

Altendorf cheese factory, Switzerland

# Just make cheese

**The new cheese factory in Altendorf is the first facility in Switzerland to be completely configured with the TIA Portal engineering framework from Siemens, including the drive technology. Every year, up to 8 million l of milk can be converted into Swiss cheese, which finds enthusiastic buyers not only in Switzerland but also internationally.**

**E**very day of the week, work at the Altendorf cheese factory starts early in the morning, at 5 o'clock, when regional farmers deliver their milk. The volume is detected automatically at the touch of a button. Using automation components, the next processing steps in the factory are set up to allow the entire production – two batches of between 7,000 and 8,000 l of milk per day – to be controlled by only two people. At the beginning of the production process, the milk flows out of the supply tank and into the finisher – a large tank with a capacity of around 8,500 l. In the next step, ripening bacteria (rennet) are added and the liquid is heated to 31.5°C. While constantly being stirred, the milk thickens. Finally it is heated to 57°C for a short time, pumped into round molds, and pressed into shape. ►



Felix Wey



More than 5,700 cheese wheels – tasting similar to Gruyère – are currently stored in the high-bay warehouse of the Altendorf cheese factory. “This represents an asset worth approximately 1.5 million Swiss francs,” says manager Erich Keller

After the whey is drained, the wheels go into a salt bath for 48 hours, after which they are taken to the storage cellar for ripening.

### Development with TIA Portal

The cheese factory in Altendorf is a perfect example of the use of the TIA Portal engineering framework from Siemens. Cheese factory manager Erich Keller commissioned the Solinaut company from Altendorf to implement the control and drive technology. At the start of the project, the decision was made to carry out all the project planning, including the drive technology, with TIA Portal. For the hardware components, the team relied on Totally Integrated Automation from Siemens, which ensures the efficient interaction of all automation components. A Simatic ET 200S CPU was selected as the controller for the cheese factory, along with Comfort Panels (19-inch) and Sinamics G120 C frequency inverters for the drives. "Working with the tools of TIA Portal is different than with Step 7 – it is a new kind of programming and software writing, with a new interface," explains Florian Rüegg of Solinaut. Like his colleague Reto Keller, he concludes that "you can work very well with this tool, and the idea behind it is really innovative."

The Solinaut team sees a major advantage of TIA Portal in the fact that everything is integrated into one project. "You don't need to save your data seven times and reopen seven programs," says Rüegg. He sees the diagnostic functions and the ability to link variables as particularly helpful. "Everything is stored in a project folder, so there is no need to jump back and forth between different versions. This makes it easy to work with." After the planning, the commissioning also required considerable effort. But the project team was pleased to note that after an extended transition phase, the actual operation ran smoothly.

### Highlights

The cheese factory in Altendorf is controlled by a Simatic ET 200S CPU and operated by a Simatic HMI Comfort Panel. Sinamics G120 C components are used as frequency inverters. The communication is supported by the Profinet Ethernet standard.

The cheese factory is the first facility in Switzerland that to be completely programmed with TIA Portal, including the drive technology and controller.



For further processing, the cheese flakes, including the whey, are pumped into large round molds and then pressed





Käserei Altendorf / Siemens AG

When the milk has thickened after the addition of rennet, it is cut with large rakes and stirred – a process that previously required extensive manual labor

## solinaut.ch

Based in Altendorf, Solinaut was founded in early 2012 as an engineering services and software developer specializing in the integration of automation solutions for new plants and older machine installations (retrofitting). The company also offers remote maintenance and support services.

Solution  
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## Making cheese in half the time

The new cheese factory has been in regular operation ever since. Many activities that had to be performed by hand before the automation are no longer necessary. "In the past, two cheesemakers were often working from 5 o'clock in the morning until late in the evening in order to process the milk delivered daily. With the new system, the time needed has been cut in half. We often complete the job with two people by noon," Keller is pleased to report. In terms of energy savings, the new solution has also achieved a great deal: the heat from the wastewater purification, for example, is used to warm the milk before it flows into the vat.

The Altendorf cheese not only stands out due to its maturity and taste; it is also produced with a technology that will significantly impact the future of the factory. ■

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