Success Story

Staff security in a pharmaceutical factory

Personal security on an area of 10 hectares

Safety is a top priority in every nook and cranny at Siegfried Holding AG. The company was founded in 1873 and it develops and produces chemical agents and substances. At its main site in Zofingen, Switzerland, the strictest regulations apply, from access restrictions and the mandatory wearing of protective clothing to a ban on smoking and cell phones.

For lone worker protection, Siegfried needed a good solution on their site of 100,800 m² in Zofingen with more than 600 employees and about 50 buildings – and tetronik with its DAKS solution portfolio could tick the most boxes on a long list of requirements.

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... because it's about responsibility!

Who is Siegfried?

As a leading Contract Development and Manufacturing Organization (CDMO) Siegfried Holding AG produces both active pharmaceutical ingredients (APIs) and finished products for its global customers. The Siegfried Group generated a turnover of one billion Swiss francs in 2021 and employs three and a half thousand people at a total of 11 sites worldwide.

At the headquarters in Zofingen, strict safety regulations must be observed. The site has its own factory-trained fire department which conducts regular drills. The Siegfried Group's motto, "expect more", and government requirements for workplace safety in Switzerland were what drove the desire to improve in the area of lone worker protection.

The Challenge

As a chemical production site, the site in Zofingen has to comply with strict occupational safety regulations. In 2017, first improvements were made to the existing Personal Security system in accordance with EKAS regulations (the equivalent of the German DGUV), but there were still things that didn't work to the company's complete satisfaction.

The biggest problem was that you sometimes couldn't establish a stable voice connection and that people could not be located . How would you find a single person on a site measuring 420 by 240 meters, not to mention the additional volume of numerous floors in over 50 buildings? And it wasn't just the numerous buildings, but also the underground multi-story utility tunnel that concerned Mr. Kocher, IT project director and member of the factory fire department at Siegfried: "If everything is full of smoke in that tunnel, it's just pitch-dark! Imagine getting lost down there! Finding someone in that place without a tracking system is downright impossible!"

An additional difficulty was posed by the restrictions due to the explosion-proof zones that apply in almost all areas. Hence, the new terminals did not only have to have more and better functionality than the previous dead man's devices, but they also had to be suitable for use in explosion-proof zones. Unfortunately, that is not a standard feature of Personal Security devices.

In addition, there is no standard GPS reception or cell phone signal on the site, where every building has the effect of a Faraday cage.

In the search for a cost-effective solution that also takes into account the special requirements of the terminal equipment, as in this case the Personal Security should be implemented together with a DECT integration and Spectralink terminals, tetronik turned out to be the most suitable partner.

"Because we are a chemical plant with inherent risks, we are subject to the Swiss Major Accidents Ordinance. This means that we have a higher risk potential and, of course, our goal is to protect our employees. If the worst comes to the worst, we want to rescue them and not recover their body."

- Lukas Kocher, IT project director

REQUIREMENTS

- Certified Lone Worker Protection according to the German DGUV (similar to the EKAS in Switzerland)
- Possibility of a voice connection with the accident victim
- Locating the casualty, e.g. if there is no response or if someone cries for help
- Visualization of the exact location of casualties for the rescuers
- Ex protection suitability (ATEX) of the terminal devices or Personal Security devices
- Reliable wireless coverage despite buildings with the effect of Faraday cages
- Integration of already purchased devices
- Cost-efficiency and economy of the solution

The Solution

from plans and antennas ...

After the decision for the DAKS-PNA, the Personal Security system from tetronik, the implementation still required some work and preparation. With great commitment, Mr. Kocher also took on tasks that are often externalized and collected all existing site and evacuation plans in the summer of 2020. The solution with tetronik allowed him to contribute his own ideas and to customize the visualization. For example, he photographed each of the 53 buildings and incorporated the photos into tetronik's visualization tool – after all, with a photo of the exterior, employees know much more intuitively which building is concerned. Mr. Kocher even went to the trouble of

Chemical production facility at Siegfried in Zofingen

measuring the utility tunnel himself and creating a 3D model of it. To that, he says, shrugging his shoulders with a smile, "Other people have hobbies, right?"

To ensure that coverage on the site and in the buildings was as comprehensive as possible, despite the buildings' metal facades, over 200 DECT antennas were placed, most of them in additional explosion-protected housings. Together with Mattias Sutter, who walks the entire site and every floor once a day in his position as a security officer at Siegfried and thus knows the premises like the back of his hand, Mr. Kocher used a "game of hide-and-seek" to find out which areas were not yet sufficiently covered by reception.

... via voice recordings and hardware checks ...

Mr. Kocher also personally took care of providing the spoken texts that would be heard at the alarm receiving desk. In order to gain the highest possible acceptance among the employees, the finished texts were generated with different female and male voices. The feedback from the test subjects was clearly in favor of a female voice – the Swiss employees preferred to have this voice tell them what to do in an emergency.

With the end user always in mind, they also tested which of the many features of the terminal equipment were actually useful for the employees in the pharmaceutical complex. An entire afternoon was spent trying on "every conceivable glove" and protective clothing to determine what worked well and what did not. For example, it was decided that a tear-off cord in addition to the alarm button would be a good idea due to the lack of fine motor skills.

... through to staff training and a finished alerting process

In 2021 the new system was finally ready for use.

In a training session, the alarming procedure was clearly demonstrated to the employees. Everyone present was able to try out what happens when you stagger or fall over with the terminal device in your pocket or when you pull at the cord. It was also shown how the whole thing looks like on the side of the alarm receiving desk once an alarm goes off. Afterwards, the employees received the training materials as a printout, including a fail-safe 5-step guide for commissioning the terminal devices. In addition, one copy is available in each of the two alarm receiving locations. Since there are far more employees than available devices, a supervision protocol has also been stored there: if an employee takes a device from the charging cradle, this must be documented and signed so that it is clear who has which device in operation at any time.

Employees are trained in such a way that they are able to train their own colleagues. This not only relieves the burden on supervisors, but is also expected to lead to greater acceptance from employees. Learning from colleagues also makes it easier to integrate the use of the system into the daily work routine.

How the solution is in use today

In order to ensure personal security at all times, two locations have been designated as alarm receiving units. During the day, the devices can be picked up at the security entrance gate from the porter; at night, employees can pick them up at the laboratory, which is also staffed at night time due to shift operation.

When an employee picks up a device to work alone and there is an emergency, either they or the device itself triggers an alarm and the alarm ends up at the entrance gate or in the lab, depending on whether it is day or night. There, a special alarm tone ensures the required attention, and an announcement (by a female voice!) is played. At the same time, the receptionist is shown the building plan on a monitor, with the antenna closest to the person clearly highlighted.

Lukas Kocher (left) und Mattias Sutter (right) in full attire at Siegfried's factory fire department

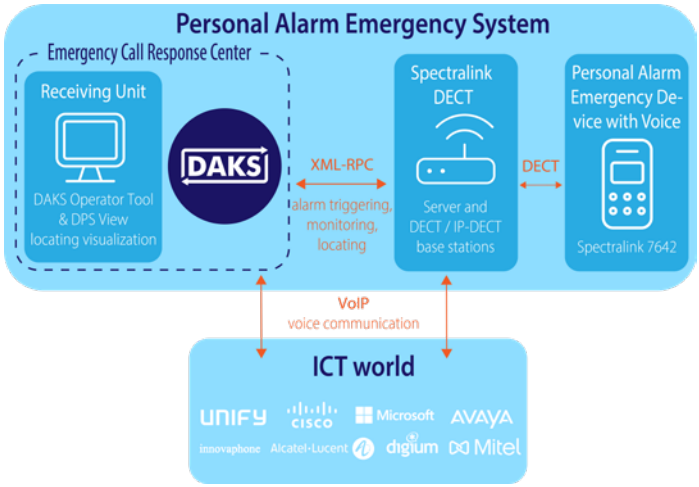
COMPONENTS OF THE SOLUTION AT SIEGFRIED

- DAKSpro 200 as Emergency Call Response Center
- DPS-View positioning and visualisation software for DAKS
- DECT infrastructure IP-DECT server 6500 by Spectralink* with about 200 antennas
- DECT terminals: Spectralink model 7642 as Personal Alarm Emergency Device with Voice*

* the solution can also be implemented with terminals from other manufacturers

While DAKS immediately establishes a voice connection between the receiving unit and the person seeking help, the person in charge can click on the activated antenna icon to open a photo of the building's exterior as well as the plan of the applicable floor in order to intuitively identify the exact location of the accident victim. If the alarm was triggered by mistake, this can be quickly clarified via said voice connection and any further alarm processes can be omitted. If, however, the person in charge at the alarm receiving unit hears nothing or a cry of pain, the alarm is immediately forwarded to the factory fire department and the location information is transmitted to the helpers.

In addition, locating the accident victim is supported by an automatically tiggered loud beep of the victim's personal alarm emergency device. In this way, casualties can be helped as quickly as possible.



The Benefit

With the high level of interest and commitment on the part of Siegfried and the professional support and installation by tetronik, the best conditions were in place for a smooth implementation.

„For me, it was compelling that the visualization and alerting could be based on already existing technology. And the fact that both hardware and software come from the same company naturally has advantages. For me, this is a worry-free solution. I order from you, you install the system, and in the end everything runs smoothly. A full package, just like when you travel: All-inclusive!"

- Walter Fiechter, Head of Safety and Environmental Protection at Siegfried; Project Sponsor

So far, there have (fortunately!) not been any real emergencies at Siegfried AG that required help via the new Personal Alarm Emergency System. "But that doesn't mean we're not glad to have the system!" says Mr. Kocher. "We already have the benefit of the solution anyway. We can locate our employees all across our premises" And after all, he says, you'd rather do gymnastics above a safety net than with the bare ground under your feet.

Outlook

Mr. Kocher is already thinking further ahead and sees numerous other possible applications for DAKS and tetronik GmbH's diverse alarm portfolio at Siegfried AG.

Currently, he is dreaming of projects with virtual reality: "Imagine setting foot on your work site and already knowing where you need to go before you have taken the first step on the premises. That would be cool! That may be pie in the sky today, but this is also what we used to think regarding a location software."

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