RUNtime

RCStudio™ 3 and MACH-ProView™ LCD:

A Powerful Combination

RCStudio™
BACnet® Advanced Workstation
Software

Better by design™

Reliable controls

ISO 9001 14001 QUALITY ENVIRONMENTAL ASSURANCE

Member of BACnet International

Reliable® controls

RC-Studio 3: Powerful Creative Freedom

BACnet Advanced Workstation Software

Recognized as the ultimate all-in-one BACnet Advanced Workstation (B-AWS), RC-Studio® 3 provides building operators with unprecedented BACnet® programming functionality and ease of use. **Building operators know that workstation software is the single most important tool in their arsenal. Once logged in, operators need to quickly see all the important details of the system. When changes are required, operators need the freedom to move in any direction and reach any depth intuitively, creatively, and with ease.**

A totally redesigned, modern user interface demonstrates that RC-Studio has joined the growing suite of version 3 products offered by Reliable Controls. The software responds well to the touch and gestures of mobile devices, and now supports fluid copying and pasting between worksheets and third party applications.

Operators will appreciate the ability to save and load multiple System Lists, choose connection preferences, and customize the System Tree to optimize the discovery of BACnet devices. A new animation

interface allows HTML5 images from RC-GrafxSet® to be used in RC-Studio's System Groups, which resolves format complications associated with iOS devices. A generous initial offering of new HTML5 Multipoint Animations within RC-GrafxSet significantly improves the creation and modification of dashboards within RC-Studio. This includes single-series and multi-series bar, stacked-bar, column, stacked-column, line, area, and combination charts, along with pie and doughnut charts, all in 2D and 3D formats.

Specialty HTML5 animations for creating tables, linking and annotating Google-like maps, and integrating the analysis components from RC-Reporter® make this all-in-one software hard to beat! A new Replace Color feature in conjunction with an enhanced Color Picker makes System Group flood-fill colorization very easy. Rounding out the long list of interface improvements, are a new Watch service for dynamically tracking object values in RC-Studio's Program Editor, and a new Syntax Highlighting feature for assigning different colors to comments, strings, functions, and statements within a program.

Major new features in RC-Studio 3 include enhanced System Groups and new ways to organize sets of objects. Prior to RC-Studio 3, most of the System Group data was stored on the controller, which restricted the kind and amount of data that could be stored. The latest version of RC-Studio now uses a new method to store System Group data.

When System Groups are created in RC-Studio 3, most of the data is written to JavaScript Object Notation (JSON) files that are stored locally in the workstation's job directory. When a System Group is opened, the rendering information comes from the JSON file and the controller provides only the updated point values as necessary, enhancing efficiency. Storing System Group information in JSON files allows operators to:

- Use new features such as HTML5 animations
- Store a greater number of points on a System Group
- Use image files with no restriction on internal dimension, resulting in no loss of precision, regardless of the display size
- Associate multiple objects of data with a single animation
- Set the font size (the old system limited the font sizes to five hard-coded values)
- Save static text on a System Group

Beyond interface improvements, the new and improved RC-Studio 3 bolts on a number of powerful engineering tools, designed specifically to address operational efficiencies; particularly if you manage a portfolio of BACnet buildings. A new Points Report worksheet allows you to quickly compile a list of filtered objects from anywhere in the system, and save the list as a named report. The Points Report can be recalled at any time for quick reference, and you can easily change the value and state of objects individually or as a batch action. A new Send Multiple feature allows you to send System Group and Program changes to multiple BACnet devices at the same time, instead of making the same change over-and-over again. Along the same vein, but thinking DNA instead of corpuscle, a new Templates feature lets you tag BACnet devices to automatically inherit a common database structure for Worksheets, Programs, and System Groups. Each Template can effectively clone any number BACnet devices for the same application.

|	
Object creation	Event logging
Object deletion	Alarming
Scheduling	Diagnostics
Trending	Graphical interface linking

RC-Studio exceeds the BACnet Advanced Workstation (B-AWS) profile, and provides outstanding functionality and ease of programming as the ultimate all-in-one BACnet solution. From this single application, operators have the freedom and flexibility to perform the following operations from any BACnet, Internet-connected building:

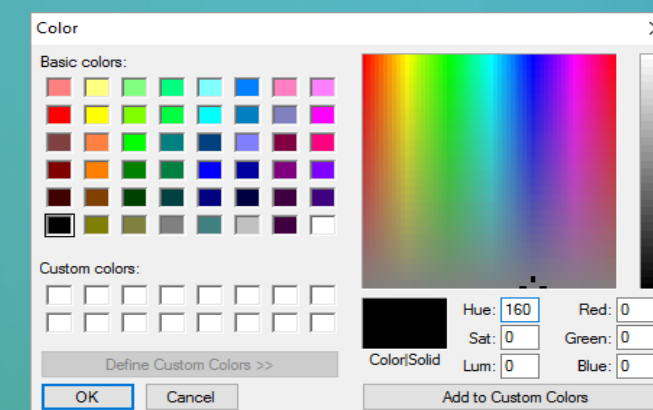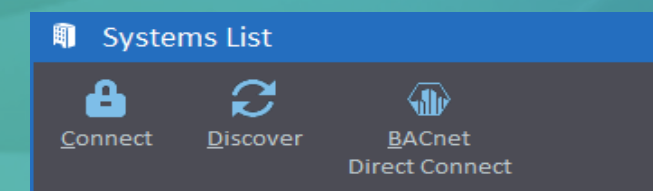**HTML5 Animations**
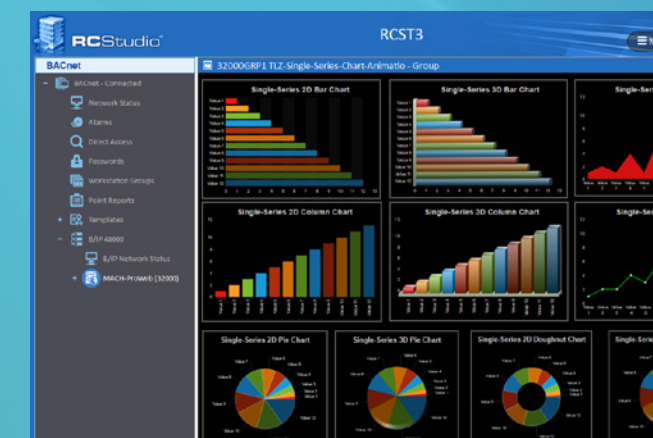
Program Editor
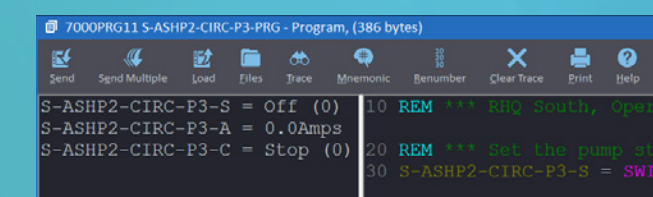
Point Report

Color Picker

System List Discovery

ASHRAE BACnet

Elegant views of efficiency

SPACEview: a simple, intuitive interface for occupants to adjust environmental conditions in their space

The Reliable Controls MACH-ProView™ LCD is a powerful and elegant BACnet® Building Controller (B-BC) and BACnet Operator Display (B-OD), which provides a plenitude of attractive, high-resolution, graphical interfaces for your controlled environment.

The MACH-ProView LCD features a fully customizable LCD touch screen with an attractive array of interfaces to engage occupants of smart and green buildings. This freely programmable controller resides on Ethernet, Power Over Ethernet (POE), Wi-Fi, or EIA-485 networks. With the MACH-ProView LCD, users can access, configure, and control the comfort and energy performance of any space.

Backed by an industry-recognized, 5-year warranty and a worldwide network of certified Authorized Dealers, the MACH-ProView LCD empowers you to easily monitor and control your building's performance.

Learn more at www.reliablecontrols.com/products/controllers/MPV-L/

LISTview: a flexible, customizable list of up to 12 system objects that an occupant or operator can quickly view and adjust

STATview: a familiar, programmable thermostat interface allowing users to monitor and control the operation of unitary HVAC equipment

5yr WARRANTY

MACH-ProView™ LCD

Better by design™

myControl: Updated, Customized Mobility

New Features for Your Mobile App Interface

Configured by a Reliable Controls Authorized Dealer, the myControl® mobile app offers a fully customized mobile interface to your Reliable Controls MACH-System™. Compatible with both Android and iOS operating systems, the myControl user interface provides individual personal control for occupants through accessible settings for temperature, lighting, ventilation, occupancy, and more. Any configured MACH-System control point can be monitored and adjusted using the app, with three easy-to-use views: SPACEview, LISTview, and STATview.

Humidity	Tristate Setpoint	Unoccupied	Dual Setpoint	Multiple System Access
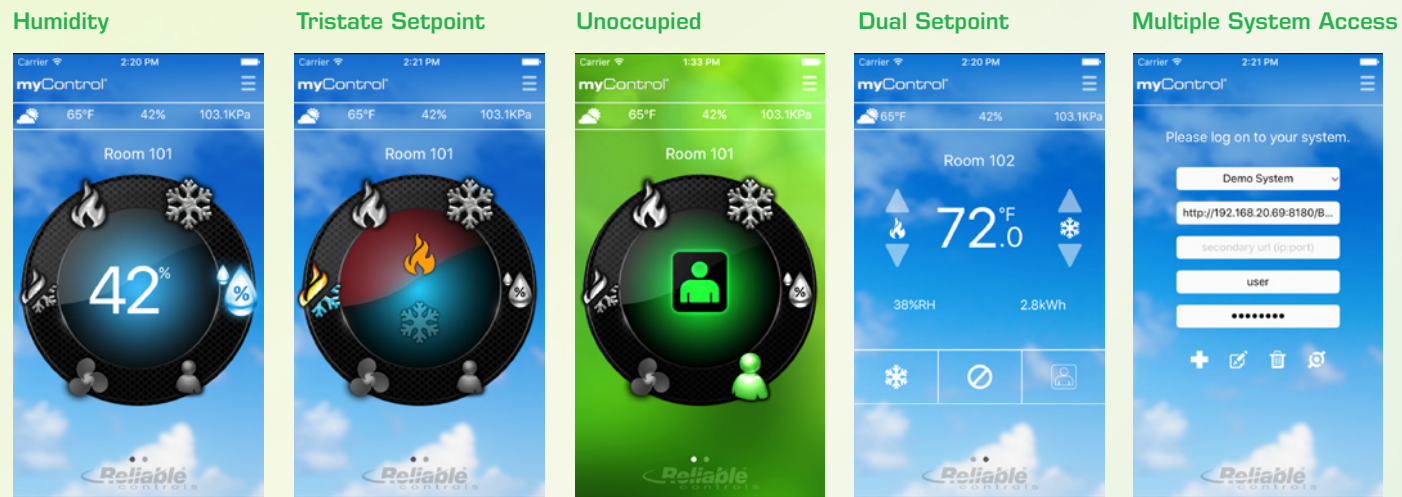
New features of the latest update of the myControl app, version 1.7 include:

- **Support for MACH-ProView™ LCD controllers: seamlessly connects directly to MACH-ProView LCD IP models, or indirectly to MACH-ProView LCD through MACH-ProWeb™ or RC-WebView®; displays an override icon for manually adjusted objects**

- **New inclusions for CO_2 and relative humidity**

- **Support for dual setpoints (cool/heat) in SPACEview and STATview**

- **Support for tristate setpoints (cooler/neutral/warmer) in SPACEview**

- **Displays up to six icons in SPACEview**

- **The ability to save and edit multiple system connections and switch between them easily**

New Reliable Controls Authorized Dealers

ACT ADVANCED CONSTRUCTION TECHNOLOGIES

ALASKA Engineering Solutions

Beijing TianYi HengChuang Electronic Control Equipm. Co., Ltd

COPANAC Tenemos el aire... y el servicio

DHC COMMUNICATIONS

Hexaz Engineering

iFACTS

INTECH MECHANICAL "Performance Through Planning"

KVN Technical Services LLC

Panjeo | 庞景科技

Premier Energy Controls

Upcoming Trade Shows

SEE US AT BOOTH C1558
AHR EXPO Las Vegas
JAN 30-FEB 1 2017

AHR Expo 2017
January 30 - February 1, 2017:
Las Vegas Convention Centre
Las Vegas, NV
Booth #C1558

NFMT 2017
March 7-9, 2017:
Baltimore Convention Center
Baltimore, Maryland, USA
Booth #2421

BUILDING OPERATING MANAGEMENT'S NFMT

WASBO Facility Management Conference
March 7-8, 2017:
Kalahari Resort & Conference Center
Wisconsin Dells, Wisconsin, USA

WISCONSIN

ISH

ISH 2017
March 14-18, 2017:
Messe Frankfurt Exhibition GmbH
Frankfurt, Hessen, Germany
Hall# 10.3 A 69

Globalcon
March 22-23, 2017:
Pennsylvania Convention Center
Philadelphia, Pennsylvania, USA
Booth #203

GLOBALCON 2017

MACH-System Smoke Control

First Reliable Smoke Control Installation in Asia Pacific

All fires produce smoke. If that smoke is not properly controlled it will spread throughout a building, potentially damaging property and endangering life. Smoke control systems installed in buildings provide manual and automatic control of HVAC equipment that controls the flow of smoke during a fire. An effective smoke control system prevents the flow of smoke into means of egress, exit passageways, or areas of refuge.

Callander Control Ltd. (CCL) completed the first project in Asia Pacific using a Reliable Controls MACH-System™ for smoke control, delivering a high level of smoke extraction for the Graham Street building. The building is located in the central business district of Aukland City, New Zealand and has a 5 Green Star rating. It comprises two 6-story towers of office space, connected via a full-height, glass atrium with three levels of basement car parking, totaling 18,600 m^2 (200,210 ft^2) of rentable space.

CCL designed, installed, and commissioned the "Electrical for Mechanical and Controls" solution for the building's HVAC system, including the requirement for a smoke clearance system. The system, which uses Reliable Controls MACH-Pro - UL864-listed controllers, saves costs and increases efficiency.

The system consists of 290 fan coil units, which derive their cooling from chilled water, supplied by up to six air-cooled chillers. The fan coil units provide heating using integral electric heating elements. Fresh air to the building is supplied by two air handling units (AHUs) with pressure control and tempering/cooling to a calculated setpoint using reverse cycle heat pumps. Excess air is spilled from the building using four spill-air extraction fans in the atrium, which run at minimum speed during occupied times. These spill-air fans also double as smoke clearance fans when a fire alarm is activated. There are two

general extraction systems and toilet extraction fans servicing the tenancy floors. The parking area's CO control is maintained by nine sensors and is used to control the eleven jet fans, six extraction fans, and five supply air fans installed over three levels of basement parking.

The Mechanical Fire Control Panel (MFCP) is located on the first level of the basement along with a MACH-Pro - UL864-listed controller with a MACH-ProPoint IO module. This panel is used to monitor a general fire signal. It also monitors four hand/off/auto (HOA) switches for indication of run and fault for the four parking level extraction fans and the four smoke extraction fans located at the top of the shared atrium.

A MACH-Pro - UL864-listed controller is located in each plant room of both tower A and B, and monitors the local fire signals on the six tenancy floors below. It also controls the AHUs that service each tower, the fresh air supply dampers feeding the six tenancy levels below, and the spill-air dampers venting into the shared atriums. Tower B also has four smoke extraction fans located at the top of its shared atrium. On a weekly basis, the four smoke extraction fans are automatically started one at a time and allowed to run to ensure the fans are operational. If the variable speed drive (VSD) supplies a fault or no current is drawn by the VSD, an alarm is sent informing building management that a smoke extraction has failed.

On activation of a general fire signal, the four extraction fans in the parking area, the two AHUs, and the four smoke clearance fans all start at full speed and will run until destruction. The AHUs are fit with hard wired interlocks with detection sensors on their intakes, which disable the AHUs upon detection of smoke.

On activation of a general fire signal plus a tenancy floor fire signal, the supply air damper on the affected floor is closed along with the level

five supply air damper and the level five spill-air dampers. All non-affected floors will have their supply air dampers held open to pressurize the floors helping reduce the intrusion of smoke. As more floors are affected and fire signals are received, successive floors containing smoke are evacuated.

Each input is monitored for fault and tamper using 10K ohm resistors, which result in the system alarming and proceeding to act as if the signal were real. Similarly, communications between the three MACH-Pro - UL864-listed controllers are monitored and if a controller is found to be offline, an alarm is raised.

Main components, such as the chillers and extraction fans are shut down when a general fire signal is received. The fan coil units also shut down when a corresponding tenancy floor fire signal is received.

The two roof MACH-Pro - UL864-listed controllers are connected to a network switch in the MFCP using fire rated CAT 5e. Each cable for the AHUs and fans is fire rated, and the controllers are programmed to failsafe. Supply dampers are 230VAC spring return and also use fire-rated

cable. Fire signals and H/O/A inputs are wired with non-fire rated cable; however, are monitored for tamper and fault using 10K ohm resistors.

The Graham Street Building is the first building in New Zealand to use Reliable Controls MACH-Pro - UL864-listed controllers to deliver a high-level smoke extraction system. This has dramatically reduced the amount of both fire rated and non-fire rated cabling needed to control the AHUs and fans used for the smoke system. Furthermore, the use of the MACH-System easily allows for additions to the online graphics interface that monitors and alarms the smoke extraction system.

Reliable Controls Hardware
- MACH-ProWebSys x1
- MACH-ProSys x 5
- MACH-ProPoint I/O x 12
- MACH-ProCom x 9
- MACH-ProZone x 294
- MACH-ProAir x 18
- SMART-Sensor LCD x 292
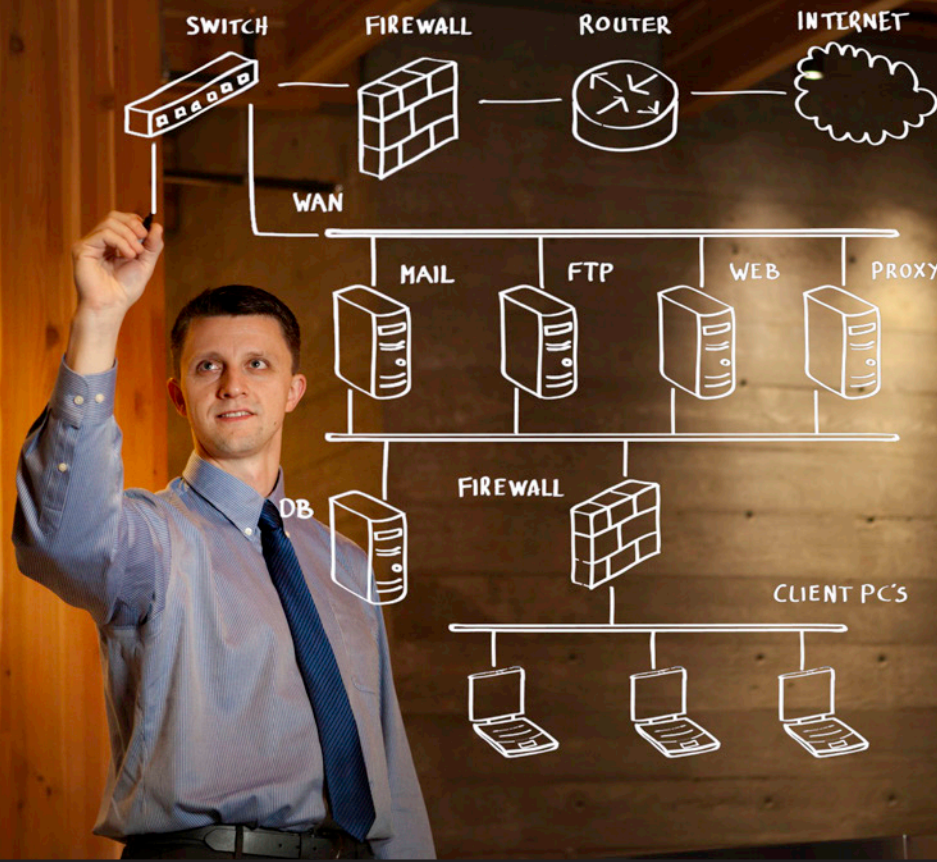- SPACE-Sensor Temperature x 24

Reliable Controls Software
- RC-Studio
- RC-Toolkit
- RC-Archive
- RC-Reporter

RUNtime

CALLANDER
Control
LTD

green star™

Employee Profile

PEOPLE YOU CAN RELY ON

Chris Howard: System Architect

Truly a "mailroom to boardroom" story, Chris Howard began his career with Reliable Controls when he was still in high school, starting in the production department in 1997. Now, close to 20 years later, Chris is the company's System Architect, combining his big-picture mindset with a wide range of experience and an aptitude for both hardware and software technology.

His position as System Architect gives Chris oversight as to how the Reliable Controls MACH-System™ works as a whole, and how it should work ideally. He navigates the product road map and makes decisions in conjunction with company stakeholders, including those in Sales, Marketing, Training, Application Engineering, and Product Management, to steer Reliable Controls in the right direction. His focus is to ensure products work together symbiotically and effectively.

Chris knew early in life that he was interested in technology. His father worked in Computer Services at the University of Victoria, and perhaps as a result, Chris had an interest in programming, computers, and electronics at an early age. Chris's work in the production department at Reliable Controls through high school prompted him to return to the production floor when he graduated, gaining experience in Surface Mount, Through Hole, Inventory, and Wave Solder departments before becoming a Tester, solidifying his interest in hardware.

When Chris started his post-secondary education at Camosun College, this interest in hardware prompted Chris to pursue a Technologist certification through Camosun's Hardware Engineering Technology program; however, part-way into the program, he found that programming was more his niche—something he felt was more in sync with his interests and an area in which he excelled more than he expected. Chris was able to change his focus and he graduated from Camosun College with certification as a Computer Engineering Technologist.

During his time at Camosun, Chris worked sporadically in a variety of departments, including Repairs, Inside Sales, and Shipping departments; however as part of his education, he was given the opportunity to gain real-world experience through co-op work practicums, which he spent at Reliable Controls working in Firmware. Reliable Controls counts the excellent co-op programs offered through Camosun as a core part of the company's recruitment strategy. These programs produce graduates who gain real-life, hands-on experience in the workplace, which can easily be transitioned into a successful career. "Camosun was big on encouraging opportunities," Chris commented while citing "opportunity for challenge" as a highlight of his education.

Chris's education provided him with the basis to "officially" begin his professional career as Firmware Developer—with experience in many other areas of the company under his belt. Six years later, he became more involved with the software group. While his foundation in hardware cemented his role with Reliable Controls, the company's software product offering grew, and Chris's role grew with it. His focus shifted to new software in a Designer/Developer role, also providing technical support.

Because Chris has worked in so many departments within the company, he has unique insight to the needs and opportunities of Reliable Controls Authorized Dealers and customers. Historically, his best feedback has been from dealers, primarily through events like ASHRAE trade shows and the Interconnect Global Dealer Meeting, where dealers often seek him out to discuss the potential future of products and services. Additionally, Chris places a great emphasis on the feedback he received while performing technical support, which he spent a significant amount of time doing for almost four years.

Chris's abilities in creative problem solving and technical support are advantageous to both Reliable Controls as well as the company's customers. To provide top-notch support in a challenging installation, Chris traveled to Washington, DC as a representative from the company, working alongside the Authorized Dealer to ensure the customer was satisfied. Both the Authorized Dealer and their customer felt directly supported by Reliable Controls. Individual attention from the product manufacturer goes above and beyond what many companies are able to offer, but thanks to Chris's in-depth knowledge of the MACH-System, he was able to provide the level of support that the project required.

Chris was born and raised in Victoria, and is now a dedicated dad with two girls, aged five and eight, Chris's hobbies outside of work revolve around his kids and their own interests - but he also makes sure to include some solid family time. With the help of a trailer, they have spent more than 40 nights over the past year camping throughout Vancouver Island! Chris somehow manages to carve out both quality time with his girls and maintain his very busy schedule at Reliable Controls.

Over the past year, Chris's focus has shifted, as the Research & Development team adopted the Agile software development workflow. Chris has been key in helping to execute decisions in the Agile environment. As a result of his relationship with such varied stakeholders and processes, he is able to recommend strategies into the context of what will actually work for Reliable Controls. In the transition of the company's adoption of Agile, Chris was instrumental in translating the Agile process into Reliable Controls culture to see what could work, and then actually make it work.

Chris's current primary focus lies in RC-Reporter and RC-Studio software, where he has served as Product Owner for both products over the past year. Not only must he balance the relationship between stakeholders who want the products to have certain functionality, but he must also maintain a high-level overview that keeps the products streamlined and efficient, while also planning and road mapping opportunities for future feature development.

"I'm lucky to find a company willing to let me find opportunities to do more... not just to find a solution to a problem, but to gain a deep understanding of how things actually work." While Chris may count himself as lucky to find the company, Reliable Controls has also had the good fortune to find and retain Chris. His deep understanding of the MACH-System enables Reliable Controls to leverage not only his in-depth technical knowledge and interest in the big picture, but also his breadth of experience with almost every department throughout the company.

From the mail room to the board room, Chris personifies the values of Reliable Controls, epitomizing the company value of "people and technology you can rely on".

DRILL HALL GALLERY

HERITAGE EXHIBITION SPACE

Originally built in 1940 to train soldiers for World War II, today the Drill Hall Gallery is part of the Australian National University. In 1984, the interior was remodelled to create an art gallery and in 2004, a Heritage order was placed on the building. This heritage-listed building is now an exhibition space for the ANU art collection and temporary exhibitions.

PROJECT DETAILS

This project presented the unique challenge of a tight deadline for an upcoming exhibition. The engineering, installation, and commissioning of the project was critical to provide the conditions required for the gallery.

Some of the mechanical equipment includes a fan coil unit for both pre-conditioning and gallery control, a chilled water and heating water plant with variable speed drives, as well as exhaust fans.

Strict air quality, temperature, and humidity control was achieved with the Reliable Controls MACH-System. RC-Archive was installed to allow the gallery to have access to records of condition for ongoing monitoring.

To learn more about projects using Reliable Controls® visit
www.reliablecontrols.com/projects/overview

PROJECT TYPE:
Retrofit

INSTALLATION TYPE:
Boiler, Chiller, Fan Coil Unit, HVAC

EQUIPMENT INSTALLED:
1 MACH-ProWebSys™
2 MACH-ProSys™
6 MACH-ProZone™
RC-Archive®

NETWORK:
EIA-485, Ethernet

INTEGRATION:
BACnet®

TOTAL SYSTEM POINTS:
150 points

RELIABLE CONTROLS® DEALER:
Innovative Electrical Solutions Pty Ltd.

www.reliablecontrols.com

BACnet