

case study



Glasgow Airport

At Glasgow Airport, false fire alarms were once an all too frequent occurrence. Unnecessary evacuation of the terminal was causing major inconvenience to passengers and costing the airport dearly. Moreover, the fire detection and alarm system was in need of almost daily maintenance.

All this changed completely with the installation of a state-of-the-art Gent by Honeywell system. Rogue alarms were immediately cut by some 70%, one effect of which was to reduce loss of revenue by an estimated £8million/year.*

Honeywell

Fire Detection and Alarm System

The success of Glasgow Airport's fire system is partly attributable to close collaboration between Honeywell Building Solutions (HBS) and BAA. This enabled a proper understanding of the customer's needs and the difficulties they were facing.

Most of Glasgow Airport's Gent by Honeywell fire detection and alarm system came into operation in May 1998. Brought in under budget and ahead of schedule, its phased installation took just six weeks to complete. Back then the system incorporated seven, 8-loop analogue addressable fire panels plus 1,650 manual call points and detectors, most of the latter being combined optical/heat sensors. The loop wiring from the previous system was retained, as were its bell circuits. Central monitoring was provided by three Gent Supervisors linked to a secure network, which utilised existing fibre-optic cable.

Since 1998 a further three panels have been added, extending the system to the terminal's East Pier, administration building and car parks. To comply with BAA's latest standards, the number of detectors has also been increased – to around 1,600. In addition, aspirated smoke detection has been provided in the Baggage Hall. Replacement of some of the loop wiring is among other upgrade work carried out.

The huge reduction in false alarms has much to do with the fact that the HBS solution is a true analogue system. Consequently, it is a lot better at distinguishing between a genuine fire and

a spurious alarm, caused for instance by dust in a detector. To further reduce false alarms, heat detectors have been fitted in areas where the presence of steam might trigger an optical (smoke) sensor. Where areas such as these are only open during the day, combined sensors have been retained but the optical part is automatically disabled during operational periods.

The unreliability of the old fire system extended to its central monitoring facilities. As well as being prone to breakdown, these were also obsolete, which made maintenance more difficult. Moreover, when a failure occurred all four of the connected monitoring stations were lost.

There are no such reliability problems with the three Gent graphics-based Supervisors – and they operate autonomously. Thus, in the unlikely event that one should go down the others are not affected. The Supervisors are located at the main entrance, the airport fire

station and the engineering Help Desk. Using the utility program 'pcAnywhere', which allows remote control of the PCs on which the Gent Supervisors run, access to the system is also available from the control room.

Under a support contract with the airport, HBS performs quarterly inspections of the system and annual testing of devices, including an audibility check. Training has been provided for on-site engineers and key operators, much of it conducted onsite.

The success of Glasgow Airport's fire system is partly attributable to close collaboration between HBS and BAA. This enabled a proper understanding of the customer's needs and the difficulties they were facing. Telling evidence of the system's effectiveness at cutting false alarms first came when the airport's fire officer was moved to enquire: "Are you sure it's switched on?" – a question he was to ask more than once.



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London Heathrow Terminal 5

Honeywell Building Solutions (HBS) now ranks as the UK's leading supplier of airport fire detection and alarm systems. At Heathrow, the company has managed to achieve cost savings of 20% for its client BAA, with whom it has had a Tier 1 framework agreement since 1996. For Heathrow Terminal 5, which is due to open in 2008, it is to supply what will be the largest fire detection, voice alarm and

public address system ever to be installed in the UK. The system's use of innovative technology, some of which HBS is developing specially for the project, will have significant cost benefits.

Honeywell

Fire and BMS Solution

Becoming and remaining a BAA framework partner is no mean achievement. In attaining this status, HBS underwent a comprehensive evaluation with all its systems and processes being closely scrutinized. Every year it is subject to a rigorous 'MOT', which it must pass if the partnership agreement is to continue. All aspects of the business are examined, including quality, people, the supply chain, performance improvement, finance, R&D and business development. Under the current agreement, the two parties have quarterly meetings – as well as participating in other joint activities relating to specific projects, such as risk management workshops.

The framework agreement covers all 7 BAA plc Airports. Gent by Honeywell's analogue addressable fire detection and alarm systems have been retrofitted into Heathrow, Glasgow and Edinburgh Airports.

A key objective has been to limit whole-life costs and the savings made extend from procurement, design and installation through to operation and maintenance. At Terminal 1, £500,000 was saved simply by employing soft sheath cable, this being much easier to install and terminate than the copper-covered MICC alternative historically used by BAA. In Terminal 3, the marked fall off in false / unwanted alarms after the Gent system took over, was initially estimated to be worth £1million a year in disruption cost savings.

A 'smart' approach to installation has been another means of cutting costs. For example, instead of doing work only at night, HBS has carefully scheduled its programmes to enable daytime working in areas that are not in continuous use. On-going system costs are controlled in a whole variety of different ways, including preventative maintenance and remote monitoring/diagnosis. The existence of a single commercial team for all BAA's framework partners has produced yet further economies, in that it has prevented duplication of roles. Some savings have been impossible to quantify, such as those that have resulted from minimal staff turnover.

HBS will spend a predicted £1.5million on developing Heathrow Terminal 5's integrated fire detection, voice alarm and PA system, which will incorporate a number of innovative and patented technologies. These will include the use of a campus-wide, fibre-optic Gigabit network and a fully digital audio system, with as many as 100,000 digitally addressable and fully monitored loudspeakers.

The Gent panels will support TCP/IP for data transportation (running over Ethernet), as will the terminal's Trend building management system. This will facilitate the development of a common operator interface, which may also give access to other systems within T5. The TCP/IP/Ethernet network will provide the

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medium via which the two systems can communicate (to allow both to control fans and fire dampers). It will therefore be unnecessary to run countless hardwired links between them, which will reduce the potential for error and make for faster installation and commissioning.

As part of the company's policy of continuous improvement, HBS is constantly looking for new ways of improving on the already impressive level of savings enjoyed by BAA.



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In for the long haul

With Dubai International Airport enjoying rapid expansion, Dubai Civil Aviation wanted an intelligent security solution that would keep staff, visitors and property safe and secure and integrate with existing third party systems without disruption to business as usual.

Honeywell

Security Management at Dubai International Airport

THE CUSTOMER

Dubai International Airport, the first airport to be built in the United Arab Emirates, has witnessed phenomenal development. It has two terminals and accommodates 100 airlines that connect to over 140 destinations. In order to meet increasing demand, a second stage expansion (2002-2006) includes development of a third terminal for the exclusive use of Emirates Airlines, a mega cargo terminal, flower centre and apron area.

THE CHALLENGE

The customer, Dubai Civil Aviation (DCA), wanted a sophisticated security system that could integrate with third party systems. It wanted the installation to be carried out with minimum disruption to business-as-usual.

"Airports are mini-cities – a hub of activity bringing together passengers, baggage, aircraft, cargo and the public in a dynamic and fast-moving environment. This poses unique issues for ensuring the safety of all those who enter the facility," explains Omar Jassim Bin Adai, Senior General Manager, Engineering Services Directorate.

"We wanted a security solution that had proved itself in a challenging scenario and one that could easily integrate with the other systems. Honeywell technology fulfilled this requirement and, with a local team to hand, we had the advantage of readily-available expertise."

THE SOLUTION

Honeywell Middle East installed an intelligent security solution made up of access control (biometric and proximity

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card readers), alarm monitoring, and CCTV surveillance.

The different functions are linked together via a common platform – Honeywell Enterprise Buildings Integrator™ (EBI).

This also provides a third party interface to the Airport Pass Management and fire alarm systems.

The EBI database currently manages some 50,000 active cardholders, 20 different access levels and some 7,500 status/control points. 400 doors are monitored and controlled across the terminal buildings. 810 CCTV cameras are working 24/7 and, with the majority integrated to Honeywell Digital Video Manager™, prompt alarm-based event recording. They replace traditional VCRs with high-definition recordings that will stand up in court. The EBI also interfaces with the Oracle Time and Labour (time and attendance) software for payroll applications.

To cater for the growing demands of the Airport, Honeywell provided a fully redundant EBI Security Management system on Distributed Server Architecture. 24 EBI stations communicate with the Central over the LAN. The EBI also integrates with the existing fire alarm system. While this is considered standalone for listing purposes, alarms have been mapped over to the EBI to facilitate real-time viewing of all the emergency exits monitored by EBI both under normal circumstances and in the event of an emergency.

Open architecture allows the Honeywell EBI to work in tandem with third party technologies. Using a CHOM (Cardholder Object Management) interface, it integrates with the Airport Pass Management System (APMS). It means that card/access details can be sent to the Police for verification.

They run a check against their criminal records and relay the information to designated Airport personnel who, in turn, print identity cards from the photo ID system for those people given security clearance.

The local Honeywell team in Dubai was actively involved in this project from the outset – right from initial design, to project management, installation, commissioning and final training of DCA operators.

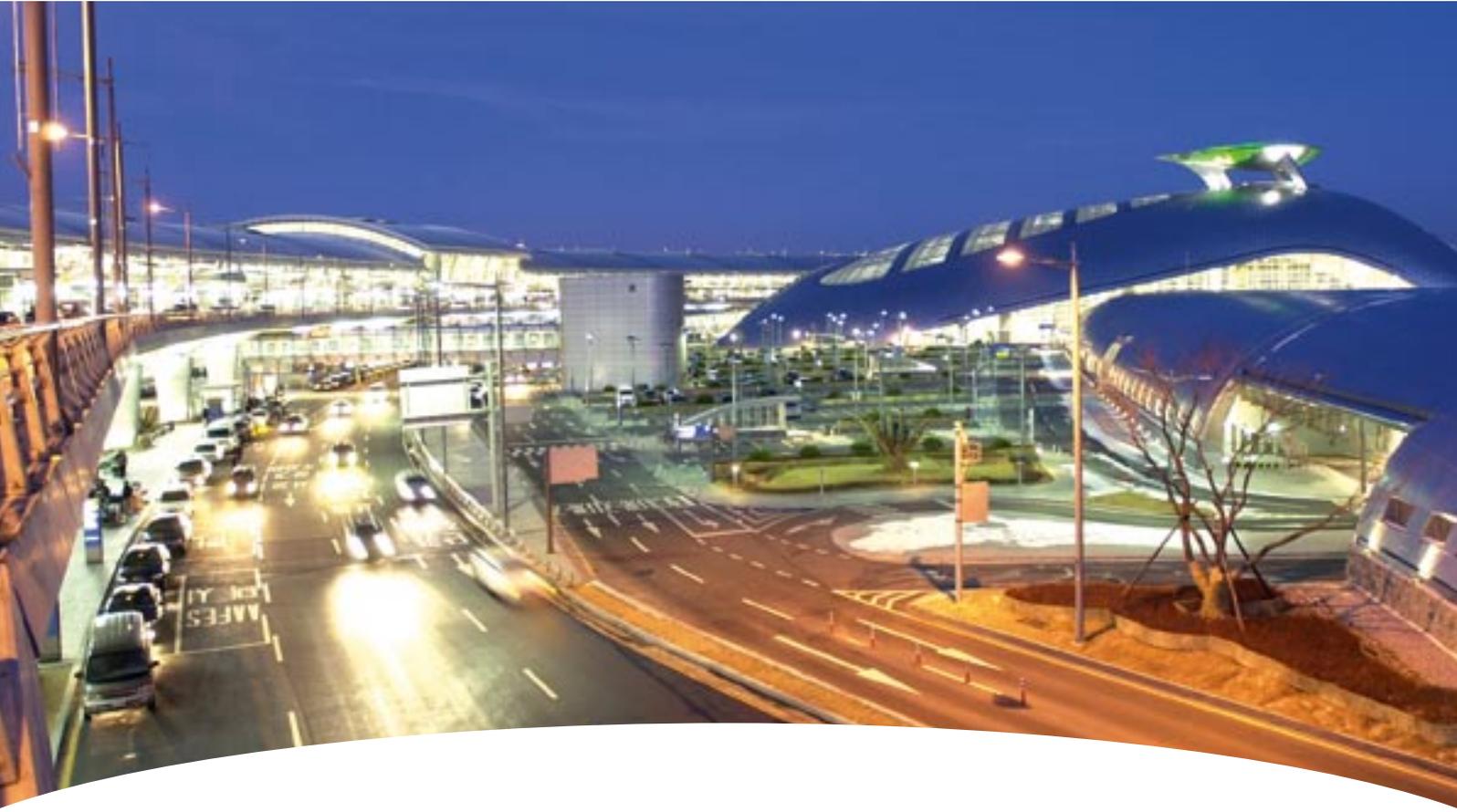
KEY BENEFITS

Dubai International Airport is safe and secure; its visitors, staff and assets are protected round-the-clock. With an intelligent security solution, the customer can monitor, view and control the entire Airport security net from one common platform. Nothing happens without the operators' knowledge. All alarms and events are monitored, acknowledged and acted upon regardless of where they occur. The risk of false alarms – and with this the need for expensive evacuation – has been slashed. Live video links to all alarms give a clear visual indication of the area under threat and enable the appropriate security action. And, with the digital video recording system providing video backup from all cameras for 30 days, the customer can retrieve any clips from any camera based on time, date and location. The integrated photo ID system provides a further safety net ensuring that only authorised personnel can issue cards from the APMS. Everyone working at the Airport is (Police) security cleared.

As well as improving security, the installation of open systems protects the customer investment long term and ensures that Airport running costs are reduced over time.

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Incheon International Airport Phase I

Incheon International Airport (IIA) opened its doors to the world on March 29, 2001. Located 52km west of the South Korean capital of Seoul and just 15km from Incheon Port, the Winged City (or IIA) is a state-of-the-art airport built on 5,610 hectares of reclaimed land located between the two islands of Yeongjong-do and Yongyu-do.

Honeywell

The Winged City – Incheon International Airport

IIA, the Winged City, serves as a hub for international travel in Northeast Asia and provides around-the-clock flight operations to major destinations in the region. Special considerations have been placed on designing an airport that is efficient and cost effective for airline operations, but can also provide a comfortable and convenient experience for airline passengers.

INTEGRATED SOLUTION

An integrated system provides an effective communication platform for all the buildings in the airport, including: Passenger Terminal, Airport Information Telecom Centre, Control Tower, Cargo Terminal, Airport Garrison, Integration Operation Centre, Central Power Plant Buildings and Airport support facilities.

Honeywell designed a system of valves, sensors, actuators, and controllers with over 20,000 points throughout the airport facility. The system is integrated on the EBI R100 platform, an Open Protocol system that can be integrated with the AITC (Airport Information Telecom Centre) and System Extension (Module) for a more streamlined approach in managing data.

The combination provides optimal efficiency for monitoring various airport components including:

HVAC

- Ventilation and air-conditioning control
- Variable air volume system control
- Energy management programming
- Time/event/schedule programming

MAINTENANCE

- Management of maintenance information
- Facilities measurement
- Redundancy support
- Product stock control

OPERATION

- Operator level control / Alarm management
- Database management / Reporting
- Emergency call-outs / Product stock control

IIA Phase I

Location: Incheon, South Korea

Open: March, 2001

Airport Size:

- Site Preparation: 11,724,000 sq. meters
- Passenger Terminal: 496,000 sq. meters
- Runway: 2(3,750*60m)
- Cargo Terminal: 129,000 sq. meters
- Control Tower: 100.4m

Why choose the Automation System from Honeywell Building Solutions?

- Extensive experience managing airport projects
- System Integration Capabilities
- Expertise in Design Support
- A proven track record in improving the air quality of airport facilities
- Brand recognition as a leading technical provider for airport HVAC systems
- High quality of services and products
- Reliable Maintenance and After Service Support
- Professional and timely Project Management
- A flexible approach
- Ability to design built-in system redundancy with cut-over to alternatives if fault occurs

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Sydney Airport goes digital

Sydney Airport sets new standards in cost effectiveness, flexibility and performance. In 2000, a record number of people used the facilities of Sydney Airport's (Kingsford Smith) international terminal, with some 45,000 international passengers processed in a single day during the Olympic period. With so many making use of the nation's premier gateway, this world class facility has been the focus of a

comprehensive upgrade aimed at meeting the traffic needs of Sydney Airport well into the next century.

Honeywell

Networked Integrated CCTV Solution

The upgrade project, Sydney Airport 2000, has transformed the international terminal, enabling it to become one of the world's leading airport facilities. Improving total passenger throughput from 4560 per hour to more than 7000 per hour, ensuring that the terminal will continue to cope with Sydney's popularity as one of the world's most scenic and inviting tourist destinations.

TOTAL SECURITY

Shaped by Honeywell technology, Honeywell Digital Video Manager™ was the first digital video surveillance system to support integration with enterprise systems. Sydney Airport has fully integrated this leading edge CCTV solution with Honeywell Enterprise Buildings Integrator (EBI) which has been installed at the site since 1999 and is used as the integration platform for Sydney Airport's total security, access control and surveillance systems.

This key public site was the first in Australia to implement this locally developed, networked integrated Closed Circuit Television (CCTV) solution. "Honeywell Digital Video Manager enables us to have a complete picture of what is happening on the site, additionally, it is the only system we have seen that offers us true plug and play functionality," explains Russ Lewis, Chief Information Officer, Sydney Airport. "We have been able to utilise our existing CISCO ATM network in such a way to save on the installation and lifecycle costs of the project."

FULLY SCALABLE

The Sydney Airport security system employs in excess of 100 cameras to monitor areas such as check-in counters, carparks and general traffic areas. Camera information is digitized locally then communicated through all parts of the airport using an ATM Network. Digital Video Manager's scalable nature allows for cameras to be added and moved around the location with ease. Security Operators are able to view images and control cameras' PTZ functions from multiple locations, all at a simple point and click of a mouse, enabling them to have a full view of activity taking place within the airport and to take action as and when required.

SAVING VALUABLE TIME

With Honeywell Digital Video Manager, Operators can specify what types of recordings they want to capture and when. Recorded images can include not only the incident, but also what happened immediately before and after. Because the solution enables event activated, user-activated and scheduled recordings, Operators are able to record only the video they need, reducing the collection of redundant and irrelevant images.

Additionally, Operators can specify how many frames per second they wish to capture for each camera and for specific alarm events. "Honeywell DVM eliminates the need for rows of surveillance videos and saves hours of endless searching for the tape required," explains Lewis.

"We are able to specify how long images remain available on the video server, then write to formats such as DAT tapes and CDs for long-term archiving. The storage capacity is vastly improved".

Sydney Airport must be a place where the security of passengers and staff meets world's best practice standards and exceed public expectations. "Meeting and exceeding the high standards of security expected at the Airport is a constant challenge," says Lewis. "We must maintain leading edge technologies that deliver information that is easier to use and faster to obtain, constantly keeping ahead of the security requirements that ensure the physical safety of both humans and property – leveraging new technologies frees up valuable time to concentrate on our core business and ensuring the effectiveness of our security operations."

"Honeywell Digital Video Manager enables us to have a complete picture of what is happening on the site"

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Kuala Lumpur International Airport

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).

Honeywell

Fully Integrated Business Processes

KLIA meets the increasing demands of air travelers with a 'futuristic' technology solution providing a level of integration that makes KLIA the first airport in the world to fully integrate all systems used in the business process of running an airport. Honeywell's Airport solution forms the backbone.

CENTRAL CONTROL

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 – and their operation is fully integrated with the Total Airport Management System (TAMS).

In short, the KLIA solution provides a gateway for business decisions to be 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.

CONTINUOUS OPERATIONS

– MISSION CRITICAL

As the continuous operation of the system is critical to the running of the airport, the solution uses built-in system redundancy, which means that if one server fails, a stand-by 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.

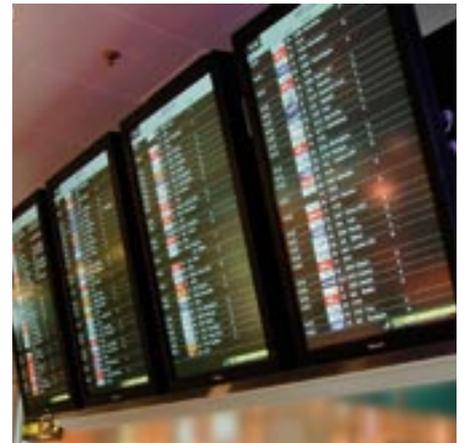
ENERGY CONSERVATION

The Honeywell airport solution will not only contribute towards fast and efficient services for passengers at KLIA, but also ensure an energy efficient indoor environment. For example, based on flight information received from the TAMS, the Honeywell solution automatically sets 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.

"We chose Honeywell because of their experience with large scale, complex Airport projects"

A SKILLS TRANSFER TO MALAYSIA

KLIA also brings new technology, knowledge and skills to Malaysians. Honeywell has committed to provide for the transfer of technology and project skills to Malaysia and Malaysians. In the long term this will help to build up local competence in core technologies, enabling Malaysia to be self-sufficient in implementing complex technology projects and developing new products and services.



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