



Bridging the gap between planning and online data via QR code

Mangelberger Elektrotechnik GmbH, headquartered in Roth near Nuremberg, is a leading solution provider for building automation, with a focus on the retail, discount and fast food chain segments. The company has achieved a unique position through its innovative services based on self-developed technologies for Internet-based remote maintenance, remote control, energy management, and smart metering.

Switchboard construction and manufacturing is a mainstay of Mangelberger. For the decentralized collection of data in a cloud and its further use, each switchboard is equipped with a self-developed communication technology which supplies the consumption, referencing and status data from the control cabinet in the field in XML format to a cloud. From there, Mangelberger can call online worldwide to obtain current measured values and other measured variables located in an object for individual consumers. More than 5,000 switch cabinets equipped with the technology are already in the field worldwide.

With its Acti 9 program, Schneider Electric has long been a partner of Mangelberger for the installed products and technologies for distributing and switching energy. Both companies have now launched a pilot project to further exploit the

potential of an Industry 4.0 strategy at Mangelberger. The aim is the automated, robot-assisted assembly of complete switch cabinets. Schneider handles the automation part with its comprehensive program for the automation of complete machines and systems as well as with its own engineering specialists. A PacDrive LMC, based on Sercos® III architecture, controls the robot.

Schneider Electric also launched a special QR code on Acti 9 assemblies specifically for this project. Mangelberger is the first company in the world to receive assemblies with the QR code intended for later inclusion in series production. The QR code is one of the key elements for further exploiting the potential of an Industry 4.0 strategy at Mangelberger.

Each Acti 9 component is identified by the applied QR code and

other features. The code is recorded in each case before insertion in the magazines of the assembly plant and again before installation on a DIN rail. On the one hand, the product data form the basis for an automated supply of the assemblies from the magazines for the assembly process per the CAD data, and on the other hand they serve for the automated assembly test.

An additional aspect is the automated transfer of the module-specific data defined in the QR codes to the EDP. By scanning the QR code of each installed component, a bridge is created for the bidirectional data exchange between the production automation, the CAD system and the documentation. The resulting potential is immense: Measured values of a real assembly in the field can in future be linked via cloud with the documentation data of the assembly in the CAD data and compared with the underlying operating values. For example, the referencing of online actual values with setpoints defined in the planning allows automated revisions and optimizations in

the planning and analysis software.

In addition, the door is open for a coupling of the module data and the associated measurement data with solutions for energy management and databases of all kinds – whether ERP system for storage and ordering, shop solutions or other online databases. The way is then open for automated management of component data in planning and materials management.

Thus, the project is a milestone in the development of the partnership. Schneider Electric will become the single source for Mangelberger due to the ability to integrate its products into Industry 4.0 projects. In addition, Schneider Electric is also Mangelberger's partner for the automation of future production technology.



"Together with our partners E-Braun and Schneider Electric, we have launched a cutting-edge project for production automation in switchgear production and automated updates using Internet technologies,"
Jürgen Mangelberger, CEO Mangelberger Elektrotechnik GmbH, Roth

