

Successfully minimising downtime during PLC migration

Industry

Chemical Industry

Location:

Yorkshire

Challenges:

- Replace legacy PLC system
- Minimise lost production through downtime

Solutions:

- ET200M IO racks with control added to existing S7-400 PLC
- Modified existing code

"Our team of experts in S5 migration successfully got our customer's plant commissioned and back in operation on schedule."

- **Mark Campbell**

*Business Unit General Manager,
Actemium Automation Yorkshire*



Background

Like many industries around the world, the chemical industry had benefited from the ability to make use of the ground-breaking SIMATIC S5 programmable logic controllers (PLCs) from Siemens. The added computing power and control functions that could automate high-level tasks were game changers and were soon highly relied on by the industry. However, advancements in PLCs had made the S5 obsolete and slower than its potential replacement. For our customer, this also meant their S5 PLCs were becoming increasingly costly to maintain.

Challenges

As with any migration from one system to a new one, customers are concerned with lost production. Finding ways to minimise downtime is always an essential element of Actemium Automation Yorkshire's remit. For this chemical industry customer, we had to replace two S5 PLCs and retain existing interlocks and interfaces to existing S7-400 PLCs.



Solution

The Actemium Automation Yorkshire team of engineers has extensive experience in successfully migrating from legacy S5 systems. In this case, we removed the two S5 PLCs and completed a card-for-card replacement by ET200M IO racks whose control was added to an existing S7-400 PLC connected by Profibus. Existing code was converted from Step5 to Step7, and then modified to use standard control modules within the S7-400 CPU. The code from the two S5 PLCs was re-addressed to avoid conflicts within the S7-400 CPU.

Existing control using flags was replaced with sequences to improve operator interface, allow software to be maintain, and allow for debugging. We re-addressed existing SCADA, improving the Interface in line with Sequences.

We tested the software extensively at our offices, simulating normal and abnormal plant conditions to ensure effectiveness in real-world situations.

Result

The outcomes of this project included a marked improvement in the reliability of the hardware, as well as easier-to-maintain PLC software. In addition, improvements to the operator interface to sequence process allows for easier control and fault-finding by operators.

