

DEOS AG Case Study

After only two days of renovation: Meinloh Primary School in Ulm significantly saves heating costs with the DEOS wireless radiator thermostat



The Meinloh Primary School in the city of Ulm-Söflingen

The city of Ulm (Baden-Württemberg) borders Bavaria and is known for the Ulmer Münster with the highest church tower in the world (161.53 meters) and as the birthplace of Albert Einstein (March 14, 1879). The Meinloh Primary School is one of 27 primary schools in the city of Ulm and is centrally located in the Söflingen district. With about 270 pupils, it is one of the largest primary schools in Ulm. The school campus consists of two buildings: the former monastery building, which is over 100 years old, and the former secondary school building, which was renovated in 2013.

Both buildings require energy optimisation. The focus is on reducing heating costs through building automation, which enables a quick return on investment (ROI).

The city of Ulm also had the goal of significantly reducing heating costs in its buildings. Those responsible were looking for a solution that could be implemented quickly while the buildings were in continuous use. The provider should have a high level of expertise in professional building automation to ensure a future-proof and expandable solution. During the research, the choice fell on the wireless thermostat DEOS TEO. It impresses with its battery-free (saves ongoing service costs), the LoRaWAN radio protocol (ensures the best reception in all parts of the building) and the simple and quick installation during operation.

"After installation and remote configuration, the building was ready to save energy after just two days."

The city of Ulm started the project with a pilot project request to DEOS in December 2023. Initially, 44 old radiator thermostats were replaced by the battery-free TEO wireless thermostats in the younger school building and 22 LoRaWAN wireless sensors were installed. Two LoRaWAN wireless gateways were sufficient to ensure radio coverage of the entire building.

Those involved were enthusiastic about the simple, fast and clean installation as well as the savings effects, which can amount to up to 30% of heating costs. The installation company Elektro Trossbach GmbH from Ulm was trained on the system in just half a day and then carried out the replacement of the old thermostats and the training of the new wireless thermostats and sensors.

The system configuration, the role concept and the setup of the dashboards were implemented by DEOS and the responsible persons of the city of Ulm in one day. As a result, the entire installation, configuration and commissioning could be completed within just two days, and the building was ready to save energy.

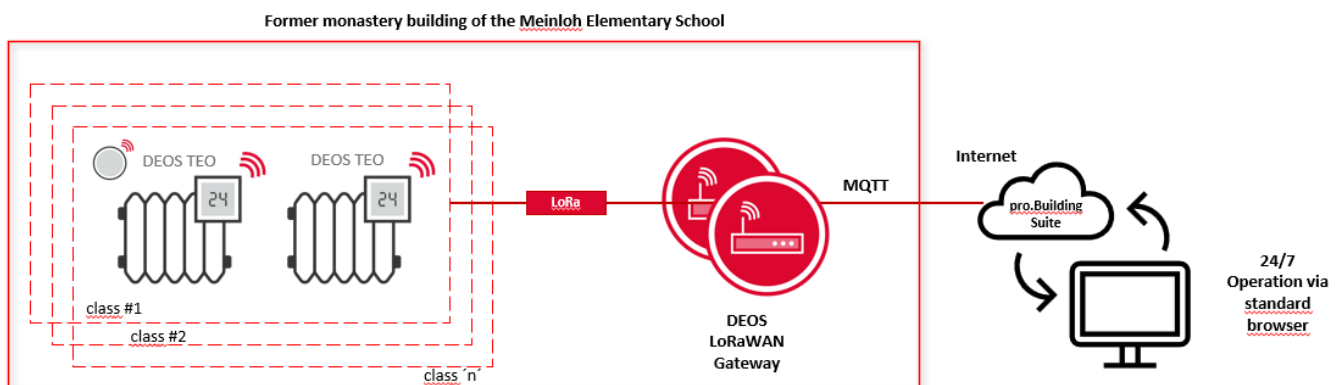


LoRaWAN wireless network impressed in the second historic part of the building

The first heating season in winter 2023/24 showed significant savings through DEOS TEO and increased comfort for users. As a result, the city of Ulm decided to install DEOS TEO in the second school building – the historic monastery building.

The thick walls and ceilings of the old building posed challenges for the planners of the wireless network. The optimal positioning of the LoRaWAN gateways was crucial. To everyone's delight, the theoretically determined positions proved to be completely sufficient to reliably cover the entire building.

In the second project, Trossbach was able to benefit from the experience of the pilot installation and took over the complete implementation – from the installation of the TEO thermostats to the system configuration. This underlines the ease of use of the system and shows how quickly you can become a DEOS TEO expert.



Clever heating system that thinks for itself!

The desired room temperatures are set centrally and automatically via DEOS TEO. The **actual temperatures** are recorded by the additional LoRaWAN wireless wall sensors. In the past, it was often forgotten to turn down the radiators at night or during holidays. Today, an integrated time and calendar program takes over this task: It automatically reduces temperatures at night, on weekends and during the holiday season.

In addition, there is a function that can temporarily overwrite the heating calendar if necessary – for example, for parent-teacher conferences or conferences. The holiday mode also ensures an automatic lowering of temperatures.

Modern operating concept

Different operating levels and access rights were defined for the three user groups (caretaker, city of Ulm and Trossbach). This adapts the level of detail of the user interface as well as the available functions to the respective role. The DEOS IoT/cloud solution can **be used to set the target temperatures for each room 24/7 and regardless of location via mobile phone or tablet and monitor the status of the system.**



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Technology at a glance

- **Two school buildings**
98x battery-free DEOS TEO and 4x LoRaWAN gateways with internet connection to the DEOS IoT platform
- **Wireless Temperature Sensors**
45x LoRaWAN wireless sensors as wall mounting for actual value recording
- **IoT/Cloud Platform**
For 24/7 operation locally and remotely - incl. role concept and visualization.