

## CASE STUDY

# SMART METERING IN THURGAU: “THURGAU ENERGIE+” PILOT PROJECT BANKS ON DATWYLER SOLUTION

As part of a pilot project in Frauenfeld Datwyler, acting as overall project manager, has successfully implemented a smart metering solution covering three buildings belonging to the cantonal Property Management Service. More of the canton’s buildings are currently being equipped with this technology.

The canton of Thurgau has set itself ambitious targets in the field of energy saving and climate protection, with cantonal energy policy fundamentally focussing on the vision of the “2000-Watt Society”. This aims to reduce CO<sub>2</sub> emissions to one tonne per person per year by 2080 at the latest. As a first step the cantonal administration wants to install a smart metering solution to measure and analyse energy consumption in its own buildings and facilities. At the same time this solution forms part of the future central facility management of all real estate, which also encompasses other building systems such as lighting, HVAC, access control and fire alarm systems and should, among other things, permanently reduce operating and management costs.

As part of the “Thurgau Energie+” pilot project intelligent meters are initially being used to record energy consumption data in three cantonal Property Management Service buildings. These are the Engineering Training Centre BZT, the State Archive and the Promenade administration building in Frauenfeld. The smart metering solution for the pilot projects comes from the Datwyler Cabling Solutions Division, which was awarded the contract for the overall project management at the same time. The most convincing argument for the solution proposed by Datwyler was that it can be flexibly integrated into existing buildings and provides an open platform for expansion of the Facility Management System. Not the least important factor was that the solution was supplied as one package from a single source.

The contract initially covered the formulation of measurement concepts and guidelines for integrating the solution as well as installation, cabling and the parameterisation/programming of BUS-compatible meters and requisite system devices. In addition the components had to be incorporated into the cantonal administration’s standardised IT network – a prerequisite for being able to collect and evaluate the measured data locally and centrally.

### Implementation with local partners

After a short planning phase the solution was installed in three construction phases from June 2011 onwards. For jobs in the

areas of system integration, electrical installation, gas/water and HVAC Datwyler called in expert partner companies, chiefly specialist local planners and installers. Start-up of each installation and visualisation of the data points took place immediately after each construction phase. The work was completed at the end of 2011, and the administration was able to start operating the installation.

### Software solution by Datwyler

Datwyler’s VaserControl software plays a central role in the project implemented. Both the meters installed for electricity, gas, oil, water and heat as well as the meters for the solar energy produced deliver their data points to corresponding IP routers via various fieldbus systems such as KNX or M-BUS. Locally installed VaserControl mini-servers collect the data points transmitted and send them to the central VaserControl server in the IT Department’s data centre in Weinfelden. Communication between the local mini-servers, which are used as data loggers, and the central server is based on the handshake protocol, so that no data can get lost. The VaserControl server is responsible for processing the data for visualisation and stores them in a separate MS SQL database. The HTML5-based visualisation software





can be used to call up the consumption data of each building by web browser.

The cantonal administration installed additional energy management software for detailed analysis of the data collected. Datwyler programmed an interface for VaserControl so that the data collected could be forwarded to this software.

### Close cooperation

For Datwyler to complete the whole project on time and below cost ceiling, extremely close coordination was necessary with the three departments involved, the electricity, gas and water suppliers, and eight partner companies. An additional challenge was that each building had a different existing installation, with different standards and various BUS systems. Thanks to close collaboration between all concerned, however, the new meters, which had been precisely defined in advance, were installed without the need for major reconstruction, and existing devices – electricity meters with an S0 interface and heat meters from

Siemens, for example – were successfully integrated in the installation.

An advantage here was that the smart metering solution supplied by Datwyler has open interfaces. It also allows VaserControl both to operate the system locally and host it externally. And, not least, the IT Department's support ensured that all the network parameters were already set prior to installation. This meant that mini-server start-up was also plug-and-play.

Today cantonal Property Management has at its disposal a scaleable solution which allows the continuous evaluation of consumption data, thereby serving as a basis for building optimisation. It can use visualisation to reveal weak points and implement efficiency-boosting and energy-saving measures.

Following successful completion of the pilot project Datwyler is currently installing the appropriate technology in two further buildings – the IT Department's data centre and the new Eschlikon Werkhof building.

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