CASE STUDY | AGRICULTURE

IO-Link enhances seed performance and quality

Paradigm shift in technology for processing 3 million bags of corn seed per year.

Our customer:
Bayer Crop Science

The amount of corn leaving the corn processing plant in Buenos Aires each year is difficult to grasp: 3 million bags of corn seed make their way from Argentina to the world within twelve months.
For 30 years, the company has operated the largest corn processing plant in the world on an area of 23 hectares. A total of 2,900 employees take care of ensuring the processing of seeds. A plant of such dimensions requires enhanced efficiency, productivity and quality control through automated processes and data-driven decision making. Adopting such technology helps the industry to contribute to sustainability goals by optimising resource usage.
This is why market-leading companies in the industry worldwide are pushing to digitalise their plants in order to improve overall plant performance, resulting in high-quality seeds and sustainable processes.

ifm.com

CASE STUDY | AGRICULTURE

The challenge:

Historically grown, the production facilities on site have become interwoven into a non-transparent network of different machines and manual processes. In the past, these manual processes alone accounted for 60 per cent of all operations, which sometimes led to cost-intensive failures and inconsistent seed quality. Besides, the process details could not be traced, and the fault detection and repair times were very high. This can jeopardise the quality of the seed batch and the delivery time of the product.

The company identified the existing infrastructure on site as being the biggest problem: All field connections were point-to-point and linked to decentralised control points. The process data was transmitted via hard wiring to a conventional PLC. So as early as 2017, the company set out to find a solution that would not only enable transparent processes, but also meet the high safety requirements for employees. In cooperation with ifm, the wiring system AS-Interface Safety at Work, the use of IO-Link and a wide range of ifm sensors were chosen.

The solution – why ifm?

With AS-Interface Safety at Work, several objectives are achieved at one go. Compared to the previously used system, the solution is more flexible and has a significantly reduced wiring complexity. The interface enables better fault diagnostics, which increases operational safety. After installation, many processes in the corn processing plant were gradually automated and digitalised. In this way, the company created both, higher efficiency and greater transparency regarding the utilisation of the facilities. The AS-i bus technology is particularly suitable in agricultural technology where many on-off signals are still used in the processes.

During the project, the AS-i bus was replaced by IO-Link in all drying areas of the plant. Now the LDH292 sensor from ifm measures humidity and temperature, while the air flow is detected via the SL5101 airflow monitor. Information on the differential pressure and the level is now also available at all times, so that the concept of IO-Link has fully convinced the company. Added to this is the O3D302 camera, which is designed to detect the fill levels of the corn silos. Finally, RFID technology has been integrated for access control and identification. The DTI600 RFID read / write head now carries out the entry and exit control of trucks. The successful automation of the corn processing plant has led to plans for future collaboration between the two companies. Another solution for controlling and monitoring irrigation has already been implemented in Bayer's project. In future, vibration sensors on motors and fans will monitor the machine status in interaction with the VSE150 and the IIoT platform moneo.

Results:

- Automation of production processes in the plant
- Increased plant transparency
- Increased efficiency and sustainability
- Avoidance of unplanned machine downtimes

Transparency

Process automation & optimisation

Increased machine availability

ifm.com

ifm electronic gmbh · Friedrichstr. 1 · 45128 Essen