Wireless Temperature Measurement of a Rotating Kiln

Over a period of many years, the customer had tried a number of products in an attempt to monitor the temperature inside their rotating lime tunnel kilns. Up to this point, they had not been able to come up with a product or approach that would provide them with reliable usable temperature information.

Problem
Major quality problems arise when the user can’t measure the internal temperature of the kiln in a timely manner. By the time it is discovered that product has processed at the wrong temperature, a large quantity of product has been run through the kiln. As a result, product that has been processed at the wrong temperature must be scrapped or reworked. The cost of wasted time and energy to produce an off-spec product is significant.

The equipment rotates at 60 to 80 rotations per hour. The skin temperature is in excess of 500°F. Because the kiln rotates, and the ambient temperature at the point where the transmitter must be mounted is so high, no reliable technology has been available until now to give the customer the information they desired.

Wiring temperature sensors from the kiln to the control room costs an average of $10 to $40 per foot. Each new sensor installation easily costs many thousands of dollars. If these wiring costs could be reduced or eliminated the savings could be applied to improving the temperature measurement by the addition of more measurement points in the kiln. More temperature points increases the amount of process information available to the operator and ensures a more consistent product.

Honeywell Solution
The ability to wirelessly measure internal kiln temperature offers a window into a process that has not been available until now. The result is a major increase of within spec throughput, reduced scrap, and considerably less energy usage.

Due to the wireless transmitter’s design, setup and start-up was easy and required very little time. The project was successfully installed and implemented within hours. Previous attempts to improve monitoring required weeks to months without success.

The software package used for configuration also doubles as a data acquisition package. It is capable of storing data for up to 90 days and feeding it to a spreadsheet format for long-term storage, thus eliminating the need for a separate recording device.

A measurement that had been long desired could now be made with the application of wireless transmitter technology resulting in improved business results for the customer.

Customer Comment
"Now we can see the temperature of more zones then ever before, enabling us to act on that information and improve our product quality"

Benefits
Honeywell XYR 5000 wireless transmitters remove the barriers to monitoring variables where traditional transmitters are too costly to implement. They’re designed for applications with no access to power, hazardous or remote locations, where instrumentation changes are frequent or where manual readings are taken today.

XYR 5000 wireless transmitters reliably and securely transmit up to 2000 feet on a 3-5 year battery life with an accuracy of ±0.1%. You’ll quickly and safely monitor process areas and assets you’ve only ever dreamed of.

• Reduced Installation, Maintenance and Operating Costs
• Improved Product Quality
• Meets Regulatory Requirements
• Ensures High Uptime
• Enhances Flexibility

Find out more
For an on site demo or further information contact your Honeywell representative. For a contact in your area visit www.honeywell.com/imc