Keeping cabinet engineering quick and consistent

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The control cabinet is the heart of every electrical system. Precise and efficient cabinet design forms the basis of successful engineering, right up until the finished cabinet is commissioned. The seamless integration of all processes along with a tightly synchronised production chain is enabled by tailor-made electrical engineering software from WSCAD.

At first glance, control cabinets for buildings or industrial systems are nondescript grey metal boxes. However, they conceal intricate switching systems for the supply of energy to equipment in places as varied as production lines, shopping malls or hospitals. Depending on the design and equipment of buildings and systems, cabinet engineers often need to manage complex electrical schematics, cabinet assembly, manufacturing, and installation on site.

Access all project data

A holistic electrical engineering solution needs to cover the entire cabinet design process while ensuring integration with associated building systems and equipment.

Leading electrical engineering software manufacturer, WSCAD, is focused on the consistent digitalisation of control and switchgear engineering. The current generation of WSCAD ELECTRIX contains a complete tool set for the design, construction and manufacture of electrical control and supply units. It features an advanced Design Engine (editor) and integration with standard DXF/DWG CAD formats as well as the ability to interface with the most important component manufacturers and higher-level enterprise software. This electrical engineering

package includes a comprehensive parts database and access to the wscaduniverse.com online database with its fast search filters. Equally attractive to engineers and service technicians is support for modern technologies such as augmented reality, multi-threading, and automation functions for practically any task, with data easily transferable to the workshop and the production team.

Getting the right order

The arrival of an order starts the process for the design team. Imagine the specification calls for a fast, customised control cabinet design. Its basis is a schematic diagram with cabinet design drawings.

Within the WSCAD software portfolio, these are handled by two specialised modules: Electrical Engineering (EE) and Cabinet Engineering (CE). When it comes to the electrical design of building services, the Building Automation (BA) module for the plant layout and control diagrams as well as the Electrical Installation (EI) module for installation planning enable efficient project delivery. Each tool contains a range of templates which consist of standardised symbols, part master data, macros, and any recorded data points, such as terminal schematics, automatically generated material and connection lists as well as standard-compliant documentation.

"Our order processing depends on consistent engineering which is enabled by WSCAD. This serves up all requisite information via a user-friendly control interface with fast, easy access to relevant functions", explains Cabinet Engineer Daniel Vogl, Junior CEO of Vogl Elektromeisterbetrieb GmbH.

Fast cabinet production

All WSCAD modules are fully inter-compatible. Every new input or change to the electrical and cable design, once confirmed, automatically updates all other project views including specifications and connection attributes.

For instance, switchgear manufacturer NW Niemann calculates its quotes based on initial design data. As soon as an order is received, the relevant schematic diagrams are produced to fit the subsequent cabinet design and manufacture.

"Everything runs on the WSCAD platform. All project-relevant employees are kept up to date on every planning stage and can act accordingly. The seamless exchange of data avoids duplication of work and saves huge amounts of time," says Holger Pawel, Managing Director of NW Niemann in Vechta, Lower Saxony.

WSCAD users don't have to wade through product catalogues when choosing components and modules. The electrical designer connects directly with the wscaduniverse.com online database via WSCAD software and can access a dedicated search engine. Once the desired device manufacturer has been selected, the designer clicks on the corresponding components with the required attributes. Major manufacturers such as Wago or Phoenix Contact also provide direct access to their product configurators and online shops. This data is seamlessly imported into the WSCAD database and is simply dragged into the cabinet design with the mouse.

The same applies for routing cable connections and assembling wires or harnesses. The designer defines cross sections, colour codes, lengths, and properties of cable connections in WSCAD software. Wire lengths and cable trunking capacities are calculated with just a click. With the auto-routing function, the software automatically finds the optimal routes for all connections and calculates the wire lengths. There

are no more label printing errors, as the descriptions for wire and terminal strips, as well as the other electrical components and QR codes, come directly from the original project data.

Design in 2D, test in 3D

While many designers still prefer to design in 2D, plausibility tests of cabinet layouts can be carried out using photorealistic 3D representations. The 3D view provides a better spatial overview and shows the actual component dimensions, accurate to a tenth of a millimetre. This is especially important for collision-free placement of components. The same applies for the dimensioning of mounting plates, cabinet doors, cable trunking and rails.

The final benefit is mobile access to barcoding of a cabinet and its individual components - ideal for maintenance and service technicians. The Cabinet Augmented Reality (AR) app contained in the electrical engineering software from WSCAD scans the labels and links them with the cabinet's corresponding WSCAD project. Depending on requirement, the mobile device will provide access to relevant component or module information such as reference ID, function text, part number, electrical schematics, and the manufacturer's original data sheets.

In all aspects of cabinet design, WSCAD electrical engineering software provides the tools for users to quickly deliver consistent quality. Furthermore, its extensive, intuitive features provide easy access to relevant specifications and information throughout the cabinet lifecycle.

Image captions:

Image 1: Cabinet engineering with WSCAD is quick and easy. The continuous digitalisation of processes unlocks increased automation in engineering and production backed by consistent quality.
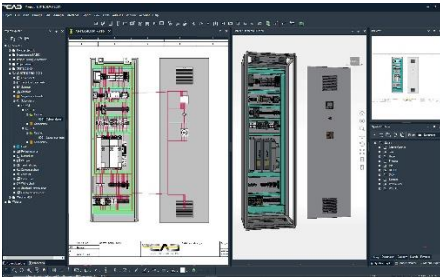

Image 2: 2D and 3D construction, automatic routing, filling level display of the cable ducts and the generation of data to produce wire sets and cabinet housings on NC machines are included at no extra charge.

Image 3: The included WSCAD Cabinet AR App identifies components and retrieves information from the Cloud. Notes on components can be added within the Cabinet AR App using the comment function.

Image 4: The app-supported wiring of control cabinets is much faster and more convenient than the traditional paper lists and circuit diagrams.

About WSCAD

WSCAD is part of the Buhl group with more than 700 employees. WSCAD has been developing electrical CAD solutions for three decades. Customers include medium-sized companies, international corporations and engineering service providers. More than 35,000 users rely on WSCAD 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 saving time and raising quality. 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 370 manufacturers. It is the only digital library that supports WSCAD, EDZ, DWG and 3D CAD data. Use and data provisioning is free of charge for all users and manufacturers of components and equipment. WSCAD also offers apps for mobile devices: maintenance engineers and service personnel are now able to scan components within the control cabinet by using the WSCAD Cabinet AR App. This way they get instant access to the schematics, device tags, part data, 3D views and even the original data sheets from the manufacturers. Building engineers can use the Building AR App on site to scan rooms and then edit the scanned floor plans in WSCAD for building automation and electrical installation.

The WSCAD portfolio is completed by eleven seamlessly integrated service offerings from WSCAD Global Business Services. Engineering and migration check-ups, consulting and training, digitization of paper documents and conversion of third-party electrical CAD formats quickly help to shorten engineering times and increase productivity.

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