Case study:
British Airways Engineering

AC2000
AIRPORT

The power behind **your mission**

Transforming security and efficiency at British Airways' engineering base

British Airways Engineering, part of International Airlines Group (IAG), partnered with Johnson Controls to deliver a comprehensive security upgrade at its Heathrow Maintenance Base in London.

Initially focused on enhancing CCTV and perimeter surveillance, the project evolved during the discovery phase into a full site-wide security transformation. Johnson Controls—selected for its integrity, expertise, and holistic approach to complex projects—integrated AI-powered video surveillance, perimeter radar detection, and British Airways' existing airport access control system into a unified security platform. Initiated in 2023 and completed in 2025, the two-year collaboration set a new benchmark for safety, resilience, and AI-enabled operational efficiency across one of the world's busiest aviation hubs.

PROJECT CHALLENGES

Outdated analogue CCTV
Limited coverage, poor image quality, manual reporting and reliance on perimeter patrols.

Rising threats
Increasing critical infrastructure risks and evolving Civil Aviation Authority (CAA) regulations.

Vast, complex site
Vast scale and restricted airport environment posed challenges from tender to completion.

British Airways: innovation in aviation

British Airways, the UK's largest international airline, operates over 280 aircraft and serves nearly 40 million passengers annually.

It's London Heathrow maintenance base—spanning the size of 109 football pitches—features 35 aircraft stands, 10 hangars, and comprehensive engineering services, from routine inspections to major structural repairs. The vast site also houses two dedicated office blocks for security-cleared staff, along with a Global Learning Academy - a world-class centre of excellence for training pilots, cabin crew, and engineers.

KEY JOHNSON CONTROLS TECHNOLOGIES DEPLOYED THROUGH A UNIFIED SECURITY SYSTEM

Unified platform
Victor unified video management system & VideoEdge NVR's.

AI cameras
200+ Illustra high definition AI-Powered cameras.

Access control
CEM Systems AC2000 Airport with 35+ years of trusted deployment.

AI analytics
For data-driven autonomous airport operations.

Perimeter radar
Linked with PTZ camera integration for dynamic detection.

New control room
Integrated, data-driven video wall for centralised monitoring.

UK aviation's first AI control room integrating radar, video & access

A key highlight of the project was the launch of a state-of-the-art control room— one of the UK aviation sectors first fully integrated, AI-powered ecosystems.

Designed and delivered by Johnson Controls, the new control room features a large integrated video wall and is powered by the unified victor video management platform. This advanced system brings together AI-powered video analytics, radar detection, and access control into a single, intuitive interface, enabling real-time monitoring of airport boundary lines, aircraft stands, site roads, vehicles and staff activity.

The new solution enhances situational awareness, streamlines incident reporting, and supports proactive security measures. By consolidating Johnson Controls technologies—including American Dynamics VideoEdge NVRs, Illustra AI-enabled cameras, CEM Systems AC2000 Airport access control, and radar with PTZ cameras—British Airways Engineering now benefits from a more efficient, cost-effective, data-driven approach to site-wide surveillance.

AI-POWERED AIRPORT SECURITY

British Airways Engineering's unified, highly scalable AI platform enables intelligent staff verification, advanced object recognition, forensic search capabilities, and proactive monitoring across landside, airside, and perimeter zones— transforming its security approach from reactive to preventative.

AI-powered unified security for advanced site and perimeter protection

ACCESS CONTROL

VIDEO SURVEILLANCE

SMART CREDENTIAL MANAGEMENT

AIRPORT SYSTEMS INTEGRATION

BRITISH AIRWAYS

PERIMETER RADAR DETECTION

ARTIFICIAL INTELLIGENCE ANALYTICS

AI-driven vision with radar precision

ILLUSTRA AI-POWERED CAMERAS

Over 200 high-definition cameras deployed.

AI-powered object recognition for vehicles, individuals, and threats.

AI analytics enable real-time search, event tagging, and metadata monitoring.

Suports predictive security threat detection and faster incident response.

PERIMETER RADAR WITH INTEGRATED VIDEO

Radar technology integrated with pan-tilt-zoom (PTZ) cameras reduces hardware and enhances dynamic site monitoring.

Static cameras at stands and gates ensure secure, authorised, audited access for security-cleared personnel.

Radar auto-directs PTZ cameras to track movement, reducing false alarms and unnecessary deployment.

Trusted airport access control for over 35 years

For more than three decades, the CEM Systems AC2000 Airport Access Control System has been a trusted solution for British Airways, delivering scalable, resilient protection across key UK airport sites including Heathrow, Gatwick, and Glasgow.

Using intelligent IP card readers with advanced airport door modes, the system supports seamless smart card recognition across multiple locations via a multi-site airport link, enabling 24/7 offline card validation and safeguarding critical access points. As part of the Heathrow Engineering project, British Airways upgraded to the latest AC2000 Airport software, incorporating advanced airport-specific features and strengthened cybersecurity protections. To further enhance security, intelligent IP and portable handheld card readers were deployed in hangars and additional airside zones, ensuring robust access control and strengthened regulatory compliance.

INTEGRATED SECURITY WITH INTELLIGENT STAFF VERIFICATION

The integration of Illustra cameras with the AC2000 system provides full visibility of access points and real-time staff visuals through a single, intuitive interface. Powered by AI-driven video analytics, this setup enables intelligent staff verification, reducing the need for manual ID checks and patrols. The result is improved situational awareness, streamlined operations, and enhanced passenger flow across British Airways' sites.

Return on investment (ROI) impact

By integrating multiple systems into a unified, AI-powered platform, British Airways Engineering has achieved a measurable return on investment through enhanced security, improved operational efficiency, and strengthened regulatory compliance.

Strategically positioned cameras and intelligent card readers, supported by automated workflows, enable teams to monitor staff, vehicle, and aircraft activity with reduced reliance on physical patrols. The system logs every operational detail—from device status to operator actions—ensuring full auditability and alignment with evolving CAA and GDPR standards.

Sustainability benefits also include reduced emissions and resource consumption, thanks to fewer patrols, while radar-integrated PTZ cameras have lowered camera hardware requirements. This future-ready solution shifts the security paradigm from reactive to preventative, laying the foundation for smarter, more autonomous airport operations.

SUMMARY

British Airways Engineering chose Johnson Controls for our expertise in delivering complex, turnkey airport security solutions—from design consultation and specification to installation and ongoing support. The integrated system offers comprehensive protection against physical and cyber threats, with resilience from device to server level.

A collaborative approach between all Johnson Controls divisions and BA Engineering ensured seamless delivery across all phases. With phase one nearing completion after two years, the project has already expanded to include the British Airways Distribution Centre, with further enhancements planned at other key sites in the future.

Secure your future with smarter solutions.
Contact Johnson Controls today

"Johnson Controls delivered a seamless CCTV transformation and integrated security solution across British Airways Engineering. Their expertise in complex deployments and smart security integration has boosted our operational efficiency. After 35 years of using their airport access control, we're now pleased to have access, video, and radar powered by AI analytics — all from one trusted supplier."

David Tubb,
Security Manager, British Airways Engineering

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