

Reduction of warehouse downtimes

Continuous conveyor vibration diagnosis in real time



Our customer:

One of the largest US department store retailers

At more than 1,100 locations, which are supplied by their own logistics centres (15 in total), almost 100,000 employees are busy ensuring that customers are always offered the very latest merchandise in the company's department stores. With an annual turnover of over \$ 16 billion, the company is one of the market leaders in the industry.

A highly efficient system of logistics centres ensures that the required goods reach the department stores in good time, with site automation and monitoring being of high importance.



The challenge:

In times of online trade, when products are available for ordering around the clock from anywhere at any time, department stores have to be able to offer a very high standard in order to try to keep up with the service provided by online shops. Even if the shopping experience and activities associated with a visit to the department store are more likely to also be of great importance, availability of the products must at all times and on any account be guaranteed. This requires the logistics centres to run smoothly, because any downtime can lead to bottlenecks in delivery of goods to the department stores. Our customer had regular downtime on their cross-belt sorters, which are a critical area in logistics centres as every package has to pass through them and be allocated correctly. With the extremely high number of packages, this task is not feasible manually.

Although the company was already using vibration sensors to detect sudden peaks in packages arriving, it still experienced frequent package jams and downtime. In addition, beams or guide rails were damaged in some cases, resulting in downtimes of several hours. The cost of replacement components, qualified personnel and idle operators, especially during the peak season, caused significant financial damage to the company.

The solution – why ifm?

Together with the customer, ifm's experts realised that the existing solution was too slow to react to sudden peaks in packages arriving, the reason being central evaluation of the wireless system. This meant that the system could not be switched off or paused in time to avoid a jam and costly damage to the goods and the installation.



The new solution for vibration monitoring directly on the motors and gears of the cross-belt conveyor by means of a VSE153 and moneo from ifm now allows for continuous and decentralised installation monitoring in real time, ensuring that any potentially critical installation condition is detected immediately and dealt with in good time. This helps significantly reduce downtimes and avoid additional costs. Furthermore, critical points are equipped with temperature sensors, which detect, for example, increasing temperatures caused by excessive friction.

If a package jam occurs, the system is stopped in time and service technicians automatically receive a warning message via SMS and email. In order to avoid further package jams, it is moreover possible to gain important insights into the causes by reading out the data in the moneo dashboard and data history.

Shortly after the first installation had been equipped with the new system for test purposes at a cost of approximately \$ 20,000, the system was able to pause installation operation and issue an alarm notification several minutes before a failure would have occurred. This incident's prevention alone saved about \$ 30,000, as otherwise 7 beam units would have been damaged and the installation shut down for several hours. In the past, there were about 10 such incidents per year. After having integrated the solution into the control and network infrastructure, the customer expected annual cost savings of over \$ 250,000 for one site. This convinced the customer to also retrofit all other installations and integrate them into the IT infrastructure.

Results:

- Reduction of downtime
- ROI immediately after first installation downtime prevention
- \$ 250,000 savings per year per site
- \$ 30,000 savings per installation downtime prevention



Vibration monitoring with real-time warning



Increased product availability



Cost savings



ifm.com