



**SIEMENS**

*Ingenuity for life*



Case Study

## Global manufacturer of inert atmosphere systems chooses Siemens to modernize controls and HMIs

**Inert – a world leader in gloveboxes, gas management, and solvent purification systems – chose the SIMATIC S7-1200 controller and HMI color panels to simplify procurement, improve efficiencies and drive future innovation.**

### Abstract

After years of using PLCs from different manufacturers, Inert realized that the company's mission to provide highly customized solutions for OEM and end-users was impeded by needless complexity. Managing multiple controllers complicated procurement, manufacturing, and support. After careful evaluation of alternatives, Inert chose Siemens, as a strategic supplier of SIMATIC S7-1200 controllers and HMI panels from its Totally Integrated Automation (TIA) portfolio. Combined with the Siemens TIA Portal common engineering framework, Inert accelerated time-to-market for new features, saw significant savings in time and costs, and gained greater flexibility in customizing its products.

## Legacy PLC technologies can limit future innovation

Inert, based in Boston, supplies today's most advanced industries with gloveboxes, gas management systems, and solvent purification systems. Founded in 1981 as Innovative Technology, Inc., the privately held firm recently re-branded itself as Inert to reflect their position as the world's leading provider of inert atmospheres and equipment.

Among their customers are the world's top universities, government agencies, and Fortune 500 companies. Fabricators of semiconductors, photovoltaic cells, LEDs, lithium ion batteries, surgical and medical devices, pharmaceuticals, and specialty chemicals are all customers of Inert. Additive manufacturing, better known as 3D-printing, is the latest to require their products. While they represent the company's wide range of end-users, about half of Inert's sales are to OEMs, which incorporate its systems into larger, more complex manufacturing solutions.

### Innovation irony

Despite Inert's systems being integral to the work of its customers in the most innovative industries, its own innovations were limited by their existing PLC platform. The situation was ironic, according to Inert CEO Daniel Clay, because innovation has always been at the heart of the company's mission.

Mr. Clay went on to say: "Inert's value and the source of our competitive edge has always been making great products and continually working to improve and expand the features and performance they provide. Flexible engineering for our OEM customers has also been critically important. Innovative Technology was our name for a reason."

### Rising engineering complexities

Unfortunately, Inert was discovering shortcomings with the PLCs it was using in its systems. Sourced from two different vendors, procurement was becoming more and more complex.

"With three controllers from two different suppliers and two different voltages typically used worldwide, we had to manage six different controller platforms," says Timothy Michael, Head of Engineering at Inert. "That complicated our engineering and manufacturing as well as downstream support and service."

Michael recalls that over the years, engineering became more complex as well. Inert continued driving its own product innovations, while customers came forward with requests of their own. "It started turning into a bit of a spider's web in terms of different code," he says. "To make matters worse, we were on our third outside developer,

and because everyone does PLC programming their own way, making a change in one place could cause unintended effects in code elsewhere. That makes debugging and troubleshooting issues extremely tedious and time-consuming."

As a result, Inert's engineering and support costs were rising, and time-to-market was increasing "... because of the back-and-forth communications between us, our customer, and third-party developers," Michael says. "We had reached a decision point with our legacy PLC platforms and needed a more modern one to carry us forward with our new brand."

## Modernizing with Siemens SIMATIC Totally Integrated Automation (TIA)

Inert knew about the reputation of the Siemens SIMATIC S7 line of controllers for providing advanced, highly integrated PLC solutions. Dittmann & Greer, Inc., a Siemens' distributor, brought in a Siemens engineer to help assess Inert's legacy PLCs and determine the code migration requirements needed with SIMATIC components from its Totally Integrated Automation (TIA) portfolio.

"Siemens made it extremely easy for us to move to its TIA platform," Michael says. "Their TIA portfolio and common software engineering framework, called the TIA Portal, were extremely compelling, especially its potential to solve the issues we had."



"They offered to help us modernize our existing code, and lots of other support, without any extra cost and they more than lived up to their promises. That was a huge change for us because, before, we never got any support at all from our other suppliers."

"From the start, Siemens made it clear that it wanted our business and did everything we could imagine possible to earn it," Clay says.



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**Timeline for success**

The experts from Dittmann & Greer and Siemens worked closely together to create a project specification and plan. Time was tight, as the debut of Inert’s rebranding at the American Chemical Society (ACS) was less than two months away. Both Clay and Michael wanted to impress attendees of the industry trade show with their new brand identity and improved PLCs.

“The engineers from both companies were amazing and on top of their game,” Clay says. “We had our code completely converted in six weeks and were able to bring our updated products to the tradeshow with a fully modernized look and feel,” Michael states.

For its new PLC platform, Inert chose the Siemens SIMATIC S7-1200 controller, one of the most advanced in the Siemens TIA portfolio, which supports a broad range of applications. But the source of the “fully modernized look and feel” is the Siemens SIMATIC HMI color panels, also in the TIA portfolio. Both components are programmed using the TIA Portal.

“We’re thrilled by the Siemens SIMATIC HMI color panels, and so were our customers at the tradeshow,” Clay says. “While the SIMATIC S7-1200 is behind the scenes, the high-definition color panels are what everyone sees. They’re light years ahead of what we had, and having the Siemens logo visible provides a valuable brand association with engineering quality.

He adds that the Siemens engineers developed code for the HMI as an extra value. “Talk about serving your customer,” he

says. “The Siemens engineer had experience programming global HMIs and shared a lot of invaluable insights. We now use much broader terminology for the on-screen buttons to better serve users in our international markets. It really has helped put us heads above our competition.”

**Inert’s modernization benefits keep adding up**  
**New efficiencies and savings**

Both Clay and Michael agree that the switch to the Siemens SIMATIC S7-1200 PLC and HMI from the TIA portfolio was the best move Inert could have made. “The Siemens TIA components and common TIA Portal opened the door to all kinds of efficiencies, providing us with sizeable cost- and time-savings,” Clay says.

Michael states, “We can now bring our software programming in-house. Troubleshooting and developing new features will be much easier and faster. Fewer parts need to be ordered and held in inventory, and training of Inert’s service team only took about four hours before they were up to speed.”

Remote diagnostics are another improvement, as Inert discovered recently with a customer in Japan. “Our top technician flew there to discuss a sizeable upgrade. Whenever he needed advice, he called up the Siemens engineer who helped convert all our code and program the HMI. The engineer dialed into our machine in Japan from his office in the U.S. and they had interactive work sessions just as if they were sitting side by side.”

## **Flexibility for customization today and innovation tomorrow**

“While simplification improved our time-to-market, we now have capabilities that give us even more flexibility in the customizations we provide,” says Clay. “For example, we can now offer Modbus and Ethernet communications features that we couldn’t before. And we can program energy-saving features and many other capabilities, too. Now that we’ve made the switch, we look forward to the continuous improvement and innovation that is the core of Inert.”

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