Honeywell

Honeywell's ControlEdge™ Gives Sinosteel the Flexibility Needed for its Rare Earth Pilot Project

Case Study

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Max Su, Site Manager, Sinosteel

Background

The $56 million heavy rare earth Browns Range Pilot Plant is located approximately 160km south-east of Halls Creek in north-western Australia. The flagship project of mining company Northern Minerals, it is the country's only heavy rare earth project. It is also the first significant producer outside China of dysprosium, an element used in the manufacturing of permanent magnets, electric motors and wind turbines.

The project is being developed by engineering, procurement and construction group Sinosteel in three phases, starting with a three-year 60,000tpa pilot plant producing 49,000kg dysprosium and 590,000kg total rare earth oxide (TREO) a year. This will be developed into a feasibility study in the second phase, focusing on minimizing mining costs, improving productivity and increasing the ore reserves. The final phase will bring the project to full-scale production based on the outcomes of the first two stages.

Honeywell was chosen to provide the control system, using its ControlEdge™ PLC and ControlEdge™ RTU hardware, as well as the control strategy configuration, HMI design and commissioning support for the project.

Challenge

As a pilot plant in the opening phase of the development, the project required a high degree of flexibility, accommodating significant changes to design as it progressed and even after commissioning. The plant also included devices from a wide range of vendors.

Honeywell needed to accommodate the changes required and provide a system that would support a variety of communication protocols and integrate smoothly with other systems on site. It also needed to complete the project on a tight schedule or risk delaying subsequent phases of development.

A key project imperative: control system flexibility, seamless integration and faster engineering.

Solution

Honeywell's solution included its ControlEdge PLC, a next generation of IIoT-ready controller, for the central control room.

Providing simple configuration, efficient operations, and reduced maintenance, ControlEdge PLC supports the OPC UA protocol and includes built-in cyber security for smooth integration of a range of instruments, equipment, and software. It supports all common programming languages required by IEC 61131-3, including Ladder Diagram, Function Block Diagram, Structured Text, Instruction List

About ControlEdge

ControlEdge™ is a next generation family of controllers that provide secure connectivity through all levels of the process and business functions, optimize operations, and improve maintenance efficiency. Additionally, ControlEdge provides inherent integration with Experion® systems for unified solutions meeting diverse automation needs.

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and Sequential Function Chart, and features Honeywell's Universal I/O technology.

For local panels, meanwhile, Honeywell used its ControlEdge RTU low-cost, easy-to-commission remote terminal unit cabinet.

Benefits

Enabling engineers to use multiple languages in the same worksheet, the ControlEdge PLC eased integration with devices and systems across the plant.

Universal I/O reduced the marshaling required and enabled faster configuration and easy accommodation of late stage design changes. Each channel could be quickly, remotely configured per requirements – analogue or digital, input or output – without additional hardware.

The RTU provided modular automation with standardized, out-of-the-box essentials to further accelerate schedules and cut commissioning time. It also supports wide-ranging operating temperatures, essential given the environmental conditions at the site.

Because the PLC and RTU share the same configuration software and the same function blocks (not only IEC 61131-3 standard function

blocks but also the function blocks inherited from the Honeywell Experion® system), training required for users was minimal.

With just two months for hardware and software implementation and completion of the factory acceptance test, and three months for site commissioning, Honeywell completed the project on schedule in September 2018. In October, the plant produced its first rare earth carbonate.

Max Su, Sinosteel site manager, said: "This is an important project providing a new global source for this product. The flexibility and simplicity of the control solution was key to ensuring we met the requirements of the project, which could change by the day."

For More Information

Learn more about Honeywell's solutions - visit www.honeywellprocess.com or contact your Honeywell Account Manager, Distributor or System Integrator.

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SS-19-2-ENG
May 2019

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