

Case Study: Wireless Transmitters

**Application: Measuring Temperature in a Rotating Kiln
Lime Plant**



Problem

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

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.

***Current
Business
Result***

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 that, until now, no reliable technology has been available 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 installation easily costs many thousands of dollars. This savings can be better used – by adding more temperature transmitters to the kiln, the user can increase the amount of process information and ensure a more consistent product.

Solution

The ability to 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 are easy and require very little time. This project could be implemented and started up within hours, versus other attempts at monitoring, which 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.

The release of the integrated wireless device means a measurement that had been long desired can now be made improving the customer's business result!

***User
Comment***

Now we can see the temperature!