

PROTEC is automating building management with zenon to shrink CO₂ footprints

PROTEC: Building automation for greater sustainability and efficiency

The control and automation systems manufacturer [PROTEC](#) deploys the zenon software platform in automation projects for its customers. Now, the company will be using zenon as part of the building management solution for its own new building. Since moving into the Protec Innovation Center, the company has reduced energy consumption by 77 percent.



Control and automation systems can determine how easy it is to operate and maintain production machines and industrial equipment. These systems also have considerable influence on availability, energy efficiency, process efficiency, downtime, and personal safety during operation.

COMPREHENSIVE AUTOMATION SOLUTIONS

PROTEC Steuerungen + Prozesstechnik GmbH, located in Feldkirch, Austria, develops and manufactures advanced control and automation solutions for new and existing production machines and process engineering systems. This also includes networking with higher-level systems in line with the principles of Industry 4.0 to provide better and more efficient production processes.

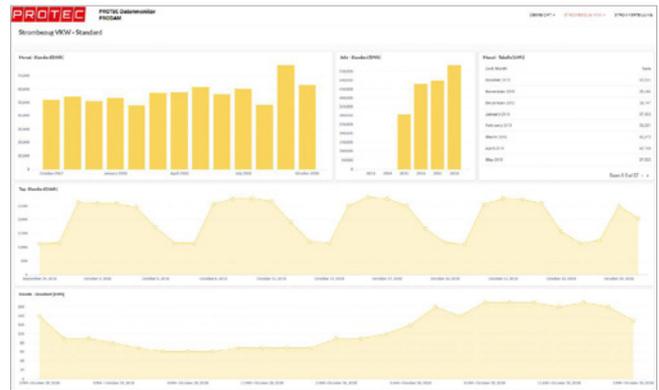
The company, founded in 1986, has 30 employees. Its portfolio of solutions includes control cabinet design, automation, and control technology. Its services range from configuration to final commissioning and customer training.

DESIGN YOUR VISUALIZATION SYSTEM WITH ZENON

To ensure maximum user-friendliness, PROTEC develops customized software solutions with products from well-known international manufacturers. The personalized visualization solutions provided by PROTEC are based on the zenon software platform from COPA-DATA. Its partnership with the Salzburg-based software developer began in 1995 and today PROTEC holds Silver Partner status. The main product resulting from this collaboration is PROVIS, a modular visualization system from PROTEC.



PROTEC uses zenon Report Engine to generate all the reports to manage its energy data.



Working with zenon, PROTEC was able to implement the building management system in around six weeks simply by setting parameters.

IMPROVING ENERGY EFFICIENCY WITH ZENON

“zenon makes it easy to integrate different bus systems and provides the optimal connection between OT and IT systems,” states Haris Mahmutovic, Managing Director and Authorized Officer at PROTEC. “It enables us to provide our customers with high- efficiency, manufacturer-agnostic automation solutions that are highly ergonomic and energy efficient.”

PROTEC solutions also benefit from high energy efficiency thanks particularly to ProDam, a proprietary energy monitoring system also based on the zenon software platform. The system enables users to automatically record, evaluate, and visualize consumption data from counters, meters, or PLC variables.

ProDam can be used for all types of consumption (electricity, gas, heating oil, heat, cooling, compressed air, water) and it can be expanded to a complete process control system. This enables system operators to monitor and reduce resource consumption. The zenon implementation not only includes all machines and equipment, but also includes the buildings.

END-TO-END BUILDING MANAGEMENT SOLUTION

In 2022, PROTEC moved into the Protec Innovation Center (PIZ), a newly constructed building complex with three floors for offices and two for production. With a total area of 2,250 m², the PIZ offices have space for up to 90 employees. PROTEC is thus continuing on its path of steady growth.

The building was designed from top to bottom for sustainability. Heating and cooling are provided by air-source heat pumps with component activation, and there is a photovoltaic system on the roof with an output of 39.4 kWp. This supplies, among other things, charging stations for electric cars and e-bikes in the underground parking garage.

PROTEC saw the move as an opportunity to develop an end-to-end building management solution based on zenon. This comprehensive master control system coordinates the individual control systems and makes sure that the workplace is the right temperature, with minimal energy consumption. For example, the position of the external blinds is set according to the position of the sun and the lighting controls, including presence sensors, are powered from the DALI bus.

“Particularly in building automation, it is an advantage that zenon offers hundreds of native interfaces to virtually all control systems and components on the market,” says Haris Mahmutovic. “We have integrated many systems using OPC UA, and others using their proprietary bus systems end to end.” The connection of around 30 electricity meters was carried out directly in zenon using the soft PLC zenon Logic, an important element of the zenon software platform.

GAINS THROUGH PEAK LOAD MANAGEMENT

Not only is zenon completely agnostic of hardware manufacturers, the software platform is also used in many different industries. It therefore offers many features for different disciplines.

In energy technology, for example, zenon makes it easier for users to take the step toward renewable energies with the Application Set for power generation using photovoltaics. These ready-made components deliver time savings and reduce the possibility for error when configuring a solution with zenon. “As a low-code system, zenon can be personalized without any programming effort simply by setting parameters,” reports Haris Mahmutovic. “Two of my specialists completed the entire task in around six weeks.”

“Through optimizations made using energy flow evaluations with zenon, we were able to reduce daily energy consumption from 600 kWh to 140 kWh.”

**HARIS MAHMUTOVIC, MANAGING DIRECTOR AND AUTHORIZED OFFICER,
PROTEC STEUERUNGEN + PROZESSTECHNIK GMBH**

Peak load management can also lead to significant energy savings and reduce the amount of CO₂ equivalents. PROTEC draws on experience from its own early days, when the company created what was then an innovative load-shedding control system using a target load computer. zenon’s extensive functions for intelligent load management enable users to coordinate energy allocation based on priority. If the generation output of the photovoltaic system is low, the digital infrastructure and room air conditioning can be prioritized over optional loads, such as charging electric vehicles.

MAXIMUM REDUCTION IN CONSUMPTION

The experts at PROTEC have implemented a visualization system for operating and monitoring that can be accessed in several ways. For one, it runs on a permanently mounted terminal. A durable handheld device enables mobile use. The handheld is equipped with an RFID reader to identify the room you are currently in. At the same time, every employee has the option of accessing the visualization on their office PC via web browser to configure the settings that affect them.

PROTEC uses zenon Report Engine for energy data management. The automation experts use this tool to create all the necessary reports. In addition to consumption and network quality analytics, this program also includes trend calculations. “Through optimizations made using energy flow evaluations with zenon, we were able to reduce daily energy consumption,” states Haris Mahmutovic. “It fell from a previous 600 kWh to the current 140 kWh.”

A connection to the ERP system enables users to link the energy data recorded automatically to other operational information. “We can incorporate data on energy consumption and personnel deployment in specific production areas in the calculation for a control cabinet,” reports Haris Mahmutovic. “In the final configuration phase, we also want to be able to automatically calculate the environmental footprint and include this figure in the customer documentation.”

HIGHLIGHTS:

Building management system at PROTEC based on zenon

- ▶ Easy integration of different hardware systems
- ▶ Direct connection of counters, meters, and PLC variables
- ▶ Peak load management to ensure maximum reduction in consumption
- ▶ Implementation in the shortest possible time without any programming effort
- ▶ Energy consumption reduced by 77 percent