

CASE STUDY

Parts manufacturer leverages Fluke sensors to launch IIoT-powered asset monitoring



Customer Since: 2019 | Manufacturing

- Joined WHIN to learn the most effective ways to apply IIoT technologies to its operations
- Installed 16 Fluke 3561 FC sensors to monitor vibration and temperature on critical pumps and motors
- Leveraged vibration data to flag a loose belt on a waterjet, preventing a major motor failure
- Implemented a Fluke 3540 FC power monitor to detect power losses or outages

Beginning as an auto parts supplier in 1972, Standard Industrial branched out in 2004 to supply industrial parts and supplies to U.S. automotive and industrial manufacturers. In 2015, it expanded again to add manufacturing to its services. Today, Winamac, Indiana-based Standard produces contract parts for Tier 1 automotive manufacturers.

To maintain its promise of delivering the right product at the right price at the right time, the company sought to incorporate Industrial Internet of Things (IIoT) technologies into its operations. It accelerated its IIoT adoption by joining the Wabash Heartland Innovation Network (WHIN), an organization that makes web-based technologies more accessible and productive for its members.

By joining the WHIN Manufacturing Alliance in 2019, Standard got an IoT Starter Kit, complete with Fluke wireless vibration sensors and a power monitor. This enabled the company to detect potential asset performance problems before they lead to severe decline or failure.

Background

During its long history of supplying parts to automotive and industrial customers, Standard Industrial gained a stellar reputation for meeting customers’ just-in-time inventory needs and sourcing hard-to-find parts. So in 2015, when it had the opportunity to add a manufacturing arm to its organization, it extended its stringent standards for quality, value, and service to its new endeavor.

Today the company produces contract parts for Tier 1 automotive manufacturers and supplies consumables, paints, adhesives, abrasives, and OEM and aftermarket parts.

The Challenge

Most of its employees are focused on producing products and serving customers, so there aren’t sufficient resources to devote to preventive maintenance. Still, the company needed to avoid downtime due to preventable equipment failures.

“The most expensive part of our business is when a piece of equipment goes down, and we lose business,” says Bryce Brumm, president of Standard Industrial. “But most small companies don’t have a preventive maintenance program. We’re firemen. We put out the fires.”

With dozens of motors and pumps keeping its operations moving, Brumm became intrigued by the idea of applying remote sensors to crucial assets. The sensors track vibration and temperature anomalies—early indicators of potential equipment failure.

“The idea of having a sensor that can help predict something that’s going to eventually happen based on hard evidence—whether vibration or temperature—makes a lot of sense to me,” he says. “Every piece of equipment we have has either a pump or electric motor that can be monitored by these two parameters.”



Implementation

Brumm learned about remote sensor technology by joining WHIN in 2017. WHIN champions the adoption of IoT technologies to reduce costs, increase efficiencies, and optimize operations for its members throughout north-central Indiana's Wabash Heartland region.

In 2019 Standard Industrial was invited to join the WHIN Manufacturing Alliance—an invitation-only consortium of manufacturers that receive products and services to support IIoT adoption. Upon joining the Alliance, Standard obtained an IoT Starter Kit that includes 16 wireless Fluke 3561 FC Vibration Sensors, four Fluke 3502 FC wireless gateways, and a Fluke 3540 FC Power Monitor.

Throughout the plant, vibration sensors were installed to monitor vibration and surface temperature on essential assets, including waterjet, vacuum, and hydraulic pumps and motors. Changes in vibration can alert reliability professionals to imbalance, looseness, misalignment, or bearing wear, all of which can lead to a potential failure. The data is transmitted through wireless gateways to a secure cloud, where it is monitored via PCs and mobile devices.

The portable three-phase power monitor can be easily moved from asset to asset to measure voltage, current, frequency, and energy consumption on single-, split-, or three-phase loads. Up to a week's worth of measurements can be saved to the device and all data is also wirelessly transmitted to the cloud for remote monitoring.

Results

It didn't take long for the new monitoring devices to pay off. Within days, a vibration sensor installed on a waterjet used to cut metal indicated abnormal motor vibration. Further investigation revealed that the belt was loose. After a slight adjustment, the problem was solved.

"Had the vibration sensor not caught the problem early, eventually the belt would have failed, which could have led to having to rebuild the whole motor," says Brumm. "Every electric motor will eventually wear out; you just don't want them wearing out in the middle of a job or when you don't have the necessary parts on hand to rebuild them. These sensors let us know if there's something different happening right now so we can address it immediately."

The power monitor showed its value in saving Standard wasted energy costs. The plant manager noticed a three-fold increase in the electric bill for one of its outbuildings from the month before. There was no obvious explanation for that dramatic increase, so technicians decided to apply the wireless power monitor to find the problem. They connected the power monitor to the air compressor and soon discovered that the compressor was running under load every two minutes—versus its normal cycle of every 20 to 30 minutes.

"We realized that air leaks were causing the compressor to run under load, almost continuously," Brumm says. "With a regular amp meter, we would only have been able to see a snapshot in time, but with the power monitor, we could see what it was doing over an extended period."

They fixed the air leaks, and the next month the bill went back to normal.

Benefits

- Diagnosing potential problems early so they can be corrected before causing a major failure
- Discovering the source of excessive energy use to save energy and avoid unnecessary power costs
- Avoiding unplanned downtime, production gaps, and lost sales by circumventing preventable asset problems

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— Bryce Brumm,
President, Standard Industrial

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