



PROVANTAGE AUTOMATION INTEGRATING AUTOMATION SYSTEMS DEVELOPMENT WITH SOLIDWORKS ELECTRICAL SCHEMATICS



Using SOLIDWORKS Electrical Schematics software to develop electrical systems for its automation machinery, ProVantage Automation has realized a 30 percent improvement in productivity, which has fueled and sustained a quadrupling of its business.



Challenge:

Integrate electrical and mechanical automation system design to ramp up productivity to support growth.

Solution:

Add SOLIDWORKS Electrical Schematics design software to its SOLIDWORKS mechanical design implementation.

Benefits:

- Cut electrical design time by 75 percent
- Increased productivity by 30 percent
- Quadrupled business in just 18 months
- Improved accuracy of assembly documentation

Manufacturers across North America rely on ProVantage Automation to design, produce, test, install, and support automated manufacturing systems. Founded in 2012, the company has a team of mechanical engineers, electrical designers, and controls programmers who bring a wealth of experience and expertise in the development of end-ofline packaging, paper converting, and material handling applications to its customers' automated manufacturing projects. The automated systems manufacturer's success requires leveraging the latest technologies—including PLC programming, precision motion control capabilities, robotics, human machine interfaces, and supervisory control systems to provide superior automation machine and controls design and integration services.

ProVantage has used SOLIDWORKS[®] mechanical design software since the company's inception to develop the mechanical aspects of its automation systems. However, according to General Manager Peter Graham, ProVantage sought to realize the productivity gains that it has enjoyed using SOLIDWORKS solutions for mechanical design in the electrical design of its machines. "We started out with a controls focus and utilized SOLIDWORKS mechanical design software to develop our custom, one-off automation machines," Graham recalls. "When we needed to create electrical schematics, we used a combination of AutoCAD[®] and DraftSight[®] 2D tools. That experience taught us that we needed a more efficient means for handling electrical design."

The company decided to evaluate how well four electrical design packages—AutoCAD Electrical, EPLAN, E3.WireWorks, and SOLIDWORKS Electrical Schematics software—handled the design of a motor control circuit. "We wanted to determine which package could do the job the fastest and how many steps were involved," Graham explains. "In the end, SOLIDWORKS Electrical Schematics software was the most efficient, required the lowest number of steps, and was the most intuitive. We also liked the fact that it integrated with our existing SOLIDWORKS mechanical software."

ProVantage chose SOLIDWORKS Electrical Schematics software because of its ease of use, high-quality schematics output, and strong local support from reseller Javelin Technologies. "Using SOLIDWORKS Electrical Schematics software, we were able to complete the motor control circuit in about five minutes, which is significantly faster—about one-quarter of the time—that it took using traditional 2D schematics development tools," Graham says.

FASTER ELECTRICAL DESIGN SUPPORTS GROWTH

The electrical design cycle reductions that ProVantage has realized using SOLIDWORKS Electrical Schematics software are helping the company manage its explosive growth rate, with a fourfold increase in business in just 18 months. "Comparing the way we work now with how we did things in the past, we've seen an increase in productivity of at least 30 percent," Graham stresses.

"When you factor in the added detail and accuracy, our investment in SOLIDWORKS Electrical Schematics software has proven to be wise," Graham continues. "By integrating electrical and mechanical design with SOLIDWORKS software, we've become more efficient in designing and selling our solutions, which has helped us to become more profitable."

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MAKING DESIGN REVIEWS EASIER FOR CUSTOMERS

ProVantage's customers also like the move to SOLIDWORKS Electrical Schematics software because its higher-quality electrical schematics facilitate and accelerate design reviews. "We've received good comments from our customers about the quality of our electrical schematics during design reviews," Graham notes.

"We export our electrical designs from SOLIDWORKS Electrical Schematics software into an interactive PDF file, which makes the information much more accessible to customers," Graham adds. "For example, our clients don't have to page through a 30- to 40-page schematic. They can simply open up the PDF, click on a symbol on the schematic, and go directly to the information related to that component. Because our clients can now navigate through the schematics document with ease, the responses to our use of SOLIDWORKS Electrical Schematics software are overwhelmingly positive and our customers appreciate the added value that we bring to electrical design."

HIGHER QUALITY SCHEMATICS INCREASE ASSEMBLY ACCURACY

In addition to facilitating customer design reviews, ProVantage's implementation of SOLIDWORKS Electrical Schematics software is paying dividends for the firm's manufacturing partners. For example, not only do ProVantage's electrical designers save time with SOLIDWORKS Electrical Schematics software, its electrical panel builders also benefit from the improved quality and accuracy of its electrical design schematics.

"Our panel builders report that our electrical schematics are now of higher quality, communicate greater detail, and include much fewer errors," Graham points out. "Part of this is attributable to the work of our electrical designer, but part of it is because SOLIDWORKS Electrical Schematics software does a lot of internal checking. Wire tagging is now automated and more consistent, and the greater accuracy of our schematics makes our production partners more efficient during assembly."

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With SOLIDWORKS Electrical Schematics software, ProVantage Automation has reduced electrical design cycles by 75 percent while simultaneously improving the quality of electrical schematics, leading to greater accuracy during assembly.

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