

# Solutions in Action

## Lab-Volt



Allen-Bradley Stratix 8300™  
Modular Managed Ethernet Switch



Allen-Bradley® ControlLogix®  
Programmable Automation Controller



Engineering educators have their work cut out for them. Without the everyday ability to teach students in professional environments, such as a major water and wastewater treatment plant, they must find other creative ways to demonstrate complex systems. Students training to become engineers and technicians need hands-on experience to adequately prepare for a future career.

With more than 50 years of experience, New Jersey-based Lab-Volt designs and builds technical training systems that help educators train students in a wide range of industries and applications, including electric power, fluid power, instrumentation and process control, automation and robotics, and telecommunications. The systems are modular, so they can be tailored to unique instructor needs.

“Hands-on training is often critical for these fields, but it also is often difficult for students to obtain,” said Stephane Casse, engineering team manager for Lab-Volt. “We bring the plant into the classroom.”

Lab-Volt recently worked with one of its key suppliers, Rockwell Automation, to develop a new demonstration unit that has been very well-received by its customers.

At industry trade shows and events, Rockwell Automation often demonstrates products individually, such as a servo drive or programmable automation controller. But the company needed to effectively demonstrate its PlantPax® process automation system on the event floor, to prospective customers and event attendees. Familiar with the company’s expertise, Rockwell Automation turned to Lab-Volt for a solution.

LISTEN.  
THINK.  
SOLVE.



Rockwell Automation had many requirements. The team needed an entirely mobile training system that could convert from transport mode to demonstration mode in less than 30 minutes. The compact unit needed to fit through a 34-inch standard door. It also needed to showcase batch and continuous processes. Lastly, the system had to be as self-sufficient as possible, so demonstrators could easily fill it with water and empty it out after an event.

The Lab-Volt team worked closely with Rockwell Automation to build a modular unit capable of showing real-life process applications across a wide range of industries, including water and wastewater, oil refining, petrochemical and food processing.

The unit demonstrates all capabilities of the PlantPax process automation system, including how it works with temperature, pressure, flow and level components, basic and advanced regulatory control capabilities, complex process loops, and pH and conductivity. Viewers can also see how the system integrates with Endress+Hauser instrumentation technology and the OSIsoft PI system for managing real-time data.

Each unit has two sections – a cart and control station desk – that can function together or individually. The cart features the hardware, including valves, pumps, instruments and tanks, as well as the control panel with a controller, drive, input/output, switch and operator interface. The control station desk consists of a touch screen all-in-one computer mounted on a mobile arm on the side.

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The control panel holds an Allen-Bradley® ControlLogix® programmable automation controller connected to Allen-Bradley Stratix 8300™ modular managed Ethernet switches and Allen-Bradley PowerFlex® 40 AC drives from Rockwell Automation. Like many process plants today, the unit uses multiple fieldbuses, including the EtherNet/IP™ network, PROFIBUS PA, FOUNDATION fieldbus™, and the HART® communication protocol. Operators at the control station desk manage parameters of the demonstrations using various Rockwell Software products.

“The PlantPax process automation system allows us to quickly and easily design demonstration and training systems that realistically simulate a process plant, and how it would function in real-world production environments,” said Casse.

Rockwell Automation has already seen success with the new demonstration unit. “This is the first time we’ve used a unit of this kind in Canada, and the positive feedback has been overwhelming,” said Steve Roy, OEM team lead for Rockwell Automation. “We’re receiving interest in similar units from our colleagues in other regions.

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