

Control cabinet heat management

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Optimised electrical planning creates the perfect climate

Heat management is a major challenge for electrical designers, especially in complex control cabinet designs with closely packed modules and cables. To ensure safe operation, designers need to calculate any potential temperature rises and ensure the cabinet environment is regulated, which has traditionally been a time-consuming task. However, users of WSCAD's electrical CAD software **Electrix** now have access to a timesaving solution: a direct interface with **Schneider Electric's** software tool **ProClima**.

Calculating the exact thermal load in a control cabinet is difficult, and electrical designers have to account for numerous factors. "This is a complex topic and it's difficult to calculate as each component may have different temperature operating capabilities. That's why a generalised procedure according to BS EN IEC 61439 supplementary sheet 2 has been created", says Alin Dragan, Product Manager at WSCAD.

When designing systems, the experience of engineers is invaluable in identifying potential hot spots and discerning the thermal balance between the environment and switchgear. As well as practical knowledge, designers rely on several thermal specifications to reliably verify the safe operation of switchgear.

Key among them is BS EN IEC 61439, which describes the calculation method for low-voltage systems. The main parameters of this are the power dissipation values

of the electrical switchgear components, the material properties of the devices used as well as details regarding the ambient temperature at the installation site, humidity, and dew point.

Traditionally, this process relies on the time-consuming manual collection and collation of thermal data from manufacturer material databases before it is entered by hand into the relevant design software. This task becomes longer and more complicated if the control cabinet design features multiple components from different manufacturers.

However, for users of WSCAD's electrical CAD software, these hurdles along the path to efficient heat calculation can be overcome in just a few clicks. Tools like Schneider Electric's ProClima – which is accessed directly from the electrical CAD design software – calculate the optimal heat architecture from temperature data in accordance with IEC specifications and suggest appropriate temperature control measures.

Designers can therefore easily and quickly access the necessary data records required, as well as the control cabinet dimensions via the WSCAD part database or wscaduniverse.com, WSCAD's free online database. Time-consuming searches for manufacturer's component specifications are replaced with a push of a button, saving valuable time and reducing the complexity of the design process.

With Schneider Electric's ProClima widget as an integral part of WSCAD's Electrix software, electrical designers now have a powerful solution to secure effective heat management in the control cabinet climate.

Achieving thermal balance

1. Transfer project data from WSCAD Electrix to Schneider Electric's ProClima
2. Add information on installation type and the control cabinet
3. Record parameters such as temperature, humidity, dew point and the permissible temperature range for the components
4. Enter specifications including the power dissipation values of the electrical switchgear components based on part data
5. Calculation software uses this information to determine the heat architecture for the control cabinet
6. ProClima transfers the recommended components to the Electrix electrical CAD software for inclusion in the project

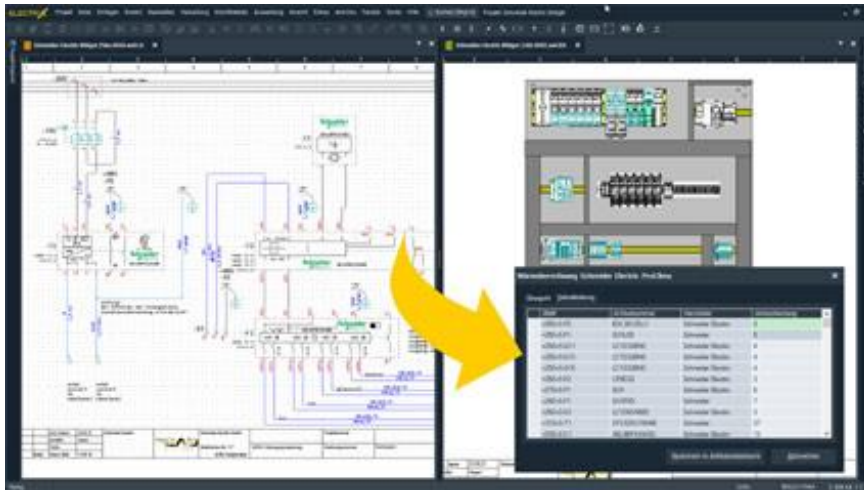
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Image 1: At the push of a button, all the data required for control cabinet heat calculations is transferred from WSCAD's Cabinet Engineering to Schneider Electric's ProClima.

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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.

Press contact:

WScad

Zishan Shaikh

Tel.: +44 (0) 203 966 2446

zishan@wscad.com

PR agency:

DMA Europa

Kiki Anderson

Progress House, Great Western Avenue, Worcester,
WR5 1AQ, UK

Tel.: +44 (0) 1905 917477

kiki.anderson@dmaeuropa.com

news.dmaeuropa.com