

We Got a Lot of Time on our Hands for Other Tasks

Drawing circuit diagrams does not occupy much of everyday life among the technicians of Invensys designing and projecting cabinets for building automation. It was not like that before; a new electrical documentation program has substantially reduced working hours spent on circuit diagrams.

Invensys is one the biggest players in building automation, and in Denmark they have been responsible for the project work and project management of several major projects, for instance the IT University of Copenhagen, Odense University Hospital, and the University of Southern Denmark. According to Jørgen Halkjær, regional manager in Denmark, you will also come across Invensys on lots of minor projects, right from small grocery stores to larger factories.

- Most recently we have entered the FDA business and made the control system for the ventilation plant, packing facility and storage at Fertin Pharma in Vejle; an area with very rigorous demands on the documentation of the indoor climate.

Invensys Building Systems operates in Denmark, Great Britain, Finland, France, the Netherlands, Italy, Norway, Poland, and Germany and employs more than 2,000 staff. Among software facilities they use tools such as Microsoft Office® and the CADdy⁺⁺ electrical documentation from IGE+XAO.



- In our departments in Denmark some 30 employees use CADdy⁺⁺ in their daily work. To that come more than one hundred employees in Great Britain. The reason why we use exactly this program every day is that we know the program very well. Yet another reason is that the supplier has been most willing to fulfil our wishes, Jørgen Halkjær explains.

Auto Generation was a Hit

In 1987 Invensys (previously known as Saas Instruments a/s) scrapped the old ink-and-pen drawings and began drawing the circuit diagrams on computers using the then CADdy for a tool. Four years ago it was time to look for something new.

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- A working group called Tornado was established in our British department with the purpose of finding a new tool – they suggested that we in the future should design and draw using AutoCAD, and got the approval of the management. This meant that we in Denmark also had to change program, from CADdy to AutoCAD.

Jørgen Halkjær did not quite agree with the British decision. So he told his CADdy supplier, namely IGE+XAO Danmark A/S, that the company were considering switching to AutoCAD.

- I got immediate response. They told me that they had a fairly new, intelligent program, which we were welcome to have a look at. IGE+XAO were quick on the draw; a couple of technicians and programmers travelled to Odense and showed us the functionalities of CADdy⁺⁺, in particular the auto generation from other programs such as Microsoft Excel[®] and Microsoft Access[®].

In connection with the auto generation the drawing process is automated in two systems, Micronet and Sigma. In the first system the circuit diagrams are generated on the basis of the list of parts from the quotation; in the second system it is based on the list from a finalized building services control system for the circuit diagrams.

- We use both systems and are actually impressed how fast the generation takes place. Each input and output retrieves a ready symbol, which CADdy⁺⁺ then links internally with the symbols in the circuit diagrams. The individual symbols refer to each other via the database and nothing is left out. The numbers of terminals and wires internally in the control board are also assigned automatically, Jørgen Halkjær explains.

Clearer and Easy-to-Read Circuit Diagrams

Over time the Danish Invensys technicians, led by Jørgen Halkjær, managed to win over the British Tornado people; so now they also use CADdy⁺⁺ and draw symbols according to the standards. On the whole, all this has resulted in the circuit diagram work hardly occupying technicians' time.



Jørgen Halkjær also stresses that the success has not been achieved without a lot of work.

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- We quickly saw the possibilities of CADdy⁺⁺, its underlying Microsoft Access[®] database, and the automatic generation of drawings from Microsoft Excel[®], and invested, right from the beginning, the time needed for implementing it all with our existing systems. Today most of it runs automatically, and both CADdy⁺⁺ and Microsoft Excel[®] are linked together with other programs. This means that the ring is closed; today all pieces of information are updated automatically.

- Now we can concentrate our efforts on key tasks, such as implementing installations, starting them up, and optimising energy consumption. Moreover, one of our project managers tells us that earlier it took him a day to draw the circuit diagram for a middle-sized control board – now he uses an hour at the most, Jørgen Halkjær points out.

Implementing CADdy⁺⁺ has also resulted in the circuit diagrams at Invensys becoming clearer and easier to read. Further, they now perform to all international standards comprising for example the layout of diagram symbols and the way pages are structured. All this is intended for simplifying the documentation.

- Now, for instance, we use the references from the terminal strips on the PLC for the individual input and output terminals directly. This is an undisputed improvement compared to our previous, more or less, homemade circuit diagrams. And so far we have hardly revised the program during the three years we have been using CADdy⁺⁺ for electrical documentation.

- IGE+XAO, Marts 2004

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