



POSCO deploys Motorola TETRA for seamless communication

Korea's POSCO sets to implement an all digital radio system to replace its aging analog network



POSCO (Pohang Iron and Steel Company) is one of the largest steel manufacturers in Korea. With over 33 million tons of steel being produced through its plants and factories, POSCO was the first company in Korea to establish a private network using Motorola's analog trunked radio systems in 1995.

Not resting on its laurels, in 2008, POSCO pushed out a migration plan to replace its analog system with Motorola's latest digital TETRA (TErrestrial Trunked RAdio), which is another first among domestic private enterprises in Korea.

"The analog trunked radio system we introduced in 1995 was still better than the conventional two-way radios in terms of frequency and coverage, but the new TDMA-based digital TETRA system has a frequency efficiency that is four times much better than the current one. As the system was over 10 years old, we decided it was time to upgrade the aging analog Trunked Radio Systems (TRS) to a digital platform based on Motorola's TETRA Solution," explained Cho Heung-Chul, supervisor of the production technology department in the Gwang Yang steel plant.

The Challenge

With over 16,000 employees in the two steel plants of PoHang and GwangYang, maintaining failsafe communication within the production facilities was the main priority. The new digital network and radio units have to be able to operate in a high-temperature, high-pressure, high-noise environment.

In addition, the machinery and equipment were controlled solely from the central communications system. Any disruption in the communication flow could result in a serious disruption of process flow and financial loss. Further, the rail control, which houses the core application of the steel manufacturing process had to be digitized as well to improve ground operations.

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Department
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Cho Heung-Chul
Supervisor, Production technology Department
POSCO GwangYang



The Solution

POSCO began deploying a Motorola Scalable IP solution, couple with hundred units of Motorola TETRA subscribers and mobile radios for control and communications management. Portable MTP850 units and explosion-proof MTP850EX handsets were also put into use, together with enhanced MTM800 terminals which were installed in plant’s machinery vehicles.

The result was a 24-hour seamless private wireless communication network which ensured safe and reliable worksite operability. The smaller and lighter TETRA units also added functionality such as vibration and audio accessories to safeguard the employees’ work performance in the noisy environments of the steel plants.

Although a private network required a high initial cost, the public network’s weakness for problems played a decisive factor. The previous public network was more vulnerable to failure caused, for example, by natural disasters. For POSCO, a private network was much more advantageous because of the company’s need to ensure wireless security.

One of the critical upgrades was on the rail control system, which controls the transfer of the melting steel from the furnace to the appropriate

production line. Any slight delay would reduce the temperature of the steel and would result in potential disruption of the production work process. Hence, the rail control system is the most important application in the steel manufacturer’s production line. The new TETRA-based rail control system relies on fully redundant data communication between the TETRA terminals.

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He added that POSCO employees now benefit from wired interfacing with equipment through features such as electronic private branch exchange, text messaging, and private/group calls.

“POSCO’s current TETRA private network system is huge. However, when production lines expand in the near future, more equipment will be installed, which would lead to further expansion of our TETRA network,” Cho concluded.



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