

Guixi Copper Smelting Plant in China Reduces Commissioning Time Using Emerson's PlantWeb® Architecture with FOUNDATION Fieldbus™ Technology



RESULTS

- 50% reduction in commissioning time
- 50% reduction in operation resources required to run the plant
- Substantially lower cable cost for 600 temperature monitoring points
- More accurate diagnoses of valve issues



APPLICATION

The largest copper production base in China is located in Guixi City, Jiangxi Province. The Guixi Smelter is expected to achieve a production capacity of 700,000 tons per annum of copper cathode and sulfuric acid during 2008.

CUSTOMER

Jiangxi Copper Corporation, parent company of Guixi Smelter, is a large integrated enterprise in China's non-ferrous metals industry with operation in copper mining, milling, smelting, and processing. It is the largest copper producer in China and is an important sulfur, gold, and silver producer as well.

CHALLENGE

In order to meet the objective of becoming a world class company in the copper industry with excellent work efficiency, the Guixi Smelting Plant faces the enormous challenge of increasing production throughput while improving plant availability and product quality. Meeting these challenges will require a technologically driven control system that not only controls the process, but is also capable of managing plant assets in order to optimize their reliability and availability.

“We lowered the start-up time and maintenance costs by 50 percent with the PlantWeb automation architecture based on FOUNDATION fieldbus.”

Zhang Weihua
Vice Project Manager
Guixi Smelter

“The best feature of the FOUNDATION fieldbus technology is asset management. The fieldbus devices provide powerful information to enable predictive maintenance and lower maintenance cost by up to 30 per cent.”

Liu Hubin
Deputy Director, Control Workshop
Guixi Smelter

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SOLUTION

Guixi Copper Smelting Plant chose Emerson's PlantWeb digital plant architecture with FOUNDATION fieldbus technology to gain the full benefits of automation, including intelligent field devices. The project included:

- DeltaV™ process automation system
- AMS™ Suite: Intelligent Device Manager software with ValveLink® SNAP-ON advanced diagnostic software for control valves
- Rosemount® pressure and temperature transmitters
- Fisher® control valves with FIELDVUE® Digital Valve Controllers

A record execution time of 9 months from project kick-off to startup of the plant was achieved, despite early concern about the adoption of the FOUNDATION fieldbus technology. However, early exposure to fieldbus and excellent training provided by Emerson enabled Guixi to achieve this construction and start-up record.

Faster installation due to fewer cables & terminations, shorter loop check time, and easier commissioning of devices greatly reduced the time required for these functions. This resulted in a 50 percent saving in commissioning time, which Guixi personnel attributed to the use of the FOUNDATION fieldbus technology. This helped enormously in completing the project on record time.

Fieldbus digital devices provide far more accurate reading than conventional analog devices, and they are very useful in critical process areas where flow and temperature measurements must be as accurate as possible. In addition, the predictive diagnostics have enabled plant operators and maintenance personnel to run the plant very efficiently, resulting in a 50 percent reduction in resources required.



“With diagnostics from the digital valve controllers, commissioning and check time is reduced, process variability decreased, and unscheduled shutdown avoided.”

Liu Zhiqiang
DCS Engineer, Control Workshop
Guixi Smelter

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Printed in Singapore.