

Protecting Safety, Protecting Investments: An SIS Migration

Case Study

Honeywell completed an FSC to Safety Manager Controller migration program at the KOGAS Tongyeong LNG re-gasification plant in Korea. Minimizing downtime, Honeywell delivered a solution that extends the life of the safety system while enhancing reliability and efficiency.

Background

KOGAS in South Korea is the largest LNG importer in the world. Its Tongyeong regasification plant on Korea's southern coast is one of four it operates that enable it to meet growing energy demands through its 4,440 km pipeline network.

A state-owned enterprise, KOGAS is Korea's sole LNG provider and supplies power generation plants, gas-utility companies and city gas companies throughout the country. Safety and minimizing downtime are critical concerns.

In 2015, Honeywell oversaw the first stage of a four-year project to upgrade the control system of Train 1 at the plant, replacing the original Honeywell TotalPlant Solution (TPS) system with its powerful [Experion® Process Knowledge System \(PKS\)](#) platform. This also saw new Ethernet communication established between the Experion PKS DCS and the existing safety system, based on Honeywell's [Fail Safe Controller \(FSC\)](#). This had been operating at the plant since it was commissioned in 2001.

Challenge

The second stage of the upgrade project addressed the safety system. Upgrading its aging architecture would enable KOGAS to significantly enhance safety and reliability at the plant:

- The plant needed a reliable, robust communication link between the Safety and Process Control systems to ensure increased performance and operational integration resulting in improved alarm management and ease of maintenance.
- The operator wanted to enable a remote reset
- KOGAS wanted to integrate the 485 serial link for the engineer station into the Ethernet network, to make monitoring available
- The operator also wanted to implement continuous diagnostic monitoring.

The project encompassed the seven substations in Train 1. Each was equipped with two FSC systems, one for emergency shutdown, and the other for DPS.

Honeywell's Safety Manager System preserved KOGAS' existing intellectual investments while reducing downtime.



About Honeywell's Advanced Safety System

Safety Manager is the safety solution of the Experion Process Knowledge System (PKS). Integrating process safety data, applications, system diagnostics and critical control strategies, it executes SIL-defined safety applications in a fully redundant architecture.

Minimizing incidents and maximizing production uptime, Safety Manager reduces the costs and increases the effectiveness of compliance and plant safety.

The project would migrate FSC to Honeywell's latest [Safety Manager](#) solution: the first FSC to Safety Manager migration project Honeywell had attempted. It had to be completed within a tight timeframe, fitting in with the scheduled shutdown period to minimize disruption to the plant.

Solution

The migration was executed in phases. Careful planning and execution was essential to prevent production interruption. The Honeywell project manager and lead engineers worked closely with the KOGAS team.

A site survey and report in November 2015 was followed by a test system completed by March the following year. The three months from April to June were then spent converting applications, updating drawings and preparing documentation for the new system.

Finally, between July and September, the new system was implemented, with each substation updated one by one.

Benefits

Safety Manager is now installed on Train 1, fully integrated with Experion PKS R410. The site also has [Experion Backup & Restore](#) (EBR), along with [Application Whitelist](#) for enhanced cyber security. Honeywell's Alarm Management Server helps maintain accurate process operations.

Completed to a very tight deadline, the new Safety Manager system has significantly enhanced safety and reliability at Tongyeong while minimizing the costs, engineering work and risks.

The project protected KOGAS's existing investments in the plant, while giving it access to the latest technology and removing risks associated with obsolescence. KOGAS now has the assurance of a fully supported, modern system.

Providing reliable operation to maximize uptime, Safety Manager fully integrates with the Experion PKS DCS. Engineers can also easily access view-only process information from laptops and desktops. Overall, the system has improved reliability, increased the safety level and reduced maintenance across the plant.

With the success of the migration, the plant is now planning the final phase of the upgrade project at Tongyeong: replacing the existing C200 controllers with Honeywell's [C300](#) best-in-class controllers.

For More Information

Learn more about how Honeywell Safety Manager can preserve investments and increase reliability, visit honeywellprocess.com or contact your Honeywell Account Manager, Distributor or System Integrator.

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