THE Resource

Reliable controls Authorized Dealer

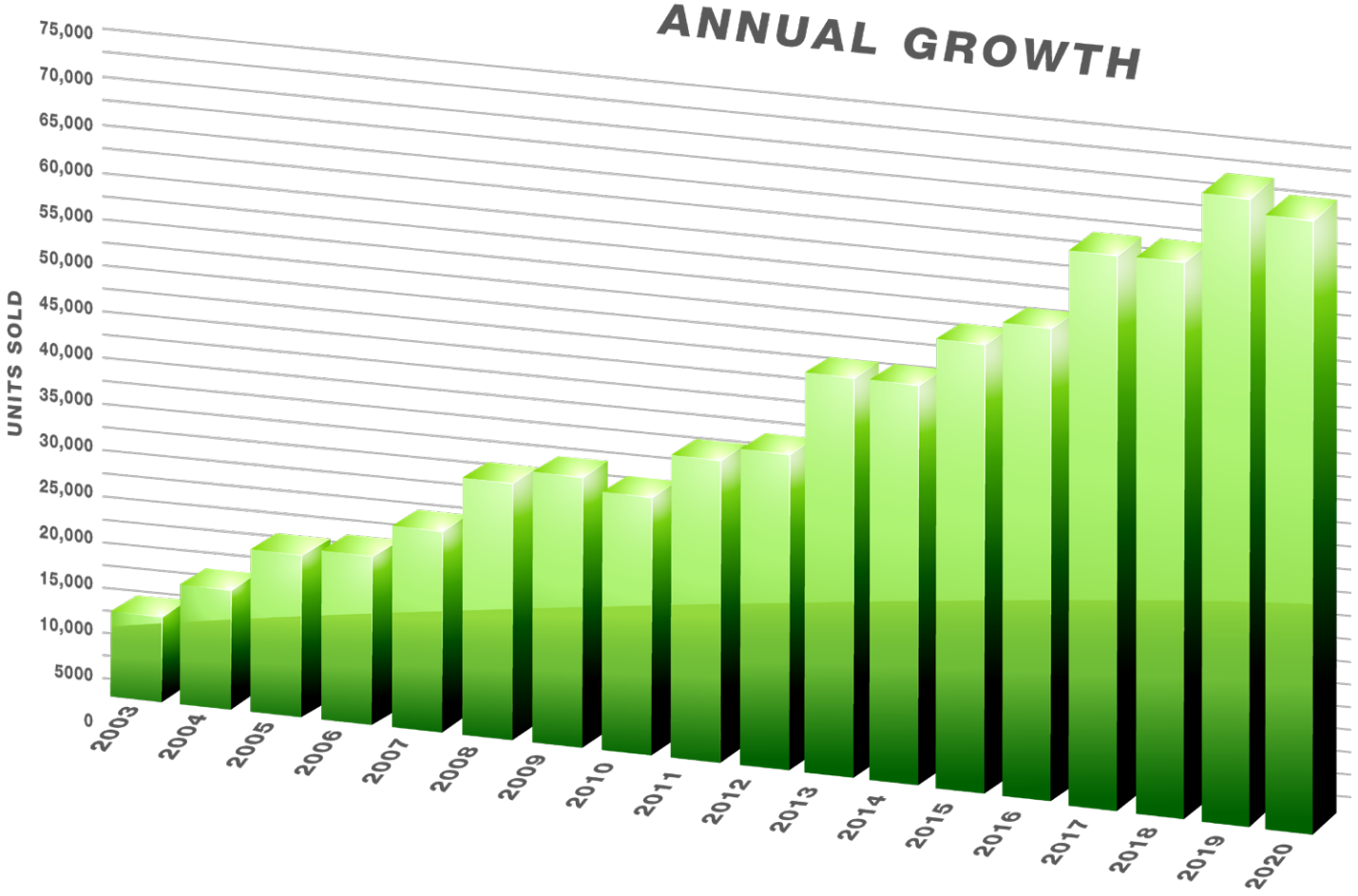
CORPORATE UPDATE

APPLICATION ENGINEERING

TECHNICAL SUPPORT

RESEARCH & DEVELOPMENT

SALES & MARKETING



2020: A CHALLENGING YEAR

(Click title to jump directly to article)

2020 A CHALLENGING YEAR

The close of 2020 marks the end of a challenging year thanks to COVID-19. Despite the tragic loss of life and enormous disruption to the world's economies, for the most part Reliable Controls and the Authorized Dealer network remained reasonably intact.

We began the year by appointing Levi Tully as our new Vice President, Sales, and Eric Rehn took over as manager of the Application Engineering team. Cameron Lutz joined our ranks in the newly created role of Marketing Manager.

We released a good number of new and improved hardware products in 2020: EQUIPMENTview™ and VOC sensor support for MACH-ProView™ controllers, the SMART-Net™ Expansion Board, the SETUP-Tool™, the SS3 Deep Backplate, version 3 SPACE-Sensor™ EnOcean and SMART-Sensor™ EnOcean Accesspoint devices, a micro-USB connector option for SMART-Sensor and SPACE-Sensor Temperature devices, the MACH-ProView LCD Operator Display, the MACH-ProView Panel Mount Kit, and the Medium General Control Panel. Software releases included RC-Reporter® 3.7, RC-WebView® 3.13, RC-Studio® 3.7, RC-Archive® 3.11, and RC-GrafxSet® 3.5. We also extended the list of products we manufacture that comply with the RoHS 2 directive. In June we were thrilled to be named one of Canada's Greenest Employers.

Sales of programmable microprocessor-based controllers understandably contracted during the year but only by 5 percent over sales in 2019. Despite COVID-19, we achieved double-digit growth in sales of MACH-ProView and MACH-ProLight™ controllers. Our Authorized Dealers installed another 1.5 million physical points of measurement and control in 2020. We are certainly grateful about that!

Sales of hardware and software products grew in six of our 11 sales regions, with strong year-over-year growth in Western Canada and Australasia. We welcomed 18 new dealers to Authorized Dealer network last year, and we parted ways with 15, closing the year with 227 Authorized Dealers in 47 countries. We grew our staff by 6 percent.

As we forge ahead into 2021, we would like to express a sincere thank-you for facing the uncertainties and challenges of the past year with strength and determination. We have many new and exciting product releases planned for 2021 that we trust will help you grow your business. Together, we will inspire building operators to adapt and remain resilient while standing at the helm of sustainability.

People and technology you can rely on™

Reliable® controls

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Open application engineering positions in North and Latin America

Reliable Controls is looking for two experienced, motivated application engineers to fill roles in North and Latin America. Each position offers a high degree of challenge, flexibility, and autonomy as well as the opportunity to work for a great company whose pioneering technologies improve comfort and sustainability in buildings around the world.

The job of an application engineer is to provide service and support to independent Authorized Dealers. The Latin America application engineer will serve Latin America; the North America application engineer will serve North America. The main goal is to develop trusting relationships that foster collaboration and mentorship with our Authorized Dealer network.

Successful candidates will work remotely from home with occasional business travel, approximately 20 percent per year. Applicants must hold a valid passport for entry into Canada.

Applicants for the North American position must be a citizen of and reside in the United States or Canada. Applicants for the Latin American position must be US citizen who resides in the United States; relocation is not offered. Applicants for the Latin America region must be fluent in Spanish.

Qualifications

- Minimum 5 years of experience in an application engineering role in the building automation industry, particularly in system design, deployment, and support
- Bachelor's degree in mechanical engineering or controls and instrumentation engineering or equivalent
- Excellent written and verbal communication skills in the language of the region you are applying for, with proficiency in English
- Advanced, in-depth working knowledge of industry hardware and software
- Proficiency in Microsoft Visio or AutoCAD and experience or accreditation in green-building concepts, BACnet, Modbus, and multivendor integration. Experience with the Reliable Controls system is an asset.
- Ability and eagerness to gain new skills and learn about Reliable Controls products
- Strong time- and project-management skills with the ability to stay focused
- Strong ability to consistently demonstrate high performance with independent work
- Ability to see the "big picture" and drive for continuous improvement
- Demonstrated people skills

To learn about this role and the perks and benefits we offer, please visit reliablecontrols.com/careers/#openings

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Remembering Emmitt Bell

We're sad to announce the loss of Emmitt Bell, a valued member of the Reliable Controls family. Emmitt joined Reliable Controls in 2000 as a service and repair technician and evolved to become an outstanding technical support specialist. Emmitt taught many new employees the ropes of technical support and helped countless customers, always with a smile. He developed many friendships at Reliable Controls, including his beloved lunch group. For the past few years Emmitt battled multiple health problems that forced him on leave, but he remained exceptionally positive through it all. This past summer he moved home to Texas to be with family. We will remember Emmitt's boisterous laugh and miss him at company social events, particularly golf, which Emmitt was especially fond of. Reliable Controls is forever grateful for Emmitt's service and contributions over the years and for his wonderful companionship. He was always the life of the party.

In loving memory of Emmitt, thank you, we will miss you.

Emmitt Bell
November 29, 1957–
December 14, 2020

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insight

ASHRAE Guideline 36 standard applications

In 2018 ASHRAE published the initial version of Guideline 36, *High-Performance Sequences of Operation for HVAC Systems*. This consensus- and research-based guideline provides standard sequences of operation for common HVAC systems that leverage technology, science, and broad industry experience to balance the apparent conflict between tight control and energy conservation. As discussed in the preceding insight installment, the synergy of effective energy conservation with the comfort and health of building occupants can be achieved with the inherent power of automation systems. In many cases this requires updates to traditional boilerplate sequences of operation (ASHRAE Standing Guideline Project Committee 36 2018).

One of the orthodox principles of terminal-unit automation is simplicity. Complex sequences of operation are difficult to design, program, commission, and operate, so simple strategies are preferred. Guideline 36 deviates from tradition and declines to sacrifice a control strategy that works well and reduces energy consumption for the sake of simplicity alone. To mitigate some of the inherent risks of complex sequences, the ASHRAE guideline committee recommends that automation vendors adopt these high-performance sequences in configurable controllers or standard applications. A standard solution reduces the reliance on and risk of individually developed applications. To support Authorized Dealers in delivering high performance for customers, Reliable Controls will release a series of ASHRAE Guideline 36 standard applications, beginning with VAV terminal units and air-handling units.

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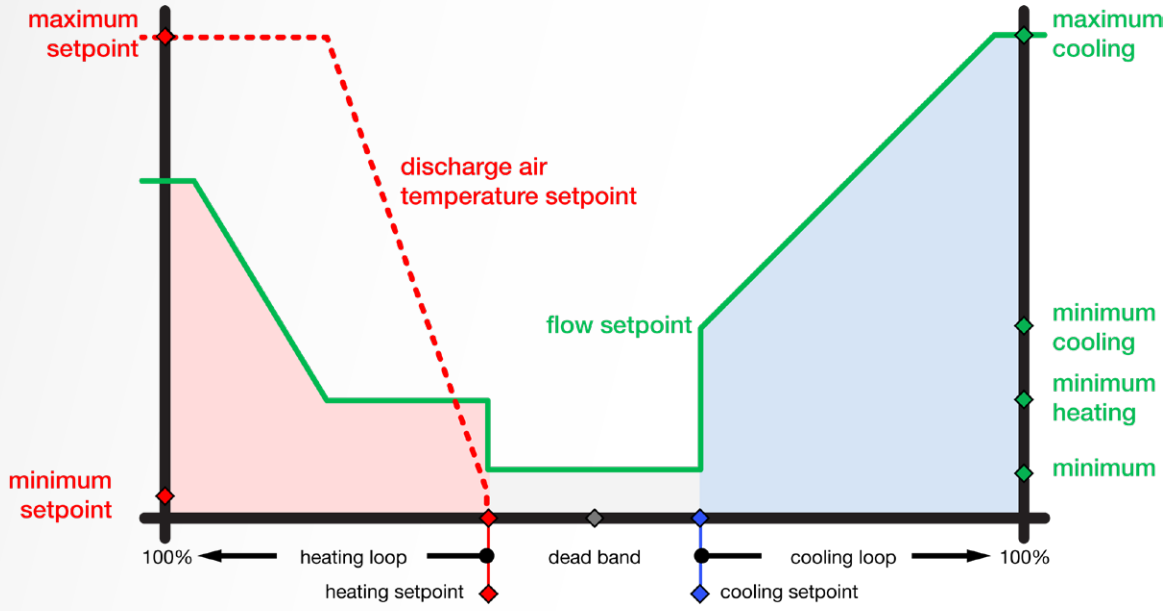
Right response at the right time

The core strategy of ASHRAE Guideline 36 is a constant reduction of energy consumption by using only the minimal energy needed in response to real-time conditions. A variable air volume airflow control strategy is one example. Consider a few important characteristics.

Airflow control

Traditional VAV sequences prescribe only minimum and maximum airflow setpoints, or perhaps minimum airflow with maximum heating and maximum cooling airflow setpoints. The design minimum airflow setpoint must be large enough to accommodate the occupied outdoor airflow fraction, large enough to heat the space at the full capacity of the reheat mechanism (when present), and large enough to be accurately measured and controlled by a terminal-unit controller. Many low-cost controllers have poor airflow sensor performance at low airflow, so higher rates are required to accurately measure and control airflow. These considerations can result in minimum airflow setpoints that are too high, overcooled spaces, particularly in partially occupied or unoccupied areas, wasted fan energy to maintain unnecessarily high minimum airflow setpoints, wasted reheat energy by requiring frequent reheat and reducing reheat efficacy at higher airflow, and wasted energy to mechanically cool large volumes of air.



Instead of two or three airflow setpoints, ASHRAE Guideline 36 uses five: minimum and maximum cooling, minimum and maximum heating, and a minimum airflow setpoint for when the space is within the deadband of neither heating nor cooling. More granular airflow setpoints reduce fan, mechanical cooling, and reheat energy consumption while improving occupant comfort (Taylor et al. 2012). To complement energy conservation, the application dynamically calculates the lowest controllable minimum airflow based on the velocity pressure sensor, the amplification factor of the airflow pickups, and a dynamic absolute minimum airflow setpoint. Using occupancy or CO_2 sensors, such as those on SMART-Sensor™ and SPACE-Sensor Temperature™ devices, you can further save energy in spaces that are scheduled to be occupied but are vacant.

Discharge-air-temperature control

Traditional reheat control sequences cycle or modulate reheat based on deviation from a space-temperature heating setpoint. Although it is neither open nor closed loop control, this strategy can

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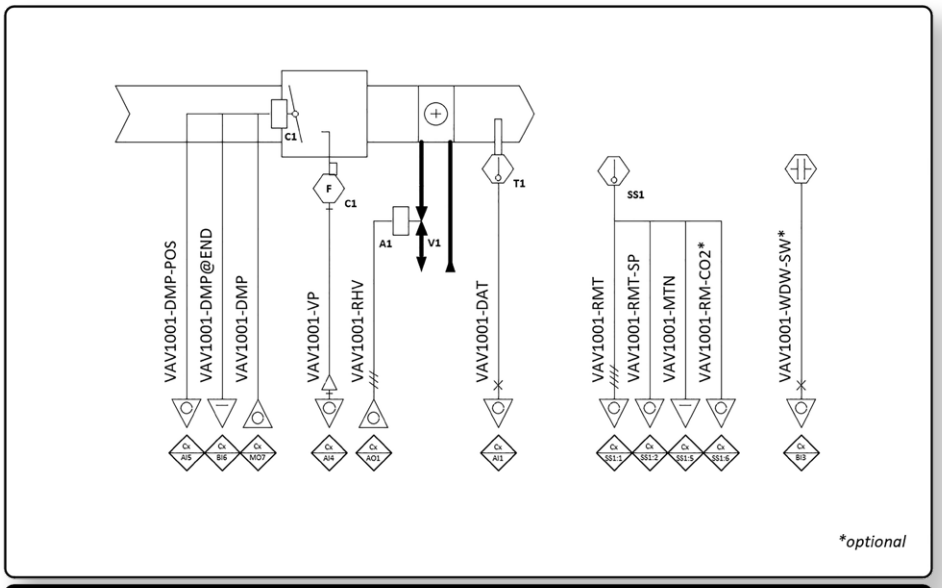
generate an excessively warm discharge-air temperature that wastes energy, result in stratification (when air that is too warm remains near the ceiling), and cause complaints about drafts.

ASHRAE Guideline 36 prescribes closed loop control of reheat based on a discharge-air-temperature setpoint that is dynamically reset according to the space-temperature deviation. This setpoint is maintained within the limits prescribed by ASHRAE Standard 90.1, ASHRAE 62.1, and the International Energy Conservation Code to conserve energy, avoid stratification, minimize short-cycling, and maintain air distribution. The discharge-air-temperature sensor required for closed loop control provides corollary benefits of improved diagnostic and alarm capabilities.



VAV AIR TERMINAL UNIT CONTROL SCHEMATIC

Space-temperature control

The VAV standard application incorporates operator-adjustable space-temperature setpoints with modifiable limits and a deadband to prevent overlap. Per ASHRAE Guideline 36, space-temperature setpoints are also automatically reset in integral energy conservation strategies, including multilevel demand response load shed, window switch, and standby mode for spaces that are scheduled to be occupied but are vacant.

Control loops

Consistent with Reliable Controls engineering rules for control loops and Guideline 36, the VAV standard application has four control loops, one proportional integral loop for each analog control application. The loops independently control airflow to the active airflow setpoint integral to the controller, space heating to the space-temperature-heating setpoint, space cooling to the space-temperature-cooling setpoint, and reheat to the discharge-air-temperature setpoint.

Trim or respond

Another means for providing closed loop control appropriate for the present demand is trim or respond. Trim or respond logic is an energy-conservation strategy that provides only the minimal control response required at a given time as determined by real-time demand. The VAV standard applications include up to three trim or respond strategies: one each for providing static pressure, cooling airflow, and heating hot water for hydronic reheat requests.

The static pressure strategy requests a trim, or reduction, in the duct-static pressure at a fixed rate until the controller can no longer maintain the active airflow setpoint, at which time it requests a response, or increase, in static pressure. Each terminal unit has a configurable importance multiplier that increases or decreases the weight of requests from the zone based on the nature of the spaces served. The air-handling-unit (AHU) controller monitors the requests from all connected terminal units and resets the static-pressure setpoint accordingly to provide only the minimal amount of duct-static pressure required to satisfy the present demand.

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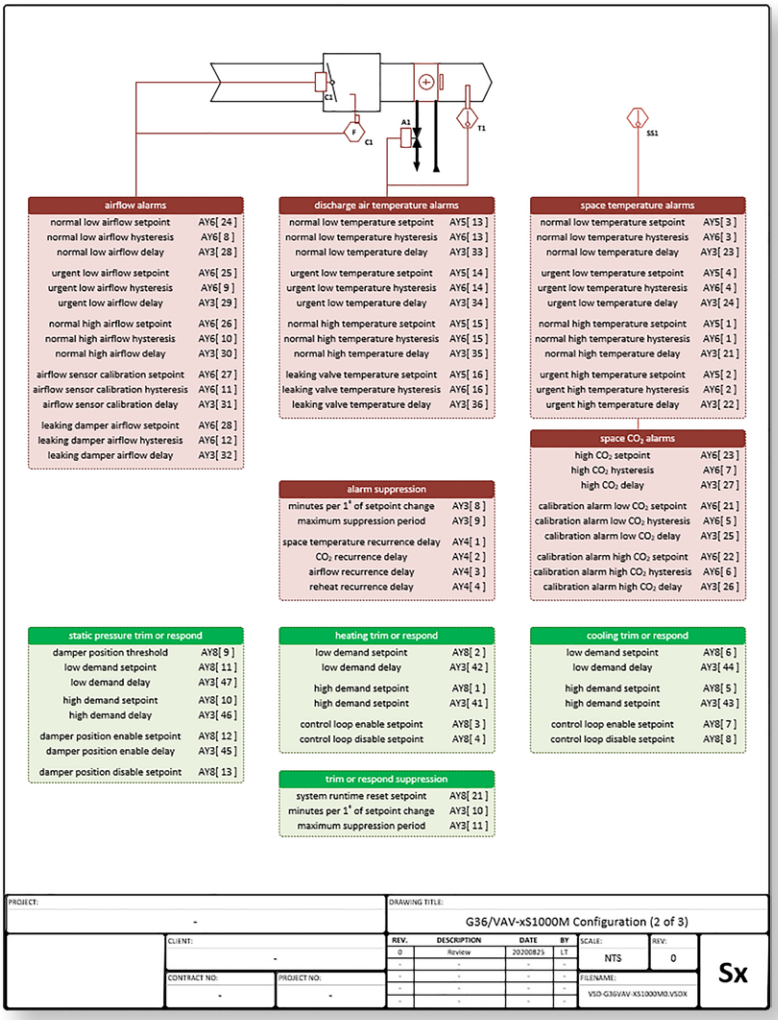
The cooling trim or respond strategy requests a trim, or increase, in the supply-air temperature at a fixed rate until the controller can no longer maintain the cooling-space-temperature setpoint, at which time it requests a response, or decrease, in supply-air temperature. The AHU controller monitors the requests from all connected terminal units and, based on their individual importance multipliers, resets the supply-air-temperature setpoint accordingly to consume only the minimal amount of energy required to satisfy the present cooling demand.

Hydronic reheat applications have a trim or respond loop to generate requests for the hot-water system. The reheat strategy requests a trim, or reduction, in the hot-water-supply temperature at a fixed rate until the controller can no longer maintain the active discharge-air-temperature setpoint, at which time it requests a response, or increase, in static pressure. The heating plant controller monitors the requests from all connected terminal units and, based on their importance multipliers, resets the hot-water-supply temperature setpoint accordingly to consume only the minimal amount of energy required to satisfy the present reheat demand.

Active request hours and integral are calculated within each terminal-unit controller for each trim or respond loop to identify rogue zones that disproportionately drive the trim or response from the central controller. Trim or respond requests are automatically suppressed when the system first comes online and when operator setpoints are changed.



Actionable insight

Operator engagement is fundamental to optimal, sustainable performance. An integral but often overlooked mechanism for operator engagement is effective alarms. In many cases alarms are not programmed or enabled. When they are, nuisance alarms callous operators and over time make it difficult for them to recognize real problems when they arise. Automation system alarms often lack actionable insight, information on which an overworked or understaffed operations team can act. According to the scheme established by Guideline 36, each VAV standard application has 28 alarms categorized into four graduated alarm levels to help operators understand faults and optimize operation. This structure is complemented by an intricate scheme of hierarchical[1] and time-based suppression measures that incorporate alarm and return-to-normal delays and hystereses, equipment functionality, operator setpoint adjustment, alarm short-cycling, and maintenance.

1 For more information about hierarchical alarm suppression, refer to the May 2015 and December 2020 installments of insight.

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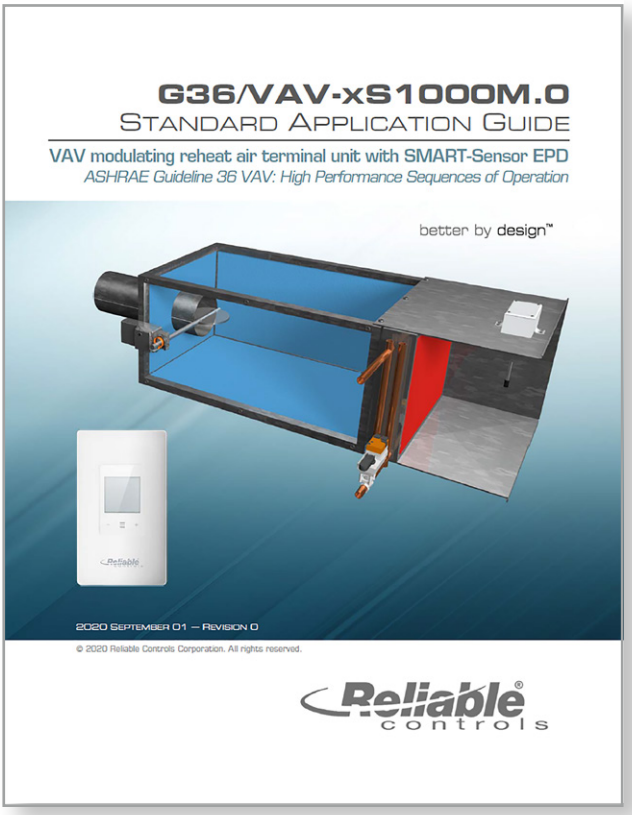
The standard applications

ASHRAE Guideline 36 was built on several ASHRAE research projects and decades of experience in high-performance buildings in many climates. The guideline is over 100 pages with dozens of addenda. Its high-performance sequences of operation leverage more fully the power of a building automation system than its predecessors from the 1970s, which were designed around pneumatic controllers. The sequences delicately balance precision of control, comfort, and energy conservation, and they are far from simple.

The standard application for a modulating reheat VAV terminal unit has nearly 100 value objects, nearly 20 network objects, 10 output-oriented programs, six arrays of parameters and calculations, five System Groups to expose all the configuration parameters, and three control loops. The expanded memory of MACH-ProAir controllers with firmware version 8.04.2 or later is required for this standard application.

Reliable Controls standard applications serve as good introduction to these complex applications. The standard application guide for a modulating reheat VAV terminal unit provides nearly 150 pages of insight. A detailed description of the complete sequence of operation for the specific application makes it easier to understand the intent of ASHRAE Guideline 36. A control schematic provides a visual depiction of the field devices and sensors; wiring schematics provide detailed installation instructions. A configuration strategy highlights the functional performance design parameters. In addition to the annotated list of value and control loop objects, the arrays are enumerated with descriptions and default values for each element. Every line of the 10 Control-BASIC programs and every annotation from the six System Groups are described to help you understand the intended deployment.



We strongly recommend you use an ASHRAE Guideline 36 sequence of operation only after you understand its intent and functional expectations. The Reliable Controls standard application library supports not only the development of advanced strategies but also a clear understanding of them.

Lead the way

Reliable Controls provides simple, flexible, sustainable controls that balance comfort and efficiency with greenhouse gas reductions in buildings around the world. ASHRAE Guideline 36 provides an outstanding opportunity for Authorized Dealers to deliver this value proposition. From airflow sensor applications to the free programmability and networking capabilities of Reliable Controls products, we are ideally positioned to make the high-performing sequences of operation in Guideline 36 work. This is one more way that together we are people and technology your customers can rely on.

ASHRAE Standing Guideline Project Committee 36. (Atlanta, GA, 2018). *ASHRAE Guideline 36-2018 High-Performance Sequences of Operation for HVAC Systems*.
Taylor, Steve, Jeff Stein, Gwelen Paliaga, and Hwakong Cheng. "Dual Maximum VAV Box Control Logic." ASHRAE Journal 54, no. 12 (December 2012): 16-24.

THE Resource

To ensure the highest level of support, please contact us at...

helpdesk@reliablecontrols.com

helpdesk is the best way to email the Technical Support team when you are experiencing technical difficulties with Reliable Controls system hardware or software.

aengineering@reliablecontrols.com

aengineering is the ideal way to contact the Application Engineering team for support with system design, specification compliance, solution development, Control-BASIC, and third-party integration.

If you need help, remember...

we've got your back.

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A moment in the eForum could save you hours of troubleshooting.

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Did you know?

Microsoft SSMS is the best tool to back up SQL Server databases.

Backing up your SQL Server databases, running test restore procedures on your backups, and storing copies of backups in a safe, off-site location protects you from data loss. Backing up is the only way to protect your data.

You can quickly set up periodic or maintenance backups using Microsoft SQL Server Management Studio (SSMS). SSMS is an integrated environment for managing any SQL infrastructure and has tools to configure, monitor, and administer instances of SQL Server and databases. Visit the Microsoft website for more information or to download and install SSMS.

Once you have installed SSMS, restart your system, and follow these steps to back up your SQL Server database.

1. Open SSMS, and connect to the appropriate instance of Microsoft SQL Server Database Engine.
2. In **Object Explorer**, expand the server tree.
3. Expand **Databases**, and either select a user database or expand **System Databases** and select a system database.
4. Right-click the database you want to backup, point to **Tasks**, then click **Back Up...** (Figure 1).

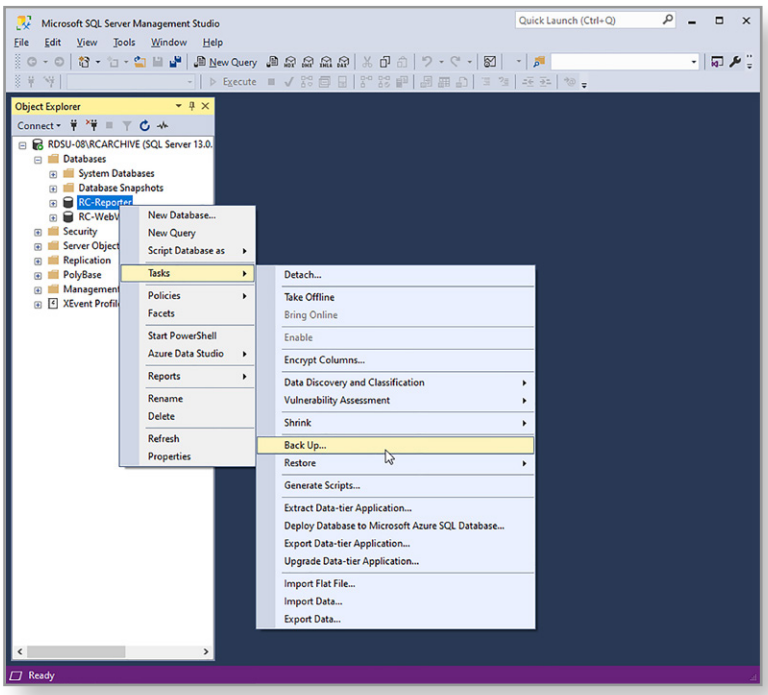

Figure 1: Select **RC-Reporter > Tasks > Back Up...** *in Object Explorer.*

5. In the **Back Up Database** dialog box, the database you selected displays in the drop-down list (Figure 2).

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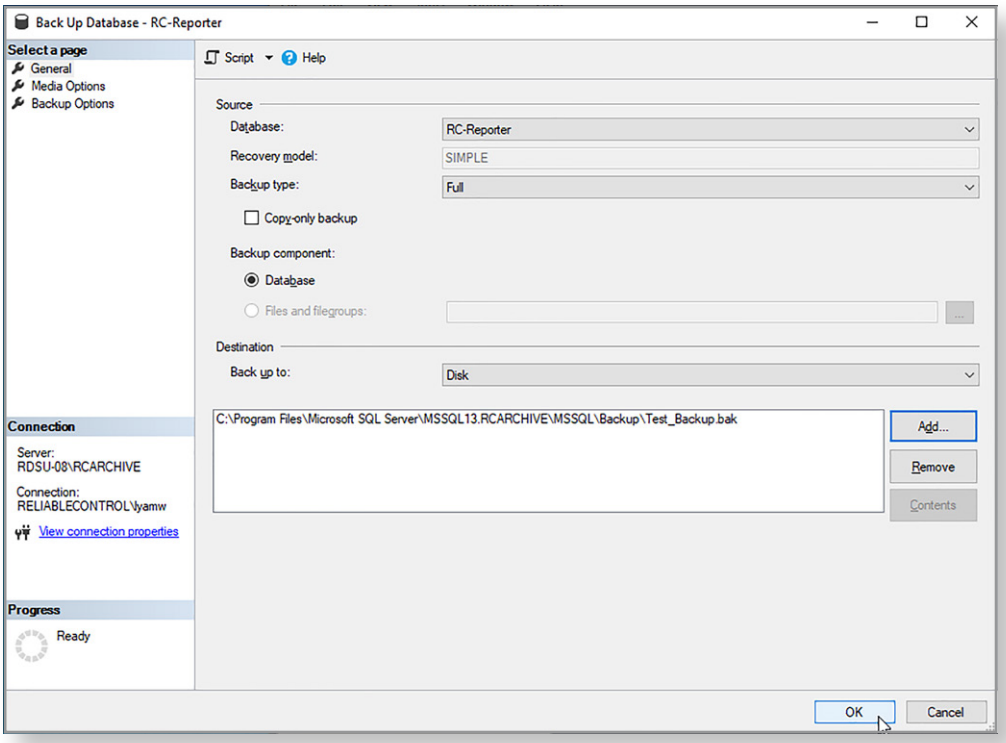

Figure 2: Back Up Database dialog box.

6. In the **Backup type** drop-down list, select the desired backup type. The default is **Full**.
7. Under **Backup component**, select **Database**.
8. In the **Destination** section, review the default location for the backup file. To back up a different device, change the selection using the **Back Up To** drop-down list. To stripe the backup across multiple files, click **Add** to add additional backup objects or destinations. To remove a backup destination, select it and click **Remove**. To view the contents of an existing backup destination, select it and click **Contents**.

9. Click **OK** to initiate the backup.

Follow these steps to restore your SQL Server database from a back up using SSMS.

1. Move the newly created .bak file to the new server at `C:\program Files\Microsoft SQL Server\MSSQL12.RCARCHIVE\MSSQL\Backup\<jobname>.bak`.
2. Open SSMS on the new server, and right-click **Database**. Select **Restore Database…** from the flyout (Figure 3).

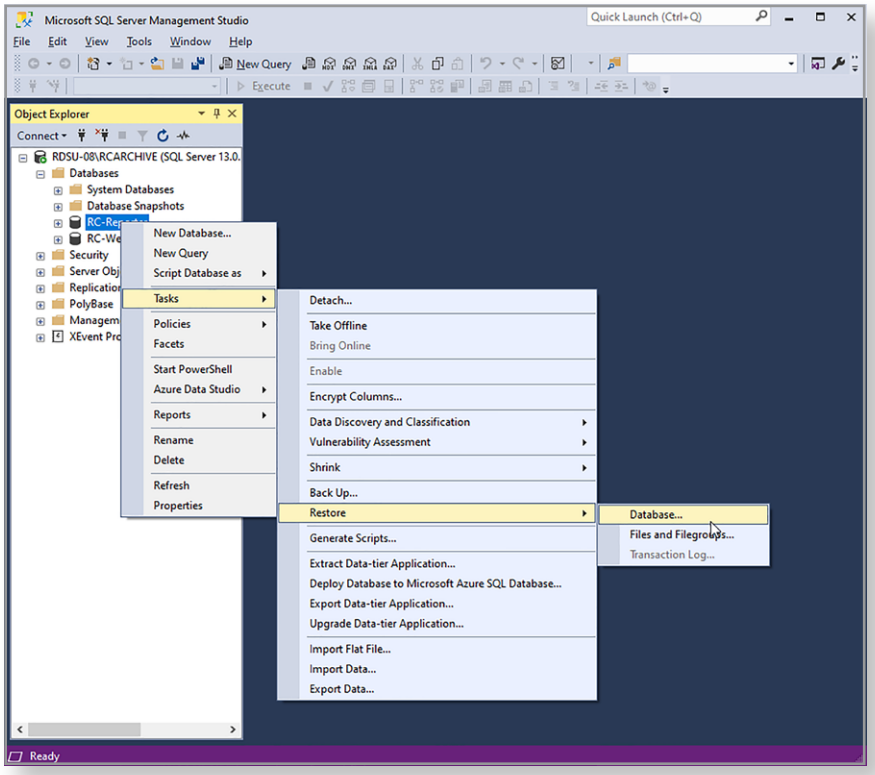

Figure 3: Restore Database option in Object Explorer.

3. Select **Device**, then click the ellipsis (**...**) on the right-hand side of the dialog box (Figure 4).

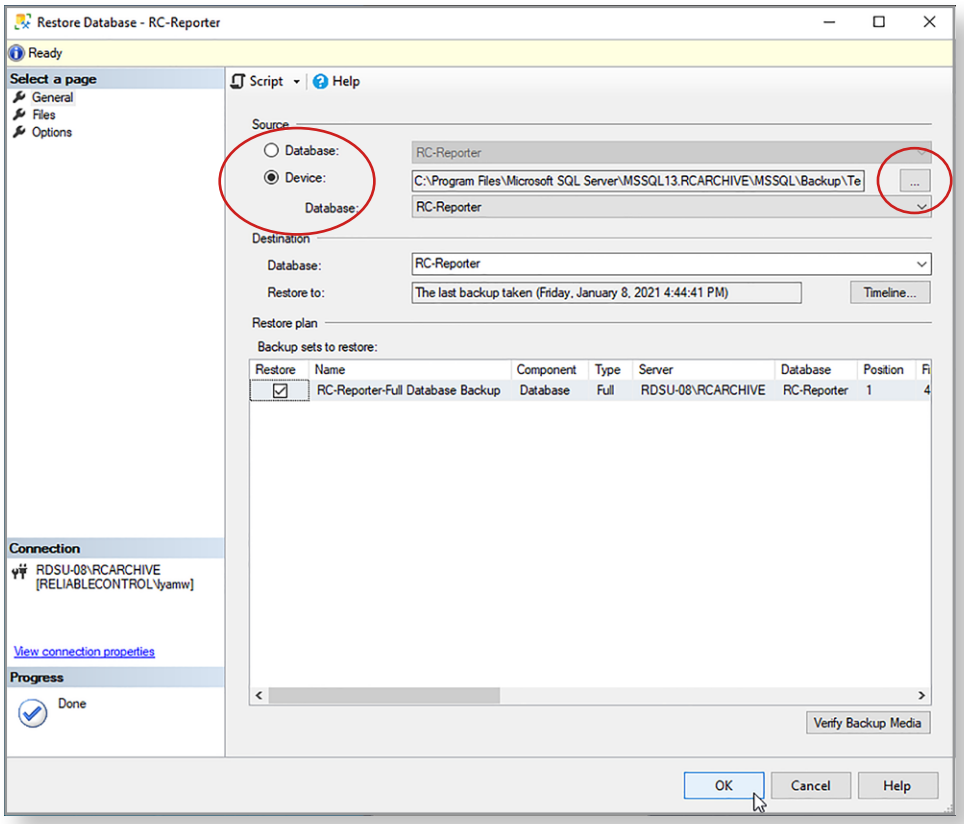

Figure 4: Restore Database dialog box.

4. In the **Select Backup Devices** dialog box, select **Add**, then browse to database file you copied to the new server (Figure 5). When you have added the file, click **OK**.

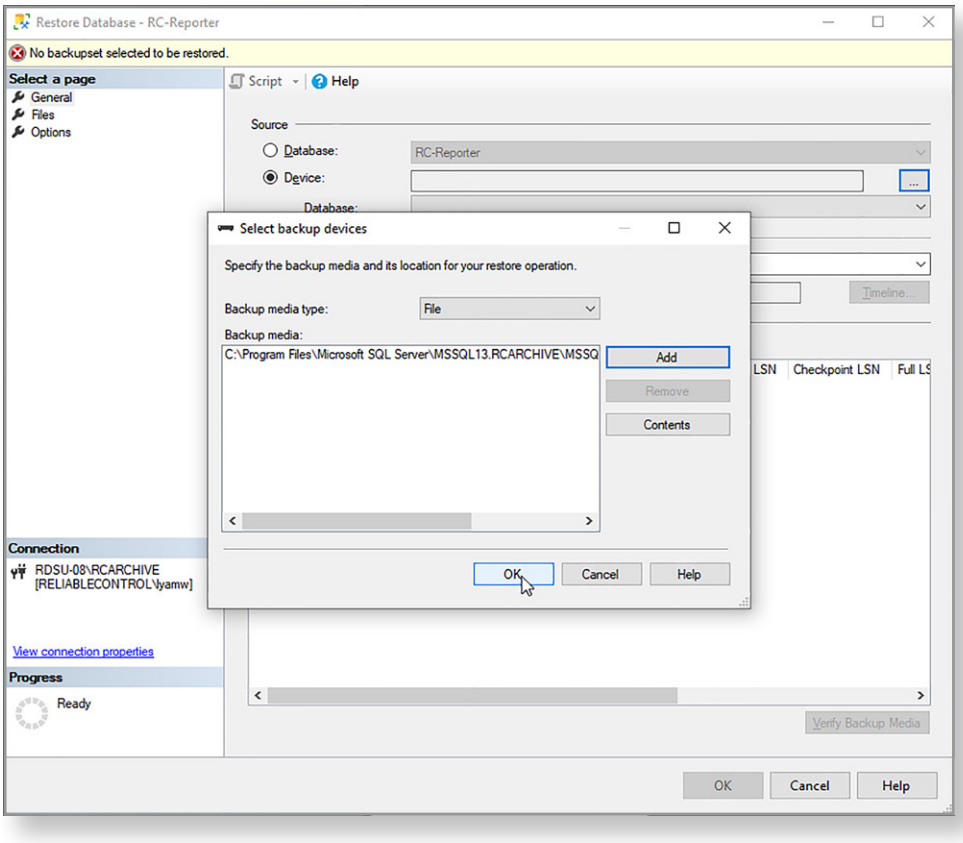

Figure 5: Select Backup Devices dialog box.

Once you have performed a backup, you can use it to restore a system if an issue occurs, migrate it for a server upgrade, or store it off-site. For more information, refer to Application Notice AN0036 in the Dealer Support Center or contact helpdesk@reliablecontrols.com.

SMART-Sensor EPD demonstration now available in the Support Center

A SMART-Sensor EPD demonstration is now available for customers and consultants under the Marketing tab in the Reliable Controls Support Center. This demonstration allows you to check out the look and functionality of the SMART-Sensor EPD. Navigate to **Marketing > SS3** Demo in the Customer and Consultant support centers (Figure 1) to view the demo.

Figure 1: SS3 Demo in the customer or consultant support center.

Click on each section on the bottom of the demonstration device to access and explore the home (Figure 2), start up (Figure 3), dealer menu (Figure 4), and accessibility screens (Figure 5).

Figure 2: Home screen.

Figure 3: Start up screen.

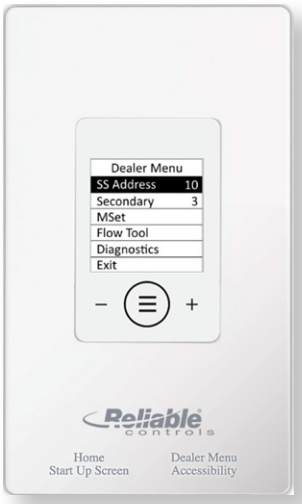

Figure 4: Dealer menu screen.

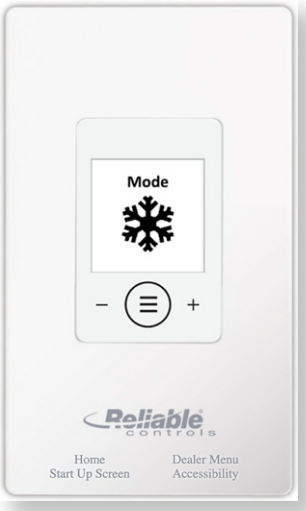

Figure 5: Accessibility screen.

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Training

As part of our commitment to having the most satisfied customers in the industry, we offer a range of training options and formats to help you derive maximum potential from your Reliable Controls system. All in-class training is paused until it is safe to travel and hold group training sessions. In the meantime, our distance-learning classes are broadcast live to students worldwide. We regularly add new courses, so please visit the Reliable Controls Learning Center to see the current schedule.

Training for technicians

Reliable Controls Authorized Dealer (RCAD) certification must be completed by at least one individual in every Authorized Dealer office. Students work with the latest Reliable Controls hardware, firmware, and software to learn installation techniques and program a typical air-handling unit. Register now for distance RCAD certification training.

Distance Authorized Dealer Certification: February 21–25 and February 21–March 4, 14:00-18:00 PST (22:00-02:00 UTC).
Distance Authorized Dealer Certification: March 15–19 and March 22–26, 08:00-12:00 PDT (15:00-19:00 UTC).
Distance Authorized Dealer Certification: April 12–16 and April 19–23, 06:00-10:00 PDT (13:00-17:00 UTC).
Distance Authorized Dealer Certification: May 2–6 and May 9–14, 17:00-21:00 PDT (00:00-04:00 UTC).
Distance Authorized Dealer Certification: June 7–11 and June 14–18, 07:00-11:00 PDT (14:00-18:00 UTC).
Distance Authorized Dealer Certification: July 12–16 and July 19–23, 08:00-00:00 PDT (15:00-07:00 UTC).
Distance Authorized Dealer Certification: August 8–12 and August 15–19, 15:00-19:00 PDT (22:00-02:00 UTC).
Distance Authorized Dealer Certification: September 13–17 and September 20–24, 06:00-10:00 PDT (13:00-17:00 UTC).
Distance Authorized Dealer Certification: October 18–22 and October 25–29, 08:00-12:00 PDT (15:00-19:00 UTC).
Distance Authorized Dealer Certification: November 7–11 and November 14–18, 16:00-21:00 PDT (00:00-05:00 UTC).
Distance Authorized Dealer Certification: December 6–10 and November 13–17, 06:00-10:00 PDT (14:00-18:00 UTC).

Advanced training for level 3 technicians

In our advanced classes, students with level 3 technical certification learn to leverage the Reliable Controls system to improve building performance, reduce energy consumption, and simplify maintenance. Please check the Learning Center for current course offerings.

Integrated Fault Detection and Diagnostics: Advanced technicians explore how the real-time integrated fault detection and diagnostics capabilities in RC-Studio improve operational efficiency and occupant comfort. Students build intuitive, flexible interfaces using RC-GrafxSet animations and develop strategies for detecting mechanical faults and control errors that affect building performance. (8 hours)

We add classes to the schedule regularly. Please check the Learning Center for upcoming dates and times.

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Dealer certification and the new Desktop Device Stand

Proficiency is priceless

Your training parcel has arrived. It's lighter than you expected. Smaller, too. You slit the tape and slowly remove the packaging. There it is: your very own professional sandbox. Just looking at it—sleek, compact—you know it's a game changer. Go on, plug it in. Take it for a spin.

Our latest training innovation was designed with you—the engineer, the salesperson—in mind. We know that learning continues beyond the classroom; it takes time to practice programming, familiarize yourself with Reliable Controls products, and complete your final exam with confidence. When you participate in the RCAD training, you not only gain hands-on experience and solidify your foundational knowledge but also walk away with the technology to keep growing. Are you ready to stand out?

The Desktop Device Stand is a compact, elegant solution for using Reliable Controls controllers in a desktop environment. Designed to be portable, the durable, lightweight aluminum body conceals all wiring and has folding legs for easy shipment or storage. Swap controllers in minutes or test new devices using the built-in terminal blocks and DIN rail. For the technician who needs a system engineering solution for their desk, or the salesperson looking for a simple sales demonstration tool, this cost-effective, professional device stand has many applications.

Past participants have asked whether they could keep the training kit. Now our answer is yes! We understand why they would want to bag the device, along with their other Reliable Controls goodies, considering its features:

- A MACH-ProView LCD with Router and Ethernet, a MACH-ProPoint™ Input/Output Universal expansion module, and a SMART-Sensor EPD with humidity and occupancy sensors
- Built-in universal 24 VDC power supply (input voltage 88–264 VAC) for worldwide compatibility
- Custom aluminum enclosure with rugged folding legs

The Desktop Device Stand ships ready to plug-and-play. All you need is power and a network, and your learning can begin. But it gets even better: Each future participant who reuses the Desktop Device Stand will receive a discounted rate on the course (currently $1,000; conditions apply*). What a deal! And that's not the only return on investment.

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Honing skills post certification is the way to become a top-tier controls expert. Dealers, this is the opportunity you've been waiting for. Having a convenient and safe environment to program, experiment with, and test code is a huge benefit to new programmers, technicians, salespeople, and engineers. With a fleet of Desktop Device Stands, you can conduct your own internal and customer training.

Interested in increased productivity? Proficiency is priceless.

RCAD certification training methods

Virtual distance learning, taught via Zoom: $1,900
Duration: 40 hours over the span of 10 weekdays

- We ship the new Desktop Device Stand to you. Check out the standalone price of this tool on eBusiness.
- Participate from anywhere with a strong internet connection.
- Shorter days allow you the time to understand concepts and practice new skills.
- Save on the cost of travel and accommodation, and reduce your carbon footprint.

If you prefer in-person training, we are excited to resume classroom courses once it is feasible.

In person at Reliable Controls HQ in Victoria, BC: $1,500
Duration: 5 consecutive 8-hour days

- Training is conducted in our fully equipped training room.
- Computers and training equipment are provided for use during the course.
- Tour the facility and see where Reliable Controls products are designed and manufactured.
- Meet people from around the organization.

In person at a remote location: $1,900
Duration: 5 consecutive 8-hour days

- Training is conducted at a suitable facility, such as a technology training center or hotel meeting space.
- Computers and training equipment are provided for use during the class.
- Network with fellow technicians and Reliable Controls personnel.
- Experience Toronto, Chicago, Denver, or Fort Lauderdale.

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Cancellation policy for distance learning classes

We know life sometimes gets in the way of your training plans. Here's what we consider fair if you need to reschedule or cancel:

- **Notify us *more than 4 weeks prior* to the start date, and we'll give you a full refund. The Desktop Device Stand hasn't yet been shipped to you. A waitlisted participant will be happy with your change of plans.**
- **Notify us *2–4 weeks prior* to the start date, and transfer to another course date within 12 months free of charge or receive a 50 percent refund. The Desktop Device Stand has been shipped to you. At this point it cannot be cancelled or returned. You can use the Desktop Device Stand for a future discounted RCAD certification.**
- **Notify us *less than 2 weeks prior* to the start date, and unfortunately, we cannot offer a refund or transfer. At such short notice, no other waitlisted participant can join. Your Desktop Device Stand is on its way to you; you can use it for a future, discounted RCAD certification.**
- **You can apply credit from a cancelled distance course to another distance course but not to a classroom course and vice versa.**

Discounts apply only to distance RCAD certification (RCAD-301). In order for future participants to receive the discount:

- The Desktop Device Stand must have the original layout of devices.
- Desktop Device Stand functionality will be verified by Reliable Controls for discount approval.
- Each Desktop Device Stand can be used for one discount per course. All students must have their own Desktop Device Stand.
- Discounts are subject to change without notice.

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RC-GrafxSet 2020 in review

Introducing Blender, our new 3D software

We released RC-GrafxSet 3.5 in October 2020, with new features—like HMI Console templates, an updated software manual, and the RC-GrafxSet Flash Utility—highlighted in bulletins and previous issues of the *Resource*.

Part of our internal work for RC-GrafxSet 3.5 was to investigate moving to new 3D software, because the software we were using, Carrara, was no longer compatible with updated operating systems. After much research and experimentation, we settled on Blender. We're now introducing the first fruits of this labor to RC-GrafxSet.

Blender offers an improved rendering of water, as can be seen in the Misc-Faucet-Water-Concl-V01 animation (Figure 1). Graphic artist Darren McQuitty deserves congratulations for quickly learning the software, which allowed the speedy delivery of this swanky new animation. Look for it in the RC-GrafxSet library; you can see the beauty of it in the animated .gif preview. Now's the time to make your requests for updates to all the water animations we offer.

Figure 1: Misc-Faucet-Water-Concl-V01 animation.

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The Ventilator-Unit-Vert06-V01 animation (Figure 2) is an example of the new, sleek style of equipment rendered in Blender, with a notable improvement to the look of a glowing electric heating coil.

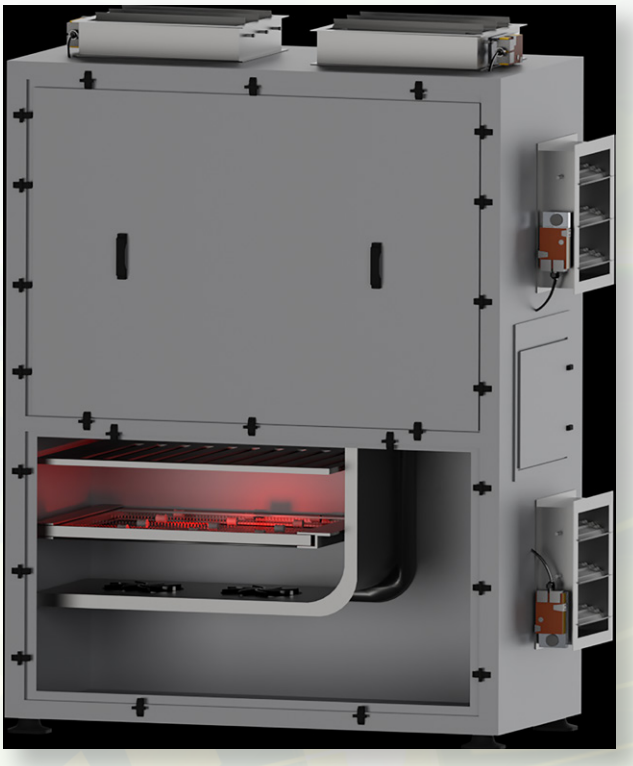

Figure 2: Ventilator-Unit-Vert06-V01 animation.

A note of reassurance: We still run some computers with nonupdated operating systems to keep Carrara functional and ensure our updates to existing animations remain consistent.

Sliders and lighting

We created new sliders you can use for lighting control, among other things, and added EQUIPMENTview support to the lighting control animations.

The sliders, which you can find in the Buttons area of the Isometric library in RC-GrafxSet (Figure 3), use a linked analog value and high and low ranges to calculate the position of the interactive slider control. All sliders are supported in EQUIPMENTviews, and most come in vertical and horizontal orientations.

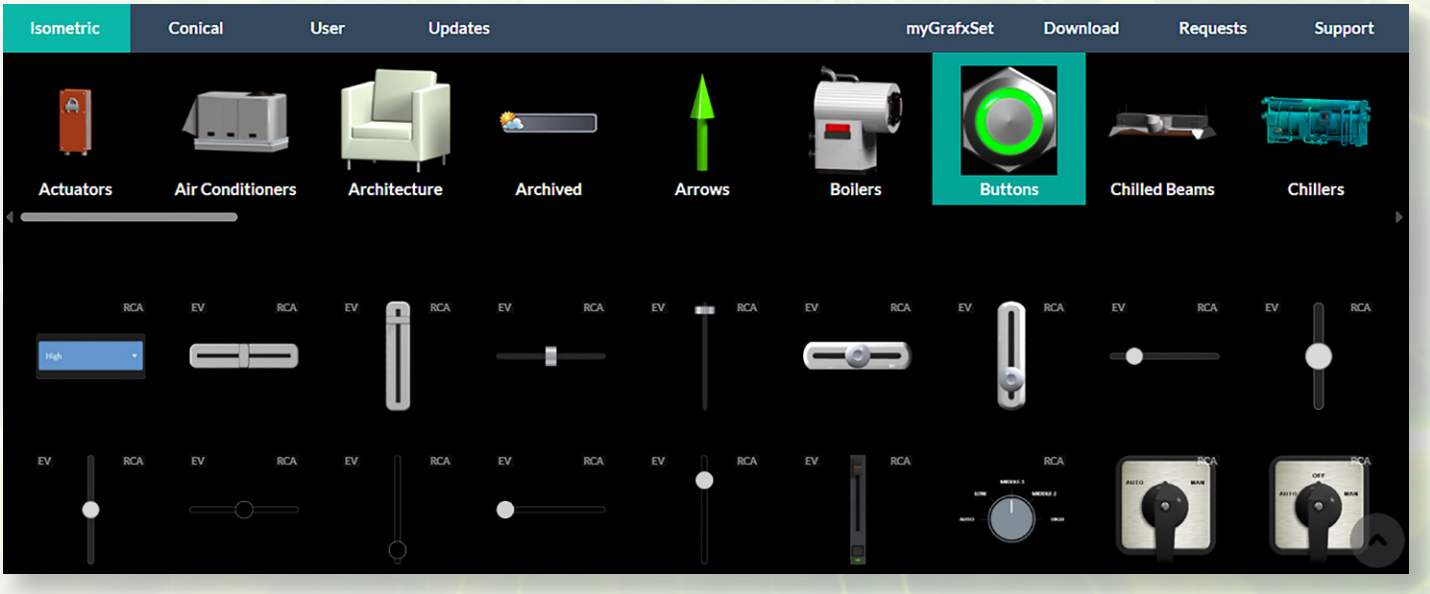

Figure 3: Buttons area in the Isometric library.

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The Button-Interactive-Slider-07-V01 animation (Figure 4) is the most recently added slider. It includes a toggle for binary linked objects. Figure 4 illustrates the two button states as well as the slider at different value positions.

Figure 4: Button-Interactive-Slider-07-V01 animation.

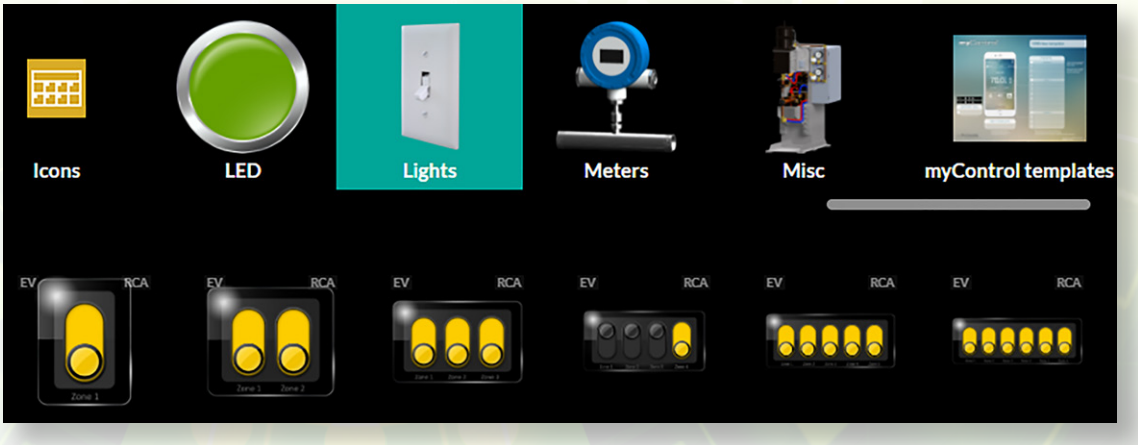

Figure 5: Numerous lighting console switch animations are available in the Isometric Library.

The Lighting-Console-1Switch-01 to Lighting-Console-6Switch-01 animations (Figure 5) are now supported in EQUIPMENTviews, as are most of the animations in the RC-GrafxSet library, though this support has some limitations. You cannot set the on-color state for EQUIPMENTviews, and as in other animations, the font and font size are limited.

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Improved decimal control

We recently updated all animations that display analog values to provide better control for decimal values. Previously, animations could hide or show decimal values; now you can set a range from 0, for no decimal values, to as many as you like at the animation level.

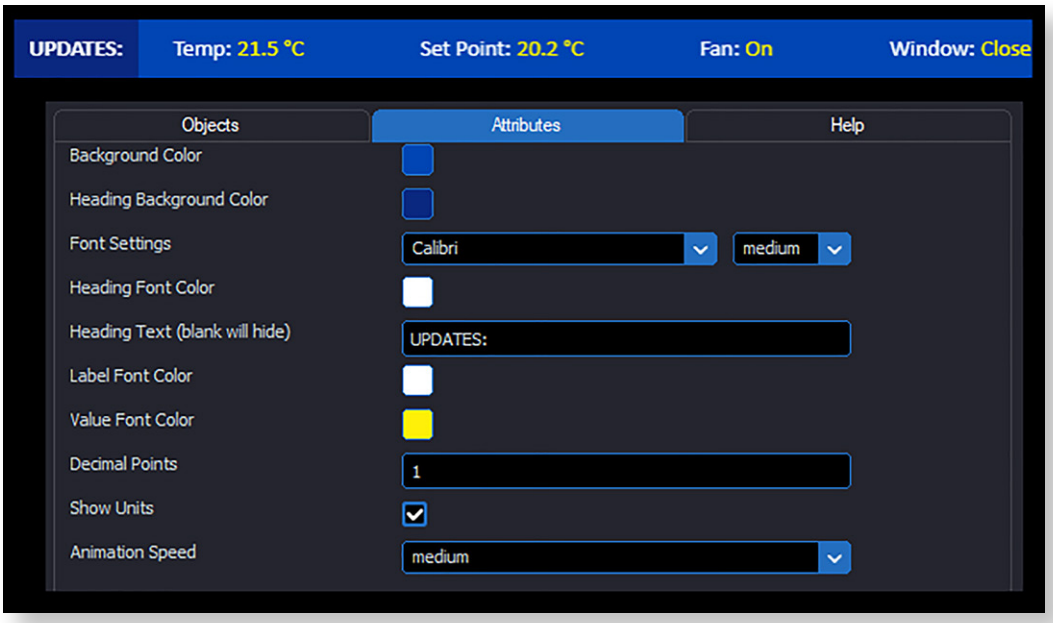

Figure 6: Attributes areas for the Ticker-Display-V02 animation.

An example of this is the Ticker-Display-V02 animation (Figure 6), which displays a rotating ticker-style overview of linked analog, binary, or multistate values along with their display names. You can set the ticker colors, speed, and headings in the Attributes area.

Coming soon

Coming in 2021 are superb new features in all our software programs, along with some very exciting animations. The limitation of the Navigation-Menu-01-V01 animation, where the animation's size when the menu is hidden overlaps objects below, means we're working on a new release that resolves this issue. We can't wait to share the new version.

Do you have suggestions for alternative styles or attributes?

Send a request via the RC-GrafxSet request form.

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Notice to US Authorized Dealers

As of January 1, 2021, our PO box mailing address in the United States is closed.

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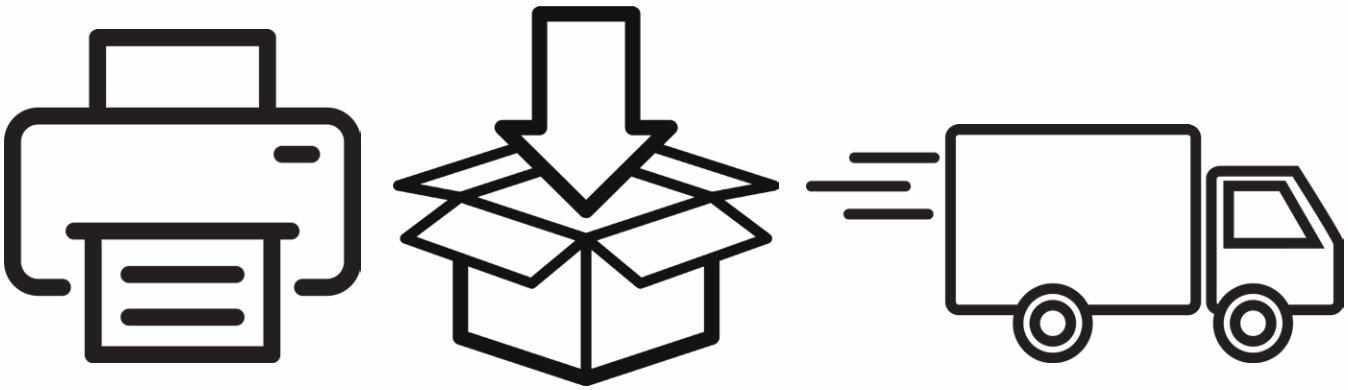

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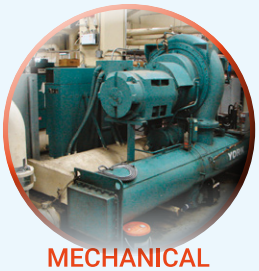
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