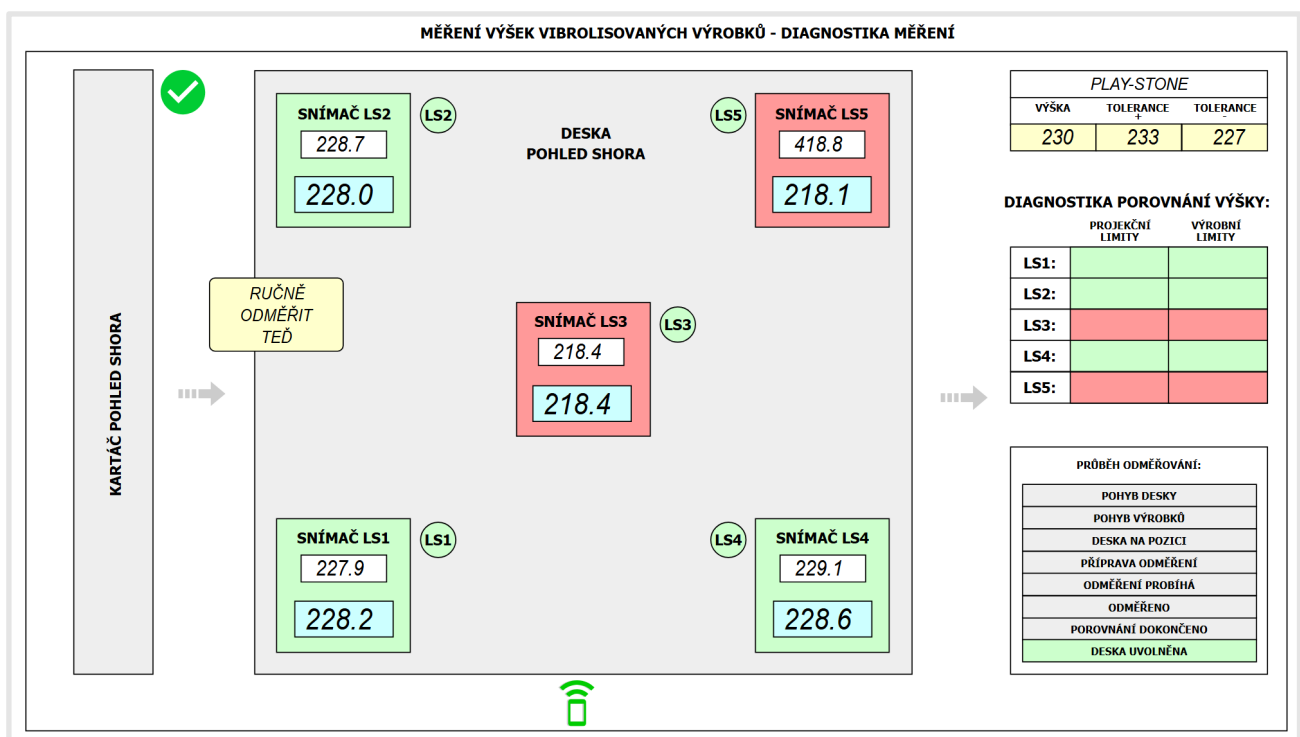


Figure 5 – Final Inspection of Measured Products

The final inspection process evaluates the quality of finished products using ultrasonic sensors with IO-Link communication and time-dependent data processing. The operator has access to an overview of acquired data, color-coded inspection results, process status information and Instantaneous and final measurement results (white and blue values). Sensor visualization on the production board.

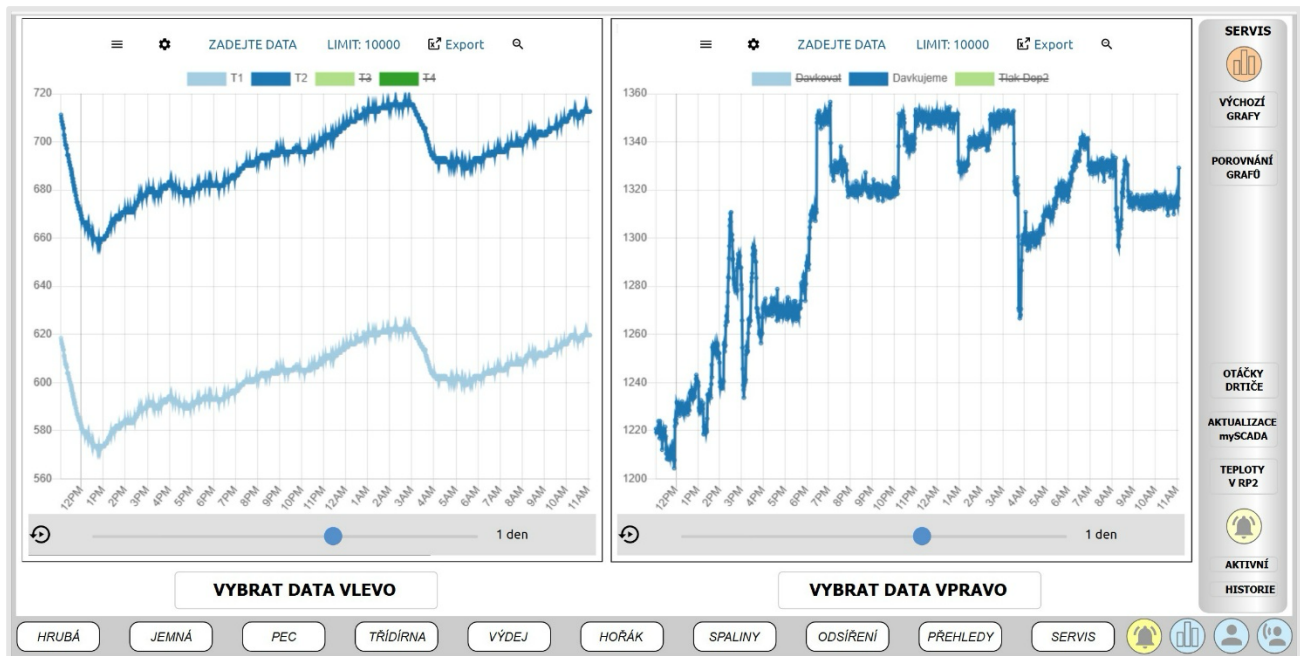


Figure 6 – Comparison of Data and Process Variables

The system allows flexible comparison of any data logs with one another, while users can independently select the left and right displayed signals. This functionality is frequently used for **analysis of technological relationships, trend identification** and detection of process anomalies. The resulting findings often lead to the creation of specialized graphs tailored to operational requirements.

REDUNDANCY MODE

The system is designed with a strong focus on high availability and production continuity through a dual-visualization concept.

- Local Rockwell FactoryTalk View ME visualization software enables independent control and monitoring of individual production sections **even during failures of data communication** within the technological network (e.g., faults, maintenance shutdowns, or production startup phases).
- This solution represents a simple yet robust form of redundancy. If the central HMI/SCADA server or primary data infrastructure fails, the entire operation can still be controlled from local operator stations.
- Thanks to this architecture, continuous operation can be maintained in most situations without interrupting production.

The solution also standardizes data from multiple PLC/CPU platforms (Siemens and Rockwell) and stores them for subsequent analysis.

BENEFITS OF THE SOLUTION

- Higher reliability and efficiency thanks to the **redundancy module** and separate hardware platform
- Better **production overview** through data visualization
- Support for **multiple simultaneous users without impacting system performance**
- **Remote access via smart devices**
- Alarm management system
- Standardization and storage of data from multiple PLC/CPU platforms for subsequent analysis