



WAGO

SUCCESS STORY

ELECTRICAL ENGINEERING AT WAGO

WS CAD
ELECTRICAL ENGINEERING

At a glance:

Customer

- WAGO Kontakttechnik GmbH & Co. KG, Minden, Germany
- Vendor/manufacturer of connectors, automation technology and interface electronics
- 8,500 employees worldwide

Situation

- Creation of electrical CAD parts (symbols and data) for WAGO's product range
- Electrical CAD solution also used for education/apprenticeships
- Interfaces from WAGO applications to WSCAD software
- Electrical engineering and control cabinet design of WAGO's manufacturing systems
- Building automation and electrical installation, digitisation of older plans (not part of this user report)

Software used:

- WSCAD SUITE
 - Electrical engineering
 - Cabinet engineering
 - Fluid engineering
 - Piping and instrumentation diagrams (P&IDs) for process engineering
 - Building automation
 - Electrical installation

Benefits

- End-to-end engineering from piping & instrumentation diagrams to electrical schematics and control cabinet design – all in one software
- Input data once and re-use it throughout the complete engineering process
- WAGO electrical CAD components available at wscaduniverse.com

Innovation and digitisation are key when using electrical connectors and electrical connection technology. Electrical designers and building planners can benefit significantly from a powerful combination of quality components, up-to-date product data and an efficient electrical CAD system.

WAGO Kontakttechnik GmbH is a well-known supplier in the automation world. The WAGO Group has more than 8,500 employees working at nine international manufacturing locations, including its Minden headquarters in Germany with more than 2,700 employees and the production and logistics location in Sondershausen, Germany. The WAGO product range has been developed to meet the growing demand for electrical connection and automation technology in switchgear construction and building automation. In addition to terminal blocks, the company's product catalogue includes transmitters, power supplies, controls and I/O systems. WAGO also provides 3D and electro-technical data for all its components.

With efficiency and productivity in mind, WAGO decided to use the WSCAD SUITE electrical CAD solution for design and maintenance of its in-house manufacturing facilities. It is also used to manage the Minden site's entire electrical installation. The decision was made because WSCAD SUITE covers six relevant engineering disciplines: electrical engineering, control cabinet design, fluid power, piping and instrumentation, building automation and electrical installation. On top of this high functionality, the software is easy to use. This has enabled WAGO to increase the skills portfolio of its personnel who are using the WSCAD software. The company uses the WSCAD's Electrical Engineering (EE) and Cabinet Engineering (CE) modules to design and maintain its manufacturing facilities and to manage a wide range of customer projects. WAGO has also used the WSCAD SUITE software for internal training and for the design of pneumatic and hydraulic plans. With the additional capabilities offered by the

Building Automation (BA) and Electrical Installation (EI) modules, WAGO will be able to expand further by building even more facilities in Minden.

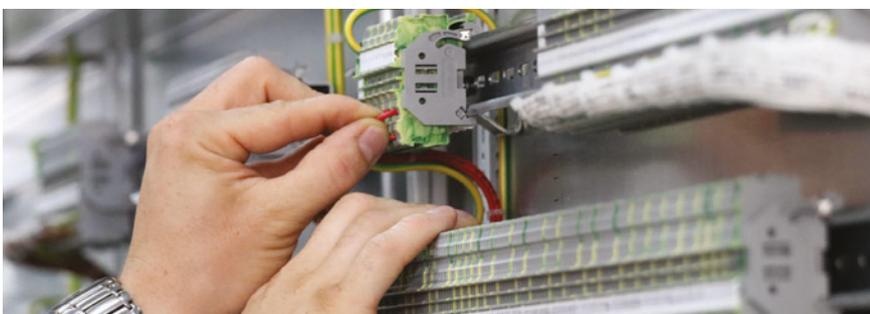
The company takes full advantage of the common interface that links WSCAD SUITE with WAGO's own Smart Designer package. Essentially, this makes WAGO both a WSCAD user and a partner, which also enables the company's personnel to become extremely knowledgeable about the WSCAD system.

Eliminate routine tasks to improve efficiency

WAGO uses the various tools available within WSCAD SUITE for the electrical design needed to extend and enhance its manufacturing machines. It achieves considerable time savings when generating schematic diagrams. Using drag and drop, the process of inserting sub-circuits and even entire layout pages into the electrical design is simplified. Replacing a component in one schematic is immediately completed in all other plans, saving time and improving quality.

This reflects the clear strategy behind the WSCAD SUITE: by relieving the electrical engineer of repetitive routine tasks, they have more time for creative tasks and for handling engineering processes. Intelligent links between symbols and components make it easy to identify components in a control cabinet, and display the schematics and all the relevant data, including the cable labeling and pin assignments or the current cabinet structure. Having such comprehensive information available reduces development times and makes time-consuming manual design tasks or recurring routine work unnecessary.

„There is nothing difficult for the electrical engineer here, everything is straightforward thanks to the easy-

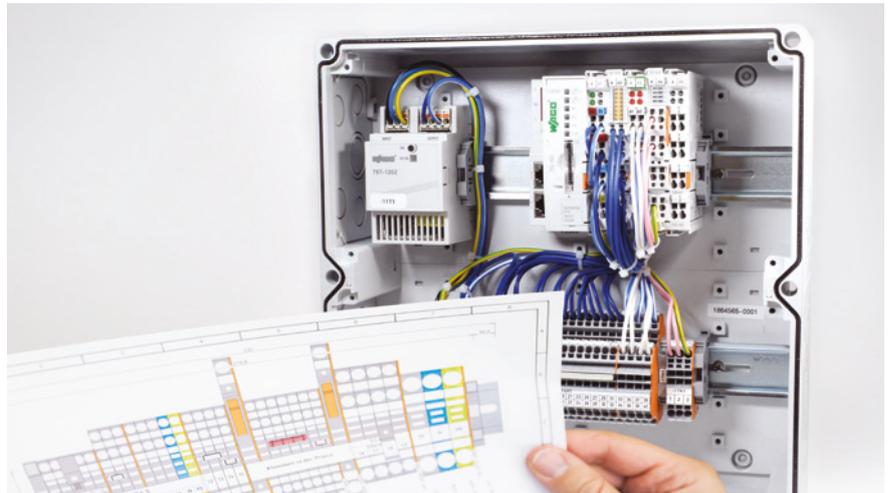


to-use user interface,” explains Alexander Krahnert, administrator of CAE applications at WAGO.

This simplicity is extremely important, because, very often it isn't the electrical engineer who works with the system regularly, but rather the maintenance personnel. Their job is to enhance or convert existing machines and systems and they lack the special expertise of an electrical CAD system. This is where one of the key strengths of the WSCAD SUITE solution comes into play, says Krahnert: „The WSCAD software is structured clearly, is self-explanatory and easy to understand. Even if you have not worked with it for a lengthy period, you can still use it very quickly and efficiently.“

A clear 3D overview ensures rapid control cabinet construction

With details that drill down to a tenth of a millimeter, the 3D cabinet views on WSCAD SUITE reveal the mounting location of all control cabinet components. This minimises installation errors that could occur early in the design stage. But that's not all. The WSCAD SUITE calculates and visualises the optimal wiring connection paths, the filling degree of the cable duct, the cable lengths, wire types, bundles and the associated cable colours. It also provides the correct

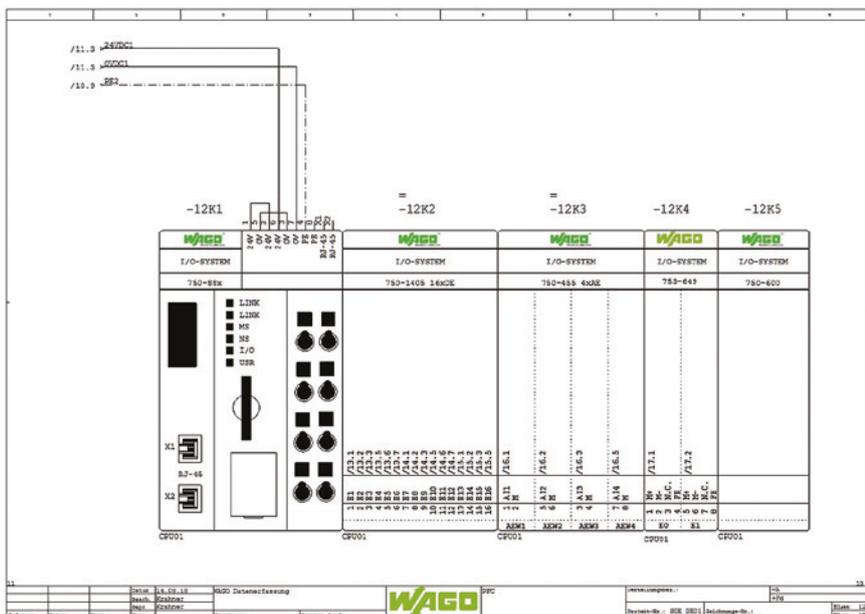


The WSCAD software provides the correct labeling data for the assembly of control cabinets. WAGO terminals are labelled and configured directly from the WSCAD application using the WAGO smartDESIGNER. The result is immediately available for further processing in the circuit diagram.

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labeling data for printing, for example using the WAGO thermal transfer Smart Printer. For the manufacturing of wires, wire sets and cabinets (sheet metal), the WSCAD SUITE software is able to transfer all necessary data

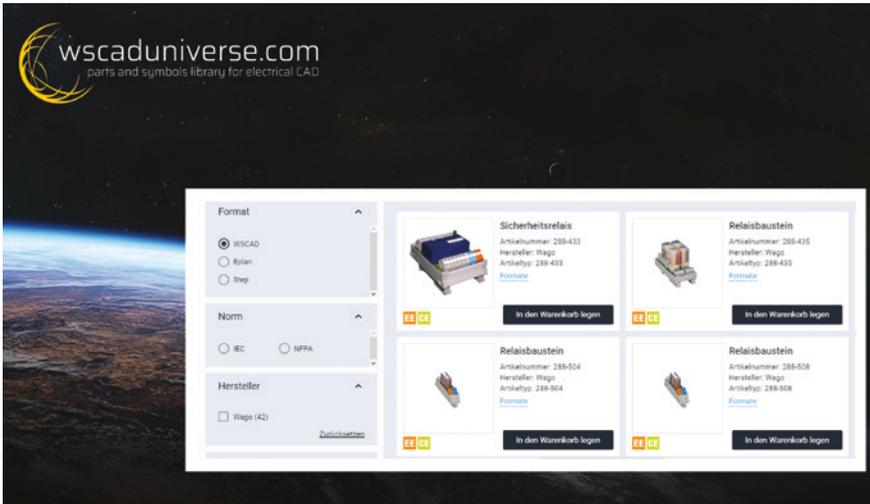
to NC machines, supporting a wide range of well-known manufacturers and external service providers. These functions are part of the software and do not require additional licences, unlike other Electrical CAD solutions on the market.



WSCAD SUITE delivers its photo-realistic 3D views of control cabinet layouts based on high-quality 3D data in standardized STEP format available on www.wscaduniverse.com or other CAD libraries, a feature that Alexander Krahnert is extremely impressed with.

„What we like about WSCAD SUITE is the simple and very fast 2D layout of a control cabinet with the option of collision checks based on actual component dimensions,” he says. „This is an excellent, all-round electrical CAD system with a clear functional structure. WAGO uses WSCAD SUITE in the training workshop, in the design of manufacturing machines and for individual customer projects.“

Macros and macro variants significantly accelerate the design of electrical schematics.



On wscaduniverse.com, users can find technical product information along with the corresponding symbols and 3D models of WAGO products – all presented in a clearly structured design.

High quality data

Having access to the best possible data is by far the most important factor for WAGO across all its applications and processes.

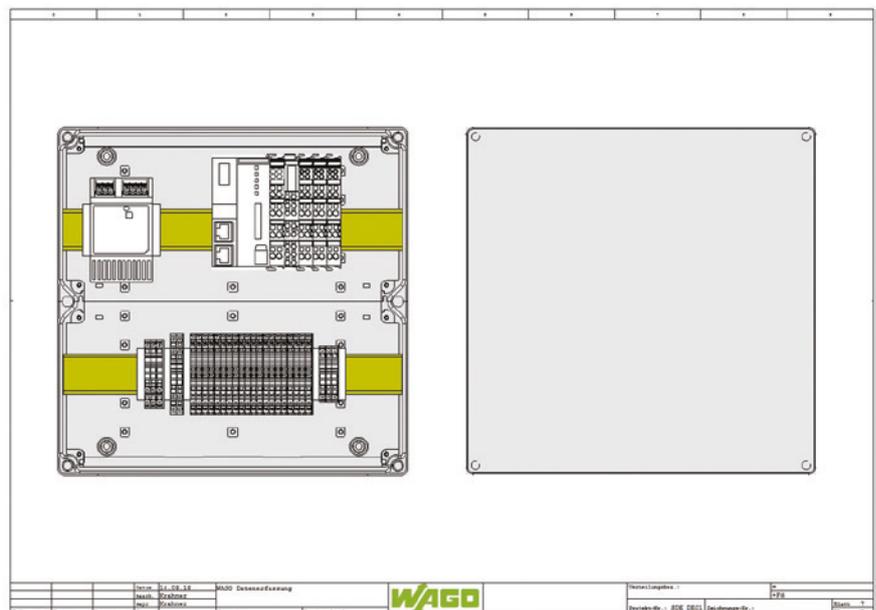
all the commercial and technical master data, configures routing points for automatic connections and maintains the specifications of all WAGO's products. He says: „DIN symbols are only available for a small number of the

” *With WSCAD we have a very good partner in terms of uploading the article data on wscaduniverse.com as well as working together on the development, implementation and integration of WAGO Smart Designer into the WSCAD software“*

„Many WAGO products have a 2D and 3D model as well as complete electrical data and associated symbols,“ says Krahrer. „Good data quality for every product and data consistency are of the greatest importance because all subsequent processes are based on this.“

As an administrator for System & Project Engineering, Krahrer is responsible for all in-house electrical CAD data. He designs and implements the symbols stored with a lot of additional information, takes care of delivering

The WSCAD software calculates the optimal wire connection paths as well as the filling level of the cable duct, cable lengths and wire bundles along with the associated cable colors.



components and current WAGO products sometimes require completely new symbols, which we are able to design and make available in line with the DIN system.“ In this way, WAGO provides complete and reliable data records which enable users to achieve their goals faster than was previously possible.

Interaction ensures consistency and data transparency

An example of seamless interaction between systems is how the WSCAD SUITE works so efficiently with the browser-based WAGO configuration software Smart Designer. The design engineer simply places a WAGO product in the WSCAD SUITE, the on-line configurator is accessed and the results are immediately available in WSCAD for further processing. This ensures consistency and data transparency along the entire value chain, reducing costs and time, while avoiding unnecessary additional effort. WAGO calls this “System & Project Engineering” and it is a solution that supports the user from project design through engineering to testing and commissioning.

Fast and tailor-made solutions for a variety of requirements

WSCAD SUITE users at WAGO benefit significantly from digitised and automated engineering and automation



Control cabinets at WAGO are designed with the Cabinet Engineering module from the WSCAD SUITE - including the manufacturing data for the manufacture of the wire sets and cabinet housings on NC machines from well-known manufacturers.

processes. Being able to create error-free electrical engineering schematics quickly and with little effort, puts WAGO ahead of the competition. For this reason, interfaces to product lifecycle management (PLM) and enterprise resource planning (ERP) systems are incredibly important for electrical engineering, as are interfaces with applications from other suppliers of automated systems.

Because WAGO worked closely with WSCAD SUITE experts from the very beginning, the data migration and importing of existing electrical schematics has gone very smoothly.

„With WSCAD SUITE,“ says Krahnert, „we now have a powerful and efficient software that covers the entire range of what we do. So now we can manage building automation, we can ge-

nerate electrical schematics, we can design our electrical installation plans in a uniform format, we can control fluid power design (pneumatics and hydraulics), and we have capabilities we never had before when designing our control cabinets.“

www.wscad.com

WSCAD is part of the Buhl group with more than 700 employees. WSCAD has been developing electrical CAD solutions since three decades. Customers include medium-sized companies, international corporations and engineering service providers. More than 35,000 users rely on WSCAD SUITE as their electrical CAD solution. The software is based on one core platform that covers six engineering disciplines: Electrical Engineering, Cabinet Engineering, Piping and Instrumentation, Fluid Engineering, Building Automation and Electrical Installation. Any change made to a component in one discipline immediately reflects in all the other disciplines. WSCAD methodologies for standardization, reuse and automation significantly reduce engineering time from several weeks to just a few hours or even minutes. At the same time, these practices also ensure a much higher quality of work.

wscaduniverse.com is by far the largest electrical CAD data library on the market offering over 1.4 million parts from more than 300 manufacturers. It is the only digital library that supports both WSCAD and Eplan* users alike as well as 3D CAD data. Use and provision is free of charge for all users and manufacturers of parts and equipment. Maintenance engineers and service personnel are now able to scan devices and components within a control cabinet by using the WSCAD Cabinet AR App on their smartphones or tablets. This provides them instant access to the schematics, device tags, part data, 3D views and even the original data sheets from the manufacturers.

The WSCAD portfolio is completed by eleven seamlessly integrated service offerings from WSCAD Global Business Services such as: engineering and migration checkups, consulting and training, digitization of paper documents and conversion of thirdparty electrical CAD formats.

This article was published in SPS-Magazin, TeDo Verlag edition 6, 9th June 2020, author: Thomas Walker, www.walkerbretting.com

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