



Refresco

Digitised bottling plant
with IO-Link and AS-i



Modern, efficient, transparent: bottling plant 4.0

ifm has supported Refresco and Tetra Pak in a “greenfield” digitisation project

Refresco Group is the leading soft drinks bottler in Europe. As co-packer, the company fills non-alcoholic beverages from numerous well-known brand manufacturers in bottles and carton packs. In France alone, the company operates four bottling plants, including one at the Le Quesnoy site. In order to meet the growing demand for both types of containers even more efficiently, Refresco decided to build a new factory here in the north of France with a capacity to fill up to 30,000 PET bottles and 8,000 cartons per hour.

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Digitisation project accompanied from the outset

“It was clear to us from the very beginning that we wanted a new building that was state of the art and, above all, that we also wanted to benefit from the advantages of digitisation,” says **Joseph Kerdo**, project manager at Refresco France and responsible for planning the new plant.

To realise the networked factory, the company worked closely with ifm as their digitisation partner, and also with Tetra Pak, who were responsible for constructing the filling lines.

“ifm supported us in the project from the very beginning, proposing the right solutions and answering all our questions,” explains **Grégory Croizier**, Automation Team Leader at Tetra Pak.

Using insulation displacement technology, the individual valves can be reliably and accurately connected to the AS-i infrastructure via the hygienic AS-i flat cable insulation displacement connectors made of stainless steel.





Field-compatible IO-Link masters and AS-i modules enable a decentralised connection of the sensors and thus considerably reduce the wiring complexity.

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AS-i and IO-Link for digital data transmission

An infrastructure of IO-Link and AS-Interface was designed for reliable digital data exchange. The advantage of IO-Link over analogue wiring is the decentralised bundling of sensor information via IO-Link masters installed in the field, to which the sensors are connected via unscreened, standardised 5-pole cables. This simplifies wiring and reduces the error potential in the sensor connection. Since data transmission is digital only, measurement data is not distorted by conversion processes. EMC effects, too, cannot affect the information.

“IO-Link and AS-i greatly simplify data architecture,” confirms **Grégory Croizier**. *“The data is consistently available and the customer benefits from easy, reliable maintenance because the diagnostic options are much better than before. Another advantage is that components can be easily replaced without having to be reprogrammed.”*

Simple, flexible, versatile

AS-i is used to connect the valves and for the process level. **Grégory Croizier** explains the reasons: *“For us, AS-i offers the advantage of simple, well-prepared planning and an equally trouble-free implementation.”* AS-i shows its advantages especially when widely distributed data points are connected. Only a two-wire flat cable is required for data transmission and power supply to the connected sensors.

The cable length can be up to 1,000 metres when using standard cables and repeaters. Longer distances of up to 3,000 metres can also be bridged using fibre optic cables. Sensors and masters can be connected to the AS-i cable flexibly and precisely at any point using the insulation displacement technology. Another advantage: AS-i can be combined with IO-Link – as has been the case in the Refresco project. The decentralised sensors on the individual plant components are bundled via AS-i-compatible IO-Link masters and then transmitted to the PLC and the IT level via the AS-i infrastructure. Even safety-related applications, such as the monitoring of manholes, can be implemented using AS-i thanks to the safety portfolio.

Conclusion

Given the flexible possibilities and easy handling of IO-Link and AS-Interface, Tetra Pak was able to plan and implement the bottling plant digitisation for the Refresco Bluebird project quickly and easily. Refresco itself also enjoys various benefits: more accurate sensor information, better diagnostic options and easy maintenance.

RFID-coded safety sensors monitor the condition of the manholes, thus ensuring a safe operation of the system.

