

Chemical Company Eliminates Unnecessary Maintenance Costs with Electronic Remote Sensors

RESULTS

- Increased efficiency of maintenance routines
- Eliminated risk of damage to capital equipment
- Reduced risks of process shutdowns



APPLICATION

Glycerin Refinery Column

CUSTOMER

A large chemical company in USA

CHALLENGE

Determining the health of the packing in a 27 ft. (8,3 m) Glycerin refining tower was imperative for a chemical plant facility. However, monitoring the health was proving to be a challenge as maintenance engineers were unsure when to schedule outages for routine cleaning or to change out the column packing.

Unreliable process measurement was the main cause of the scheduling difficulties. Engineers had been using a differential pressure (DP) transmitter across the packing to monitor its health. Because the physical distance required to make the measurement exceeded 25 ft. (8 m), extensive impulse piping was required to facilitate the installation of the transmitter. However, this installation practice was suboptimal for the application. Condensation would occur in the low side reference leg which would cause the DP transmitter to shift. Heat tracing was installed to try and keep the reference leg dry, but this only created additional maintenance costs and complications. Finally, ambient temperature variations from night to day and from season to season were causing the pressure measurement to fluctuate.

The lack of a good process measurement on the Glycerin column would result in erroneous packing status, causing maintenance engineers to schedule more maintenance outages than were necessary. Whenever the DP measurement would increase, this signaled that there was potential plugging or fouling of the packing. Engineers would then schedule maintenance on the tower, only to realize it was a false indication. Yet, engineers were hesitant to ignore the reading, as they did not want to risk having the packing quality cause a process shutdown with potential damage to the column.



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SOLUTION

Instrumentation engineers replaced the DP transmitter, impulse piping, and heat tracing with a 3051S Electronic Remote Sensor system. The 3051S ERS system consisted of two pressure sensors linked together digitally. Differential Pressure was computed in one of the two sensors and sent back to the control system via a 2-wire 4-20 mA HART signal.

Because the impulse piping was completely eliminated and replaced with the digital 3051S ERS architecture, virtually all of the problems with the previous installation were eliminated. Facility engineers no longer needed to worry about condensation build up or issues with heat tracing.

Additionally, the 3051S ERS system provided a much more stable reading regardless of ambient temperature. As a result, maintenance engineers had much better insight into the health of the packing on the tower. They were able to reduce the number of maintenance routines and only clean the packing when it was truly fouled. Additionally, the risk of unplanned shutdowns and capital damage to the tower has been virtually eliminated. As a project engineer at this chemical company, stated, "The 3051S ERS unit has been installed for well over a year and we have not had any unplanned shutdowns. We never hear any complaints from our maintenance group or our operations group anymore. As far as I am concerned, no news is good news."

RESOURCES**Emerson Process Management - Chemical Industry**

<http://www.emersonprocess.com/solutions/chemical/>

Rosemount 3051S Series

<http://www.emersonprocess.com/rosemount/products/pressure/m3051s.html>

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