

KUALA LUMPUR INTERNATIONAL AIRPORT (KLIA)

Case Study





Computer technology ensures KL International Airport will be second to none. To the millions of visitors that pass through Kuala Lumpur International Airport (KLIA) every year, the atmosphere is relaxed, efficient, and welcoming. But behind this welcoming scene is the most highly integrated and sophisticated airport in the world today. Across the airport site – one sixth of the size of Singapore – all the airport’s electrical, mechanical and information systems are connected as part of the Honeywell Total Airport Management System (TAMS).

System Overview

Kuala Lumpur International Airport (KLIA) is Malaysia’s aviation gateway handling over 70 million passengers and 1.2 million tones of air cargo each year. Achieving 19.1% year-on-year growth in 2013, KLIA is Asia’s fastest growing airport and was ranked the 9th busiest airport globally by international passenger traffic. KLIA is strategically positioned as a key aviation hub within South East Asia. Geographic centrality KLIA provides the flexibility to combine shorthaul and long-haul connections and has facilities that integrate both full-service and low-cost airlines’ operations presenting ripe opportunities for growth.

Issue

KLIA mission is to provide a world-class aviation gateway connecting people to the world. Smooth operations of the airport facility promote business continuity. Critical components that support this include an efficient airport network and system, excellent service capability and overall cost effectiveness.

KLIA has an unwavering focus on exceeding customer expectations and recognizes every passenger, regardless of their destination, as a guest of KLIA. The airport has redoubled its airports to provide the highest value in terms of comfort and commercial offerings, in order to optimise every passenger’s travel experience and has looked towards technology to drive this experience.

The Solution

Honeywell Building Solutions formed a relationship with KLIA in 1998 partnering with the airport to provide integrated solutions to help drive efficiency, business Kuala Lumpur International Airport continuity, safety and security throughout the airport. Specific components of the Honeywell solution included:

Central control

Honeywell Enterprise Buildings Integrator (EBI) seamlessly integrates a diversity of systems, Honeywell and third-party, to enable streamlined control of the airport facility. Honeywell provides the systems addressing security; baggage handling; lifts; escalators; lighting; and environmental comfort and safety, and has addressed the complex task of integration. All systems are united – including the co-generation plant, emergency generator, lifts, travellers and escalators, ventilation, air conditioning and fire systems, lighting, the paging system, passenger terminal transit system onto EBI – and their operation is fully integrated with the Total Airport Management System (TAMS).

Sustainability

The sheer size of KLIA and continuous operations demands that an environmentally conscious operational mindset. Effective lifecycle management of BMS controls throughout the airport has enabled KLIA to benefit from checked control loops and enhanced logic promoting integrity of operation and optimized energy usage. The Honeywell airport solution also ensures an energy efficient indoor environment. For example, based on flight information received from the TAMS, Honeywell has employed smart integrated scheduling to automatically set a gate lounge to one of three different modes:

- **Passenger mode:** sets lighting and air conditioning at the optimum temperature and lighting levels for passenger arrival;
- **Staff mode:** registers staff, such as cleaners, through the security/photo id system, and sets appropriate lighting and temperature levels, and
- **Unoccupied mode:** switches off the air conditioning and lighting in order to save energy when the gate lounge is not in use.

This intelligent automation, enabled by EBI, helps reduce energy waste and promotes lower operational cost of the facility.

Business Continuity

As the continuous and smooth operation of the airport facility is critical to delivering core services to passengers, Honeywell implemented built-in system redundancy, which means that if one server fails, a standby server will immediately take over. The hot active standby architecture ensures that the failure of any server will not impact the operation of the system. A backup server will automatically continue operation from the point of primary server failure. Even if there were a failure in the TAMS network, the three main buildings would stand alone and operate as usual. Passengers would not even notice that anything was amiss.

Security & Safety

Honeywell's ability to seamlessly integrate diverse systems onto a single platform provides KLIA with a gateway for business decisions that are translated into physical operations. The central airport building management operator, from a single computer terminal, is able to monitor and control every physical activity that takes place within the airport and intervene, if necessary, in real time promoting enhanced safety and security of passengers and staff alike.

Honeywell Airport Field Lighting

Honeywell airfield lighting system (ALS) greets aircraft at the approach end of KLIA's runways. Certified for CAT II navigation operations, this system consists of a series of lights arranged in different circuits catering for Approach, Runways (14L/32R and 14R/32L) measuring approximately 4 kilometers in length, Taxiways and Aprons. Both runways have been installed with 10,226 lighting switching devices which controlling the airfield light fittings. ALS at KLIA is adaption of ASMGCS Level 3 which delivers an Advanced Controller Work Position (ACWP) which enables Air Traffic Controller to view on a single screen both traffic situation and airfield lighting control. Supported by a Fast Reaction Panel, it helps in control of stop bars and intensity setting changes seamlessly. Additionally the system is interfaced with other surveillance and navigations systems:

- Surface Movement Radar (SMR) for traffic situation detection with digital target extractor.
- Surface Manager (SMAN) for collective routing and stop bar overrun protection enabling improved safety management due to airport surface surveillance, control (conflict prediction, analysis and resolution) and routing.
- Runway visual range for automated airfield light intensity settings as per ICAO standards and reduce energy consumption.





Benefits

The seamless integration of the central controls centre within KLIA delivers multifold benefit:

- Fast and efficient services for passengers at KLIA enhancing their experience within the airport terminal.
- Big-picture decision making by transforming disparate system data into actionable information with alarm management to help early identification of potential issues promoting enhanced safety and security.
- Intelligent integration and automation drives productivity, reducing the burden on facility management to undertake manual processes.
- Smart scheduling of resources throughout the airport terminal and airfield lighting solution helps reduce energy waste and promotes lower operational cost.
- Flexibility and scalability of KLIA technology roadmap is made possible by EBI's open system protocols promoting interoperability and freedom of choice.
- Optimisation of HVAC and energy resources is achieved by the facility-wide integrated building management approach.
- Intelligent design of ALS promotes seamless maintenance operation due to Honeywell Single Lamp Control and Monitoring enabling independent monitoring capability of every light installed if faulty or not.
- Integrated ALS increases safe, secure and efficient throughput of aircraft.

Our Company

Honeywell brings a mix of global expertise and local relevance to our customers across the South East Asian markets. Headquartered in Malaysia with branch offices and partners in three South East Asian locations, Honeywell has over 400 qualified experts to help customers address their business operations and efficiency needs. Honeywell International is a Fortune 100 diversified technology and manufacturing leader, serving customers worldwide with aerospace products and services; control technologies for buildings, homes and industry; automotive products; turbochargers; and specialty materials. Based in Morristown, N.J., Honeywell's shares are traded on the New York, London, and Chicago Stock Exchanges.

Why choose Honeywell

Honeywell Building Solutions is one of the world's largest providers of technical solutions and service to thousands of organisations across the globe, including airports worldwide. Our comprehensive range of integrated building solutions, encompassing the design, installation, commissioning and service of Fire & Security, Building Management, Energy and Networks systems, keeps these facilities – and the people within them – safe, secure and comfortable.

Honeywell Building Solutions

Honeywell House
Arlington Business Park
Bracknell
Berkshire RG12 1EB UK
Tel: +44 (0)870 600 1659
www.honeywellairports.com