

Smart Wireless Minimizes Capital Costs for Online Monitoring of Plant and Instrument Air

BENEFITS

- 73% savings in CAPEX costs
- Reduced plant downtime with live trending of compressor data
- Save over \$50,000 per year in operations costs

CHALLENGE

This refinery installed two new compressors to maintain the reliability of plant and instrument air. Unfortunately, the buildings that house the compressors and control room are very old. The only way to wire was to pull cable under the road between the buildings. Access above ground was unavailable due to the dense infrastructure of equipment. "We only have nine measurements, but wiring was a logistical nightmare", said the Systems engineer in charge of the project. "A wired option would have cost over \$135,000. It just was not an option."

The refinery needed a cost-effective solution to continuously monitor pressure, temperature, and flow of compressed air going to both the plant air system and the instrument air supply system. Online measurement would ensure timely intervention if air flow was interrupted, and also would provide information necessary to monitor the efficiency of the compressors.

SOLUTION

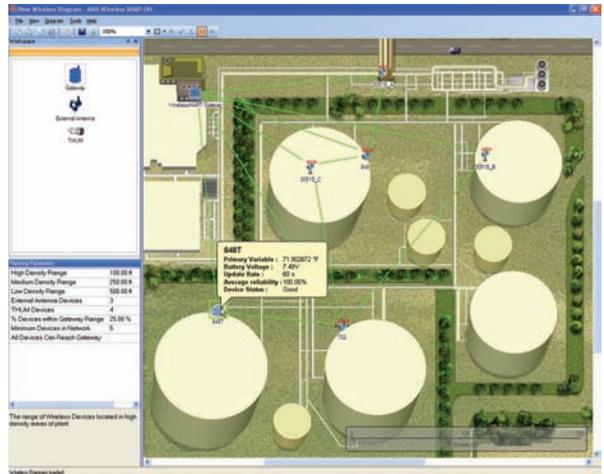
This customer purchased nine Smart Wireless instruments. The wireless instruments included Rosemount pressure and temperature transmitters, and DP flowmeters to monitor the new compressors. Due to the dense infrastructure of both buildings, a remote antenna for the Smart Wireless Gateway was placed on top of the building that housed the control room to optimize reliability of communications. Emerson's Wireless Field Network was integrated into the legacy host via Modbus™ over Ethernet protocol.

Now operators can continuously monitor the health of the compressors from a remote location, and will automatically get an alarm if the efficiency of the compressors begins to decrease, or if there is a loss of pressure or flow.



"We only have nine measurements, but wiring was a logistical nightmare. A wired option would have cost over \$135,000. It just was not an option."

Systems Engineer
Major North American Refinery



AMS Wireless SNAP-ON application.

Loss of compressed air can have a significant impact on the plant, and early detection will prevent process downtime and compressor failure. Not only does wireless provide early warning, but it provides a historical trend of pressure, temperature, and flow.

Instead of three manual readings per day, each Smart Wireless instrument updates the control host every minute for a historical trend of nearly 15600 points per day. That means operators can spend their time doing more productive tasks instead of traveling to the compressors every shift. Also, the high resolution of data makes troubleshooting compressor problems much easier.

This customer received the AMS® Wireless Configurator and purchased the AMS Wireless SNAP-ON™ to enhance monitoring of the wireless network. The AMS Suite predictive maintenance application provides real-time access to wireless data from any engineering console. This gives system engineers full access to the Smart Wireless instrument data, and also shows them the communication paths of each instrument. “The AMS Wireless SNAP-ON allows us to monitor and verify path stability of each instrument through the entire mesh network,” said the Project Engineer. “In Fact, when an obstruction interrupted the network I watched live as the mesh network groomed itself and automatically reorganized, without interruption to any of the nine instrument signals.”

RESULTS

The wireless solution represented a 73% savings over the wired option, and enabled live trending of compressor data, which decreased plant downtime. Since the wired solution was cost prohibitive, the only alternative was manual readings once a shift. If operator time is valued at \$50/hour, the plant saved over \$50,000 per year in labor costs. This does not include the value of live trending and alarming to prevent process downtime. Overall, the Smart Wireless network has improved reliability of the plant and instrument air supply, and enabled operator and systems engineers to work more productively.

“The AMS Wireless SNAP-ON allows us to monitor and verify path stability of each instrument through the entire mesh network. In fact, when an obstruction interrupted the network, I watched live as the mesh network groomed itself and automatically reorganized without interruption to any of the nine instrument signals.”

Systems Engineer
Major North American Refinery

©2010 Emerson Process Management. All rights reserved.

The Emerson logo is a trademark and service mark of Emerson Electric Co. AMS and SNAP-ON are marks of one of the Emerson Process Management family of companies. All other marks are property of their respective owners.

The contents of this publication are presented for information purposes only, and while effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or service described wherein or their use or applicability. All sales are governed by our terms and conditions, which are available on request. We reserve the right to modify or improve the designs or specifications of our products at any time without notice.

Emerson Process Management
12301 Research Blvd.
Research Park Plaza, Building III
Austin, TX 78759
USA
www.EmersonProcess.com