

Construction of an outdoor technology center for intelligent sensor technology.

German sensor manufacturer implements company-owned outdoor test center with the support of network cameras.



Organization:

SICK AG

Location:

Buchholz, Germany

Industry segment:

Industrial

Application:

Safety and security

Axis partner:

Allnet

Mission

In 2016, SICK AG, a leading German sensor manufacturer with global operations, decided to build an outdoor technology center (OTC) to test its own sensors under real world conditions, 24 hours a day, seven days a week. To achieve this, the company needed weatherproof, high-performance cameras to supplement the sensor tests with live images while at the same time protecting the entire area against unauthorized entry.

Solution

SICK's selection criteria were obvious: The solution had to deliver excellent image quality while being weatherproof, exceptionally durable, and sustainable. In addition, it was important to be able to operate the different camera systems in different networks. Because of their positive experiences with other Axis products in other construction projects, SICK chose 14 static AXIS P1427-LE and five swiveling AXIS Q6044-E PTZ Network Cameras for visual support of the tested sensor units.

Result

SICK's outdoor technology center opened in June 2018 and consistently receives positive feedback from both employees and customers. The static Axis cameras provide important information on the results of the individual sensor tests, while the swiveling Axis dome cameras can, if necessary, depict the image of the scene in a way that makes it possible to recognize and evaluate details in very high resolution.

The German company SICK AG was founded in 1946 in Vaterstetten near Munich and today is headquartered in Waldkirch near Freiburg. This global manufacturer of sensors for factory, logistics and process automation has more than 40,000 different products and solutions, such as barcode or RFID code scanning of baggage at the airport, and employs approximately 8,800 people in about 50 locations around the world.



From sensor to solution manufacturer

In addition to Industry 4.0, the sensor industry's major trends include outdoor automation, i.e. the smart control of outdoor production processes. This can only work on a foundation of data that is generated by sensors.

In order to help SICK customers find the optimum sensor, it is also important to be able to offer and implement customized complete solutions consisting of software and hardware elements as well as combinations of different sensor units. This way, each company receives a solution tailor-made to their particular needs. To achieve this, the company needs not only knowledgeable and experienced employees on site to advise the customers, but also an environment that enables trials and testing of product combinations and innovations.

For this purpose, the company decided in 2016 to build an outdoor technology center (OTC) in Buchholz near Waldkirch that would make it possible to test various sensor units from the outdoor segment under real conditions. There were three different requirements for the sensors in the OTC:

- > Outdoor behavioral tests – how does a sensor react if subjected to rain, snow, fog, sunlight or pollution?
- > Application and durability tests
- > Presentation and training purposes – demonstration of sensor solutions to customers, employees or service technicians

"The traceability of the sensor reactions was a focal point. Therefore, as a project manager, it was important for me to get information about not only the sensor testing but also the weather situation or the environment at the time of the sensor reaction. I want to be able to see what happens with my own eyes, for example whether a person or an object could have affected the sensor's function," says Project Manager Jörg Kibbel.

For this reason, SICK wanted a comprehensive, weatherproof and durable network camera solution that could support sensor testing with live images. SICK's evaluation criteria were clearly laid out:

- > Excellent image quality
- > Accurate results
- > Weather resistance
- > Reliability
- > Robust design
- > Durability

Stay one step ahead through investments in current technology and durability

Due to the long-standing partnership and the positive experiences in previous construction projects and solution implementations, the search for a camera manufacturer for the outdoor technology center was very easy. In addition to baggage handling at airports, where SICK sensor units are connected to cameras from Axis Communications, the Swedish manufacturer is also a long-standing partner in the field of security. When it comes to outdoor and high security sectors, they have experience with critical infrastructure, power plants, prisons, forensic clinics, museums, and premium industrial buildings.

There are seven different areas in the OTC where sensor units are tested for a variety of outdoor applications. These include zones for testing driverless transport systems, agricultural machinery, railroad crossings, traffic monitoring systems, facade and fence surveillance systems, and endurance testing of encoders. A situation analysis by Axis Communications made it possible to assign the right cameras to the various sensors in different locations and environments.





SICK opted for 14 static AXIS P1427-LE Network Cameras with integrated infrared LEDs and OptimizedIR for optical support of the sensor units in data analysis, and five swiveling AXIS Q6044-E PTZ Network Cameras for situation analysis in perimeter protection and the long-distance sensors. In addition to the image quality and weather resistance of the network cameras, durability, data security and ecology played a major role in the construction of the center.

"Using an inferior camera product in the technology center was never an option for us. A good price-performance ratio was key, especially since the cameras have to meet high standards 24 hours a day, seven days a week. Sustainable camera planning was particularly important. Knowing that an Axis camera works well and reliably over many years was a crucial factor. In addition, replacing a defective camera always takes a great deal of effort and is associated with high costs," explains Jörg Kibbel.

The aim was also to integrate the OTC as seamlessly as possible into the ecological environment. The intention was to seal as few surfaces as possible and to maintain a natural habitat: SICK planted trees and various mixtures of herbs to create a habitat for insects and small animals, selected quarry stones for four sites, built embankments to create a habitat for lizards, and also built water catchment basins for insects and birds.

An open system with plenty of room for change

The outdoor technology center has been open since the summer of 2018. Over an area spanning 3,500 m² with seven test fields, over four kilometers of data cables and two kilometers of power cables were laid and trusses were erected to hold the cameras and sensors. In addition, weather protection hoods were installed in front of the laser scanners to protect against rain and dirt. However, the opening of the selected hood was too large, enabling sparrows to seek shelter in it. This caused recurring detection problems because birds were sitting in front of the laser scanners.

"If we had not been using cameras in this situation, we would have not been able to understand what was going on and get an explanation for the sensor measurements. Through the live images, we quickly realized that the prototype of the weather protection hood had too large of an opening and modified it accordingly," states Jörg Kibbel.

The OTC is not static, but is instead evolving in an ongoing process. Ten Axis network cameras were originally planned to provide a good overview, but within a short time Project Manager Jörg Kibbel commissioned the installation of four more to make the imaging more flexible and make it possible to obtain close-ups in addition to the overview images. In the future, other advanced applications and sensors will be used and tested, which may make it necessary to add even more cameras. The open system provided by Axis makes it easy to adapt to changes in the center.

The feedback from both employees and customers is invariably positive. "The traceability of the test results is great. No brochure or presentation can replace actually seeing how we test our sensors under real conditions or how the various sensors interact with and feed off of each other," states Kibbel. SICK's technology center is so far unique in its design, but further outdoor test centers could quickly follow in the US or Asia.

"We consider Axis the leader when it comes to network camera technology. Moreover, during our collaboration we had the opportunity to write our own plug-ins to connect our sensors to the cameras. That was a big advantage over the competition and one of the reasons we chose Axis network cameras here as well."

**Jörg Kibbel, Project Manager,
Sick AG.**

SICK
Sensor Intelligence.



About Axis Communications

Axis enables a smarter and safer world by creating network solutions that provide insights for improving security and new ways of doing business. As the industry leader in network video, Axis offers products and services for video surveillance and analytics, access control, and audio systems. Axis has more than 3,000 dedicated employees in over 50 countries and collaborates with partners worldwide to deliver customer solutions. Axis was founded in 1984 and has its headquarters in Lund, Sweden.

For more information about Axis, please visit our website www.axis.com.

**For more information on Axis solutions, visit www.axis.com/solutions-by-industry/industrial
To find a reseller of Axis products & solutions, visit www.axis.com/where-to-buy**

©2019 Axis Communications AB. AXIS COMMUNICATIONS, AXIS, ETRAX, ARTPEC and VAPIX are registered trademarks or trademark applications of Axis AB in various jurisdictions. All other company names and products are trademarks or registered trademarks of their respective companies. We reserve the right to introduce modifications without notice.

