

Sasol Technology R&D Saves Energy and Improves Productivity with Emerson’s Smart Wireless Acoustic Solutions

RESULTS

- Payback period of 3 months
- Saved over \$42,000 annually in steam costs
- Saved \$11,390 in installation costs
- Annual maintenance savings of \$15,627
- Reduced downtime



APPLICATION

Steam trap monitoring on a range of high-value product streams, including liquid fuels, chemicals and low-carbon electricity

CUSTOMER



Sasol Technology, Research and Development in Sasolburg, South Africa. Sasol is a South African Petrochemical company producing different petrochemical products. R&D is responsible to do research with the focus on developing new processes, new plants utilizing different types and sizes of pilot plants and products.

CHALLENGE

Sasol Technology in Sasolburg, South Africa has a dedicated research and development team of more than 600 people, with over 200 people holding PhD's or Masters in Engineering and Science. In this semi-commercial pilot plant environment that develops innovative solutions for chemical, refining, gas, petrochemical and other technologies, reducing energy costs is an important goal.

One focus of the Instrumentation and Control group was to minimize energy losses from the large number of steam traps. More specifically, the group investigated methods to minimize steam loss when traps failed, as steam is a high cost utility and undetected trap failure was a significant cost. “With the current system we have a maintenance team that do weekly manual inspections on a certain number of steam traps, as determined by a specific inspection schedule,” said Dr. André Joubert, Control Systems and Instrumentation Manager. “The purpose of the inspection was to ensure the traps are fully functional. By following this manual process, it can take up to 3 to 4 weeks before a faulty steam trap can be detected.”

“The Emerson wireless acoustic devices were very easy to install and provide valuable insight into steam traps which were cumbersome to monitor manually. Significant energy savings have been achieved with the added benefit of reduced downtime and maintenance savings.”

*Dr. André Joubert
Control Systems and Instrumentation Manager*



Rosemount 708 Wireless Acoustic Transmitters provide non-intrusive, continuous on-line steam trap monitoring.

SOLUTION

The Research and Development team's control systems group looked at smart wireless acoustic transmitters to assist the mechanical group to do more effective maintenance on the failing steam traps. With knowledge and documentation obtained from Emerson's Global Users Conference in the USA and Germany, Sasol partnered with Emerson to trial twenty (20) acoustic transmitters to monitor critical traps.

The transmitters and software were easily configured and setup. Fourteen transmitters were installed on critical steam traps throughout the semi-commercial plant and six on critical traps in the steam utilities area.

The wireless transmitters with acoustic sensing technology successfully detected failing steam traps. "With on-line acoustic monitoring, the facility now has early warning when steam traps fail," said Joubert, referencing the 20 traps with the new wireless acoustic transmitters. "The Mechanical Department gets on-line alerts and can respond more quickly, reducing steam loss through the failed traps. We computed the lost steam costs was in the region of \$42,195.00 per annum at the current exchange rate of R9.12 if we look at an average of 20 steam traps that failed for an average period of 3 weeks."

Inspections (on those traps) are now reduced to a few manual inspections per year, saving \$15,627 in maintenance costs. Process downtime, which could result from some critical steam trap failures, was also reduced. "Overall, the smart acoustic transmitters paid for themselves in under 3 months," he concluded.

Sasol plans to scale up the use of on-line wireless acoustic monitoring to production facilities all over the world.



Rosemount 708 Wireless Acoustic Transmitter.

RESOURCES

Emerson Process Management Chemical Industry

<http://www2.emersonprocess.com/en-US/plantweb/customerproven/Pages/Chemical.aspx>

Rosemount 708 Wireless Acoustic Transmitter & Steam Trap Monitor

<http://www2.emersonprocess.com/en-US/brands/rosemount/Wireless/708-Acoustic/Pages/index.aspx>

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