

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

RESULTS

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



APPLICATION

Wireless air compressor monitoring

CUSTOMER

A major refinery in North America

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.

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Systems Engineer
Major North American Refinery



AMS Wireless SNAP-ON Application

ROSEMOUNT

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EMERSON
Process Management

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 1500 points per day. That means operators can spend their time doing more productive tasks instead of travelling 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.”

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/hr., 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 operators and systems engineers to work more productively.

RESOURCES

Emerson's Smart Wireless

<http://www.EmersonSmartWireless.com>

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