

The New Guangzhou Airport

Integrated automation solution provides security and reliability



On the tarmac at Guangzhou Airport

The new Guangzhou Baiyun International Airport is nearly five times the size of its predecessor, at a total cost of 19.8 billion yuan (about US\$2.3 billion). It is currently the second busiest airport in mainland China, accommodating 27 million passengers a year. Scheduled to be fully completed in 2010, the airport will ultimately handle 80 million arrivals and departures and one million tons of cargo annually.

The relocation of the Guangzhou airport is a key national project in China. The Guangzhou city government decided to move the airport away from the crowded urban area as rising cargo and passenger volumes increased congestion.

The Challenge

An airport refueling system requires the highest level of safety and stability, with no room for error. To meet the airlines' tight deadlines to refuel planes quickly, the airport needed an exceptionally dependable SCADA

system. CitectSCADA's reputation for reliability was a key factor in its selection to monitor and control the refueling system. The entire system provides a fully redundant network structure. If one server fails, the backup server automatically backfills all the data it collected while the primary server was offline. This keeps both servers in constant synchronicity and saves the operators from having to manually backfill data when the primary server once again becomes operational.

The Solution

The primary automation solution implemented at the new airport includes CitectSCADA, CitectHistorian, a PLC Pro simulation system and a Tightness Control System (TCS). CitectSCADA provides real-time monitoring and control for all aspects of the refueling system: the transfer depot, service depot and the aviation fuel pipeline. The system controls a massive 1,350 variables in real time, monitors privileges and



The Challenge

To provide a highly dependable monitoring, control and reporting system that would ensure the safety and reliability of the refueling system at one of the world's busiest airports.

The Solution

CitectSCADA was selected for its built-in redundancy and security. The CitectSCADA system supervises and controls all the refueling components: the transfer depot, service depot and aviation fuel pipeline. CitectHistorian provides detailed historical trend records for alarms, user logins, device operations and processes.

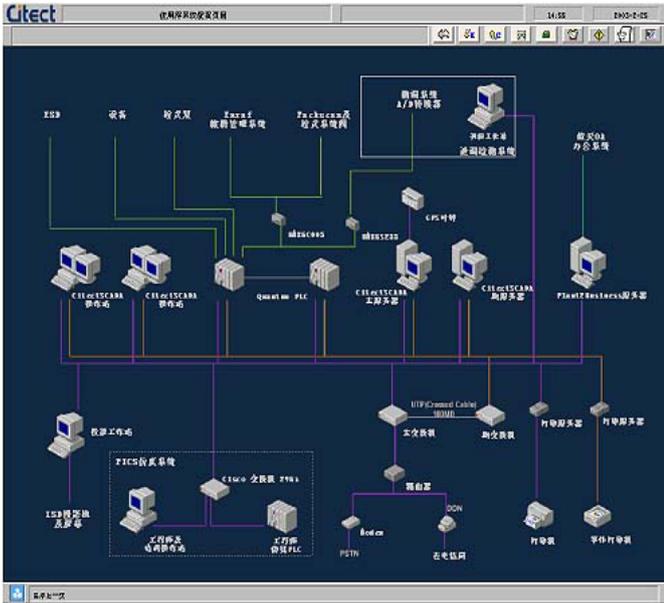
The Benefits

CitectSCADA's built-in redundancy and hot standby features provide the highest level of system stability. CitectSCADA also offers real-time monitoring and control for all aspects of the refueling system to ensure that it is as efficient and reliable as possible.

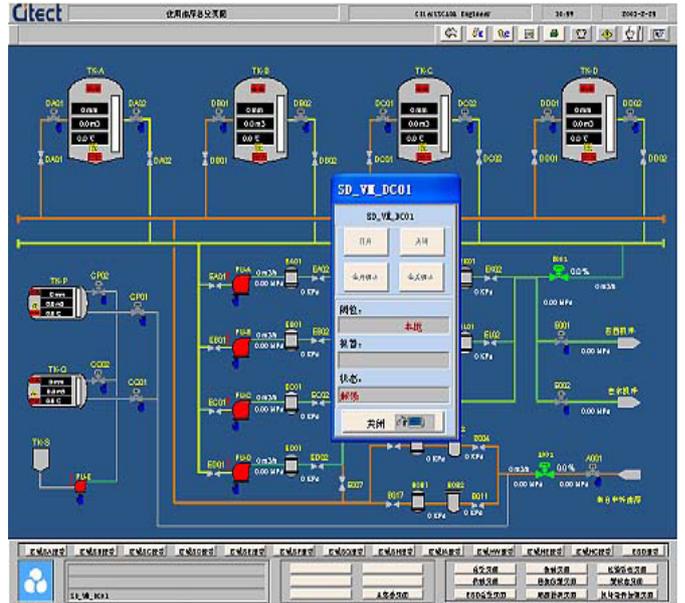
CitectSCADA

CitectHistorian

Case Study



Network diagram of the Service Depot System in the new Guangzhou Airport



Service Depot System Structure of the new Guangzhou Airport

alarm areas for 240 variables and helps define 121 important analog variables.

Detailed historical trend records are provided for alarms, user login, device operation and processing. There are four user login types (visitor, common operator, TCS operator and engineer) to ensure system security.

At the service depot, CitectSCADA provides monitoring and control for, long-pipeline fuel receipt, fuel collection, recovery, recirculation in the depot and hydrant system refueling.

The transfer depot uses CitectSCADA for supervising and controlling fuel receipt from the GPT and jetty fuel collection, recovery, recirculation in the depot and long-pipeline refueling. There are 688 total variables for the transfer depot with privileges and alarms for 140 variables. Important analog variables (49) are defined in real-time historical trend display.

The hydrant TCS uses CitectSCADA with Hansa TCS; the two systems communicate via OPC. On the client side, CitectSCADA is responsible for the configuration and control of the entire TCS system. It also provides hydrant temperature and pressure values to the TCS.

The system as a whole adopts a fully redundant network structure allowing primary and secondary systems to be passed to CitectSCADA I/O servers controlled by CitectSCADA. On a PLC level, a Quantum 534-14A processor was selected, and a redundant structure was applied to guarantee the operational dependability of the whole system.

Report formulation and external data exchange are performed by CitectHistorian. It acquires important industrial data from CitectSCADA and formulates various reports, including historical trend reports. CitectHistorian also communicates with, and transfers data to, the database of the LanTian OA systems.

The Benefits

As the driving force behind the new Guangzhou Airport Refueling System, CitectSCADA and CitectHistorian provide an ideal integrated solution. CitectSCADA is both reliable and secure while CitectHistorian simplifies the reporting process by communicating with multiple systems and providing valuable historic trend reports.



“The CitectSCADA system used in the new Guangzhou Airport Refueling Project is the most successful system I have seen.”

Chris Giles, Air BP

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