ACTEMIUM

CASE STUDY

DELIVERING A CRITICAL UPGRADE TO KEEP PLANES ON SCHEDULE

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

VINCI ENERGIES

01

CLIENT & REQUIREMENTS

The client operates one of the world's busiest single-runway airports, managing more than 660 aircraft movements every day. This extraordinary throughput makes the reliability and efficiency of the aircraft fuelling system absolutely critical. One of the airport's biggest operational challenges was maintaining a constant hydrant pressure of 7.5 to 9 bar – a requirement heavily affected by the number of aircraft being refuelled at any given time. Any pressure drop can lead directly to fuelling delays, ultimately impacting flight schedules.

The existing pump controller—a bespoke, ageing system—had begun generating unreliable fault signals, increasing the risk of interruptions to fuelling operations. To safeguard performance and minimise the potential for aircraft delays, the client commissioned a full system upgrade. As a trusted Schneider Electric Alliance Partner, Actemium was selected to deliver this vital modernisation.

02

CHALLENGES

Several critical challenges were identified during the upgrade. Fuel flow had to be maintained at all times, meaning the system could not be taken offline during the changeover. Electrical noise within the existing installation posed a significant risk, as any interference could trigger false pump-control responses – particularly problematic when multiple aircraft required refuelling simultaneously.

The system's twelve pumps, each fitted with an in-line turbine-type flow meter, fed a common hydrant header. These ageing flow meters were nearing the end of their reliable life and had begun producing erratic readings at lower flow rates. While upgrading to modern electronics was essential, it also introduced a new risk: contemporary components can be more sensitive to electrical noise, making it vital that the solution both improved flow-signal accuracy and eliminated false responses caused by noise or mechanical stiction.

Over years of expansion, the site's cabling and containment had become congested, with cross-wiring between systems contributing to increased electrical interference. Addressing these long-standing infrastructure issues would be essential to restoring signal integrity and ensuring the reliability of the upgraded pump-control system.

03

THE SOLUTION

Actemium successfully upgraded the airport's fuelling control system using the Schneider Electric M340 PAC, Magelis HMI, and a modern SCADA platform. The new system reduced manual intervention, improved visibility, and provided operators with the real-time data needed to optimise pump performance and support on-time departures.

Although electrical noise initially continued to affect performance, the enhanced diagnostics, visualisation, and trending tools within the new HMI and SCADA made it far easier to pinpoint the source of the interference and fine-tune the control algorithm.

Because the fuelling environment was classified as Zone 2 hazardous, Actemium selected Schneider Electric Advantys I/O (Ex II 3G) for its simplicity, versatility, and robust communication of pressure and flow data. Its prefabricated, industrial-grade cabling also made it ideal for the airport's demanding operational environment.

The original scope focused on replacing the ageing pump controller, with all field signals routed back to a central equipment room. However, the introduction of Advantys I/O enabled a far more resilient architecture: shorter signal cables connected to remote I/O islands near the pumps, with fibre-optic links carrying data back to the M340 controller. This approach provided the electrical isolation needed to eliminate noise on the flow-meter signals—while also reducing cabling complexity and cost for the client.

04

BENEFITS

- **Improved system reliability** with accurate, noise-free pump and flow control.
- **Reduced risk of flight delays** through stable hydrant pressure and better pump performance.
- **Enhanced visibility and control** via upgraded HMI/SCADA and real-time data.
- **Zero operational disruption** during installation.
- **More resilient architecture** with remote I/O and fibre-optic communication.
- **Lower cabling and maintenance costs** thanks to simplified field wiring.
- **Safe, compliant Zone 2 installation** using Ex-rated equipment.
- **Trusted, continuous support** from a long-term Schneider Alliance Partner.

TECHNOLOGY PARTNER

Schneider Electric

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