

Siemens TIA Portal

Selected PLC, Safety, HMI and commissioning experience

Industrial automation projects spanning software modernization, plant supervision, Fail-Safe control, HMI integration and commissioning. The following examples describe actual technical work without identifying clients, sites or specific installations.

OFFLINE ENGINEERING PLC programming, migrations, SCADA/HMI design	ONLINE & COMMISSIONING Downloads, diagnostics, testing, troubleshooting	SAFETY SYSTEMS Fail-Safe software development and commissioning
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Selected work - engineering and integration

SCADA / HMI ENGINEERING

Centralized supervision for distributed plant services

Developed a PC-based supervisory application from the ground up to manage distributed industrial auxiliary systems connected to multiple Siemens controllers.

- Designed WinCC screens for equipment status, operational parameters, alarms, diagnostics and user management.
- Configured PLC communications and prepared offline runtime simulations and application tests.

Scope: supervisory software engineering; no PLC code redevelopment is claimed for this case.

PLC / SAFETY / COMMISSIONING

Production transport line retrofit with integrated Safety

Reworked an existing production transport system after a significant mechanical redesign, replacing obsolete movement sequences with new process flows.

- Restructured PLC logic, implemented motor and conveyor sequences, machine-to-machine handshaking and interlocks.
- Updated Fail-Safe logic for revised protective devices and operating zones; adapted operator interfaces for multiple control positions.
- Led online debugging, functional testing and commissioning within a restricted shutdown window.

Selected work - modernization and lifecycle

PLC PROGRAMMING / FIELD START-UP

Expansion of industrial process auxiliaries

Extended an established Siemens-controlled auxiliary system with additional stations and new control functions.

- Independently analyzed, modified and extended existing PLC programs; developed additional station logic offline.
- Performed software downloads, online fault-finding, functional checks and start-up, supported by electrical technicians for field wiring verification.

CONTROL PLATFORM / HMI / SAFETY

Legacy hydraulic machine automation migration

Modernized the control system of heavy-duty hydraulic equipment, moving from a legacy Siemens engineering environment to a modern S7-1500 Fail-Safe platform.

- Migrated and adapted the existing PLC application; developed the updated Safety program and WinCC Unified HMI.
- Preserved established operator functions while adding interfaces for new auxiliary machinery and remote support.
- Performed PLC/HMI downloads, online debugging and commissioning, collaborating with another machine specialist for interface testing.

AWL TO SCL / SOFTWARE ARCHITECTURE

Modular PLC software modernization for continuous-process equipment

Re-engineered legacy Siemens machine-control code into a structured software platform that can be maintained by engineers without specialist knowledge of AWL/STL.

- Converted the majority of legacy AWL/STL logic to SCL, using LAD where appropriate; introduced reusable FB/FC, UDT structures and multi-instances.
- Adapted existing Fail-Safe logic and standardized interfaces to modern HMI software using OPC UA.
- Co-developed and tested FactoryTalk Optix HMI applications; performed online debugging and commissioning, and authored detailed English-language configuration and operating documentation.

Core technologies

Siemens TIA Portal · S7-1200 / S7-1500 · Fail-Safe · WinCC / WinCC Unified · SCL / LAD · PROFIsafe · OPC UA · FactoryTalk Optix

Project descriptions are deliberately generalized for confidentiality. References and technical detail may be discussed individually, subject to applicable agreements.