



CASE STUDY

KEEPING THE FUEL FLOWING AT MAJOR UK AIRPORT

Actemium has delivered a comprehensive control systems upgrade for aircraft fuel hydrants serving both the existing and new terminals at a major UK airport. The modernisation has enhanced system reliability, improved monitoring accuracy, and provided real-time operational visibility - strengthening resilience while ensuring no disruption to airport operations.

Sector: Airports
Location: United Kingdom

Expertise: Automation
Scope: Advise, Install, Test, Commission,
Implement, Maintain

01

CLIENT & REQUIREMENTS

A major international airport in the United Kingdom required significant upgrades and extensions to its aircraft fuel distribution network to support enhancements to existing terminals and the construction of a new one. Actemium was awarded the contract to deliver a comprehensive control systems upgrade for all fuel hydrants across the airport's tank farms.

Aviation fuel was supplied via pipeline to the airport's storage facilities, where the control system managed tank sequencing, recorded fuel quality data, operated 20 high-capacity pumps to maintain consistent pressure, and ensured hydrant lines remain leak-free. To improve reliability, performance, and maintainability, a full system upgrade was essential. This included replacing obsolete hardware, restructuring and rewriting the control software, and strengthening communication systems to eliminate recurring issues and support long-term operational efficiency.

02

CHALLENGES

Airports – especially this one which is among the largest and most complex in the UK – present unique operational and technical challenges. The sheer scale of the site introduced significant instrumentation and connectivity issues that needed to be addressed.

The upgraded system had to collect and transmit large volumes of data from numerous remote outstations, requiring highly reliable long-distance communications across the entire airfield environment.

Crucially, all of this work had to be completed while the airport remained fully operational, ensuring zero disruption to aircraft fuelling activities and day-to-day airport operations.

03

THE SOLUTION

The original system architecture at the airport consisted of three InTouch 7.0 SCADA nodes communicating via Modbus with Modicon 984 PLCs. Over the years we have done a number of modernising upgrades going first to a Schneider Quantum based PLC platform, to the current M580/M340 based PLC Platform with Aveva System Platform SCADA System.

To achieve this, Actemium upgraded all SCADA nodes to the latest version of InTouch and reconfigured the control system to interface seamlessly with the various PLC hardware platforms. Communication reliability was significantly enhanced through the use of the Aveva redundant communications protocols, and load balancing on the PLC CPU platforms. This was done with the use of two I/O servers which were configured in a Master/Standby arrangement, providing a fully resilient backup communication path in the event of a primary system failure.

The upgraded solution also included seven 'view only' SCADA nodes, all running a single unified application that automatically synchronises whenever updates are made to the Master. Actemium implemented an improved InTouch alarm handling system and deployed the Wonderware InSQL real-time database server to support efficient data logging, analysis, auditing, and reporting.

This programme represented a substantial upgrade and expansion of the existing control scheme - delivered under uniquely challenging operational constraints. The airport's fuelling infrastructure had to remain fully operational throughout the installation and commissioning phases, with only a brief overnight maintenance window available each day. To maintain continuity, new PLC backplanes were preassembled on temporary stands, allowing engineers to disconnect the old equipment, install the new configuration, and test using live I/O - all within the limited nightly shutdown period. By each morning's first flight, the system was fully restored to operational status - downtime was simply not an option.

04

BENEFITS

Working with Actemium on this project, the airport secured the following benefits:

- **Greater system reliability** through the upgraded hardware, rewritten software, and improved communications.
- **Reliable long-distance data** transmission for accurate monitoring across the entire airfield.
- **Zero operational disruption**, with all upgrades completed overnight while fuelling stayed fully functional.
- **Stronger resilience and redundancy** via Master/Standby servers and upgraded alarms.
- **Centralised, real-time visibility** with unified SCADA and enhanced data logging.

TECHNOLOGY PARTNER

Schneider
Electric

CONTACT US

T: +44 (0) 239 226 9960

E: reachout@actemium.co.uk

in @Actemium_UK

www.actemium.co.uk

Explore our airport solutions

