



SUCCESS STORY

PROFILE

- Subject : SCADA
- Process : Aeronautical test rigs
- Client : Liebherr-Aerospace Toulouse SAS
- Integrator : Fauché Group
- Date : 2012
- Installed base :
 - Panorama E²
 - Panorama IT
 - 2 redundant servers
 - 14 workstations
 - 21,500 variables
 - Profinet protocol
 - Siemens controllers
 - Emerson pressure sensors
 - JD Mesures temperature sensors
 - Samson valves

Liebherr-Aerospace Toulouse



Aerial view of the ISA building, Liebherr's 12,500 m2 research and test center for embedded air systems

AIMS

Obtain a comprehensive view of all test rigs and the air production unit.

Reproduce on the ground the constraints and the aircraft environment where the systems and equipment are used.

Ensure a 20 year lifespan for the facility.

BENEFITS

A single operator can start and run a fully automated test.

Some tests run 24 hours a day without operator intervention.

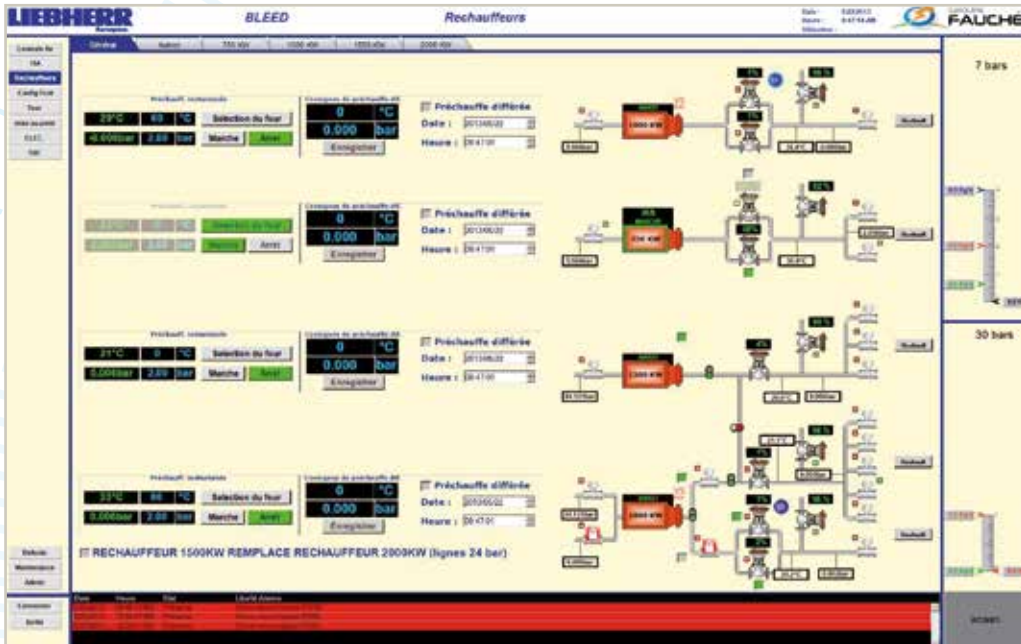
Network management and information is centralized.

Liebherr-Aerospace Toulouse SAS develops, produces, and maintains air management and air conditioning systems for the aeronautics industry. The company's new Air System Integration (ISA) test center features next-generation simulation possibilities. ISA offers exceptional facilities that are unique in Europe : anechoic chamber, altitude chambers, etc. Thanks to the command and control system, ISA operators have a comprehensive view of all the test rigs and the air production unit. In collaboration with Fauché, the industrial electricity specializing in aeronautics, Liebherr-Aerospace Toulouse SAS chose the Panorama E² SCADA software suite from Codra.

The ISA research center

The new center has strengthened Liebherr-Aerospace's R&D activities for air systems. ISA is a test center with next-generation facilities for running full-scale tests on air treatment systems and equipment

for aircraft. In order to run these tests, the facility must be able to generate identical input parameters for all these systems. These parameters mainly relate to providing air pressure sources and temperatures ranging



The command and control system can launch test profiles, test scenarios/recipes, and flight plans.

from 0.1 to 40 bar abs and from -60° to +700°C. The system must produce compressed air and regulate the pressure and temperature in a distribution area which then delivers them to the test rigs as required. This is achieved through pressure and temperature regulation valves, as well as through heater units. The command and control orchestrates this air production and distribution system.

Although air generation is vital for running these tests, it is not the only parameter required. The

system must also provide electrical power sources simulating the various networks on current and future aircraft, as well as means for measuring that ensure the accuracy and quality of the final results.

“Since the audio environment is a critical parameter, we built a facility unique in Europe for analyzing acoustics. It includes an anechoic chamber (dead room) to measure the noise generated by our equipment under real conditions and then work to minimize it in order to improve passen-

Why choose Panorama ?
Panorama E² is a full featured suite requiring no application add-ons

ger comfort,” said Patrick Zaffalon, Manager of the Testing Department at Liebherr-Aerospace Toulouse SAS.

Before ISA, Liebherr-Aerospace used a test center where this regulation was performed by independent systems with no intercommunication; most required manual control by operators. No comprehensive view of the facility was available.

The ISA was inaugurated in September 2011, and the first tests began in March 2012. A single test may last anywhere from one day to over a year, according to the complexity of the system to test and the number of procedures to run.

Objectives

The command and control specifications for the ISA test center included the following requirements :

- run a fully automated test started by a single operator, and be able to run certain endurance tests 24 hours/day without operator supervision,
- centralize network management and information,

- generate test profiles to simulate the behavior of an aircraft environment,
 - centralize information and store data history,
 - manage test configurations,
 - secure the test rigs,
 - ensure a 20 year lifespan for the facility.
- Liebherr-Aerospace Toulouse SAS issued two requests for tender : one for supervising the test rigs and another for supervising the air production unit.

Choosing the Panorama solution

Codra, publisher of the Panorama suite and pioneer in hypervision projects, submitted a single response covering both requests which offered test center operators a command and control system providing a global view of all the equipment.

Liebherr selected industrial electricity specialist Fauché for its aeronautics experience and for the proposal of a turn-key solution encompassing the entire project. Fauché, a Codra partner for over twenty years, suggested the Panorama E² solution.

“At the time we were looking for a reliable, long-term Windows solutions designed for application security,” said Dominique Quincey, Director of Fauché Technologies Toulouse. Fauché and Codra have worked together ever since through a genuine partnership offering customers :

- technical experience,
- modular systems,
- an affordable solution covering all pre-developed requirements.

“What made us stand out from the competition? Panorama E² is a full-featured suite requiring no application additions. The Panorama IT reporting tool included in

the offer is seamlessly integrated in Panorama E² and greatly reduces development time,” said Dominique Portets, Business Line Director at Fauché. A three- or four-person Liebherr team (including a specialist with extensive experience in command and control as well as automatic control) works exclusively on the software integration project. “The automatic control of the ISA test center is an innovative project and a great motivator for our entire team. It has gathered our various departments (technical support, IT, maintenance) around a single project.

KEY FIGURES

- Development time: 18 months
- Budget for CC project: 1.2 m
- Total budget : 30 m
- Total surface area of the ISA building: 12,500 sq. meters
- Electric power capacity: 20 MW
- 4 compressors: 7 bar rel; 24,000 m³/hour
- 4 booster pumps: 40 bar rel; 12,000 m³/hour
- 6 vacuum pumps: 27,000 m³/hour
- 3,500 m of pipes
- 340 valves
- 220 sensors
- 50,000 m of cables

Echo-free chamber for measuring the acoustic environment. Unique in Europe.





Compressed air distribution area used to deliver air to the test rigs as required.

Our users worked together to ensure the smooth integration of command and control in both the overall system architecture and the IT network," said Patrick Zaffalon, who managed the ISA project.

- tests are carried out autonomously,
- modular testing,
- possibilities for extensions.

In the near future, it is planned to reconfigure the production lines for the embedded air systems, and to install a Building Management System for all the Liebherr-Aerospace Toulouse SAS buildings controlled by the General Services. A new logistics building is also under construction.

Customer feedback

Over the past 18 months, 28 test rigs have been installed and commissioned at ISA. All lines are up and running, and Liebherr is fully satisfied with the command and control system :

- compliant with specifications,

LIEBHERR AEROSPACE

Embedded air systems for aeronautics

- Air management
- Air conditioning
- Engine air sampling
- Cabin pressurization
- Ventilation
- Wing anti-icing
- Hydraulic cooling
- Additional cooling
- Airborne nacelle cooling
- Cabin comfort
- Electronics

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