IPS Wireless Makes Equipment Monitoring Practical, Possible

Low System Cost, Flexibility, Scalability Keys to Successful Solution

The Challenge: A small U.K. specialty rubber products manufacturer was faced with a common problem confronting many of today's processing plant operators: The limited resources of its maintenance/reliability team made it impossible to conduct a formal equipment condition monitoring program. Maintenance was largely reactive, often resulting in unexpected equipment failures, increased costs of repair, extended downtime and lost production. Plant productivity and profitability were negatively impacted.

The Solution: Flowserve Technical Services Engineers assessed the situation and recommended the installation of a relatively modest Intelligent Process System (IPS) Wireless equipment monitoring system. Consisting of a series of single-point sensors/transmitters, one multipoint sensor/transmitter, three signal repeaters and a receiver, the IPS Wireless was configured for installation flexibility and instrument mobility with the ability to easily and inexpensively add more sensing coverage. Its inherent scalability permitted the later installation of the Technology Advantage Portal, a data/information accumulation system that can be shared in real time throughout the plant and with key equipment suppliers.

Installation

A small U.K. chemical plant producing specialized rubber products was increasingly experiencing unexpected and catastrophic failures of critical processing equipment, including centrifugal pumps, mixers/agitators, fans and a drying press. Its in-house reliability/maintenance staff had limited resources and capabilities. Equipment condition monitoring — using basic vibration "pocket pens" — was conducted on an ad-hoc basis, usually after operations reported a problem. As a result, the plant was suffering costly production disruptions and increased emergency repairs/maintenance expenses.

The plant's operators sought an effective solution via the employment of a regular condition monitoring program. But it had to be low cost, as the addition of permanent staff was not an option.

Constraints and Recommendations

Flowserve was engaged to assess the situation. Plant operators were open to the Technical Services Engineers' recommendations for an IPS Wireless equipment monitoring system with the following requirements:

- The setup had to be easy, with the ability to move sensors from one piece of equipment to another.
- Highly responsive and technical support was a "must have."
- The system had to be scalable for additional instrumentation and more sophisticated capabilities.
- The wireless system had to be reliable with a well-established installation base and proven performance record.
- It had to be certified for a plant with various ATEX zones.

An on-site demonstration satisfied plant management that Flowserve IPS Wireless could meet or exceed these expectations. Accordingly, Flowserve engineers installed one IPS Genesis Receiver, three IPS repeaters and several multiport sensors as part of their initial investment. Plant operators initially used the local embedded portal on the IPS Receiver to visualize the monitoring data being retrieved from the equipment. After a pump failure occurred during a weekend when no one was monitoring the IPS system, plant operators quickly realized the benefit of the Technology Advantage Portal to prevent future catastrophic failures. Most notably, the automated email alert system could capably notify operators/maintenance staff of machines running outside of preset limits. Later, plant operators installed the portal along with six additional multiport devices. Now they have real-time access to equipment condition status displayed upon an LCD screen within the maintenance and engineering offices. If they so choose, they can share this information with Flowserve Technical Services Technicians for additional monitoring support.

Technology Advantage Portal System Overview Screen

ELD-102 Vibration and Temperature Sensor

The Results

IPS Wireless technology is central to this specialty rubber manufacturer's transformation from a reactive to proactive maintenance/reliability culture. Increased visibility to real-time equipment performance data enables plant operators to immediately identify operational issues/potential failures related to critical equipment. Quick, positive maintenance response is already encouraging a "best practices" policy and decreasing unplanned downtime along with its avoidable costs. The customer summarized the impact of IPS Wireless technology by stating:

"We now have a valuable tool which is used constantly, and is giving us a picture of how some of our plant equipment is performing and more importantly, how it is changing."

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