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Retrofit chocolate production

Customer profile

The customer is a chocolate producer in the premium segment in Switzerland.

Starting position

The control system which controls the complete production of the chocolate mass was installed in 2004 and extended over the following years.
The plants consist of raw material handling (total of 10 solid silos and 27 liquid silos), transfers, chocolate mixing areas, conching processes as well as a tank farm with over 80 tanks.
The plants are controlled by 11 PLC's (all S7-400) and a process control system (PLS). The orders are mainly entered via SAP.

The customer pushed for a replacement of the described plant control system amongst others for the following reasons:

- Standardized control systems for the whole Group
- Upcoming upgrades of the PLS with operating system updates
- Upcoming upgrades of the operator stations and scanners
- To improve the support for the plant control system

Concept / solution

The original intention was to use the S7-400 as input / output gateways and new S7-1518's to control the process.

In the final concept all S7-400 were replaced by S7-1518 and the periphery was linked directly to the new PLC's.

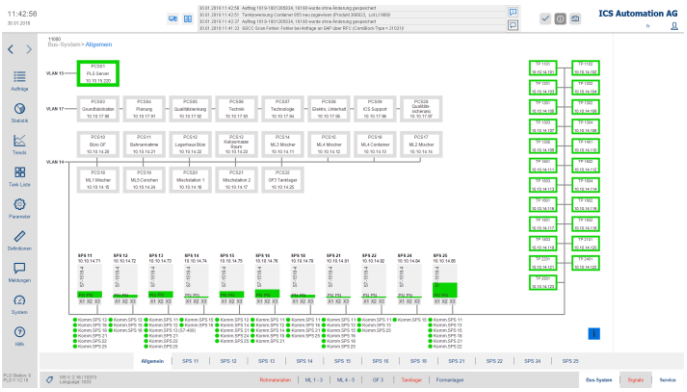
Also, all operator panels (TP700) and scanners (total of 25) were replaced.

The operation of the plant is done via the ICS-PLS for the MES and process control functions and via the visualization which is based on Wonderware InTouch.

For the operation via PLS a total of 12 Touch-PC's are installed and the same amount of virtual environments.

Scope

- 11 PLC systems S7-1518-4 with approx. 5000 i/o's
- 25 TP700 incl. scanners
- 12 IPC's, 5 of those with scanners
- 4 server systems for
    - ICS-PLS
    - InTouch (incl. redundancy)
    - Wonderware Historian with 5k-tags
- SAP interface via iDocs and RFC
- Total of 150 process lines
- Total of approx. 150 tanks respectively silos



We are only satisfied, when our customers recommend us spontaneously!

Process reliability and efficiency through reliable automation

The **main challenges** for the modification were:

- Replacement of all PLC's over the Christmas shutdown
- Dismantling of not used devices during the refurbishment
- New installation of network and Profibus incl. new connections
- Installation of operation devices
- At the same time process changes on the customer side
- Introduction of a big SAP project with consistency from SAP to the scanners

Sequence of refurbishment

As of 18th December 2017, all PLC systems were replaced. Since half of the systems were only available 2 days later, the replacement was planned time-delayed.

After the replacement the first tests were conducted. In order to ensure consistency all inputs and outputs were tested again.

In parallel to the replacement of the PLC's the new servers and operator stations were commissioned.

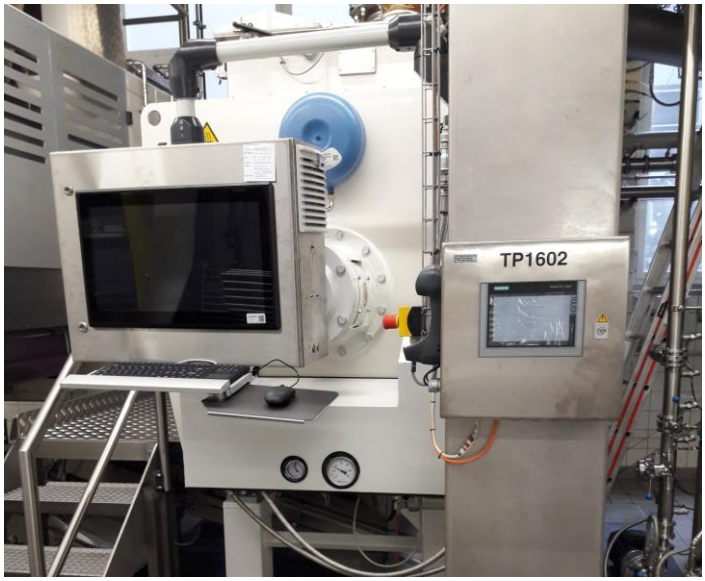
As final tests integration tests from SAP down to operator panels and scanners were carried out.

The production resumed on 3rd January.

As of that day chocolate has been produced via the ICS system.

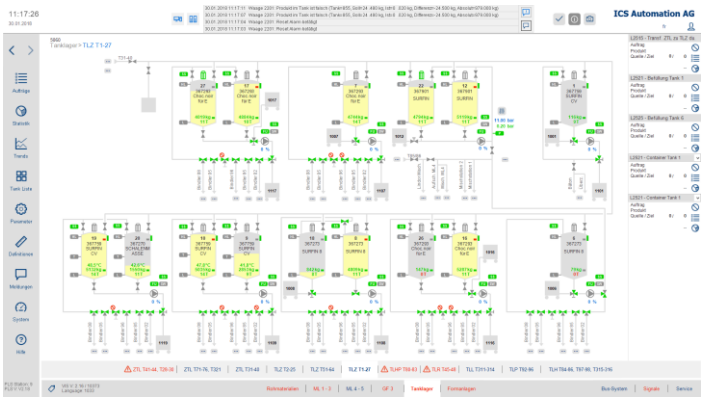
Starting with SAP orders via the ICS PLS down to the manual additions on the individual mixing lines.

For the whole modification and replacement a total of 15 employees from ICS worked from 18th December until 15th January on the customer's site.



Customer benefits

- Secure and reliable production
- Readiness to deliver ensured
- State of the art safe plant, ready for the future
- Easy and efficient operation
- Historical production data available
- Improved overview and monitoring of the production
- More targeted presentation of information
- Production data available at any time and at any place
- Quick overview where which ingredients in which quantity were used
- Product traceability throughout the plant, from the goods intake to the finished product
- More efficient error analysis
- Plant information available for optimal maintenance
- 24/7 support for the whole plant



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