How Remote Alarms Can Help Food Processers Avoid Downtime

Remote alarm notification is a predictive maintenance tool to help food and beverage firms deal with the COVID-19 pandemic and maintenance worker shortage.

WIN-911

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Millions of dollars are invested each year in capital improvements for facilities and equipment to increase product safety, protect employees and reduce costs. This is important, because equipment in a typical food processing plant might run 16 to 20 hours a day, every day.

Equipment failure often is the most common cause for downtime. The longer it takes plant personnel to respond and repair equipment, the more damaging the interruption. What's more, systems that aren't at full speed create a domino effect that can cause missed deadlines, lost revenue and unhappy customers.

Unplanned downtime can cost a food processing facility an astounding $30,000 per hour. According to analyst firm Aberdeen Research, 82% of companies have experienced unplanned downtime over the past three years, and a Deloitte industry report cited recent studies that show unplanned downtime costs industrial manufacturers about $50 billion annually.

However, downtime can cost a company more than just money: It can be a logistical nightmare. The expenses and ramifications are simply too high to risk equipment failures, particularly now.

As the world grapples with the effects of COVID-19, the food processing industry is under more pressure than ever to maintain

ongoing operations. In the United States, these facilities have been deemed essential, and state and federal authorities are working to keep supply lines intact.

Worker Shortage and Plant Downtime

In addition, maintenance worker shortages existed even before the pandemic. U.S. manufacturing is in the thick of an expected shortage of two million workers from 2015 to 2025, according to a report from Deloitte and the Manufacturing Institute.

And a 2017 industry study sponsored by Advanced Technology Services found that the leading cause of unscheduled downtime within respondents' facilities was aging equipment (42%), followed by operator error (19%) and lack of time needed to perform necessary maintenance (13%).

Of all the core disciplines that the shortage of trained personnel affects, machine maintenance might be the most troublesome for food and beverage producers. Currently, 35% of U.S. manufacturers are seeking maintenance technicians, and an even higher percentage are shifting at least some maintenance responsibilities to operating personnel — a risky tactic at a time when equipment is becoming increasingly automated and complex.

Remote Alarm Notification

One strategy to help resolve this is for food processing plant leaders to invest in technology for areas with worker shortages — technology such as sensors that monitor whether a machine is working properly instead of having someone crawl under equipment to check out a problem.

Another way is by using remote alarm notification software, which allows fewer people to monitor more assets using devices they already have, such as smartphones and tablets. Uninterrupted remote availability is needed so systems can be monitored continuously, even without staff onsite or with fewer people working at the facility.

Hardware and software are available that can monitor equipment constantly and, by applying machine learning to historical data, warn when a breakdown or other problem is imminent. These predictive maintenance tools are customizable and are bolstered by wireless technology and the Industrial Internet of Things (IIoT).

Push notifications are designed to streamline decision-making by allowing users to see quickly what's wrong, send an acknowledgment and monitor alarm condition changes in real time. Photo courtesy of WIN-911.

REMOTE MONITORING IN ACTION AT TYSON FOODS

Tyson Foods is one of the largest food processors in the world. The company's New London, Wisconsin, plant upgraded an aging PC-based human-machine interface (HMI) system to a new Rockwell Automation platform with alarm notification software. The system monitors the cutting, chilling, cooking and packaging equipment of several production lines.

The old process involved operators visually monitoring controls, and then physically calling a maintenance technician if an issue occurred. With the new system, software automatically alerts maintenance and engineering staff when level, temperature or pressure systems trigger alarms, resulting in better response times, increased food safety and improved staff productivity.

The old monitoring system also was running obsolete programs — some from as far back as the 1990s — and crashed weekly. While food production lines rolled on, IT and operations staff would troubleshoot the crash.

Meanwhile, plant supervisors would have no visibility into production, and data would be frequently lost. What's worse, it put compliance with U.S. Department of Agriculture (USDA) reporting regulations at risk. Once the system was back online, staff would then need to recheck all production and utility systems, and reboot applications. The entire process took several hours.

"The fact that the system was crashing every week was a sure sign that we needed to upgrade," says Jonathan Riechert, senior engineer-innovation, Corporate Engineering Group, Tyson Foods.

"Beyond the USDA reporting issue, we knew we couldn't keep taking hours out of employees' days to troubleshoot. A new operating system would be both a food safety and maintenance improvement," he adds.

The software company, and its SCADA partners, helped Tyson Foods automate a time-consuming, error-prone equipment alarm monitoring process. Frequent system crashes have been completely averted, resulting in increased worker productivity, greater food safety and lower maintenance costs.

"In addition to helping ease compliance, the capabilities have allowed the facility to save $100,000 in wastewater chemicals," Riechert says. "The added visibility allowed us to see where inefficiencies were happening so we could adjust and refine our process."

TYSON FOODS RESULTS

- Saved $100K in wastewater chemicals.
- Eliminated weekly system crashes.
- Achieved full compliance with USDA reporting.
- Improved food safety.
- Does more with less staff.

Remote monitoring and notification software systems are designed to provide:

- **Streamlined decision-making.** Push notifications (see illustration) let you see quickly what is wrong, send an acknowledgment and monitor alarm condition changes in real time, right from a smartphone.
- **Team problem-solving.** A chat function allows a work team to converse, brainstorm and share solutions on the fly, from wherever they are — whether in the plant, at home or on the road.
- **More efficient work.** A team visibility function displays who has seen an alarm and who has acknowledged it, reducing guesswork and redundant responses.
- **Multiple communication channel support.** The work team can gain resiliency through voice notification and SMS messaging in the event of Internet connectivity issues.

Essential Providers

Food processors play an essential worldwide role in helping to guarantee short- and long-term food security, especially during these unprecedented times. Remote alarm notification software is an option to help these firms move from a reactive to a more controlled, predictive maintenance approach.

WIN-911 is a Technology Partner in the Rockwell Automation PartnerNetwork™ program. The company delivers critical machine alarms via smartphone or tablet app, voice (VoIP and analog), text, email and announcer to reduce operator response times, system downtime and maintenance costs.