RUNtime

In conversation with…
Alvaro Solis, general manager
of Solmatec in Costa Rica

SOLMATEC

President's message
Lessons from the home

Not surprisingly, many of us who work with building automation systems in the commercial built environment enjoy the benefits of building automation in our personal lives too. Some of us are quite particular and apply the know-how we've learned in our commercial experience to our home environments, but others have settled for the convenience of less sophisticated, less expensive home automation systems that can be readily purchased on the web or at a local store.

If you've been keeping a reasonably close eye on the news these days, you may have noticed the smart-home automation industry has thrown up a couple of significant cautionary flags this year. They are worth mentioning because they can underscore some valuable lessons on how to minimize the vulnerabilities you might unwittingly encounter as you manage the sustainability of your commercial building portfolios and professional careers.

Tom Zaban, P.Eng, LEED Green Associate

As reported in the *Daily Mail*, thousands of homeowners across Europe reported problems with their Amazon home-automation products during a two-hour outage on January 21, 2022.[1] Voice commands to Amazon's Alexa and Echo devices were ignored, home security alarms could not be silenced, and many users had to relearn where their manual light switches were located.

Smart-home IoT company Insteon, without warning to its customer base, suddenly shut down its apps and servers in April,[2] disabling access to its cloud-dependent control of homeowners' lights, sensors, electrical wall outlets, and thermostats. Four days later the company posted a letter on its website announcing it was going out of business due to supply-chain disruptions and a failed attempt to find a buyer for the company. As reported in WIRED, Insteon was one of the smaller IoT companies in the smart-home industry, with approximately 1.3 million customers.[3]

The big takeaway from these events is to appreciate how fragile some smart-home automation systems can be when their underlying communication architectures are so dependent on external factors. Ideally, these systems should avoid having critical operations rely on a centralized external communication architecture. Of course, there is no denying software as a service and internet connectivity both have enormous benefits, but the vulnerability of a centralized external communication architecture, as the *Daily Mail* article highlights, is that it creates a single "simple point of failure." We in the commercial building automation industry learned this lesson many decades ago, but the two examples cited here are a good reminder, especially to new folks in the industry, why prudent practitioners demand architectures of distributed embedded control. Distributed architectures of embedded controllers allow control sequences to persist and dependably execute despite a break in connection from centralized services. In other words, make sure the devices in your buildings continue to reliably function and respond to occupants' expectations in the event of unexpected disconnection from the internet or a cloud-server outage.

If you are looking to integrate IoT products into your commercial building, be cautious of the vulnerabilities being experienced by companies and customers in the home automation industry. Let Reliable Controls and the Reliable Controls Authorized Dealer network help you pursue the ART of Building Sustainability with an entire family of fully programmable, distributed, and embedded BTL Listed and certified products.

1 https://www.dailymail.co.uk/sciencetech/article-10426325/Alexa-crashes-leaving-users-UK-unable-response-Echo-speakers.html

2 https://arstechnica.com/gadgets/2022/04/shameful-insteon-looks-dead-just-like-its-users-smart-homes/

3 https://www.wired.com/story/insteon-shutdown/#:~:text=Insteon%20was%20one%20of%20those,had%20around%201.3%20million%20customers

Welcome
New Reliable Controls Authorized Dealers

BT Controls LLC
Santa Ysabel, CA, United States

Integra Energy Solutions & Controls SAS
Bogotá, Colombia
integraesc.com

Synergy Building Solutions LLC
Metairie, LA, United States
synergybldgsolutions.com

RoeSavin Construction
Dublin, Ireland
roesavin.ie

C&J Building Solutions LLC
Glen Allen, VA, United States
cjbuildingsolutions.com

Reliable Controls sales, installation, service, and support are all performed by a growing network of independent, factory-trained Authorized Dealers. Each dealer is committed to the green building controls industry and to providing total customer satisfaction.
To locate an Authorized Dealer near you, visit the dealer locator on the Reliable Controls website.

In conversation with...

Alvaro Solis, general manager of Solmatec in Costa Rica
A Reliable Controls Authorized Dealer since 2018

The Solmatec team (from left to right): Cesar Pérez, Osiris Blanco, Alvaro Solis, Lucia Alvarado, Douglas Roque, and Andrés Reyes

Why did you choose to align with Reliable Controls?
Before I started my own company, I was a customer [working for a user]. For years I saw how contractors were more interested in closing a deal than giving their clients what they really needed or fulfilling expectations. When I started Solmatec, I wanted to do things differently. The clients are the ones who use the system, so their needs should come first. If you give clients a limited system, they are only ever going to do limited things.

I believe we have a responsibility, as technology companies, to create systems that go beyond what clients thought possible. That's my vision—to help clients achieve more than they thought they could. I went from site to site, fixing systems in ways that other vendors had said wouldn't be possible. I realized I needed to find a vendor who supported the integration of various products, the way BACnet is meant to work. I looked into a few large companies, but they were more focused on making money. When I came across Reliable Controls and saw their *people and technology you can rely on* slogan, I had hope.

Karina Silva, our regional sales manager, was surprised during our first meeting that I never asked about the price of Reliable Controls products; I was most interested in the compatibility aspect, because that's how I knew I could make a difference for my clients. When I looked into Reliable Controls—their values and how they treat their customers—I discovered they have the same vision as I do for my company. The partnership felt natural.

What sets Reliable Controls apart from other brands?
In the early days of my company, when I was still working with another vendor, I worried I wasn't going to live beyond age 45. Sometimes I'd run into huge technical problems while working on a system, and I'd figure it all out in the end, but it was really stressful. I don't have that stress anymore now that I work with Reliable Controls. Their customer support is great!

How do you show your clients you are people they can rely on?
By giving them the level of service they might expect in a developed country but that unfortunately isn't yet commonplace in Latin America. And by that I mean *planning ahead*. What often happens here is people respond to a problem by offering a solution that hasn't been thought through beyond that initial problem. For example, if someone needs a thermostat, they get a thermostat, but they don't invest the time to check whether it's the best thermostat for the job, or if it really does what they client needs, or whether it works perfectly with the rest of the system. We provide that level of system engineering. Even though it takes more time in the beginning, we know it's the only way to ensure our clients get a building automation system that truly does what they need—and more.

A client recently requested we help them find ways to save energy. Their employees don't always respect working schedules, so they didn't think they could set timers for lighting. I pointed out that the system we had installed included occupancy sensors and that we could take advantage of those not only for lighting but also to regulate temperature. He was amazed and really glad he trusted us to install programmable controllers for the job instead of a simple thermostat. His investment is saving him money now and in the future.

SOLMATEC
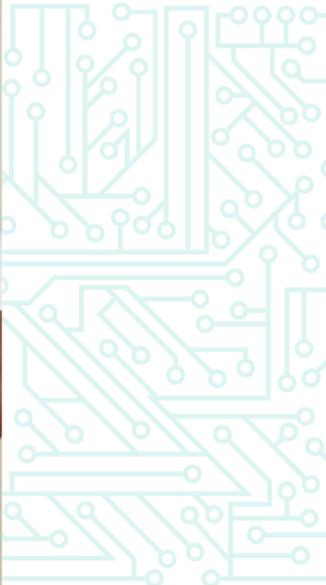
When you first meet with a client, what's your desired outcome?
Our goal is always to surpass their expectations and help them plan for the future. The only way to do that is by taking time to share with clients what their options really are—not just what's the *cheapest* but what the *smartest* option is. They can't know they need something they don't know exists. They get really excited when they realize how much we can do for them.

In Costa Rica engineering or technical jobs aren't yet very respected. Everybody wants to take the managerial path or become the boss, because that's what society tells us is successful. So in general, when people don't have a great understanding of technical opportunities, they also don't understand the value in doing things differently. And yet there are two ways you can stand out here: Either you are different or you're cheap. We don't want to be cheap. We want to create really great systems with smart capabilities that support our clients far into the future. It's not in our culture yet to think much further than today. And that's what makes us different: We help our clients anticipate what they'll need later on so we can get it right today.

Alvaro with his wife, Lucia Alvarado

Tell us about a time you exceeded clients' expectations.
When the international airport in San José needed a retrofit and upgrade to its systems, the company it initially worked with said they would need to take all the airport systems offline for 2 months and install new controllers everywhere—a project they priced at just under $1 million. Shutting down Latin America's second busiest airport for 2 months would be devastating on many levels. I told the company I could fix its problems for roughly $30,000 without disrupting any of its operations. I knew the current controllers were still working but needed a new graphical interface. I was honest with them and didn't try to sell them a lot of things they didn't need. They appreciated my honesty so much that they asked Solmatec to manage their system from now on, and we won the new expansion project. We're very proud to work with them!

Has Reliable Controls come through for you?
When I first started my company, we didn't have any customer support or any help at all. The stress I was under put a lot of strain on my family, too. Twice I thought my wife would leave me. She said if things continued the same way for another 2 years, we wouldn't be together. I agreed and said if nothing changes, I will probably die of a stroke or something. And then I partnered with Reliable Controls. There isn't just one time they have come through for me; they make my life better every single day. Just knowing I have a team of technical experts— the people who actually built the products—available to help me with any question I have… That makes all the difference. I sleep at night because I feel supported. It's more than just business; it's about having inner peace. My wife is also very happy!

What do you enjoy most about working with Reliable Controls?
I'll be forever grateful to Karina for taking a chance on us. When we partnered with Reliable Controls, she knew we were a young company, a small company, but she saw our potential and is always looking for ways to help us grow. To know I'm part of something bigger—that I'm part of the Reliable Controls family—is really great!

Alvaro and family

Horno³: Museo del Acero

MEXICO

Situated in Fundidora Park, a National Industrial Archaeological Site in the heart of Monterrey, the Horno³ museum showcases the industrial heritage of the state of Nuevo León. Originally the site of the Compania Fundidora de Fierro Acero de Monterrey, a steel foundry dating to 1900, the park contains several structures from the old foundry, including the 1968 blast furnace known as Horno Alto No. 3, the first automated blast furnace in Mexico. The foundry closed in 1986, and in 1988 the state began transforming the area into a public park. In 2007 the 70-meter-high structure that housed Horno Alto No. 3 was restored and a new wing added to create Horno³: Museo del Acero, with 9,000 square meters of interior and exterior exhibition spaces. Museum visitors can view historical and contemporary steel galleries, a furnace-show exhibit, teaching rooms, a restaurant, an archive, and a museum store.

Reliable Controls Authorized Dealer VIMAU Control Systems installed a new building automation system during a building retrofit in 2021. To begin the project, VIMAU removed the existing LON system and rewired the museum to accommodate BACnet communication—a challenge while the museum remained open to visitors. The new BACnet system consists of a MACH-ProWebCom controller, three MACH-ProSys controllers, and 22 MACH-ProZone controllers connected using a mix of Ethernet and MS/TP.
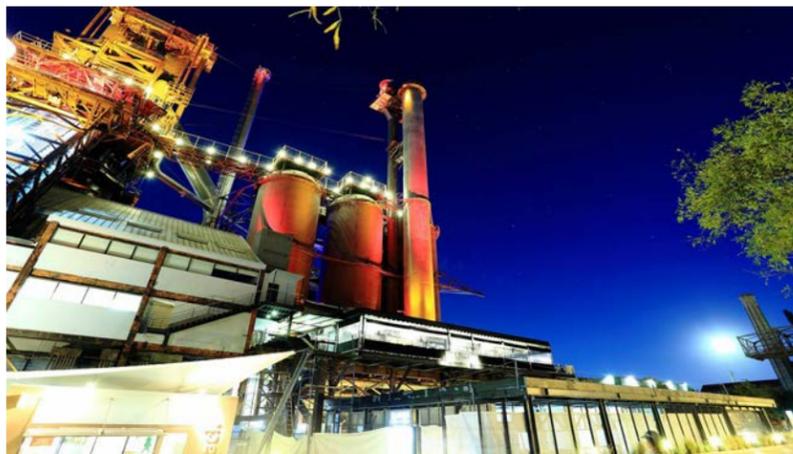
The MACH-ProWebCom provides facility managers with easy access and control of the building automation system over the internet. With its built-in workstation and powerful web server, the MACH-ProWebCom allowed VIMAU to reduce the museum's capital expenditures by eliminating the need for workstation client software, license renewal fees, and cloud services.

VIMAU extended the capabilities of the three MACH-ProSys controllers with five MACH-ProPoint expansion modules to control large rooftop and mechanical-room equipment. The MACH-ProSys is a fully programmable internet-connected BACnet-Building Controller with extensive network-routing capabilities and flexible hardware options. VIMAU also installed 22 MACH-ProZone devices to control small to midsize rooftop and heat-pump units. An additional challenge of this project was maintaining the temperature and humidity in the museum during the building automation system retrofit. VIMAU technicians were careful to work cleanly and discreetly to minimize disruption to daily operations.

The flexibility of RC-Studio software and the Reliable Controls system allowed VIMAU to seamlessly integrate BACnet/IP lighting control panels and third-party energy-metering equipment via Modbus RTU. RC-RemoteAccess software, a flexible BACnet Secure Network solution, simplified IT management and improved data communications security for museum managers. And thanks to RC-Archive and RC-Reporter, museum stakeholders own and control the data and analytics that help them effectively balance comfort and energy efficiency in the facility.

"The Horno³ is a nonprofit association that receives no grants from the government or companies and operates on its own business model. That's why it's very important to keep our operation costs as low as possible without affecting the visitor experience," said Hector Turrubiates, facilities manager at the museum. "This goal is possible thanks to the new Reliable Controls building automation system, which helps us operate with minimum staff and have better control of facility maintenance."

Reliable Controls and VIMAU were pleased to help improve efficiency and comfort in this historic destination in Monterrey. "It was our honor to be able to implement the Reliable Controls system in one of the most important landmarks of Nuevo León. To see how the clients responded after all the hard work and how impressed and happy they were with the system reminded us why Reliable Controls is always our best option for our projects," said Javier Alvarez de la Cadena Gonzalez, president of VIMAU. "It's made us very excited for what's to come."

Installed Reliable Controls hardware
- 5 MACH-ProPoint™ expansion modules
- 3 MACH-ProSys™ controllers
- 1 MACH-ProWebCom™ controller
- 22 MACH-ProZone™ controllers

Installed Reliable Controls software
- RC-Archive® software
- RC-RemoteAccess® software
- RC-Reporter® software
- RC-Studio® software

Total system objects
- 1,000

Total area
- 8,000 m² (86,111 ft²)

Integrated equipment
- Leviton lighting control panels
- Siemens energy meters
- YORK chillers
- Air-handling units

Executive Tower

—— URUGUAY ——

The Executive Tower in Montevideo, also known as the Presidential Tower, is today the official workplace of the president of Uruguay. Originally intended as a courthouse when construction began on the building in 1965, development was halted in 1973 during the Uruguayan coup d'état, which marked the start of a civic-military dictatorship that lasted until 1985. By then the building was too small for the Uruguayan justice system, and the project remained unfinished until 2006, when then-president Tabaré Vázquez decided to finish construction and move the seat of presidential executive power from Estévez Palace next door to the Executive Tower.

The building has 12 floors, with the first nine divided into two areas: the South Executive Tower, which overlooks Plaza Independencia, and the North Executive Tower, which overlooks the Rambla, an avenue that runs along the coast of Montevideo.
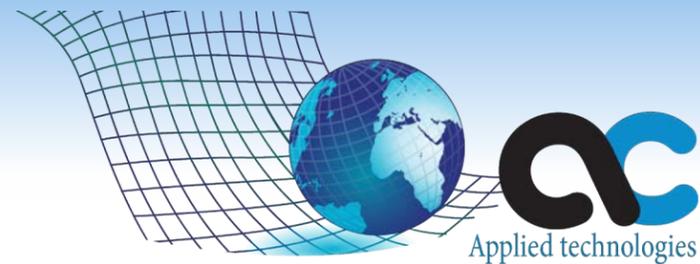
Reliable Controls Authorized Dealer AC Applied Technologies installed a Reliable Controls system during a retrofit of the building in 2017.

At the start of the retrofit project, the building had few mechanisms in place for the integral control of lighting and air conditioning. AC Applied Technologies integrated a new Reliable Controls system with the existing older building controllers.

AC Applied Technologies designed the HVAC system at the Executive Tower using three EIA-485 buses and RC-Studio software to integrate MACH1, MACH2, MACH-ProZone, and MACH-Pro1 devices with three water chillers, 64 air-handling units with electric reheat coils, two generators, and over 1,100 control objects. Powerful, freely programmable MACH-ProCom controllers communicate over an Ethernet LAN to regulate the lighting on each floor from a central point.

Installed Reliable Controls hardware
- 55 MACH1™ controllers
- 2 MACH2™ controllers
- 4 MACH-Pro1™ controllers
- 4 MACH-ProCom™ controllers
- 32 MACH-ProView™ LCD controllers
- 3 MACH-Zone™ controllers
- 2 MACH-ProZone controllers

Installed Reliable Controls software
- RC-Studio software

Total system objects
- 1,100

Total area
- 28,500 m² (306,771 ft²)

Integrated equipment
- Schneider PM710 multimeters

Today building operators use RC-Studio, a multivendor, multiprotocol integration solution for database, alarming, scheduling, trending, and sequence-of-operation programming, to monitor and control the HVAC and lighting systems. Because the Executive Tower is a symbolic building with a public purpose, its air quality, comfort, and system stability are often referenced for new construction projects in the region.

One of the biggest challenges of the project was to facilitate network communication through a bus that passes through areas in the building with a lot of electrical noise. Prior to the retrofit, the electrical panels had floating ground references, which caused failure at certain points along the network. After several tests, AC Applied Technologies stabilized the network using filters and reconnected the system to a single ground reference with help from the building's electrical contractor.

After the building control system retrofit, yearly energy costs were reduced by an impressive 25–30 percent.

The building control system "helps with energy savings by managing occupancy, lighting, and equipment operation and keeps all areas of the building comfortable," said security consultant Agustín Sánchez. "AC Applied Technologies provides good service and security against any event that may arise from both operation and training in the use of the system."

Reliable Controls and AC Applied Technologies were thrilled to install a simple, flexible, sustainable building control system in the building that houses the office of the president of Uruguay.

Better by design™

VAV confidence and security

Designed to accommodate your evolving building automation needs, the Reliable Controls RC-FLEXair® is a BACnet Building Controller loaded with data-processing power suitable for a wide range of variable air volume and room control applications. With its massive database, triple-core processor, and dual Ethernet connectivity, the RC-FLEXair can handily deliver the complex sequencing, performance tracking, and analytics you need to inspire confidence in your built environment today and in the future.

✓ **Backward compatible, future ready**

Reliable Controls tests every product it manufactures to ensure compatibility with previous-generation controllers. The RC-FLEXair is no exception. You can add it to Ethernet networks that host previous-generation controllers without the need for costly third-party gateways or accessories.

✓ **Ultimate flexibility**

With many available models and options, the RC-FLEXair is suited to a wide variety of projects. Order models with one or three universal inputs and up to six outputs with a mix of universal or solid-state relay outputs. Better still, communicate with up to eight Reliable Controls SMART-Net™ devices, and expand the controller's capability without consuming inputs or outputs.

✓ **Better by design**

Power the controller via USB from a laptop to permit configuration, firmware updates, programming, and graphics creation. All input, output, and communication ports are hardware-protected against transient surges and spikes, which hardens the controller and improves resilience.

✓ **Database? More like data*beast***

Store more than a million trend values

With tons of nonvolatile memory, the RC-FLEXair has enough space to handle the most challenging applications now and in the future. It automatically logs all input, output, value, calendar, loop, and schedule objects, which can each store up to 2,000 records. That's enough for over 1 million data points!

Space for IFDD programs

The RC-FLEXair also has space for 64 control programs, each large enough to run advanced energy sequencing, integrated fault detection and diagnostics [IFDD], and more.

Lightning fast networking

Throw in dual high-speed Ethernet ports, and you get to access all that data and intelligence in near real-time, opening the door for advanced analytics and superior performance tracking and control.

reliablecontrols.com/RCFA

Lightning-fast TRIPLE-core MICROPROCESSOR
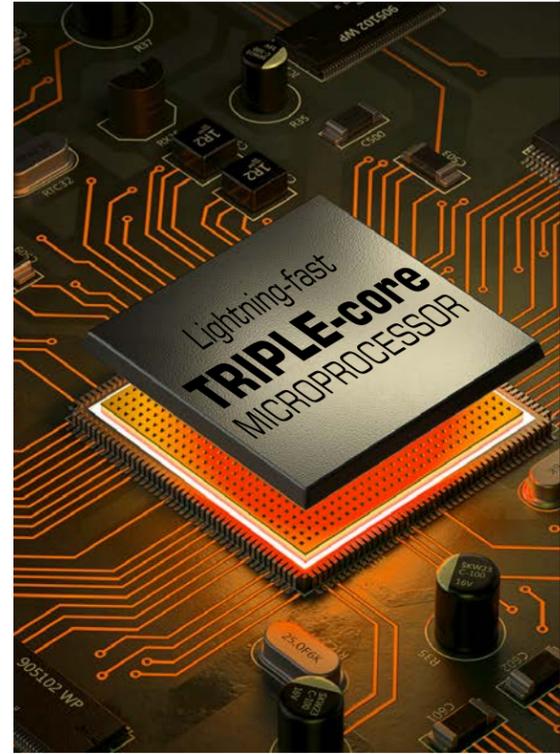
Better by design™

RC**FLEX**air®

ADVANCED VAV CONTROLLER

5yr WARRANTY

Simple. Flexible. Sustainable.

After more than 30 years in the building automation industry, the hallmarks of Reliable Controls remain unchanged. Why? Because products that are simple to use and flexible to apply offer a more satisfying user experience, an excellent return on investment, and a reduced impact on the environment. It's a win-win-win for you and your building.

Find out how the RC-FLEXair honors these hallmarks:

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Reliable controls®

Since 1986 Reliable Controls has developed a global network of highly skilled independent controls contractors called the Authorized Dealer network. The *RUNtime* newsletter supports the collective efforts of the company to earn and sustain the most satisfied customers in the building automation industry. Information on the latest Reliable Controls products and services and insight into industry news and trends can be found in each issue of the *RUNtime*.

As a leader in the industry, Reliable Controls supports their Authorized Dealer network to achieve their goals with a motto that together, they can be better by design.

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