

SES(ZaoZhuang) New Gas Decreases Troubleshooting Time on Syn-gas Project Using Emerson's PlantWeb[®] Architecture with FOUNDATION fieldbus[™] Technology



RESULTS

- Reduced device configuration and troubleshooting time
- Improved loop control accuracy
- Achieved true distributed control using PID function in site equipment
- Discovered and removed potential faults promptly using predictive intelligence from field devices
- Reduced commissioning time using AMS[®] Suite: Intelligent Device Manager software



APPLICATION

A new coal gasification facility in Shandong Province, China, uses the proprietary U-GAS[®] technology to produce 20,000 Normal cubic meters of synthetic gas (syn-gas) per hour. This fuel is supplied to the adjacent Hai Hua Coal Company as feedstock for its newly constructed methanol plant, as well as its coke ovens and internal power generation system.

CUSTOMER

SES(ZaoZhuang) New Gas Company Ltd. is solely owned by Synthesis Energy Systems, Inc. (SES), a publicly listed company based in Houston, Texas, U.S.A., which is devoted to developing technologies for converting low quality, low-cost coal into high value synthetic fuel. The plant, which opened in ZaoZhuang City in 2007, is the first one designed to produce syn-gas using the U-GAS process. This technology aims to provide inexpensive, reliable, and environmentally friendly fuels through the gasification of waste coal, and China has vast coal reserves.

“By adopting the PlantWeb architecture with FOUNDATION fieldbus technology, our troubleshooting time has been reduced. Our technicians were able to promptly discover and remove installation faults during the commissioning stage. Early risks have been reduced as a result.”

Yan Yue Ran
Automation Project Manager
SES(ZaoZhuang) New Gas

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CHALLENGE

To achieve efficient and environmentally friendly production, SES(ZaoZhuang) New Gas needed fast, risk-free commissioning to stabilize production as soon as possible after the startup. Recognizing these challenges, SES New Gas engineers established strict requirements for accurate process control as well as optimal loop control and predictive maintenance utilizing intelligent field devices. The plant designers felt the predictive diagnostics of the FOUNDATION fieldbus devices would help reduce commissioning time and guarantee long term stable operation for overall production efficiency.

SOLUTION

SES(ZaoZhuang) New Gas selected Emerson's PlantWeb architecture, including a digital process control system, intelligent field transmitters, and digital valve controllers. This architecture also incorporates the FOUNDATION fieldbus technologies to obtain the greatest benefit from the automation technologies.

The components are:

- DeltaV™ process automation control system
- DeltaV Tune control loop parameter configuring software
- AMS Suite: Intelligence Device Manager software
- Rosemount® transmitters
- Fisher® valves and FIELDVUE® Digital Valve Controllers (DVC6000)

The FOUNDATION fieldbus technology reduces the number cables and terminals required between the field devices and the control room, saving money and reducing installation time for field instrumentation.

The FOUNDATION fieldbus technology encompasses a full digital communication method and seamless integration of field-generated data with the control system. It not only supports accurate process control but contributes to the efficient management of the field equipment. The technical operation and maintenance staff may access the field equipment configuration and diagnostic data from the control system workstation at any time.

The technicians of SES(ZaoZhuang) New Gas use the AMS Device Manager software built into the DeltaV automation system to carry out troubleshooting of suspected equipment malfunctions, reducing



“The greatest advantage of the fieldbus technology is on equipment management. Through DeltaV Inspect, we can discover faults and circuit waves of field instruments directly, which makes the resolution more convenient.”

Bian Jian
Instrument Manager
SES(ZaoZhuang) New Gas

the amount of time for running to and from the field. The AMS Device Manager software also helps to debug instrument parameters and to promptly identify and eliminate potential faults during instrument commissioning. Troubleshooting time has been greatly reduced as compared with conventional trial and error methodology. Fast commissioning and startup is the most direct benefit derived from the FOUNDATION fieldbus technology.

Digital field devices provide more measurement and control accuracy than conventional analog equipment. During commissioning the technicians employed DeltaV Inspect software to analyze the cause of control loop variability and determine the best means of resolution. After eliminating hardware and software problems, technicians utilized DeltaV Tune to set and optimize the PID parameters for all loops to make them more responsive and robust.

SES(ZaoZhuang) New Gas adopted the PlantWeb architecture based on Ff technology to distinctly reduce the costs and risks associated with plant commissioning and to improve measurement accuracy.



“Bus-type instruments offer the most advantage for self-diagnosing. Since the fault may be identified from the control room, the running time to the field is reduced, and repairs can be made promptly.”

**Zhou Zhong Yu
Instrument Vice Manager
SES(ZaoZhuang) New Gas**

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