

LOGICDATA, Herman Miller Team Up on DC-Powered Height-Adjustable Desk

THE WORK BETWEEN HERMAN MILLER, LOGICDATA AND VOLTSERVER IS LEADING THE FURNITURE MAKER INTO CONVERSATIONS ABOUT HOW TO TAKE THE INNOVATION AND MOVE IT FROM A SINGLE CUSTOMER TO OTHER PROJECTS.

by Rob Kirkbride

Herman Miller was approached by one of its global clients. Could the office furniture maker make height-adjustable desks using a DC power supply? It had never been done, but at stake was the installation of 225 stations.

The project was the bailiwick of the company's business solutions group, where so-called "specials" called Herman Miller Options go to be analyzed and designed. Herman Miller certainly knows how to build furniture, but it turned to LOGICDATA, a Herman Miller

Gold Supplier, and VoltServer to add a bit of spark and know-how to its unique problem.

LOGICDATA and VoltServer came through, working virtually with the Options team at Herman Miller to adapt LOGICDATA's control box, the brains inside Herman Miller's height-adjustable tables and benches, from an AC (alternating current) power supply to a DC (direct current) power supply.

For LOGICDATA, the challenges were extensive, but not insur-

mountable, according to Marco Randazzo, key account manager and electrical engineer.

"Like every other device on the market we need AC power to control or to power up our devices," he said. "We had never had a DC-powered application. It's just something that never even really came to our mind because it's so unique and revolutionary, so our biggest challenge was taking those future requirements and making our controls adapt to that. Luckily, because we are forward-thinking, we did have an

application that was somewhat similar."

Using the control box that uses that battery they developed, they were able to take the technology Voltserver has created and use it in the battery application to do the same kind of thing.

"So it was taking a power source that we know nothing about and adapting it to work with our system reliably," Randazzo said.

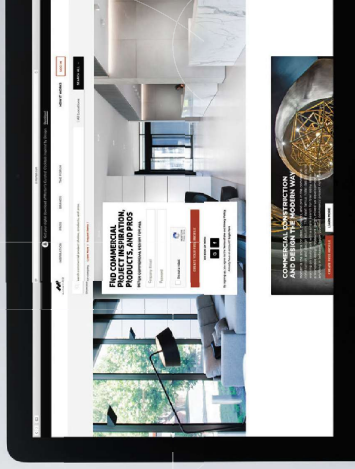
DC power is not new. It is used for most electronic items, including things like your computer, phone and other devices, but it requires conversion. The wall socket you plug into uses AC voltage. The small charger cube that runs from the plug to your device converts the power from AC to DC using transformers. DC is preferred by some and seen as the future of power because it uses so much less of it. It is much more environmentally friendly than AC power.

Still, DC has its disadvantages. DC voltage experiences loss when traveling over distance. Even over a small distance, like one end of an office to another, voltages can drop enough to make it unusable.

Before we get into the modern use of DC power, it is important to look back at the power wars that took place in the late 1800s. At that time, AC and DC were competing to become the standard. DC had the advantage of simplicity and safety. AC had the advantage of being able to move power long distances. The

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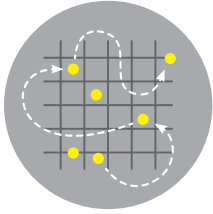
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Flexibility



Flexible power = flexible work

battle came to a head at the Colombian Exposition in Chicago. Thomas Edison's group promoted DC power, but they lost the battle because too much copper was needed to get the DC power from one place to another. Westinghouse won because they could move the high voltage AC power cheaply over long distances.

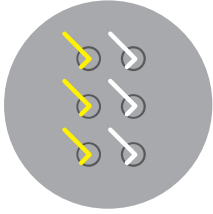
Time to move back to the office and the problems associated with using DC power to run a height-adjustable desk. LOGICDATA's system runs at 24 volts — a fair amount of power that is needed to raise up a desk that might have hundreds of pounds of weight with computers and other desktop items factored in. Those problems Edison had in the 1800s remain: To get that 24 volts to a desk requires a lot of copper and a lot of disruption to run it under carpets in an office setting.

That's where VoltServer comes in. The company provides what it calls digital electricity, a new form of electricity transmission that sends electricity in packets, said the company's Chief Executive Officer Stephen Eaves.

Imagine digital electricity like water in your home. If you turn on the faucet, it comes out in a continuous stream. Digital electricity takes that water and busts it up into millions of tiny little droplets, and each little droplet has a routing signature on it VoltServer can track. A little droplet is sent from one place to another. A device called a transmitter sends it to a device called a receiver that's in the desk.

"In the desk, all those droplets are put back together into regular DC power back to 24 volts," Randazzo said. "It lets us run the power at high

Safety



Low voltage and functional

voltage like Tesla did, but it has the safety characteristics of low voltage because we're tracking each tiny little drop and each little drop has very little energy content. So it can't hurt somebody or start a fire.

"Because we know that each little drop went from one place to another, we can tell if it's going to a place it's not supposed to go, like into your body or into a short circuit or something like that. So that was the difference that let us run the power that (LOGICDATA and Herman Miller) needed from a distance sometimes very far away to the desk... it can be in DC format, it can be safe as a Class 2 circuit, but it has the power characteristics — high voltage AC (and) the safety characteristics of low voltage DC."

DC power helps companies like Herman Miller and their customers because the furniture needs fewer components. Transformer cubes that take up space and look clunky under a desk are not needed. It is not wireless, but uses communication wiring, like ethernet, and has about 20 times the power capacity, Eaves said.

All science aside, Herman Miller installed the project and was left with a very happy customer, said Mary Beth Mojzak, lead product engagement manager, Herman Miller Options.

"This was something that the client was very pleased with, the speed that we were able to overcome their problem," she said. "We see a lot of clients throw things over the fence like, 'Hey, could you do this?' They threw something that maybe they thought was sort of wild — a wild card — and we solved it."

It gave the customer the flexibility they were looking for, according to Mojzak. The new system allows them to move the Herman Miller furniture around without the labor costs of rewiring. And it has given them the clean, high-design look they wanted as well.

"It let them get rid of all the bricks," Mojzak said. "The customer was looking for this very beautiful space since they have very high-end real estate, a San Francisco building. They were looking for a minimalist, clean look. And so the low-voltage distribution produced by the receiver let us get rid of all those little bricks and wires coming out under the desk... they're able to get rid of the bricks, have that minimalist look, have the DC infrastructure that speaks to sustainability and renewable sources and that productivity of being able to quickly rearrange and build teams, that flexibility in the workstations."

The work between Herman Miller, LOGICDATA and VoltServer is leading the furniture maker into conversations about how to take the innovation

and move it from a single customer to other projects, Mojzak said. "How do we start to share that information with our broader dealership and sales networks so they can start to promote it to other clients because clients are looking (for solutions like this), I can guarantee," she said. "There are several clients out there who are also interested. So we're definitely thinking about how we standardize this."

The collaboration has also helped LOGICDATA, said Dexter Weber, president of LOGICDATA North America.

"For us, this is pretty big as far as everything is low cost," he said. "We want to be able to produce things cheaper. Without having to do that AC to DC conversion, it saves a lot on components. We want to apply it to our future Dynamic Motion systems. There are some learnings that we're going to apply towards (future projects) and continue this mindset of evolving our technologies and lowering costs." **BoF**



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