

Fully integrated process control technology

If beer turnover isn't really rising today, then it counts all the more to exhaust other potential – and perfected automation technology can help. The highest bid: integration on all levels of manufacturing. For only systems which make data transfer and batch tracing seamless, operation simple and processes really comprehensively transparent can guarantee added efficiency. The Feldschlösschen brewery in Rheinfelden in Switzerland utilized this chance – supported by ProLeiT system specialists.

Feldschlösschen Getränke AG, a Carlsberg Breweries subsidiary company, operates the largest brewery in Switzerland at its headquarters in Rheinfelden in the Aargau canton. Beer has been brewed here for more than 125 years according to all of the rules of the art of brewing. However, despite a strong domestic market position the turnover cycles have also become noteworthy in Rheinfelden. In this way those responsible at Feldschlösschen were faced with far-reaching decisions. The essential question: how to stabilize income as long as beer consumption is generally declining or at best stagnating?

A combination of two approaches was developed as a solution strategy. On one hand both of the brewing plants at the Rheinfelden site which previously operated in parallel were to be integrated into a single production unit. This grouping of strengths meant the expectation of a clear saving on costs and resources. In order to be able to also fully exhaust the potential to save, something else had to be added, namely the integrated automation of all brewing processes, from the brew house up to delivery to the bottling facility. And additionally, comprehensive technical reporting including batch tracing.

Guarantee for perfected engineering

At Feldschlösschen the accomplishments of the most up-to-date automation technology have been demonstrated in several production areas. The individual plants and systems were thus already equipped with the newest process control technology, for example in the brew

house. And with limitations (no longer fully up-to-date in terms of process engineering) this was valid also for filtration and for the bottling tank cellar. However, the crux of the matter was that the information technology communication between these areas was still lacking in many places. Therefore those responsible at Feldschlösschen formulated a clear aim: implementation of a system platform able to comprehensively and seamlessly integrate all production requirements, whereby the highest priority for a complete re-engineering was to be the fermenting room. And the Rheinfelden brewer would soon have the perfect partner for this project in clear view.

It was decided that co-operation would take place with ProLeiT, the system vendor of automation software and automation engineering in Herzogenaurach (in the immediate vicinity of high-tech Erlangen). With the Plant iT software family, ProLeiT has developed a high-performance, modular system which covers all aspects of process control technology, whether operator control, monitoring, data acquisition or batch tracing, and a perfect fit for every sector.

And at Feldschlösschen there were some other strong arguments in favor of ProLeiT. For it is known that the networking and administration of complex tank stores is a special competence of ProLeiT, gained from demanding application in dairies and dairy farming and specifically optimized for the intrinsic requirements of breweries. The result: brewmaxx, the system platform from ProLeiT especially for breweries. It combines the automation competence of many more than 100 applications in breweries worldwide. And: it shows itself to be a system integrator which can connect perfectly the world of automation with IT requirements. Furthermore, ProLeiT had already demonstrated its capability to cooperate with Feldschlösschen's approved technology partners; among others the Swiss engineering firm Kundert/Schlieren. And of course in Rheinfelden ProLeiT system software was used already in the course of previous automation steps. With success, for the use of ProLeiT was ultimately a definite integral part of the proposal from the beginning.

INFO



FELDSCHLÖSSCHEN

Part of the Carlsberg Group

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|------------------|-----------------------------|
| Company: | Feldschlösschen Getränke AG |
| Sector: | Breweries |
| Location: | Rheinfelden |
| Country: | Switzerland |

A platform for all systems

ProLeiT modules in the brew house and in the waste water plant were available as primary components for the automation of all brewery systems on a standardized platform. The systems in the fermenting rooms were predominantly to be newly automated. The task here: replacement of the SIMATIC S5 process controller with a new, high-performance SIMATIC S7 and thereby cost-saving connection of the existing I/O level as well as system expansion by means of modern, distributed peripherals. For the areas of the pressure tank cellar and filter cellar, an update of the IT infrastructure was additionally necessary: an upgrade. For the solution of this task, ProLeiT could make use of its approved client server platform. The advantage: the integrated modular concept allows system upgrading and system customization at any time and in any direction. With this variable instrument, the existing systems could thus also be smoothly integrated. There are altogether 10 Siemens SIMATIC S7-400s on the automation level connected to the ProLeiT brewmaxx process control server (the central data pool) in Feldschlösschen today. On the field level, PROFIBUS DP provides all interconnections, from storage of raw materials to bottling, cask filling and S5 peripherals.

application profile

Breweries // Feldschlösschen

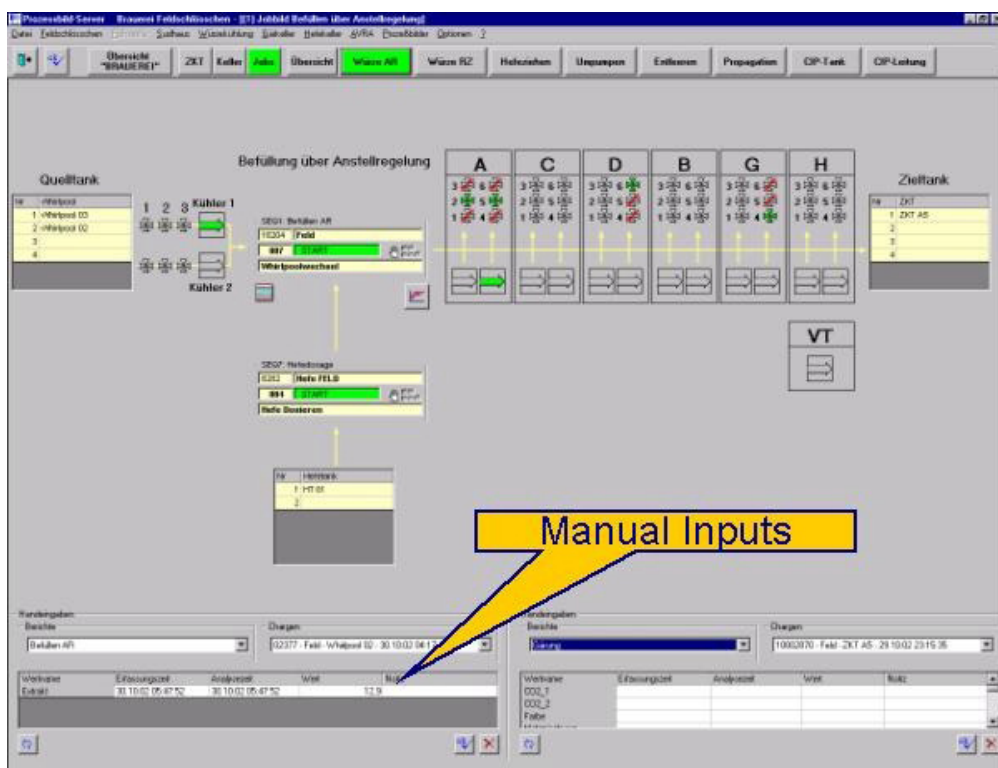
The core of the entire platform is however process control engineering, latest version: the component-oriented ProLeiT process control system brewmaxx. The system architecture facilitates integration right from the beginning. For example through the use of pre-defined technological classes which make recurring automation tasks available in no time at all. Or through simple parameterization of the components optionally directly at the object in the process picture or efficiently through data export into MS Excel. Or through a significant reduction in expenditure when installing, as in many cases a single test run suffices to ensure routines. When in operation Plant iT finally offers everything that could be wished for in terms of operator comfort and transparency.

For transfer procedures important in the fermenting room, appropriate overviews are created in which the entire procedure can be observed at a glance. Decisive here is the complete representation of relevant source and target information and the status of the route in between as a process graphic (Figure 1). This could be achieved by using route logic modules in which the required valves and acknowledgements are registered in a fully parameterizable way. Subsequent system conversions can be implemented with this concept through replacement of the changed valves without changes to the execution program.

Transparency in every direction – the PDA module

The ProLeiT Acquis iT system with integrated data acquisition tool provides for transparency in every direction: whether on-line process values or manual inputs are involved, Acquis iT continuously acquires and archives all relevant process, machine and operational data, and above all Acquis iT evaluates the data in numerous ways.

The reports compiled with MS Excel as the output tool combine automatically acquired batch data with manual inputs, e.g. laboratory values, and offers an overview at a click: of production at filling or fermentation control, with statistics on cold wort amounts or the filtered batches (Figure 2). In this way the close connection of process control level with production data acquisition proved itself – the manual inputs, for instance the extract content of the cold wort, are entered directly at the process in the user interfaces of the control system by production personnel (Figure 1). At the logical point of origin of the batch, the respective information is bundled and the operator does not have to



change between different systems. Only in this way was it possible to achieve high acceptance of the concept by operating personnel.

And what counts of course in particular in food processing today: the requirement of tracing each individual batch is completely fulfilled by the ProLeiT system, seamlessly and across every area of beer manufacturing. A weighty reason for Feldschlösschen to expand this production data acquisition system via the fermenting room to the entire production process.

Here's to another!

At Feldschlösschen, system integration was undertaken in steps: a short production downtime was sufficient for the Kundert and ProLeiT specialists to bring the fermenting room-automation "onto the net". And in the course of year the data systems technology in the bottling tank cellar and filter cellar was limbered up in two further steps. With the new possibilities of production data acquisition, batch tracing and integrated simple operation, an important sub-target has now been reached in Rhein-felden. Stephané Quellet, Project Manager at Feldschlösschen said "the experience with ProLeiT demonstrates: the combination of process knowledge and advanced control technology pays for itself". No wonder then, that the next

aims have already been located: full integration of the areas of the bottling tank, filter cellar and brew house in the ProLeiT production data acquisition system.

